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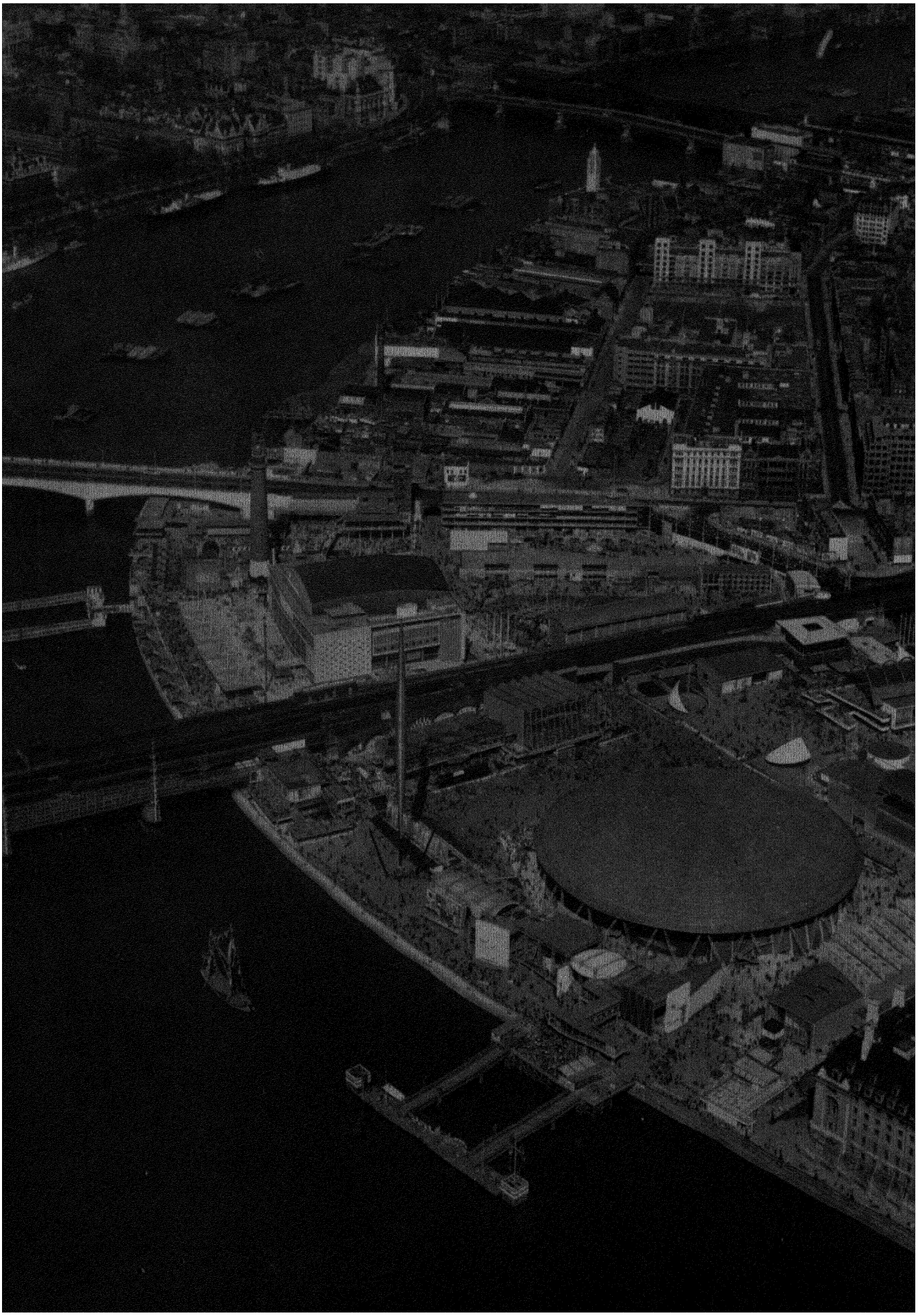
BOOK OF THE YEAR
1952



BRITANNICA BOOK OF THE YEAR

1952



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PREFACE

IN yet another internationally troubled year, clouded still further towards its close by the illness of King George VI, the Festival of Britain in 1951 made pleasant history. Not only in London and other large cities, where splendour is more readily achieved, but in country places the people of Britain came together to celebrate often in simple and engaging ways. The full story is not yet written but in this volume, the 1952 edition of the *Britannica Book of the Year*, an agreeable summary recaptures for the reader the chief events and the frontispiece recalls the South Bank scene.

Another item of more than usual interest to the friends of Britain was the Canadian Royal Tour. This, too, receives special treatment as does MACARTHUR, DOUGLAS, whose biography, unusually long, records the investigations which took place on the General's return to the United States. The reader's attention is also drawn to the table, occupying two pages, of MINERAL AND METAL PRODUCTION, and, at the end of the index, to the cumulative list of biographical articles published in the *Book of the Year* since 1949.

For Britain the year under review included another general election. This time there was a change of government and Mr. Winston Churchill, after six years as leader of the opposition, returned to power. Three of his ministers, not previously accorded a biographical article in the *Book of the Year*, are Mr. R. A. Butler, Sir David Maxwell Fyfe and Lord Woolton. Other new titles are COLOMBO PLAN, COUNCIL OF FOREIGN MINISTERS, JAPANESE PEACE TREATY CONFERENCE and ORNITHOLOGY ; fresh sections on Germany and Italy have been added to the article THEATRE.

A few articles, for one reason or another, have disappeared or changed their titles : Spanish American Literature is renamed LATIN AMERICAN LITERATURE and Food Research is included under the heading NUTRITION. Medical articles have been reduced in number ; the new titles, for example BLOOD, DISEASES OF THE, are wider in scope and make reference easier to related themes. Cross references and the index will assist the reader in doubt where to look for the information he requires.

JOHN ARMITAGE

London Editor.

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Hu.De. **Algeria; French Union; Indochina; etc.**
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J.Bs. — **Gynaecology and Obstetrics**
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R.Ba. — **Consumer Credit** (*in part*)
ROBERT BARTELS. Associate Professor of Marketing, Ohio State University, Columbus, Ohio. Co-author of *Credits and Collections in Theory and Practice.*

R.D.B. — **Rowing**
RICHARD DESBOROUGH BURNELL, M.A. Rowing Correspondent, *The Times*, London; Editor, *British Rowing Almanack.*

R.E.Bs. — **Literary Prizes** (*in part*)
RUTH ELLEN BAINS, B.A. Free-lance editor, New York.

R.E.El. — **Libraries** (*in part*)
RALPH E. ELLSWORTH, Ph.D. Director of Libraries and Professor of Librarianship, State University of Iowa. Author of *Modular Planning for College and University Libraries* (with Don E. Bean).

R.F.Am. — **British Council**
GENERAL SIR RONALD FORBES ADAM, Bt., G.C.B., D.S.O., O.B.E. Chairman and Director-General, British Council.

R.F.G.C. — **Congregational Churches** (*in part*)
RALPH FORMAN GODLEY CALDER, M.A., B.D. Secretary, Colonial Missionary Society, London; former Editor, *Scottish Congregationalist*, Glasgow; Editor, *British Missionary*, London.

R.G.D.A. — **Prices** (*in part*)
ROY GEORGE DOUGLAS ALLEN, O.B.E., M.A., D.Sc.(Econ.). Professor of Statistics, University of London (at the London School of Economics). Author of *Mathematical Analysis for Economists*; *Statistics for Economists*; etc.

R.G.L. — **Inventors, Awards to**
RHYS GERRAN LLOYD, M.A., B.Sc. Barrister-at-Law. Secretary, Royal Commission on Awards to Inventors. Editor, *Kerly on Trade Marks* (7th ed.).

R.H.Cn. — **Theatre** (*in part*)
RONALD HENRY CRICHTON, B.A. Music and Drama Officer, British Council, Düsseldorf. Contributor to *The Listener*, *World Review*, *Ballet*, London, etc.

R.H.Frg. — **Rheumatic Diseases** (*in part*)
RICHARD HAROLD FREYBERG, M.D. Associate Professor of Clinical Medicine, Cornell University Medical College; Director, Department of Internal Medicine and Director, Arthritis Clinic, Hospital for Special Surgery, New York; Assistant Attending Physician and Director, Arthritis Clinic, New York Hospital.

R.H.Ls. — **Museums** (*in part*)
RALPH H. LEWIS. Assistant Chief, Museum Branch, National Park Service, U.S. Department of the Interior, Washington.

R.Ho. — **Billiards and Snooker** (*in part*)
RICHARD WILLIAM HOLT. Editor, *Billiard Player*, London.

R.H.Ri. — **Grain Crops; Wheat**
RICHARD HOOK RICHENS. M.A. Assistant Director, Commonwealth Bureau of Plant Breeding and Genetics, Cambridge. Author of *The New Genetics in the Soviet Union* (with P. S. Hudson).

R.H.Sl. — **Jet Propulsion and Gas Turbines** (*in part*)
REGINALD HERBERT SCHLOTEL, F.R.Ae.S. Deputy Director of Engine Research and Development, Ministry of Supply, London.

Ri.A.B. — **Ex-Servicemen's Organizations** (*in part*)
RICHARD A. BROWN. Executive Secretary, Veterans' Organizations Information Service, New York.

R.Ja. — **Adenauer, Konrad; Southern Rhodesia** (*in part*); **etc.**
ROBERT JAMIESON. Member of editorial staff, *Daily Telegraph*, London

R.J.My. — **Clothing Industry** (*in part*); **Fashion and Dress** (*in part*)
RONALD JOSEPH MURRAY. Features Editor, *Men's Wear*, London.

R.L.Fo. — **Accident Prevention** (*in part*)
R. L. FORNEY. General Secretary, National Safety Council, Chicago.

R.L.Hs. — **Hockey**
RICHARD LYNTON HOLLANDS. Hockey Correspondent, London. Author (with R. Y. Fison) of *Hockey.*

Rln. — **Boy Scouts** (*in part*)
LORD ROWALLAN, K.B.E., M.C., T.D., LL.D. Chief Scout of the British Commonwealth and Empire.

R.L.S.-R. — **Radio, Scientific Developments in; etc.**
REGINALD LESLIE SMITH-ROSE, D.Sc., Ph.D., F.C.G.I., D.I.C., A.R.C.S., M.I.E.E., F.I.R.E. Director of Radio Research, Department of Scientific and Industrial Research, London.

R.Man. — **Cinema** (*in part*)
ROGER MANVELL, B.A., Ph.D. Director, British Film Academy, London; Editor, *The Cinema* (annual); *Experiment in the Film*; etc. Author of *Film*; *A Seat at the Cinema*; etc. Joint Author of *Movie Parade*; *History of the British Film* (with Rachel Low); etc.

R.M.Ge. — **Soil Conservation** (*in part*)
ROBERT MACLAGAN GORRIE, D.Sc., F.R.S.E. Soil Conservation Officer, Ceylon. Author of *Use and Misuse of Land*; *Soil and Water Conservation in the Punjab*; etc.

R.N.Ba. — **Royal Navy**
ROBERT NESHAM BAX, C.B. Admiral, R.N. (retd.).

Ro.B. — **Zoological Gardens** (*in part*)
ROBERT BEAN. Director, Chicago Zoological Park, Brookfield, Illinois.

R.R.W.F. — **Fruit; Market Gardening; etc.**
ROGER ROLAND WESTWELL FOLLEY, B.Sc., B.Com. Senior Agricultural Economist, Wye College (University of London), Wye, Kent. Author of *The Economics of a Fruit Farm.*

R.S.T. — **Munitions of War** (*in part*)
ROBERT S. THOMAS, A.M. Military Historian, Historical Division, Special Staff, War Department, Washington. Author of *The Story of the 30th Division, A.E.F.*, etc.

R.Sy. — **Methodist Church** (*in part*)
RALPH STOODY. Executive Director, The Commission on Public Information of The Methodist Church, U.S.A.

R.Tu. — **Political Parties, U.S.; Truman, Harry S.**
RAY TUCKER, B.A. Writer of U.S. Syndicated Column, "The National Whirligig." Author of *The Mirrors of 1932*; *Sons of the Wild Jackass*; etc.

R.V.B.B. — **Navies of the World**
RAYMOND VICTOR BERNARD BLACKMAN, A.M.I.N.A., A.I.Mar.E. Editor, *Janes Fighting Ships*, London. Author of *Modern World Book of Ships.*

R.W.B. — **New Zealand Literature**
ROBERT WILLIAM BURCHFIELD, M.A., B.A. Rhodes Scholar at Magdalen College, Oxford.

R.W.Cr. — **Broadcasting** (*in part*)
RUFUS WILLIAM CRATER. New York Editor, *Broadcasting-Telecasting Magazine*, New York.

R.W.J.K. — **Young Men's Christian Association**
REGINALD WILLIAM JAMES KEEBLE, B.A. Information Officer, National Council of Young Men's Christian Associations, London.

R.Wr. — **Young Women's Christian Association**
RUTH CHRISTABEL WALDER. National General Secretary, Young Women's Christian Association of Great Britain.

R.Ws. — **Italian Literature; etc.**
ROBERTO WEISS, B.A. Professor of Italian in the University of London (at University College). Author of *Humanism in England during the Fifteenth Century*; *Il Primo Secolo dell'Umanesimo*; etc.

S.Ce. — **Interior Decoration**
STELLA CARLISLE, M.A. Former member of editorial staff, Council of Industrial Design, London. Author of *Ideas for Your Home.*

S.D.L.R. — **Peru**
SIDNEY DE LA RUE. Consultant to programme-planning and advisory staff, Technical Co-operation Administration, U.S. Department of State, Washington.

S.F.Sn. — **Anthropology** (*in part*)
(SOPHIA) FELICIA STALLMAN, M.A. Assistant Secretary, Royal Anthropological Institute, London.

S.Hr. — **European Recovery Programme; etc.**
SEBASTIAN HAFFNER, Dr.jur. Diplomatic Correspondent, *Observer*, London.

S.J.Bkr. — **Police** (*in part*)
STANISLAUS JOSEPH BAKER, C.B., B.Sc. Assistant Under-Secretary of State, Home Office, London.

S.L.L. — **Furs** (*in part*)
SAMUEL LEWIS LAZARUS. Editor, *Fur Weekly News*, London.

S.L.S. — **Clothing Industry** (*in part*)
STANLEY L. SIMONS, Ph.B., LL.D. Editor, *Clothing Trade Journal* (U.S.A.); Director, Garment Technical Institute, U.S.A.

S.McC.L. — **International Labour Organization**
SAMUEL McCUNE LINDSAY. Professor Emeritus of Social Legislation, Columbia University, New York. Author of *Railway Labor in the U.S.*; *Emergency Housing Legislation*; etc.

S.Nr. — **Formosa; Korea; etc.**
STANLEY NEHMER. Office of International Materials Policy, U.S. Department of State, Washington; Lecturer in Economics, American University, Washington.

S.P.J. — **Air Forces of the World** (*in part*)
S. PAUL JOHNSTON. Director, Institute of the Aeronautical Sciences, New York.

S.Ps. — **Philately**
STANLEY PHILLIPS. Managing Director, Stanley Gibbons Ltd., London; Editor in Chief, Stanley Gibbons Stamp Catalogues; Joint Editor, *Gibbons' Stamp Monthly*. Author of *Stamp Collecting*; *Stamps of Great Britain*, 1911-21; etc.

S.R.S. — **Glass** (*in part*)
SAMUEL RAY SCHOLES. Head of Department of Glass Technology, New York State College of Ceramics, Alfred University, Alfred, New York.

S.Sd. — **Export-Import Bank of Washington**
SIDNEY SHERWOOD, A.B. Secretary, Export-Import Bank of Washington.

S.So. — **Endocrinology** (*in part*)
SAMUEL SOSKIN, M.D., Ph.D. Director, Medical Research Institute, Michael Reese Hospital, and Dean, Michael Reese Hospital Postgraduate School; Associate Professor of Medicine, Northwestern University Medical School, Chicago. Co-author of *Carbohydrate Metabolism*; Editor in Chief, *Metabolism.*

S.Sp. — **Music** (*in part*)
SIGMUND SPAETH, A.M., Ph.D. U.S. Lecturer and Broadcaster. Author of *The Art of Enjoying Music*; *A History of Popular Music in America*; etc.

S.Tf. **Broadcasting** (*in part*)
SOL TAISHOFF. President, Editor and Publisher, *Broadcasting-Telecasting Magazine*, Washington.

T.Bar. **Wealth and Income, Distribution of** (*in part*)
TIBOR BARNA, B.Sc.(Econ.), Ph.D. Chief of Economics Section, Research Division, United Nations Economic Commission for Europe; formerly Official Fellow of Nuffield College, Oxford. Author of *Redistribution of Income through Public Finance in 1937*.

T.C. **Church of Scotland**
THOMAS CALDWELL, M.A., B.D., Ph.D., D.D. Principal Clerk, General Assembly of the Church of Scotland.

T.D.R. **Ice Skating** (*in part*)
THOMAS DOW RICHARDSON. Chairman, Ice Figure Committee, National Skating Association, London. Author of *The Complete Figure Skater*; *Modern Figure Skating*; *Ice Rink Skating*; *Skating with T. D. Richardson*.

T.E.U. **Political Parties, British**
T. E. UTLEY, M.A. Leader Writer, *The Times*, London. Author of *Essays in Conservatism*.

T.G.W. **Aliens** (*in part*)
TERENCE GERARD WEILER, B.A. Principal, Aliens Department, Home Office, London.

T.H.MacD. **Roads** (*in part*)
THOMAS H. MacDONALD. Commissioner, Bureau of Public Roads, U.S. Department of Commerce, Washington.

T.J.B. **Venereal Diseases** (*in part*)
THEODORE J. BAUER, M.D. Medical Director and Chief, Division of Venereal Disease, U.S. Public Health Service, Washington.

T.Q.C. **Theatre** (*in part*)
THOMAS QUINN CURTISS. Dramatic Critic; contributing book-reviewer to *Herald-Tribune Books* and *The New York Times Book Review*; former Drama Critic and Drama Editor, *Junior Bazaar* (Harper's).

T.Rse. **Contract Bridge**
(JOHN) TERENCE REESE. Bridge correspondent, *Observer* and *Evening News*, London. Author of *Reese on Play*; *The Elements of Contract* (with Hubert Phillips).

T.V.H. **Athletics** (*in part*); **etc.**
THOMAS V. HANEY. Member of staff, *New York Times*.

V.C.N. **Sugar** (*in part*); **Tea**
VINCENT CHARLES NOLAN, B.A. Economic Assistant, Commonwealth Economic Committee, London.

V.E.F. **Antarctica**
VIVIAN ERNEST FUCHS, M.A., Ph.D. Principal Scientific Officer, Falklands Islands Dependencies Scientific Bureau.

V.S.S. **Paper and Pulp Industry**
VINCENT STANLEY SMITH. Paper mill advertising consultant, London.

W.A.D. **Theatre** (*in part*)
WILLIAM AUBREY DARLINGTON, M.A. Dramatic Critic, *Daily Telegraph*, London, and London Drama Correspondent, *New York Times*. Author of *The Actor and His Audience*; etc.

W.As. **Heavy Engineering; Light Engineering**
WILLIAM ANDREWS, B.Met., F.I.M. Technical Editor, *The Times Review of Industry*.

W.A.Wh. **Cinema** (*in part*)
WALTER A. WITTICH. Director, Bureau of Visual Instruction, External Division, and Associate Professor, School of Education, University of Wisconsin, Madison. Co-author of *Audio-Visual Paths to Learning*; etc.

W.B.Dy. **Boxing** (*in part*)
WILLIAM HENRY BARRINGTON DALBY. Writer and broadcaster on boxing, London; Administrative Steward, British Boxing Board of Control.

W.B.Hd. **Geology**
WALTER BRIAN HARLAND, M.A. Fellow of Gonville and Caius College, Cambridge; Lecturer in Geology, University of Cambridge.

W.C.An. **Portugal; Spain; etc.**
WILLIAM CHRISTOPHER ATKINSON, M.A. Stevenson Professor of Spanish, University of Glasgow. Author of *Spain, a Brief History*; etc.

W.Dk. **Blood, Diseases of the**
WILLIAM DAMASHEK, M.D. Professor of Clinical Medicine, Tufts College Medical School, Medford, Massachusetts; Senior Physician and Haematologist, New England Center Hospital, Boston; Editor in Chief, *Blood—the Journal of Hematology*, New York.

W.E.Sn. **Palaeontology**
WILLIAM ELGIN SWINTON, B.Sc., Ph.D., F.R.S.E. Principal Scientific Officer, British Museum (Natural History), London. Author of *The Dinosaurs*; *The Corridor of Life*; *Geology and the Museum*.

W.F.Ky. **Cinema** (*in part*)
WILLIAM F. KELLEY. Manager and Secretary-Treasurer, Motion Picture Research Council, Inc., Hollywood. Editor, *Motion Picture Sound Engineering*.

W.Ft. **Paraguay**
WESLEY FROST, A.M., LL.D. Professor of International Relations, Hamilton College, Clinton, New York; former U.S. Ambassador to Paraguay.

W.G.P. **Indonesia; etc.**
WIBO GODFRIED PEEKEMA, D. L. Legal Adviser, Standard-Vacuum Oil Company, The Hague.

W.H.A. **Salvation Army**
WILLIAM HERBERT ASHWORTH. Senior Major, Salvation Army. Publicity Director, Press Officer and Advertising Manager, Salvation Army International Headquarters, London.

W.Han. **Motor Industry** (*in part*); **Motor Transport** (*in part*)
WOODTHORPE JUDE HARRISON, B.A. Economist, Strauss Turnbull and Company, stockbrokers, London.

W.H.Ctr. **Council of Europe**
WILLIAM HORSFALL CARTER, M.A. Head of Publications Office, Council of Europe, Strasbourg; Editor, *The Fortnightly*, London, 1937-39; formerly Laming Travelling Fellow, The Queen's College, Oxford. Co-Author of *The Life of Leonid Krassin*.

W.H.G. **Roads** (*in part*)
WILLIAM HENRY GLANVILLE, C.B.E., D.Sc., Ph.D., M.I.C.E. Director of Road Research, Department of Scientific and Industrial Research, Road Research Laboratory, Harmondsworth, Middlesex.

W.H.Jn. **Business Review; Gold**
WALTER HENRY JOHNSTON, B.A. Assistant Editor, *Yorkshire Post*, Leeds. Translator of Hegel's *Science of Logic*.

W.H.McC. **Astronomy**
WILLIAM HUNTER McCREA, M.A., Ph.D., B.Sc., F.R.S.E. Professor of Mathematics, University of London (at Royal Holloway College, Englefield Green, Surrey). Author of *Physics of the Sun and Stars*; *Relativity Physics*; etc.

W.H.Oe. **Surgery**
SIR (WILLIAM) HENEAGE OGILVIE, K.B.E., M.A., M.Ch., M.D., Hon.LL.D., Hon. F.A.C.S., Hon.F.R.C.S.C., Hon.F.R.A.C.S., Hon.M.S. Senior Surgeon to Guy's Hospital, London, and Lecturer in Surgery, Guy's Hospital Medical School (University of London); Surgeon to the Royal Masonic Hospital, London; late Vice President, Royal College of Surgeons, London; Editor, *Practitioner*. Author of *Recent Advances in Surgery*; *Forward Surgery in Modern War*; *Surgery Orthodox and Heterodox*; etc.

W.H.R. **Beekeeping**
WILLIAM HENRY RICHARDSON. Clerk in Holy Orders; Fellow of the Royal Entomological Association; former Chairman, British Beekeepers' Association.

W.J.Cl. **Co-operative Movement** (*in part*)
WALLACE JUSTIN CAMPBELL. Director, Washington Office, Co-operative League of the U.S.A.

W.J.G.C. **Spices**
WILLIAM JOHN GAVIN COWIE, M.A. Economic Assistant, Commonwealth Economic Committee, London.

W.K.F. **Pharmacy**
WILLIAM KENNETH FITCH, M.P.S. Editor, *Pharmaceutical Journal*, London; Publications Manager, Pharmaceutical Society of Great Britain. Author of *Gas Warfare*.

W.L.Be. **Eye, Diseases of the**
WILLIAM L. BENEDICT, M.D. Emeritus Professor of Ophthalmology, University of Minnesota Graduate School, Mayo Foundation, Rochester, Minnesota.

W.Mr. **Organization of American States**
WILLIAM MANGER, Ph.D. Assistant Secretary-General, Organization of American States, Washington.

W.O.L.S. **Education** (*in part*); **etc.**
WILLIAM OWEN LESTER SMITH, LL.D., M.A. Professor of the Sociology of Education, University of London (at the Institute of Education). Author of *To Whom do Schools belong?*; *Education in Great Britain*; etc.

W.On. **Motor Transport** (*in part*)
WILFRED OWEN. Senior Member of the Staff, Brookings Institution, Washington. Author of *Automotive Transportation: Trends and Problems*; co-author of *National Transportation Policy*; etc.

W.P.Ma. **Telegraphy** (*in part*)
WALTER P. MARSHALL. President, Western Union Telegraph Company, New York.

W.R.W. **Veterinary Medicine** (*in part*)
WALTER REGINALD WOOLDRIDGE, M.Sc., Ph.D., M.R.C.V.S., F.R.I.C. Scientific Director, Animal Health Trust, London. Author of *War Gases and Foodstuffs*; *Animal Health on the Farm*.

W.Ss. **Field Sports**
WILSON STEPHENS. Editor in Chief, *The Field*, London.

W.T.Ws. **Judiciary, British; Law and Legislation** (*in part*)
WILLIAM THOMAS WELLS, B.A. Barrister-at-Law; Member of Parliament; Member, Lord Chancellor's Committee on the Practice and Procedure of the Supreme Court. Author of *How English Law Works*.

W.V.Wt. **Prices** (*in part*)
WILLIAM V. WILMOT, Jr. Instructor, Department of Economics, University of Wisconsin, Madison, Wisconsin.

W.W.Bn. **Education** (*in part*)
WILLIAM W. BRICKMAN. Associate Professor of Education, New York University; President's Research Fellow, Brown University, Providence, Rhode Island (1950-51). Former Editor, *Education Abstracts*; author of *Guide to Research in Educational History*.

W.W.G. **Cambridge University**
WALTER WYATT GRAVE, M.A., Ph.D. Registrary, University of Cambridge; Fellow of Emmanuel College, Cambridge.

X.
ANONYMOUS.

DIARY OF EVENTS, 1951

JANUARY

1: **Great Britain.** The strength of the armed forces at home and overseas was 751,700. (Ministry of Defence return, Feb. 27, 1951.)

Albania. The Ministry of the Interior announced that 29 spies, dropped by parachute or landed from a submarine, had been "annihilated".

Korea. Chinese and North Korean troops attacked the U.N. left flank in force, crossed the frozen Imjin river east of Kaesong and advanced to within 20 mi. of Seoul.

Nepal-India. Joint discussions on constitutional reform in Nepal, begun in Delhi on Dec. 26, 1950, were concluded.

South Africa. E. G. Jansen succeeded Gideon Brand van Zyl as governor general.

2: **Hungary.** Rationing of sugar and flour began.

3: **Jamaica.** The riot act was read and tear-gas used by the police against striking sugar workers who attacked strike-breakers at Kingston.

Korea. U.N. troops abandoned Seoul, after the whole U.N. line had been withdrawn on Jan. 2.

4: **Commonwealth.** The Commonwealth Prime Ministers' conference began in London.

Korea. Inchon, on the west coast, was abandoned by U.N. forces.

5: **Korea.** The first award of the Victoria Cross in the Korean war, made posthumously to Major Kenneth Muir, was announced.

N.A.T.O. It was announced that Italy would contribute three divisions to the N.A.T.O. force.

Pakistan-Germany. The state of war between the two countries ended.

U.S.S.R. The Soviet government received notes from the British and French governments on the subject of German demilitarization and western defence, refuting charges of aggressive preparations.

6: **Korea.** It was announced that U.N. troops had abandoned Hongchon.

Netherlands-Spain. Count van Rechteren Limburg, Netherlands minister in Cairo, was appointed Netherlands ambassador to Spain, the first since 1946.

7: **Commonwealth.** Liaquat Ali Khan, prime minister of Pakistan, arrived in London to attend the Commonwealth Prime Ministers' conference.

Korea. Wonju was abandoned by U.N. forces but was later retaken.

N.A.T.O. General Dwight D. Eisenhower, supreme commander of the N.A.T.O. forces in Europe, arrived in Paris to begin a tour of European capitals.

8: **Great Britain.** An order made by the minister of fuel and power prohibiting shop-window and advertisement lighting came into effect.

Great Britain-Spain. Sir John Balfour, British ambassador in Buenos Aires, was appointed ambassador to Spain, the first since 1946.

France. A special rearmament budget of Fr. 355,000 million was passed.

Korea. U.N. troops abandoned Osan, 28 mi. south of Seoul, and Wonju.

9: **Great Britain.** The government announced that the east African groundnuts scheme would be continued as an experiment, and that the £36·5 million —the amount granted to the Overseas Food corporation by March 1951— would be written off.

Australia. Dock workers in all ports stopped work for 24 hr. in protest against a 10*s.* 8*d.* a week wage increase award, instead of a £A1 award.

Cricket. Australia defeated England by an innings and 13 runs in the third test match at Sydney.

10: **Korea.** U.S. troops of the U.N. command, with French elements, re-took Wonju.

11: **Great Britain.** An agreement for increased wages for certain employees in the coal-mining industry was concluded between the National Coal board and the National Union of Mineworkers.

United Nations. The cease-fire committee at Lake Success, New York, called for an immediate armistice in Korea and a conference between Great Britain, the U.S., the U.S.S.R. and the Chinese People's republic to discuss far eastern problems.

Power. The World Power conference, and meetings of international commissions on irrigation and canals, and large dams, opened in Delhi.

12: **Commonwealth.** The Commonwealth Prime Ministers' conference ended in London.

Argentina-France. An agreement providing for the exchange of goods to the value of Fr. 99,000 million was signed in Buenos Aires.

United States. The president approved a programme increasing the armed forces to more than 3,460,000 by the end of June.

13: **Great Britain-U.S.-France.** The three governments announced that international "commodity groups" would be set up representing the governments of those countries in the free world with a special interest in the commodity concerned.

Italy. The Senate passed a motion reaffirming Italy's subscription to the North Atlantic treaty and expressing confidence in the government's foreign policy.

United Nations. The political committee of the general assembly decided by 45 votes to 5, with 8 abstentions, to transmit cease-fire proposals for Korea, tabled by Israel, to the Chinese Communist government.

14: **Indochina.** A Vietminh offensive was launched north of the Red river delta on a 75-mi. front.

15: **Czechoslovakia.** Two Roman Catholic bishops accused of treason and espionage at Bratislava received life sentences, and a third 24 years' hard labour.

Germany. In a broadcast reply to the East German prime minister's proposals of Nov. 20, 1950, the West German chancellor postulated political and personal freedom in Eastern Germany as a prerequisite of all-German elections.

Ilse Koch, wife of the former commandant of Buchenwald concentration camp, was sentenced by a German court at Augsberg to life imprisonment.

Korea. U.N. forces recaptured Osan, Kumyangjang and Chon in western Korea; they also re-took Suwon, 17 mi. south of Seoul, but withdrew from the Wonju salient.

16: **Austria-Yugoslavia.** The state of war between the two countries ended.

Denmark-Norway-Sweden. The foreign

CALENDAR 1951

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Bank Holidays in 1951

Good Friday	March 23
Easter Monday	March 26
Whit Monday	May 14
	August 6
Christmas Day	December 25
Boxing Day	December 26

ministers met in Copenhagen for discussions on common foreign policy problems.

17: **Great Britain.** Aneurin Bevan, minister of health, was appointed minister of labour and national service, George Isaacs, minister of labour, became minister of pensions, and H. A. Marquand, minister of pensions, became minister of health. Hugh Dalton, minister of town and country planning, became minister of local government and planning when his department took over certain responsibilities of the minister of health.

Finland. A coalition cabinet was formed; Urho Kekkonen remained prime minister.

Korea. The Chinese government rejected the U.N. proposals for a cease-fire and put forward other proposals.

Pakistan. General Muhammad Ayub Khan became c. in c. of the army in succession to General Sir Douglas Gracey, a British officer.

18: **Great Britain.** The report was published of the Broadcasting committee, which began work in 1949 under the chairmanship of Lord Beveridge.

Berlin. Ernst Reuter (Social Democrat) was re-elected lord mayor of West Berlin, after a tie with his opponent Walter Schreiber (Christian Democrat) on Jan. 12.

Italy. Communist rioting near Palermo and at Adrano (Sicily), and at Commacchio (Emilia) over the arrival in Italy of General Dwight D. Eisenhower, N.A.T.O. supreme commander, resulted in deaths and injury.

United States. It was announced that a "major portion" of the air reserves and national guard would be called up for service immediately.

19: **Hungary.** Members of foreign diplomatic missions were made subject to a travel restriction to within 30 km. of Budapest.

Indochina. Vietminh activity slackened and French troops consolidated their positions; Vietminh casualties in the attack on Hanoi, Jan. 12-19, were over 8,000; French and Vietnamese losses were 43 killed, 160 wounded and 545 missing.

Korea. U.N. forces re-occupied Wonju. U.S. casualties in Korea up to this date were 6,693 killed, 30,251 wounded and 9,257 missing.

20: **Great Britain-Yemen.** A mutual aid agreement between the two countries became effective.

U.S.S.R. Soviet notes to Great Britain and France rejected the western powers' attitude towards the question of German demilitarization as expressed in their notes of Jan. 5.

21: **Korea.** After changing hands several times Wonju was again abandoned by U.N. troops.

22: **Malaya.** The call-up each month into the security forces and re-settlement organization of 1,000 men between the ages of 18 and 24 was announced.

Spain-Pakistan. A trade agreement was signed in Madrid.

23: **Netherlands.** Lieut. General H. J. Kruls resigned from his post of chief of the general staff.

South Africa. It was announced in Washington that the International bank had made loans amounting to $50 million to South Africa for transport and electric power development.

U.S.S.R. Identical notes on a four-power conference were received from the British, French and U.S. governments.

24: **Korea.** A U.N. patrol entered Hoengsong, 10 mi. north of Wonju.

Netherlands. D. U. Stikker, Liberal foreign minister, resigned following criticism of government policy on New Guinea; the rest of the cabinet then resigned.

25: **France.** General Alphonse Juin was appointed inspector general of the French forces; he continued as resident general in Morocco.

Aviation. The Swedish, Danish and Norwegian air lines were amalgamated to form the Scandinavian Airlines System (S.A.S.).

26: **France.** The government ordered the dissolution of the Paris headquarters of the Communist-sponsored World Federation of Trade Unions, World Federation of Democratic Youth and International Democratic Federation of Women.

Greece. The cabinet resigned following decisions to reduce its size for the sake of economy and efficiency.

Korea. Strong U.N. forces recaptured Suwon and Kumyangjang.

United States. The government ordered a general price and wage "freeze."

United States-Peru. An agreement for U.S. technical aid to Peru under the "Point Four" programme was signed in Lima.

27: **Austria-Yugoslavia.** An agreement between the two countries formally restored diplomatic relations.

Finland. Field Marshal Carl Gustaf Emil Mannerheim, former president and commander in chief, died at Lausanne, Switzerland.

France-United States. René Pleven, French prime minister, arrived in the U.S. for discussions with President Truman.

N.A.T.O. General Eisenhower returned to the U.S., after his tour of the N.A.T.O. countries.

28: **Korea.** U.N. troops advanced to within 12 mi. of Seoul.

29: **Great Britain.** The prime minister, Clement Attlee, announced that 235,000 members of the class Z army reserve and 10,000 of the R.A.F. class G reserve would be called up for 15 days' training in the summer. He also stated that the defence estimate for the financial year 1951-52 was £1,300 million.

Netherlands. Queen Juliana asked D. U. Stikker to form a new government.

South Africa. A vote of censure on the government was rejected by 82 votes to 69 in the House of Assembly; a counter-motion of confidence was passed by 82 votes to 70.

30: **Germany.** The East German Volkskammer addressed an appeal for an all-German council to the West German Bundestag.

Israel-Yugoslavia. A trade agreement between the two countries was signed in Tel Aviv.

Korea. South Korean troops entered Kangnung.

31: **Great Britain.** A new issue of saving certificates and defence bonds, at an improved rate of interest, was put on sale.

Brazil. Getulio Dornelas Vargas was sworn in as president.

Korea. A joint Belgian-Luxembourg battalion arrived to join the U.N. forces in Korea.

Western Germany. The U.S. authorities commuted the death sentence of 21 German war criminals and shortened the prison sentences of 70 others. It was also announced that the decree confiscating the property of Alfried Krupp had been cancelled.

Aviation. Captain Charles Blair, U.S., set up a new record of 7 hr. 48 min. for the New York-London flight in a Mustang aircraft powered by a Packard-built Rolls Royce engine; the previous record was 8 hr. 55 min.

FEBRUARY

1: **United Nations.** The general assembly was convened at Lake Success, New York, and ratified the political committee's decision to brand China an aggressor by 44 votes to 7 with 9 abstentions.

Western Germany. Travel control became the responsibility of the German authorities and German passports were again issued.

2: **Arab League.** The session in Cairo ended; a collective security pact was signed by all members except Jordan.

France-Canada. René Pleven, French prime minister, arrived in Ottawa from the U.S.

India-France. An agreement was signed in Paris, ceding Chandernagore to India.

Netherlands. Queen Juliana asked Willem Drees and Theodorus van Schaik to form a government.

3: **Western Germany.** An interim trade agreement was signed with Eastern Germany.

4: **Great Britain.** The carcass-meat ration was decreased from 10*d*.- to 8*d*.-worth.

5: **Western Germany.** A three-day conference of U.S. ambassadors and state department officials in western Europe opened in Frankfurt.

6: **Great Britain.** Parliament approved supplementary service estimates of £40 million for the current financial year.

South Africa. Patrick Gordon Walker, British secretary of state for Commonwealth relations, arrived in Capetown for discussions.

7: **Great Britain.** An opposition motion of censure in the House of Commons on steel nationalization was defeated, 308-298.

United Nations. The withdrawal of Hungary from the F.A.O. was announced.

A Soviet draft calling upon the Security council to take immediate steps for the cessation of U.S. aggression against China in Formosa and the Formosan straits was rejected by 49 votes to 5 with 3 abstentions.

United States-U.S.S.R. A note was handed to the Soviet ambassador in Washington demanding that the U.S.S.R. should return 672 naval and merchant ships transferred under lend-lease during World War II.

8: **Great Britain.** An opposition motion of censure charging mismanagement in the supply of meat was defeated by 306 votes to 298.

Tunisia. Decrees provided that the Tunisian prime minister, not the French resident general, would preside over the cabinet, and allocated a proportion of civil service posts to Tunisians.

Cricket. Australia won the fourth test match against England at Adelaide by 274 runs.

9: **Pakistan.** The second meeting of the World Moslem conference opened in Karachi.

Western Union. The Brussels treaty powers announced the appointment of Air Chief Marshal Sir Hugh Saunders as commander in chief, air forces, western Europe, in succession to Air Chief Marshal Sir James Robb.

10: **Great Britain.** 19,600 dockworkers were on unofficial strikes in London, Merseyside, Manchester and Salford.

Germany. In a speech at Bonn university, Konrad Adenauer, West German chancellor, said that discussions with Eastern Germany could take place only after all Eastern German political prisoners had been released.

Gold Coast. Voting was completed in the elections, the results being: Convention People's party, 38 seats; Independents, 34; United Gold Coast Convention, 3.

Ireland. The strike of bank officials, begun on Dec. 23, 1950, ended.

11: **Australia.** Frederick Doidge, New Zealand minister of external affairs, arrived in Sydney for conferences with P. C. Spender and John Foster Dulles on a Japanese peace treaty.

Korea. U.N. patrols re-entered Seoul.

12: **France.** The Bulgarian, Rumanian and Albanian representatives in Paris were informed that they would be subject to certain restrictions within French territory.

Korea. A Communist force estimated at 100,000 attacked on a 30-mi. front in the central sector of Korea at midnight on Feb. 11-12.

Persia. The Shah, Mohammed Riza Pahlavi, was married in Tehran to Suraya Isfandiari Bakhtiari.

13: **Japan.** Shigeru Yoshida, prime minister, stated that in the talks with John Foster Dulles he had accepted the U.S. offer of military assistance.

14: **Great Britain.** A two-day debate on defence was opened by Emanuel Shinwell, minister of defence.

Israel. After a government defeat in the Knesset on religious education, David Ben-Gurion, prime minister, announced his resignation.

Japan-U.S.S.R. At the Allied council in Tokyo, General Aleksey Kislenko, Soviet delegate, charged the U.S. with remilitarizing Japan.

Morocco. The French resident general, General A.-H. Juin, opened discussions with the sultan on Moroccan nationalist activities.

15: **Great Britain.** The opposition motion of censure on defence was defeated in the House of Commons by 308 votes to 287.

The Conservatives retained the seat in the Bristol West by-election, when Sir Walter Monckton was returned with a majority of 17,144.

France. A conference called on French initiative to discuss the formation of a European army opened in Paris.

Greece-Yugoslavia. After an interval of nearly ten years, railway and postal services were restarted between Greece and Yugoslavia.

Nepal. King Tribhuvana returned to Kathmandu after his three-month exile in India.

Western Germany-United States. The first U.S. conscripts arrived for service in Western Germany.

16: **Great Britain.** The 1951-52 defence estimates of £1,032,262,100 were presented to parliament.

U.S.S.R.-United States. The Soviet Union presented a new note to the U.S. State Department protesting against General Douglas MacArthur's release of certain Japanese war criminals.

17: **Great Britain-U.S.S.R.** A British reply to the Soviet note of Jan. 20 declared Soviet anti-western actions responsible for British policy.

Japan. General Douglas MacArthur permitted the Japanese government to treat with non-Communist foreign missions on some subjects.

18: **Czechoslovakia.** The Czechoslovak government ordered the French consul general in Bratislava to leave the country.

Indochina. The new Vietnam government under Tran Van Huu, prime minister in the outgoing cabinet, was announced.

Netherlands. It was announced that M. P. L. Steenberghe (Catholic party) had been asked to form a cabinet.

19: **Colombo Plan.** The Canadian government announced that it would contribute 25 million dollars to the plan.

France. André Gide, distinguished French writer, died in Paris.

United States. The census bureau announced that the population of the U.S. on Jan. 1 was estimated to be 153,085,000.

20: **Great Britain.** An opposition amendment rejecting a second reading of the Overseas Resources Development bill and demanding an inquiry into the revised east African groundnuts scheme was defeated in the House of Commons by 302 votes to 295.

United Nations. The 12th session of the Economic and Social council opened at Santiago, Chile.

21: **Great Britain.** Estimates of £2,606,302,218 for the civil and revenue departments, and the Ministry of Defence, were presented to the House of Commons.

N.A.T.O. General Dwight D. Eisenhower, N.A.T.O. supreme commander, arrived at Versailles, France, from the United States and took over his temporary headquarters there.

New Zealand. The government declared a state of emergency because of the nation-wide dock strike, which began on Feb. 18.

United Nations. An Anglo-U.S. resolution for a solution of the Kashmir dispute was presented to the Security council.

The Trusteeship council agreed by 11 votes to none to allow Italy to participate, but without a vote.

22: **Greece.** Sophocles Venizelos' Liberal-Social Democrat coalition received a vote of confidence, 133-91.

Morocco. Negotiations between General Juin and the sultan reached deadlock.

23: **Great Britain.** The railway dispute was settled, with increases of pay of £12 million a year.

Australia-Netherlands. A five-year emigration treaty was signed at Canberra.

Czechoslovakia. President Klement Gottwald accused Vlado Clementis, the former foreign minister, of plotting to seize power.

Nepal. King Tribhuvana announced the formation of an interim council of 10 ministers and the intention to set up a constituent assembly.

West Indies. A state of emergency was proclaimed in Grenada following acts of violence after a strike of agricultural and other workers.

24: **Egypt.** The 19th International Cotton congress opened in Cairo.

Morocco. Following demands by General Juin, the sultan dismissed his cabinet—mainly Istiqlal (nationalist) party members.

Persia-Great Britain. Sir Francis Shepherd, British ambassador, had talks with the Persian prime minister at Tehran on the negotiations between the Persian government and the Anglo-Iranian Oil company.

U.S.S.R.-Great Britain. A Soviet reply to the British note of Feb. 17 rejected a British assertion that Soviet armed forces exceeded the combined forces of the western powers.

25: **Czechoslovakia.** The reintroduction of bread and flour rationing, abolished in Oct. 1949, was announced.

Morocco. General Juin and the sultan signed a protocol of agreement.

Pakistan-India. A trade agreement between the two countries was signed in Karachi.

26: **Italy.** Palmiro Togliatti, leader of the Italian Communist party, returned to Italy from the U.S.S.R.

United States. A conference of U.S. diplomatic representatives in south and southeast Asia opened at Nuwara Eliya, Ceylon.

27: **Czechoslovakia.** A report of the central committee of the Communist party disclosed that Vlado Clementis, K. Husak, and Laco Novoenesky had been arrested for sabotage and espionage.

France. A motion to admit the electoral reform proposals of René Pleven's government was defeated in the National Assembly, 243-216.

28: **Great Britain-Denmark.** Trade talks opened in London.

France. René Pleven's government resigned.

Israel. It was announced that David Ben-Gurion had failed to form a new government and that his coalition would remain in office until elections were held.

U.S.S.R.-U.S. John Foster Dulles announced that the U.S.S.R. had occupied a group of small islands off the southeast coast of Hokkaido, ostensibly because they were part of the Kuriles chain assigned to the U.S.S.R. under the Yalta agreement.

Cricket. England beat Australia in the fifth test match at Melbourne by eight wickets.

MARCH

1: **France.** President Vincent Auriol asked Georges Bidault (M.R.P.) to try to form a government.

2: **Great Britain.** An opposition motion criticizing the government's raw material policy was defeated by 167 votes to 163.

France. The president asked Henri Queuille (Radical Socialist) to try to form a government, the attempt having been abandoned by Georges Bidault.

Korea. U.S. marines entered Hoengsong unopposed.

Fine Arts. It was announced that Rembrandt's "Portrait of a Man" had been bought in London for the National Gallery of Victoria, Melbourne, Australia; the purchase price was £37,000.

3: **France.** The president asked Guy Mollet (Socialist) to try to form a government, after Henri Queuille had abandoned the attempt.

4: **Egypt.** Field Marshal Viscount Montgomery unveiled the Eighth army memorial window in All Saints' cathedral, Cairo.

Athletics. The Asian games opened in Delhi.

5: **Four-Power Conference.** The preliminary meeting between British, French, U.S. and Soviet delegates to discuss an agenda for a four-power conference opened in Paris.

6: **France.** Guy Mollet (Socialist) failed to secure election as prime minister. Henri Queuille was asked to make a further attempt to form an administration.

Western Germany. A revision of the occupation statute authorized the Federal German republic to appoint a foreign minister.

7: **Four-Power Conference.** The Soviet delegate at the preliminary meeting in Paris agreed to discuss the Austrian peace treaty if the western powers would discuss Trieste.

Korea. U.N. forces opened a general offensive on a 55-mi. front.

Persia. The prime minister, General Ali Razmara, was assassinated by a member of the Fadayian Islam organization.

8: **Southern Rhodesia.** Sir Godfrey Huggins, the prime minister, after resigning, formed a new government.

9: **Great Britain.** Herbert Morrison succeeded Ernest Bevin as foreign secretary; Bevin became lord privy seal and Viscount Addison succeeded Morrison as lord president of the council.

Australia. The High court ruled that the government's Communist Party Dissolution act was invalid.

Belgium. General Ernst von Falkenhausen, German military governor of Belgium and northern France during World War II, was sentenced to 12 years' hard labour by a military court in Brussels.

France. Henri Queuille (Radical Socialist) was elected prime minister by 359 votes to 205.

Korea. U.N. troops advanced from their Han river bridgehead.

Pakistan. Major General Akbar Khan, chief of the general staff, was arrested for plotting to establish a military dictatorship and assassinate Liaquat Ali Khan.

Syria. The cabinet of Nazim el-Kodsi resigned.

10: **Rugby Football.** Ireland won the championship: in their final game they drew with Wales at Cardiff.

11: **Czechoslovakia.** Josef Beran, archbishop of Prague, was "removed in custody" for alleged offences against the state.

France. Henri Queuille announced his cabinet.

12: **Egypt.** The Chamber of Deputies approved the law transforming the National Bank of Egypt into a central bank for the country.

Italy-Great Britain. Alcide De Gasperi, Italian prime minister, and Count Sforza, foreign minister, arrived in London for discussions.

Spain. A secretly organized 24-hr. strike of 300,000 workers occurred in Barcelona, in protest against the cost of living.

14: **Korea.** Patrols of the South Korean 1st division re-entered Seoul.

Netherlands. In the new cabinet Willem Drees became prime minister and D.U. Stikker foreign minister.

15: **France.** The National Assembly decided by 318 votes to 282 to amend the government's electoral reform bill.

Italy-Great Britain. A joint statement on the conversations between the British and Italian prime ministers and foreign ministers stated that the British ministers confirmed their adherence to the three-power declaration on Trieste with a view to settlement by conciliation.

Korea. U.N. troops entered Hongchon, central Korea, 22 mi. south of the 38th parallel.

Persia. The Majlis unanimously accepted the recommendation of the parliamentary oil committee (March 8) to nationalize the country's oil industry.

Western Germany. Konrad Adenauer, chancellor of the German Federal republic, became also the republic's first foreign minister.

16: **Great Britain.** In the London docks 9,440 men were on token strike in connection with the appearance of seven dockworkers at Bow Street court on charges of conspiracy to incite men to strike illegally.

France. A strike of Paris transport workers began.

Persia. The text was released of a British government note stating that the operations of the Anglo-Iranian Oil company in Persia could not be ended by a nationalization act.

17: **Albania.** A state of emergency was proclaimed following the discovery in Tirana of a subversive plot.

18: **Korea.** It was reported that the Chinese had abandoned Chunchon, central Korea.

U.S.S.R. and China. John Strachey, British secretary of state for war, speaking at Dundee, said that the Soviet forces numbered about 4 million men, including a standing army of 2·1 million (excluding reserves) organized in 175 divisions. A set of notes issued on the same day by the War Office, London, said that the Soviet army had 2·8 million men; the notes estimated the strength of the Chinese army as 2·5 million men.

19: **European Coal and Steel Pool.** The draft of the Schuman plan was initialled in Paris by the representatives of France, Western Germany, Italy and the Benelux countries.

Indonesia. The Defence Ministry announced that 27 battalions of Indonesian troops had been engaged against the fanatical Dasul Islam organization in Java.

Aviation. A British Overseas Airways Stratocruiser flew from London airport to New York in 12 hr. 36 min., the fastest time recorded for a commercial aircraft.

20: **Argentina.** The government took over control of the independent Buenos Aires newspaper *La Prensa*.

N.A.T.O. General Dwight D. Eisenhower, supreme Allied commander in Europe, announced the appointment of nine of his deputies and commanders, including that of Field Marshal Viscount Montgomery as deputy supreme commander and Air Chief Marshal Sir Hugh Saunders as air deputy.

Persia. The shah proclaimed martial law for a term of two months.

Spain-Great Britain. The Duke of Primo de Rivera, first Spanish ambassador to Great Britain since 1946, arrived in London.

21: **U.S.S.R.-United States.** The Soviet ambassador in Washington delivered a note of refusal in reply to the U.S. demand for the return of 672 ships transferred under lend-lease.

22: **China.** The arrest of 21 members of an alleged U.S. espionage group in Tientsin was announced in Peking.

Korea. U.S. parachute troops landed in the Imjin river valley, northwest of Seoul, in an attempt to cut off the retreating Chinese.

Persia. The Senate unanimously approved the nationalization of oil.

24: **Great Britain.** It was announced that

the king had conferred on the borough of Cambridge the title and dignity of a city.

Argentina. General J. D. Perón claimed that Argentina had discovered how to harness atomic energy cheaply, without using uranium.

Rowing. The Oxford and Cambridge boat race was called off after 2½ min., when the Oxford boat sank in rough water.

26: **Pan-American Conference.** A conference of the foreign ministers of the American republics met in Washington.

Rowing. Cambridge won the re-rowed boat race by 12 lengths in 20 min. 50 sec.

27: **Great Britain.** The 1951-52 civil estimates for local government, and planning, housing, health, labour and national insurance showed that £870,507,005 was required, an increase of £16,814,506 over the 1950-51 estimates.

Syria. It was reported from Damascus that the cabinet had been reformed with Khalid el-Azam as prime minister.

28: **Belgium.** General Ernst von Falkenhausen, former German military governor of Belgium and northern France, and two other German generals sentenced on March 9 for war crimes were released.

France-United States. Vincent Auriol, president of France, was received in Washington by President Harry S. Truman.

Persia. Eight members of the fanatical Fadayian Islam organization were arrested for plotting to kill the prime minister.

29: **Great Britain.** Higher prices for agricultural products were announced by the minister of agriculture. The 1951-52 civil estimates for trade, industry and transport showed a net decrease of £12,366,527 as compared with those for 1950-51.

United States-France. It was agreed to set up a U.S. air base at Chateauroux, Indre, France.

30: **Kashmir.** The U.N. Security council accepted by 8 votes with 3 abstentions the Anglo-American proposals (submitted on Feb. 21) for demilitarization and a plebiscite in Kashmir.

Korea. Chinese troops counter-attacked in force north of Seoul.

31: **Great Britain.** The exchequer's financial year closed with an ordinary budget surplus of £720 million.

China. The English-language *North-China Daily News*, Shanghai (founded 1850), ceased publication.

Korea. U.S. troops of the U.N. command drove across the 38th parallel north of Seoul, later withdrawing.

APRIL

2: **N.A.T.O.** General Dwight D. Eisenhower announced that he had assumed effective command of all N.A.T.O. troops in Europe.

Pakistan-Great Britain. A trade agreement was signed in Karachi by the two countries.

3: **Chile.** The government received a note of protest from the British government at the setting-up of a third Chilean base in British Antarctica.

China. A report from Hong Kong gave details of 151 executions of counter-revolutionaries in Shanghai, Chungking and Canton between March 11 and March 31.

France. The Paris transport strike ended.

France-United States. President Vincent Auriol arrived in New York on an official visit to the United States.

Korea. U.S. troops of the U.N. command crossed the 38th parallel on a 10-mi. front in western Korea.

4: **Great Britain.** Increases were announced in the charges of several G.P.O. services, including local coin-box telephone calls and inland telegrams, to come into effect in the summer and autumn.

Italy. Three Democratic Socialist ministers withdrew from the government.

United States. Julius and Ethel Rosenburg, convicted on March 29 of espionage during World War II, were sentenced to death in New York.

5: **Israel-Syria.** Israeli aircraft bombed fortified Syrian posts near el-Hamma, south of Lake Tiberias, after Israeli police and Syrian troops had clashed the previous day.

6: **Great Britain.** In a by-election at Ormskirk, Lancashire, the Conservative party held the seat with an increased majority.

Indochina. The large-scale Vietminh attack against the French in northeastern Tongking was reported to have been resumed.

Yugoslavia. Marshal Tito dismissed nine cabinet ministers during a reconstitution of the government.

7: **Horse Racing.** J. Royle's "Nickel Coin," ridden by J. Bullock, won the Grand National steeplechase at Aintree, Liverpool.

8: **Great Britain.** The first census of the population of the United Kingdom since 1931 was taken at midnight, April 8-9. Later, the preliminary reports showed a population of 50,369,585.

Republic of Ireland. A population census was taken: the 1951 population was 2,958,878.

9: **Great Britain.** An opposition prayer against an order decreasing the cheese ration was carried by 237 votes to 219 in the House of Commons.

10: **Great Britain.** The chancellor of the exchequer, Hugh Gaitskell, presented his budget. Income tax (by 6*d.*) and the petrol, entertainments and purchase taxes were increased.

France. President Auriol returned from his visit to the United States and Canada.

Morocco. Four Moroccan nationalist parties set up in Tangier a united front for independence; the meeting was presided over by an Egyptian senator.

Singapore. Elections of nine members of the legislative council took place; the Progressive party won six seats.

11: **Scotland.** The Coronation stone, stolen from Westminster abbey, London, on Christmas day 1950, was left in Arbroath abbey, Angus, by persons unknown; it was returned to Westminster abbey on April 13.

United Nations-United States. President Truman announced that General Douglas MacArthur had been relieved of all his U.S. and U.N. commands in the far east. He was succeeded by Lieut. General Matthew B. Ridgway, commander of the U.S. Eighth army in Korea. Lieut. General James Van Fleet succeeded General Ridgway in his Eighth army command.

12: **Korea.** An Ethiopian battalion left Addis Ababa for Korea.

13: **Vatican.** Princess Elizabeth and the Duke of Edinburgh were received in private audience by Pope Pius XII during their visit to Rome.

14: **Great Britain.** Ernest Bevin, lord privy seal and former foreign secretary, died in London.

Rowing. The Cambridge university boat-race crew beat a Yale university crew at Derby, Connecticut, by nearly five lengths.

15: **Great Britain.** The ban on display lighting ended.

Lebanon. A general election took place, the Constitutional (government) party retaining power.

Persia. The Anglo-Iranian Oil company's refinery at Abadan was brought to a standstill by strikes.

16: **Great Britain.** A stoppage by 9,880 workers in London and Birkenhead was the seventh since the arrest of seven dockers.

Korea. It was announced that U.N. troops had captured Yanggu and Yachon.

United States-Yugoslavia. President Truman announced that he had authorized the use of $29 million (£10,357,000) for military aid to Yugoslavia.

Yugoslavia-France. Trade agreements between the two countries to the value of about £4 million were signed in Paris.

17: **Great Britain.** The submarine "Affray," with 75 men aboard, was reported missing after carrying out exercises in the English channel on April 16-17.

The Royal Commission on Betting, Lotteries and Gaming published its report.

The University College of North Staffordshire, Keele, Stoke-on-Trent, was officially opened by Queen Elizabeth.

Italy. A Communist motion of no confidence in the government was defeated by 308 votes to 154 with 18 abstentions in the Chamber of Deputies.

New Zealand. A census was taken: the population numbered 1,939,703.

Persia. A motion of confidence of Hosain Ala's government was passed in the Majlis by 77 votes to 1.

Anglican Communion. The archbishop of Canterbury inaugurated the Church of the Province of West Africa at Freetown cathedral, Sierra Leone; the bishop

of Lagos, the Right Rev. L. G. Vining, was elected the first archbishop.

18: **Great Britain.** Two opposition resolutions against the budget proposals were defeated by majorities of 11 and 15 votes.

The seven dockers charged with conspiracy to incite dockworkers to strike illegally were discharged at the Old Bailey, London; the London dock strike ended.

European Coal and Steel Pool. The European coal and steel treaty was signed in Paris by France, Western Germany, Italy and the Benelux countries.

Korea. The Chinese abandoned Hwachon during a general withdrawal on the central front.

Portugal. Marshal Antonio Oscar de Fragoso Carmona, president of the republic, died in Lisbon, aged 81.

19: **United States.** General MacArthur addressed a joint meeting of both houses of congress in Washington.

Rowing. Cambridge university won the Patriots' Day regatta at Cambridge, Massachusetts, by a length and a half from Harvard university; Boston university and the Massachusetts Institute of Technology were third and fourth.

21: **Great Britain.** Aneurin Bevan, minister of labour and national service, resigned from the government. In a by-election at Harrow West, the Conservatives held the seat with an increased majority.

India. Six people were killed and 33 injured when police fired on hunger marchers at Cooch Behar.

Tariff Conference. The International Tariff conference, opened at Torquay, Devon, in Sept. 1950, ended; 147 bilateral agreements had been signed out of a possible 600.

Association Football. Pegasus beat Bishop Auckland by 2 goals to 1 in the Football Association amateur cup final at Wembley, Middlesex. Celtic beat Motherwell by 1 goal to nothing in the Scottish cup final at Hampden Park, Glasgow.

22: **Indochina.** It was announced that French forces had launched a large-scale attack against Vietminh rebels near the Canal des Bampous, 28 mi. south of Haiphong, northern Vietnam.

Korea. Chinese troops launched a general offensive, driving a wedge (April 23) into the Allied front in the neighbourhood of Kapyong, 12 mi. south of the 38th parallel.

Sweden-U.S.S.R. A trade agreement between the two countries provided for a £3 million exchange of goods in each direction during 1951.

23: **Great Britain.** Harold Wilson, president of the Board of Trade, resigned from the government. In the House of Commons, an opposition prayer to annul a statutory instrument increasing railway charges was defeated by 297 votes to 293.

Argentina-Great Britain. An agreement by which Argentina would supply Great Britain with 230,000 tons of meat within 12 months, at a price increased by two-thirds, was signed in Buenos Aires.

Austria. Karl Gruber, foreign minister, arrived in London on an official visit.

Indochina. French headquarters, Saigon, stated that large-scale mopping-up south-west of Haiphong, northern Vietnam, was going well.

24: **Great Britain.** It was announced that Sir Hartley Shawcross, attorney general, had succeeded Harold Wilson as president of the Board of Trade; Alfred Robens, parliamentary secretary to the Ministry of Fuel and Power, became minister of labour and national service in place of Aneurin Bevan; Sir Frank Soskice, solicitor general, became attorney general and A. L. Ungoed-Thomas became solicitor general.

Japan. Ninety-seven people were killed when a Tokyo-Yokohama train caught fire.

25: **Korea.** Chinese troops advanced to within 25 mi. of Seoul; U.N. forces continued to withdraw, but Inje was recaptured.

Persia. All workers at the Abadan refineries returned to work.

26: **Great Britain.** It was announced that Richard Stokes had joined the cabinet as lord privy seal and that George Brown had been appointed minister of works.

Western Germany. The federal government banned the Communist-inspired campaign for a "referendum on remilitarization."

27: **Colonial Development.** The annual report of the Colonial Development corporation showed a deficit for 1950 of £1,320,249.

France. The Electoral Reform bill, re-submitted in its original form, failed by 3 votes to gain the necessary majority in the National Assembly.

Gibraltar. The British ammunition ship "Bedenham" blew up; seven people were killed and much damage was done.

Korea. It was announced that U.N. forces had abandoned Yanggu in the eastern sector and Uijongbu, 11 mi. north of Seoul.

Persia. Hosain Ala, the prime minister, resigned.

Tibet-China. The Panchen Lama arrived in Peking.

United Nations. The new headquarters of the Food and Agricultural organization were opened in Rome.

28: **Great Britain.** The first army class Z reservists arrived in camp for training.

Australia. In the general election the Liberal party-Country party (government) coalition won 69 seats in the House of Representatives and the Labour party 52 seats.

Hungary-United States. The Hungarian authorities released Robert A. Vogeler, a U.S. citizen who was serving a 15-year sentence for alleged espionage.

Korea. U.N. troops on the Western sector withdrew to a line 4 mi. north of Seoul.

Persia. The Majlis approved a nine-point plan for the nationalization of Persian oil. Mohammad Mossadegh, leader of the National Front, which had led the nationalization campaign, was elected prime minister.

Association Football. Newcastle United beat Blackpool 2-0 in the F.A. cup final at Wembley, Middlesex.

29: **France.** The government re-tabled the Electoral Reform bill in the National Assembly.

30: **Great Britain.** The British Industries fair opened in London and Castle Bromwich, Birmingham.

Canada. It was announced in Ottawa that Canada would not use the British ·280-in. rifle but would replace their ·303-in. weapons with a U.S. ·30-in. type.

Kashmir. The U.N. Security council appointed Frank P. Graham of the U.S. Department of Labour as U.N. mediator.

Persia. The Senate unanimously ratified the government oil nationalization bill.

South Africa. The Separate Representation of Voters' bill (the "Cape-coloured bill") received a second reading by 76 votes to 69 in the House of Assembly.

United States. President Truman recommended a defence appropriation of $57,604 million (£20,573 million) for the fiscal year 1952.

MAY

1: **Great Britain.** The appointment was announced of three commanders in chief to be responsible for the defence of the United Kingdom in the event of war. These were: c. in c., home station, a post to be held by the c. in c., Portsmouth, in 1951 Admiral Sir Arthur Powe; c. in c. U.K. land forces, General Sir Miles Dempsey; air officer commanding in chief, fighter command, Air Marshal Sir Basil Embry.

An opposition amendment on raw materials was defeated by 305 votes to 292 in the House of Commons.

France. Sixty-eight policemen were injured in a clash with members of the Algerian "Movement for the Triumph of Democratic Liberties" during a Labour Day parade in Paris.

Korea. The British secretary of state for Commonwealth relations announced that all Commonwealth contingents serving in Korea would be united to form the 1st (Commonwealth) division, United Nations forces.

2: **Council of Europe.** The German Federal republic was admitted as a full member at Strasbourg. The committee of ministers also agreed that members of the consultative assembly should in future be chosen by parliaments, not nominated by governments.

Israel. A small Syrian force crossed the Israeli frontier at the northern tip of Lake Tiberias and was engaged by Israeli patrols.

Persia. The shah signed the oil nationalization decrees.

Horse Racing. Ley On's "Ki Ming" ridden by A. Breasley, won the 2,000 Guineas stakes at Newmarket, Suffolk.

3: **Great Britain.** From the steps of St. Paul's cathedral, London, King George VI declared the Festival of Britain open.

Israel. Artillery and mortar activity between Syrian and Israeli troops took place north of Lake Tiberias.

David Ben-Gurion, the prime minister,

arrived in Washington on a three-week official visit to the U.S.

U.S.S.R. A new 20-yr. state loan of 30,000 million roubles at 4% for economic development was announced.

4: **Great Britain.** King George VI and Queen Elizabeth, with other members of the royal family, visited the South Bank exhibition, London, when it was opened to the public for the first time.

Ireland. Parliament was dissolved.

Israel-Syria. A cease fire took place at 1.30 P.M.

Western Germany. The federal cabinet banned the *Reich Front*, a neo-Nazi organization.

5: **Council of Europe.** The consultative assembly met at Strasbourg; Paul-Henri Spaak was re-elected president.

Indochina. A large-scale mopping-up operation was launched by French and Vietnam troops against Vietminh guerrillas in the Red river delta.

United States. The Senate Armed Services and Foreign Relations committees finished their examination of General Douglas MacArthur.

Football. The F.A. league programme ended: Tottenham Hotspurs won the championship. Wigan beat Barrow by 10 points to nil in the Rugby league cup final at Wembley.

6: **Bolivia.** In elections for a new president and legislature Victor Paz Estensoro's Movimiento Nacionalista Revolucionario (the nationalist and pro-Indian opposition party) led the poll.

Egypt. King Farouk was married to Narriman Sadek.

India. J. B. Kripalani formally dissolved his "democratic front"—a dissident section of the Congress party—at the prime minister's request.

Panama. The government revoked the 1946 constitution in order to combat Communism.

Salvador. The government announced that an earthquake had caused the death of about 1,000 people at Jucuapa, 90 mi. east of San Salvador.

7: **France.** The Electoral Reform bill received a second reading in the National Assembly by 332 votes to 248.

Olympic Games. The U.S.S.R. was admitted to the International Olympic committee.

8: **Denmark-Great Britain.** King Frederik IX and Queen Ingrid arrived in England on a state visit.

Indochina. The mopping-up operations in the Kesat region, 20 mi. south of Hanoi, begun on May 5, ended after 11,500 Vietminh prisoners had been taken.

Korea. The survivors of the Gloucestershire regiment and the 170th Independent Mortar battery received the United States Presidential Unit citation for their heroism in action.

9: **Colonial Development.** The British secretary of state for colonial affairs announced that the Colonial Development corporation had abandoned the Gambia poultry-rearing project.

Denmark-Great Britain. The king of Denmark was installed as a knight of the Order of the Garter in St. George's chapel, Windsor Castle, after a private investiture by King George VI.

Indochina. Numbers of men of French-controlled forces killed in Indochina from the outbreak of fighting, Dec. 1946, up to March 31, 1951, were announced: metropolitan Frenchmen, 10,925; foreign legionaries, 4,893; north Africans, 4,762; other Africans, 1,345; Indochinese, 8,002.

Korea. Three hundred U.N. aircraft devastated the Communist air-base at Sin Ui Ju, northwest Korea.

Panama. Rioting broke out in Panama City; President Arias restored the 1946 constitution but the assembly voted to appoint Alcibiades Arosemena, the senior vice-president, and to impeach Arias.

10: **Great Britain.** Municipal elections were held in England and Wales. The Conservatives increased their lead in the country as a whole.

Australia. The reconstruction of the federal cabinet was announced.

China. The British president of the Board of Trade announced that rubber exports to China from British territories had been stopped.

France. Archduke Otto, pretender to the Austrian throne, and Princess Regina von Sachsen-Meinigen were married at Nancy.

Panama. Ex-president Arias was arrested in Panama City.

11: **Council of Europe.** The assembly carried by 80 votes to 7 (German and Saar Socialists) with 9 abstentions (incl. 8 British Labour) a resolution welcoming the Schuman plan.

12: **Hungary.** Gyula Kallai, the foreign minister, resigned and was succeeded by Karoly Kiss.

Italy. A hydro-electric station on the Tiber at Castel Giubileo, 7 mi. north of Rome, was inaugurated by President Luigi Einaudi.

Aviation. Mme. Paul Auriol, daughter in law of the French president, set up a women's air speed record of 818·181 km./hr. (about 508 m.p.h.) in a modified Nene-engined Vampire aircraft.

Golf. The United States won the Walker cup contest against Great Britain at Birkdale, Lancashire.

13: **Nigeria.** In a cinema fire at Lagos about 100 people were killed.

Panama. It was announced that President Arosemena had formed a seven-party coalition.

15: **Indochina.** French and Vietnamese forces recaptured the post of Thanuyen, 30 mi. south of Laokay.

Israel-Syria. It was announced that the two countries had accepted the U.N. Security council's cease-fire resolution.

Southeast Asia. U.S., British and French service representatives met in Singapore to discuss the military situation in southeast Asia.

16: **United Nations.** Japan, the German Federal republic and Spain were admitted to the World Health organization.

Shipping. The Orient liner "Oronsay," 27,630 tons gross, left Tilbury, England, on her maiden voyage to Australia.

17: **Italy-United States.** The allotment by the Economic Co-operation administration of an extra $71 million to Italy for reconstruction and defence was announced.

Korea. Chinese and North Korean troops launched a general offensive.

18: **Korea.** It was announced that U.N. troops had withdrawn from all positions north of the 38th parallel.

19: **Persia.** A British government *aide-mémoire* on the oil dispute was handed to the Persian prime minister by Sir Francis Shepherd, the British ambassador.

20: **Pakistan.** Major General Nazir Ahmad was arrested in Karachi in connection with the conspiracy against the government (*see* March 9).

Navigation. Stanley Smith and Charles Violet left Yarmouth, I.o.W., for New York in their 20-ft. yawl "Nova Espero."

21: **Korea.** Communist forces were withdrawing on a 20-mi. front in west central Korea.

23: **Tibet-China.** A treaty between China and Tibet was signed in Peking.

24: **Great Britain.** Viscount Hall, first lord of the Admiralty, resigned and was succeeded by Lord Pakenham, minister of civil aviation.

Australia. The state of the parties in the new Senate was announced as: government, 32 (an increase of 6); opposition, 28.

Korea. Communist forces were in retreat along the whole front.

25: **U.S.S.R.** It was reported from Tehran, Persia, that a force of Kurdish and Azerbaijani troops was concentrating in Soviet Azerbaijan, just north of the Persian frontier.

26: **Korea.** U.N. troops pursuing Communist forces in east and central Korea crossed the 38th parallel.

Persia. The British government submitted the oil dispute to the International Court of Justice at The Hague.

Golf. R. D. Chapman beat Charles Coe by five up and four to play over 36 holes in the British amateur championship at Porthcawl, Glamorgan.

27: **Austria.** Theodor Körner was elected president.

28: **Indochina.** A Vietminh force of 35,000-40,000 men began an offensive towards Phuly, 35 mi. south of Hanoi, northern Vietnam.

South Africa. Riots took place in Capetown after a demonstration by ex-servicemen against the "coloured voters" bill.

29: **Great Britain.** The House of Lords returned to their own chamber in the Palace of Westminster, repaired after being damaged by enemy action in May 1941.

Sixty-two miners were killed in an explosion at Easington colliery, County Durham.

30: **Greece.** Field Marshal Alexandros Papagos, commander in chief of the armed forces, resigned.

Ireland. A general election was held: Eamon de Valera's Fianna Fáil won 69 seats in the new parliament (67 at dissolution).

Horse Racing. J. McGrath's "Arctic Prince," ridden by C. Spares, won the Derby at Epsom, Surrey.

31: **Brunei.** Omar Ali Said ud-Din was crowned as 28th ruler of Brunei.

Four-Power Conference. The British, French and U.S. three alternative agendas for the conference were handed to the Soviet delegate to the preliminary talks in Paris. The western powers proposed that a meeting of the four foreign ministers should be held in Washington on July 23.

JUNE

1: **Great Britain.** It was announced that Lord Ogmore had been appointed minister of civil aviation in succession to Lord Pakenham, who had become first lord of the Admiralty.

Antarctica. The Norwegian Polar institute, Oslo, announced that Niels Roer's sledging party was nearing Maudheim after a continuous sledging journey of 5½ months, a record for such a journey in the Antarctic.

Persia. The U.S. ambassador to Persia handed a personal note from President Truman on the oil dispute to Mohammad Mossadegh, the Persian prime minister.

Horse Racing. Major L. B. Holliday's "Neasham Belle," ridden by S. Clayton, won the Oaks at Epsom, Surrey.

2: **Korea.** General Van Fleet, commander of the U.S. 8th army, told the press that the U.N. drive into North Korea had ended.

3: **Indochina.** It was reported that French and Vietnam armies had recaptured the Ninh-Rinh bridgehead.

Roman Catholic Church. Pope Pius X (1835-1914) was beatified in St. Peter's, Rome.

4: **Great Britain.** An unofficial strike of London dock tally clerks caused work to stop on many ships in the port.

Four-Power Conference. The U.S.S.R. agreed to the western proposal for a conference in Washington on July 23, provided that consideration of the North Atlantic treaty and U.S. military bases was included in the agenda.

5: **Norway-Great Britain.** King Haakon of Norway arrived in London in the Norwegian royal yacht "Norge" on a three-day official visit followed by a ten-day personal stay.

7: **Great Britain.** The Foreign Office announced that D. D. Maclean, acting head of its American department, and G. F. de M. Burgess, second secretary at the British embassy, Washington, had been missing since May 25; both were suspended as "absent without leave" from June 1.

Uruguay-Great Britain. A meat agreement, supplementary to that concluded between the two countries in Dec. 1949, was signed in Montevideo.

9: **Korea.** General George C. Marshall, U.S. secretary of defence, visited Korea.

10: **Korea.** U.N. troops captured an important Communist supply area in the Chorwon-Kumhwa area, central Korea, at the base of the Communist "iron triangle" defence region.

11: **Great Britain.** The *chelengk* or diamond plume of honour, given to Admiral Lord Nelson after the battle of Nile in 1798 by Sultan Selim III of Turkey, was stolen from the National Maritime museum, Greenwich, London.

Japan. A note from the U.S.S.R. stated that the U.S. draft for the Japanese peace treaty showed aggressive intentions and proposed that a conference on the matter should be called in July or August.

12: **Great Britain.** The House of Commons rose at 10.16 P.M. after sitting for 31 hr. 46 min., the longest session since 1936.

Cricket. South Africa won the first test match against England at Trent Bridge, Nottingham, by 72 runs.

13: **Central Africa.** The report of the Conference on Closer Association in Central Africa recommended that the Rhodesias and Nyasaland should be joined in a federation, British Central Africa.

Ireland. Eamon de Valera was elected prime minister of the republic by 74 votes to 69 at the first meeting of the 14th Dail.

14: **Great Britain.** The London dock tally clerks' strike ended.

The submarine "Affray," lost on exercises on April 16, was found in 43 fathoms of water 16 mi. W.N.W. of Alderney.

In a by-election at East Woolwich caused by the death of Ernest Bevin the Labour party retained the seat with a reduced majority.

Persia. The first meeting between the Persian government representatives and those of the Anglo-Iranian Oil company took place in Tehran.

15: **Four-Power Conference.** The British, U.S. and French foreign ministers' deputies at the Paris talks conveyed to the Soviet representative their governments' desire to end the deadlock in the arrangements for the four-power conference of foreign ministers.

United States. A strike of 600,000 marine engineers, seamen and wireless operators started on the Atlantic, Gulf of Mexico and Pacific coasts.

16: **India.** Following the resignation of the premier of East Punjab, the governor assumed direct rule of the state on behalf of the central government.

Korea. Chinese troops re-entered Pyongyang.

Malta. Paul Boffa announced that his Workers' party would coalesce with the Nationalist government, giving the government 22 supporters in an assembly of 40.

17: **France.** General elections were held. The results (with two seats to be declared later) were: R.P.F., 121; Socialists, 104; Communists, 103; right wing, 98; Socialist Radical and allies, 94; M.R.P., 85; oversea parties, 23.

Hungary. The Ministry of the Interior announced that 924 families of the nobility and of army officers and civil servants under the Horthy régime had been removed from Budapest and resettled in the provinces.

18: **Hungary.** Three hundred more "undesirable" Budapest families were ordered to take up residence in the country.

N.A.T.O. Admiral Robert B. Carney, U.S. navy, was appointed commander in chief, Allied forces in southern Europe; General Maurizio de Castiglioni, Italian army, became commander, Allied army forces, and Major General David M. Schlatler, U.S. air force, commander, Allied air forces, in the same area.

United Nations. The sixth general assembly of U.N.E.S.C.O. opened in Paris.

19: **N.A.T.O.** An agreement defining the status of the treaty forces was signed in London by the 12 N.A.T.O. countries.

Persia. Negotiations in Tehran between the Persian government and the Anglo-Iranian Oil company were broken off.

United States. The president signed a new law extending conscription to July 1, 1955, reducing the induction age from 19 to 18½ yr. and increasing the period of service from 21 months to 2 yr.

Western Germany. The Allied High commission lifted the ban on gliding which had been in effect since 1945.

20: **Four-Power Conference.** A. Gromyko handed to the western foreign ministers' deputies the Soviet reply to the western communication of June 15; it insisted on the inclusion of the North Atlantic treaty and U.S. bases on the agenda.

Persia. The government issued directives for a gradual taking over of the installations in Persia of the Anglo-Iranian Oil company.

United States. The Federal Bureau of Investigation arrested 17 senior officials of the United States Communist party.

21: **Great Britain.** The Labour party retained the seat in a by-election at Westhoughton, Lancashire.

Commonwealth. A conference of Commonwealth defence ministers opened in London.

Austria. Theodor Körner took the oath as president.

Four-Power Conference. The preliminary talks in Paris ended with the 74th meeting when Ernest Davies, the British representative, read a statement on behalf of the western powers describing the continuation of the talks as useless.

22: **Hungary.** The trial of Archbishop Jozsef Grosz and others alleged to have plotted to overthrow the government opened in Budapest.

Italy. More than one million civil servants came out on strike for higher pay.

Persia-Great Britain. The British ambassador at The Hague submitted to the International Court of Justice the British application for interim measures of protection in the Persian oil dispute.

23: **United Nations.** Yakov Malik, the Soviet delegate, broadcast over the U.N. network an appeal for a settlement of the Korean conflict.

Cricket. England won the second test match against South Africa at Lord's cricket ground, London, by ten wickets.

24: **United Nations.** By 37 votes to 3 the general conference of U.N.E.S.C.O. voted to allow the Chinese Nationalist government (two years in arrears) to retain its right to vote on payment of a token sum.

25: **Algeria.** About 1,300 Moslem workers struck in protests at arrests made after a clash between Algerian Nationalists and French soldiers in the Oran *département* the previous day.

26: **Bechuanaland Protectorate.** The British House of Commons rejected by 300 votes to 279 a Liberal-Conservative motion urging the government to rescind the order of banishment on Tshekedi Khama, former regent of the Bamangwato.

Commonwealth. The conference in London of Commonwealth defence ministers ended. Agreement was reached on the defence of the middle east in the event of aggression and the need to contribute to the defence of the free world.

Exploration. It was announced that Bradford Washburn and three companions had been landed by aeroplane on a hitherto unexplored glacier at the west side of Mount McKinley, Alaska, of whose west face they were making a geological and topographical survey.

27: **Great Britain.** A motion in the House of Lords calling for an enquiry into the future of the Bechuanaland Protectorate was rejected, 22-9; Lord Salisbury's motion calling for the cancellation of Tshekedi Khama's banishment was carried, 50-25.

28: **Hungary.** At the end of the treason trial in Budapest Archbishop Grosz was sentenced to 15 years' imprisonment.

Persia. The British cruiser "Mauritius" anchored in Iraqi waters off Abadan, Persia.

29: **Korea.** General Ridgway, the U.N. commander in chief, sent a message to the Communist commander in chief offering to send a representative to discuss an armistice.

Nigeria. An order in council setting up a new constitution was promulgated by the king in council.

Thailand. The prime minister, Marshal Pibul Songgram, was seized by a marine unit while attending a ceremony at the royal landing docks in Bangkok.

30: **Great Britain.** The Dollar Exports board was disbanded and was replaced on July 1 by a Dollar Exports Advisory council, a body in which the government did not participate.

Argentina. Fifteen people were arrested in connection with a plot against the government.

Socialist Movement. A new Socialist International was inaugurated at Frankfurt, Western Germany.

JULY

1: **Greece.** It was reported that Sophocles Venizelos, the prime minister, had submitted his government's resignation to King Paul.

Korea. Peking radio broadcast a message agreeing to the proposal for armistice talks in Korea made by General Ridgway on June 30.

Southeast Asia. The Colombo plan for the economic development of S.E. Asia formally came into effect.

Thailand. After 36 hr. of fighting, order was restored and Marshal Pibul Songgram reassumed control as premier.

2: **Czechoslovakia.** The trial of William Oatis, a U.S. citizen and head of the Associated Press bureau in Czechoslovakia, on a charge of espionage, began in Prague.

Korea. General Ridgway broadcast his acceptance of the Communists' arrangements for cease-fire talks.

3: **Finland.** A general election was held on July 2-3. The Social Democrats, with 53 seats, became the largest party in the new Diet.

Aviation. The U.S. Navy Department claimed that a Douglas Skyrocket aircraft had flown faster and higher than any piloted aircraft had done before; performance figures were not given.

Exploration. It was announced that Trisul (23,382 ft.), Uttar Pradesh, India, had been ascended by two amateur climbers, an Englishman and an Indian schoolmaster, accompanied by the *sherpa* Tensin, a former Everest porter.

4: **Czechoslovakia.** William Oatis was sentenced to 10 years' imprisonment for espionage.

6: **Golf.** Max Faulkner won the Open championship at Portrush, County Antrim.

Lawn Tennis. R. Savitt (United States) won the men's championship at Wimbledon, beating K. McGregor (Australia) in the final.

7: **Greece.** A strike of civil servants for higher pay began.

Korea. Preliminary cease-fire talks between U.N. and Communist representatives took place at Kaesong.

United States-U.S.S.R. Admiral Kirk, U.S. ambassador in Moscow, handed to Andrey Vyshinsky, Soviet foreign minister, the text of a congress resolution reaffirming U.S. friendship with all peoples of the world.

Athletics. Mrs. S. Lerwill set up a new women's high jump record of 5 ft. 7½ in. at the White City stadium, London.

Lawn Tennis. Doris Hart (U.S.) beat Shirley Fry (U.S.) in the final of the women's singles at Wimbledon; she also won, with Miss Fry, the women's doubles and, with Frank Sedgman (Australia), the mixed doubles.

Rowing. Lady Margaret (Cambridge) beat Lagor (Netherlands) in the Grand Challenge cup final at Henley. T. A. Fox (Pembroke, Cambridge) beat E. Larsen (Denmark) in the Diamond sculls final.

8: **France.** The day was observed as the "birthday of Paris" during the city's bimillenary celebrations.

9: **Great Britain-Germany.** The state of war which had existed between the two countries since Sept. 3, 1939, was ended.

India. The National Planning commission announced its first "five-year plan" involving an expenditure of Rs. 1,793 crores (£1,344,750,000) on agriculture, industry and communications.

Persia-United States. President Truman offered to send Averell Harriman, his foreign affairs adviser, to help to reach a settlement in the Persian oil dispute. Mohammad Mossadegh, Persian prime minister, replied that President Truman's offer had come "too late."

10: **Greece.** The civil service strike spread to the public law services.

Korea. Armistice talks between U.N. and Chinese and North Korean representatives opened at Kaesong.

Boxing. Randolph Turpin (Great Britain) won the world middleweight title from Ray Robinson (United States) at Earls Court, London.

Cricket. England beat South Africa in the third test match at Old Trafford, Manchester, by nine wickets.

11: **Great Britain-Egypt.** Herbert Morrison, foreign secretary, announced that the British government had protested to the Egyptian government about the detention of the British ship "Empire Roach" by an Egyptian corvette near the Gulf of Aqaba on July 1.

Persia-United States. Mohammad Mossadegh accepted President Truman's offer to send Averell Harriman to mediate in the oil dispute.

12: **Japan.** The text of a draft peace treaty with the Allied powers was published in London and Washington.

Korea. The cease-fire negotiations were stopped when 20 U.N. pressmen were barred from entering Kaesong.

Persia. The Persian government informed the British government that it had rejected the suggestions of the International Court of Justice for an interim solution of the oil dispute.

13: **Great Britain.** A supplementary estimate of £75,972,530 for the new Ministry of Materials was presented to the House of Commons; the ministry would employ a staff of 1,926.

The foundation stone of the National theatre was laid at South Bank, London, by Queen Elizabeth.

Korea. General Ridgway, U.N. supreme commander, demanded that a resumption of the cease-fire talks should take place on "absolutely neutral" ground, without interference with U.N. delegations.

United States. Severe floods in Kansas and western Missouri, the worst for 50 yr., reached their height.

14: **Italy.** After a vote by the Christian Democrat parliamentary party against his policy, Giuseppe Pella, minister of the Treasury, resigned.

Korea. Armistice negotiations were resumed at Kaesong.

15: **Indochina.** Bao Dai, head of the Vietnam state, signed a decree ordering the mobilization of all Vietnam's resources.

Persia. Averell Harriman, President Truman's foreign affairs adviser, arrived in Tehran to mediate in the oil dispute.

16: **Great Britain.** During the committee stage of the Forestry bill an opposition amendment was carried by 232 votes to 229.

Belgium. King Leopold abdicated.

Italy. The remainder of the cabinet resigned.

Lebanon. Riad es-Sulh, prime minister in 1943-45 and 1947-50, was assassinated in Amman, Jordan.

17: **Belgium.** Baudouin, the prince royal, acceded to the throne as King Baudouin I.

Lebanon. Riots and a strike in Beirut followed the assassination of the former prime minister Riad es-Sulh.

18: **India.** Rafi Ahmed Kidwai, communications minister, and Ajit Prasad Jain, minister of rehabilitation, who had associated themselves with J. B. Kripalani's Praja party, resigned from the government and from the Congress party; both withdrew their resignations on July 21, but Kidwai again resigned on Aug. 2.

Ireland. The Abbey theatre, Dublin, was severely damaged by fire.

Aviation. A De Havilland Comet jet airliner flew from London to Johannesburg in 14 hr. 53 min. (average, 414 m.p.h. over 6,212 mi.).

19: **Great Britain-Egypt.** The Egyptian government's reply to the British protest at the detention of the "Empire Roach" asserted Egypt's rights in its territorial waters to search ships suspected of carrying war material to Israel.

Spain. General Franco reconstituted the cabinet; most of the new ministers were monarchists.

Aviation. The airship "Bournemouth" made its maiden flight from Cardington, Bedfordshire.

20: **Jordan.** King Abdullah was assassinated by an Arab terrorist in the Old City of Jerusalem.

Fine Arts. Major R. N. Macdonald-Buchanan gave 42,000 gns., a record price for a Constable, for that painter's "Stratford Mill" at Christie's, London.

21: **France.** René Mayer accepted the mandate to form a government.

Persia. The British cruiser "Euryalis" relieved the cruiser "Mauritius" off Abadan.

Rifle Shooting. Lieut. G. S. Boa (Canada) won the King's prize at Bisley, Surrey.

Horse Racing. T. Lilley's "Supreme Court" ridden by E. C. Elliot, won the King George VI and Queen Elizabeth Festival of Britain stakes at Ascot, Berkshire.

22: **Korea.** The cease-fire talks went into recess for four days at the request of the Communist delegate.

23: **France.** Philippe Pétain, former marshal of France and head of the French state, died in the Ile d'Yeu at the age of 95 years.

Ireland-Western Germany. A trade agreement between the Republic of Ireland and the German Federal republic was signed in Bonn.

25: **France.** René Mayer failed to obtain the necessary vote in the National Assembly for his appointment as prime minister.

Jordan. The cabinet resigned. Tewfik Pasha Abulhuda, the outgoing prime minister, formed a new cabinet.

Korea. The cease-fire talks were resumed.

26: **Great Britain.** The chancellor of the exchequer announced that the government would introduce in the autumn a bill controlling dividends for three years. An opposition motion in the House of Lords to end the use of identity cards was carried, 54-28.

Ethiopia. Eight men were sentenced to death at Addis Ababa for plotting to assassinate the emperor and set up a republic.

Italy. Alcide De Gasperi formed a coalition cabinet of 14 Christian Democrats and three Republicans; one of the ministers, Signora Cingolani, was the first woman member of the Italian cabinet.

Korea. The Chinese and North Korean and the U.N. delegates to the cease-fire talks at Kaesong agreed upon an agenda for an armistice conference.

27: **China.** Peking radio stated that all foreign religious missions had been ordered to cease their activities in China.

Korea. A U.S. army estimate gave Communist casualties as 1,221,434, including 163,699 prisoners, up to July 19.

28: **Greece.** Sophocles Venizelos, the prime minister, resigned.

29: **Israel.** A general election took place. The Mapai (Labour party) won 45 seats, remaining the strongest party in the Knesset: the General Zionists won 20 seats, a gain of 13.

30: **Persia.** The British foreign secretary announced that Richard Stokes, lord privy seal, would lead a British mission to Tehran for talks on the oil crisis.

31: **Indochina.** The governor of southern Vietnam, Thai Lap Thanh, and General C. M. F. Chanson, French commissioner and commander in the province, were assassinated by a Vietminh terrorist.

Persia. The refinery at Abadan closed completely. The British destroyer "Chevron" joined the cruiser "Euryalis" off the oil port.

Syria. The government resigned.

U.S.S.R. An article on freedom by Herbert Morrison, British foreign secretary, was published in *Pravda* together with a reply to it.

Cricket. The fourth England-South Africa test match at Headingley, Leeds, was drawn.

AUGUST

1: **Argentina.** Explosions, destroying sections of the tracks, occurred on all four main railways.

2: **Great Britain.** The Conditions of Employment and National Arbitration order ("Order 1305") was replaced by the Industrial Disputes order, 1951, which contained no provision making strikes illegal.

France. Maurice Petsche, premier designate, failed to obtain the required vote of confidence in the National Assembly; René Pleven was asked to form a government.

United States. The Department of the Army announced that 90 cadets of the United States Military academy, West Point, New York, were to be dismissed for cheating in their examinations.

3: **Boy Scouts.** The seventh World Jamboree opened near Bad Ischl, Austria.

4: **Belgium.** Constantin Canaris, head of the Gestapo in Belgium and northern France during World War II, was sentenced in Brussels to 20 years' hard labour for war crimes.

China. Fighting was reported on the Burma-China border between Nationalist, Communist and Burmese forces.

Persia. A British government delegation, led by Richard Stokes, arrived at Tehran for talks with the Persian government on the oil dispute.

5: **Korea.** General Ridgway, United Nations supreme commander, broke off the cease-fire talks after a Communist infantry company had entered the neutral conference area at Kaesong.

Greece. A new political party formed by Field Marshal Alexandros Papagos was given the title Greek Rally.

United Nations. British, French and U.S. delegations put before the Security council a resolution calling on Egypt to lift restrictions on shipping in the Suez canal.

U.S.S.R.-United States. It was announced that Nikolay Shvernik, chairman of the presidium of the Supreme Soviet, had sent a message proposing a five-power treaty to President Truman.

7: **Hungary.** The Communist press stated that deportations from Budapest carried out since May 21 included those of 21 former cabinet ministers of the Horthy government, 9 princes, 284 aristocrats, 190 generals, 1,012 staff officers, 274 senior police officers, 812 senior civil servants and 25 under secretaries of state.

8: **Great Britain.** The 113th meeting of the British Association for the Advancement of Science began in Edinburgh, under the presidency of the Duke of Edinburgh.

France. René Pleven (M.R.P.) obtained a vote of confidence from the National Assembly by 391 to 102 with 11 abstentions.

Persia-Great Britain. Formal negotiations between the delegations of the two governments, for a settlement of the oil dispute, began in Tehran.

9: **Italy.** The government received a vote of confidence in the Chamber of Deputies by 291 votes to 175 with 42 abstentions.

Portugal. General Francisco Higino Craveiro Lopes took the oath as president of the republic.

10: **Great Britain-Cuba.** A trade agreement between the two countries was signed in London.

Syria. A new cabinet was formed by Hassan Hakim.

11: **France.** The National Assembly approved the government of René Pleven by 390 votes to 222.

12: **Eastern Germany.** A rally of about 1·5 million young Communists took place in east Berlin, during the World Festival of Youth (Aug. 5-19).

Ecuador-Peru. The Ecuadoran foreign ministry stated that Peruvian troops had made four attacks on the Ecuadoran frontier since Aug. 9.

Japanese Peace Treaty. The U.S.S.R. accepted the invitation to attend the treaty conference in San Francisco.

13: **Great Britain.** The first national park joint board, that for the Lake District park, was set up.

Iraq. The government announced a new agreement with the three oil companies having concessions in Iraq; the government would receive half the profits of the companies' operations in Iraq.

Poland. After the trial of army officers for treason, espionage and conspiring to overthrow the régime, four generals were sentenced to life imprisonment.

14: **Great Britain-U.S.S.R.** The appointment was announced of Sir Alvary Gascoigne as British ambassador in Moscow, in succession to Sir David Kelly.

15: **Persia-Great Britain.** A plan for the settlement of the oil dispute, put forward by Richard Stokes, leader of the British delegation, was rejected by the Persian cabinet.

South Africa-Netherlands. P. I. Hoogehout, administrator of South-West Africa, was appointed South African ambassador to the Netherlands in succession to D. B. Bossman.

16: **Korea.** The Chinese and North Korean delegation accepted the U.N. delegation's proposal that a sub-committee should be set up to try to end the deadlock in the cease-fire talks.

Cross-Channel Swimming. The cross-Channel race organized by the *Daily Mail* was won by Mareeh Hassan Hamad (Egypt) in 12 hr. 12 min.; Brenda Fisher (Great Britain), set up a woman's record of 12 hr. 43 min.

17: **China.** An Italian and a Japanese were sentenced to death and the Roman Catholic bishop of Yihsien to life imprisonment for their part in an alleged plot to assassinate Chinese Communist leaders.

Cricket. Warwickshire beat Yorkshire by eight runs at Scarborough, thus winning the county championship.

18: **Cricket.** England won the fifth test match against South Africa at the Oval, London, by four wickets.

Yachting. The 14th Fastnet race (Cowes-Fastnet rock, off Ireland-Plymouth) was won by "Yeoman."

19: **Great Britain.** The meat ration was increased to 1*s.* 7*d.*-worth, all carcass-meat.

Korea. The U.N. forces launched a limited offensive in the Yanggu and Koson sectors.

Festivals. The fifth International Festival of Music and Drama was inaugurated at Edinburgh.

20: **Great Britain-France.** A monetary agreement between the two countries was signed in London.

U.S.S.R. General Bulba-Borowetz, commander of the anti-Soviet Ukrainian National guard, stated in Munich, Germany, that 200,000 anti-Soviet guerrillas were active in the Ukraine.

21: **Great Britain.** Princess Margaret Rose, younger daughter of King George VI, celebrated her 21st birthday.

African Defence. A conference on African defence opened at Nairobi, Kenya. The British delegation was led by Lord Ogmore.

India. Jawaharlal Nehru, the prime minister, resigned from the Congress working committee following disagreements with Purshottamdas Tandon, the party president.

Atomic Energy. The U.S. Navy Department announced that the contract for an atomic-powered submarine had been placed.

22: **China.** Sentences on 418 counter-revolutionaries were passed in Peking; of these 237 were death sentences.

Persia-Great Britain. Richard Stokes, leader of the British delegation, broke off negotiations with the Persians on the oil dispute after the Persian rejection of his demand for a British manager at the Abadan refinery.

23: **Korea.** The Chinese and North Korean delegation suspended the cease-fire negotiations after an alleged bombing by a U.N. aircraft.

South Africa. The Afrikaner party decided to merge with the National party.

24: **Indochina.** Operations begun by French and Vietnamese troops on Aug. 18 ended in the destruction of a large Vietminh supply base, 50 mi. southwest of Saigon.

Exploration. The National Geographic society, Washington, announced that the 1,350-ft.-deep Chubb crater, northwestern Quebec, had been proved to be of meteoric origin, and was thus established as the largest known meteoric depression of the earth's surface.

25: **Japanese Peace Treaty.** India announced that it would not send a delegation to the Japanese peace treaty conference at San Francisco in September.

Lawn Tennis. The United States won the Wightman cup, beating Great Britain by six matches to one, at Chestnut Hill, New York.

26: **Egypt.** Anti-British demonstrations in Cairo marked the 15th anniversary of the signing of the Anglo-Egyptian treaty.

Rowing. Cambridge University, representing Great Britain, won the European championship on the River Saône at Mâcon, France.

27: **Japan-Western Germany.** It was announced that a trade agreement had been concluded by the two countries.

28: **Jordan.** Six of the ten men accused of complicity in the assassination of King Abdullah were sentenced to death at Amman: two of those sentenced had escaped to Cairo.

30: **World Jewry.** The 23rd World Zionist congress ended at Jerusalem. Delegates from 60 countries attended.

31: **Argentina.** Eva Perón, wife of the president, announced that she would not stand for the vice presidency.

New Zealand. The National government was returned to power in the general election.

Aviation. An R.A.F. Gloster "Meteor" jet aircraft piloted by Flight Lieut. R. B. Prickett broke four world time-to-altitude records.

SEPTEMBER

1: **China.** The *Ta Kim Pao*, Shanghai, reported that 43 counter-revolutionaries had been sentenced to death.

United Nations. The Security Council adopted by 8 votes to none the three-power resolution calling on Egypt to lift the restrictions it had imposed on shipping in the Suez canal.

United States-Australia-New Zealand. A security pact between the three countries was signed in San Francisco.

Eclipse. A partial eclipse of the sun was visible in Great Britain from 1.20 P.M. to 2.53 P.M. G.M.T.

3: **Great Britain.** The 83rd annual Trades Union congress began at Blackpool, Lancashire.

4: **Japan.** A peace treaty conference with the Allied powers opened in San Francisco.

5: **Jordan.** Prince Talal was proclaimed king by parliament at Amman.

Persia. Mohammad Mossadegh, the prime minister, announced that the residence permits of British oil technicians still in Persia would be withdrawn if a satisfactory reply to his proposals to the British government was not received within two weeks.

6: **Great Britain.** In an explosion, followed by a serious fire, at Avonmouth docks, Bristol, about 12 million gal. of petroleum were destroyed.

India. Sixteen members of the Congress working committee resigned in support of Nehru.

Japanese Peace Treaty. Andrey A. Gromyko, Soviet delegate at the peace treaty conference in San Francisco, failed to secure discussion of 13 Soviet amendments to the draft treaty.

Persia-Great Britain. The British government broke off the oil negotiations.

7: **Czechoslovakia.** Prague radio announced that President Klement Gottwald would take over the office of secretary general of the Czechoslovak Communist party.

Korea. Heavy fighting continued on the western sectors.

Trieste. General Winterton, commandant of the Anglo-U.S. zone of the

Free Territory, postponed the elections which were to have been held on Oct. 7 and Oct. 14.

8: **Albania.** Major cabinet changes involved the dismissal of Mehmet Shehu, minister of state control, and Manus Myftiu, minister of justice.

India. Purshottamdas Tandon, president of the Congress party, resigned. Jawaharlal Nehru, the prime minister, was elected to succeed him.

Japanese Peace Treaty. The treaty was signed in San Francisco by Japan and 48 other countries.

9: **Czechoslovakia.** Nine new ministries were formed, for state control and investigation, industry and manpower.

Greece. A general election was held. The Greek Rally (Papagos), came first with 623,297 votes (114 seats).

Nigeria. Rioting by the "Otu Edo" political faction was reported to have taken place in the Benin division.

10: **Persia-Great Britain.** The British Treasury announced the withdrawal from Persia of certain financial and trade facilities.

Foreign Ministers' Conference. The foreign ministers of Great Britain, the United States and France met in Washington.

11: **Indochina.** Elections took place in Cambodia. The Cambodian Democrats (monarchists) gained a clear majority over all other parties.

Korea. U.N. headquarters announced that Admiral Joy, chief U.N. negotiator, had been instructed to apologise for an attack made on the neutral zone by a U.N. aircraft on Sept. 10. Peking radio rejected General Ridgway's proposal for an alternative neutral conference zone.

U.S.S.R.-France. The French chargé d'affaires in Moscow was handed a Soviet note of protest against French foreign policy.

Western Germany. A train from Czechoslovakia was driven along a disused line into Western Germany with the connivance of 25 of the 196 passengers on board.

12: **United States.** Robert A. Lovett, deputy secretary of defence, was appointed secretary in succession to General George Marshall.

Boxing. Ray Robinson (United States) beat Randolph Turpin (Great Britain), the holder, in their world middleweight return contest in New York.

Navigation. The 20-ft. yawl "Nova Espero," was brought safely into New York harbour by Stanley Smith and Charles Violet after crossing the Atlantic (*see* May 20).

14: **Persia.** Seyyed Zia-Eddin Tabatabaie, former prime minister, announced the revival of his National Will party.

Great Britain. Clement Attlee, the prime minister, opened an oil refinery at Fawley, Hampshire, the largest in Europe.

Foreign Ministers' Conference. The conference of the foreign ministers of the three countries ended in Washington. The ministers issued a declaration on their policy towards Germany, and a communiqué on German, Italian and Austrian peace settlements and other topics.

U.S.S.R. Three bombs were dropped by three aircraft, belived to be Soviet machines, near the British merchant ship "Berylstone" off Archangel.

15: **Eastern Germany.** Otto Grotewohl, premier, made a new offer to the federal government for free, secret elections for an all-German parliament.

N.A.T.O. A meeting of the North Atlantic council opened in Ottawa.

Horse Racing. The St. Leger was won by Marcel Boussac's "Talma II" (W. R. Johnstone up) at Doncaster, Yorkshire.

16: **Korea.** North Korean troops attacked U.N. positions north of Inje.

Malaya. The Independence of Malaya party, organized by Dato Onn Bin Ja'afar, member for home affairs in the federal government, was inaugurated at Kuala Lumpur.

Western Germany. A great rally of former members of the Afrika Korps took place at Iserlohn.

17: **Korea.** General Ridgway offered to reopen the armistice negotiations.

Persia. Averell Harriman's note urging the Persian government to modify its "ultimatum" to the British government was handed to the Persian prime minister, Mohammad Mossadegh. The Persian cabinet withdrew the right of the British Bank of Iran and the Middle East to deal in foreign exchange. It was announced that General Sarbipsadeh, General A. Razmara's chief of police, had been arrested for plotting against the régime.

United Nations. The Economic and Social council resolved unanimously to continue the work of the Economic Commission for Europe.

18: **Central Africa.** The conference on a proposed central African federation opened at Victoria Falls, attended by J. Griffiths, P. Gordon Walker, and representatives of Southern Rhodesia, Northern Rhodesia and Nyasaland.

Falkland Islands. The governor announced that the number of nominated members in the legislative council would be reduced from three to two to give the unofficial members a majority over the official.

Korea. Heavy fighting continued in east and central Korea.

Persia. The governor general of Azerbaijan, a political opponent of Mossadegh, was dismissed. M. Motaardi, a former deputy prime minister, and General Baghai, former police chief, were arrested in connection with an anti-government plot.

19: **Great Britain.** Clement Attlee, the prime minister, announced that a general election would be held on October 25.

20: **Finland.** A new cabinet was formed with Urho Kekkonen as prime minister and Sakari Tuomioja as foreign minister.

France. The National Assembly adopted by 410 votes to 203 a Socialist bill for the institution of a sliding scale of wages.

Germany. A trade agreement was signed by the German Federal republic and the German Democratic republic in east Berlin.

Korea. Peking radio broadcast a message from the North Korean and Chinese commanders asking for a resumption of the cease-fire negotiations.

N.A.T.O. The council's conference in Ottawa ended. In a communiqué the council announced that, subject to the approval of member parliaments, Greece and Turkey would be invited to join the treaty organization.

21: **Great Britain.** Thirteen people died as a result of the derailment of the 8.20 A.M. Liverpool-Euston express at Weedon, Northamptonshire.

Central Africa. The Victoria Falls conference on the proposed British Central African federation ended.

22: **Singapore.** The town of Singapore was raised to the status of a city.

23: **Great Britain.** King George VI underwent an operation for lung resection at Buckingham Palace, London.

24: **Commonwealth.** The Commonwealth Conference on Raw Materials opened in London.

Egypt. A re-shuffle of the cabinet took place.

Germany. Negotiations between the federal government and Allied High commission on the Washington decisions of Sept. 14 opened at Schloss Ernich, near Bonn.

Italy-United States. Alcide De Gasperi, Italian prime minister, arrived in Washington on a three-day visit.

Korea. Allied and Communist liaison officers met at Passimunjon and later at Kaesong. The Communists asked for an immediate resumption of the cease-fire talks. Bitter fighting north of Yanggu continued.

Palestine Conciliation Commission. The commission published its proposals.

Persia. The cabinet's decision not to negotiate further with Great Britain in the oil dispute was announced.

25: **Korea.** The Communist delegation broke off the negotiations between the liaison officers.

Norway-Great Britain. The 30-year-old Anglo-Norwegian fisheries dispute came up before the International Court of Justice at The Hague.

Persia. The government issued instructions to the Persian oil board to give British employees a week's notice from Sept. 27.

Western Germany. The *Stahlhelm* ex-service organization announced its revival.

27: **Great Britain.** The King authorized five counsellors of state to act for him until his return to health; the counsellors were: the Queen, Princess Elizabeth, Princess Margaret, the Duke of Gloucester and the Princess Royal.

28: **Argentina.** A military rising against the government was suppressed.

Persia-Great Britain. The Foreign Office announced that the oil dispute would be brought before the United Nations Security council.

29: **Argentina.** It was reported that Eva Perón, wife of the president, was seriously ill.

Greece. The king agreed to the formation of an Epek-Liberal coalition under Nikolaos Plastiras.

30: **Great Britain.** The Festival of Britain ended.

OCTOBER

1: **Great Britain.** The Labour party conference opened at Scarborough, Yorkshire.

Persia-Great Britain. The British Foreign Office announced that the remaining British staff at the Abadan oil refinery would be withdrawn.

United Nations. The Security council met to consider a British resolution on the Persian failure to observe the interim recommendation on the oil dispute of the International Court of Justice.

2: **Great Britain.** At the Labour party conference, Aneurin Bevan and his supporters secured the first three places in the voting for local party representatives to the national executive.

3: **U.S.S.R.** It was announced in Washington that the U.S.S.R. had recently exploded another atomic bomb.

4: **Persia.** All the British staff of the Abadan oil refinery were withdrawn on Oct. 3-4.

5: **Great Britain.** The 39th parliament of the United Kingdom was dissolved.

6: **Malaya.** Sir Henry Gurney, high commissioner for the federation, was assassinated by Communist terrorists near Fraser's Hill, Malaya.

U.S.S.R. Joseph Stalin acknowledged that an atomic bomb had been exploded in the Soviet Union.

7: **Israel.** David Ben-Gurion presented his Mapai (Labour)-Religious Front coalition to the Knesset. Ben-Gurion remained prime minister and minister of defence.

Korea. The Communists proposed Panmunjon, six miles east of Kaesong, as a site for the resumption of cease-fire negotiations.

Persia. Mohammad Mossadegh flew to New York to present the Persian case in the oil dispute to the U.N. Security council.

8: **Canadian Royal Tour.** Princess Elizabeth and the Duke of Edinburgh landed at Gander airport, Newfoundland, at the start of their tour of Canada.

Egypt-Great Britain. Nahas Pasha, Egyptian prime minister, asked parliament to approve the abrogation of the Anglo-Egyptian treaty of 1936.

Korea. General Ridgway, U.N. supreme commander, accepted the Communist proposals that the cease-fire talks should be resumed at Panmunjon.

9: **Canadian Royal Tour.** Princess Elizabeth and the Duke of Edinburgh visited Quebec.

Egypt-Great Britain. The foreign secretary stated that Great Britain would adhere to its right to maintain troops in the Suez canal zone.

Israel. Ben-Gurion's Mapai-Religious Front coalition received a vote of confidence of 56 to 40 with 1 abstention in the Knesset.

10: **Canadian Royal Tour.** Princess Elizabeth and the Duke of Edinburgh visited Ottawa.

11: **Iraq-Great Britain.** It was announced that the Iraqi government had approached the British government about a revision of treaty relations.

Western Germany. The day's issue of the neo-Nazi *Deutsche Opposition*, Hamburg, was confiscated.

Aviation. A De Havilland Comet jet airliner flew from London to Singapore, 7,809 mi., in a flying time of 18 hr. 47 min.

Royal Navy. The appointment of Vice Admiral Earl Mountbatten of Burma as commander in chief, Mediterranean, was announced.

Television. The British Broadcasting corporation opened a new transmitter at Holme Moss, Yorkshire.

12: **Canadian Royal Tour.** Princess Elizabeth and the Duke of Edinburgh arrived in Toronto.

13: **Egypt.** A state of emergency was proclaimed in Cairo.

Middle East. Great Britain, the United States, France and Turkey presented proposals to Egypt for the establishment of a middle east defence command in which Egypt would participate.

Venezuela. The government announced that it had put down an attempted revolt.

14: **Canadian Royal Tour.** Princess Elizabeth and the Duke of Edinburgh visited Niagara Falls.

Central America. It was announced that the foreign ministers of El Salvador, Nicaragua, Guatemala, Costa Rica and Honduras had signed a charter at San Salvador setting up a Union of Central American States.

Sudan. Sir Robert Howe, the governor general, said at a meeting of the executive council that unilateral abrogation of the 1899 condominium agreement would not be recognized.

15: **Great Britain.** Nominations of candidates for the general election (Oct. 25) were completed: 1,376 candidates were nominated.

Middle East. The Egyptian government rejected the four-power middle east defence proposal.

16: **Canadian Royal Tour.** Their royal highnesses visited Winnipeg.

Egypt. British troops and Egyptian police opened fire on rioters at Ismailia and Port Said.

Pakistan. Liaquat Ali Khan, the prime minister, was assassinated at Rawalpindi, West Punjab, by a member of the semi-military Khaksar organization.

17: **Egypt.** The British 16th Independent Parachute brigade began to move into the Suez canal zone.

Pakistan. Khwaja Nazimuddin resigned from the governor generalship and was succeeded by Ghulam Mohammad. Nazimuddin was appointed prime minister.

18: **Canadian Royal Tour.** Princess Elizabeth and the Duke of Edinburgh arrived at Calgary, Alberta.

Egypt. A British army convoy was fired on from automatic weapons between Ismailia and Tel el-Kebir, in the Suez canal zone.

Nobel Prizes. Max Theiler was awarded the 1951 prize for medicine and physiology.

19: **Egypt.** France announced her support for the British stand in the Suez canal zone.

Germany-United States. The state of war between the two countries ended.

20: **Canadian Royal Tour.** Princess Elizabeth and the Duke of Edinburgh arrived in Vancouver.

United States. At the end of its 82nd session congress finally passed a bill authorizing new appropriations for foreign aid of $7,328,903,976.

21: **Canadian Royal Tour.** Their royal highnesses arrived in Victoria, British Columbia.

India. It was learned that the government had given permission for a second group of Kazak refugees, who had been attacked by Chinese Communists, to enter Kashmir.

22: **U.S.S.R.** It was announced in Washington that a third atomic explosion had taken place in the Soviet Union.

23: **Egypt.** The transport of oil from Suez for Egypt's use was suspended by General Erskine, the British commander.

Persia. Mohammad Mossadegh, the prime minister, arrived in Washington and saw President Truman and (on Oct. 24) Dean Acheson.

Yugoslavia. A Conference for Peace and International Co-operation, sponsored by Yugoslavia and attended by 100 delegates from 15 western European countries, opened at Zagreb.

24: **Korea.** United States casualties were officially announced as 13,985 killed, 66,535 wounded and 12,477 missing.

25: **Great Britain.** A general election was held. The Conservative party was returned to power with a majority over all other parties of 11 seats. Over 82½% of the electorate voted. (Voting at Barnsley was deferred until Nov. 8 because of the death of the Labour candidate.)

26: **Great Britain.** Clement Attlee, the prime minister, resigned and Winston Churchill was asked by the king to form a government.

27: **Great Britain.** The prime minister, Winston Churchill, announced eight appointments to the cabinet, including those of Anthony Eden as secretary of state for foreign affairs, Sir David Maxwell Fyfe as secretary of state for home affairs and R. A. Butler as chancellor of the exchequer.

Canadian Royal Tour. Their royal highnesses arrived at Edmonton.

Albania. The Ministry of the Interior announced that 33 Yugoslav spies had been killed or captured during an armed encounter.

Egypt-Great Britain. Two notes were delivered to the British embassy—abrogating the 1936 Anglo-Egyptian treaty and the 1899 condominium arrangements for the Sudan, and demanding the withdrawal of British troops from the canal zone.

Greece. The Liberal-Progressive coalition cabinet of Nikolaos Plastiras took office.

28: **Canadian Royal Tour.** Princess Elizabeth and the Duke of Edinburgh arrived at Saskatoon.

Persia. Following the discovery of the Tudeh (Communist) party headquarters, 30 members of the party were arrested.

United States. An atomic bomb was exploded at the Atomic Energy commission testing ground in the Nevada desert.

29: **Canadian Royal Tour.** Their royal highnesses arrived in Montreal on their official visit to the city.

Egypt. The Suez Canal company announced that they had stopped night convoys through the canal and restricted night navigation to ships operating their own searchlights.

Indochina. Jean de Raymond, commissioner for the French republic of Cambodia, was assassinated at Phnom-Penh, Cambodia.

Middle East. The U.S. State Department announced that the governments of Syria, Lebanon, Iraq, Saudi Arabia, Jordan and Israel had been informed by the United States, Great Britain, France and Turkey that the establishment of a middle east defence command would proceed irrespective of Egypt's attitude.

30: **United States.** An atomic bomb was exploded at the Yucca Flat testing ground in the Nevada desert.

31: **Great Britain.** The new House of Commons met for the first time and elected W. S. Morrison (Conservative, Cirencester and Tewkesbury) as speaker.

Canadian Royal Tour. Princess Elizabeth and the Duke of Edinburgh flew from Montreal to Washington, D.C., where they were welcomed by President Truman.

NOVEMBER

1: **Communism.** The second Soviet-sponsored World Peace council opened in Vienna.

Egypt. The British military authorities announced that many British families would be evacuated from the canal zone.

Greece. The coalition government obtained a vote of confidence of 131-115.

Malaya. The annual report of the federation for 1950 stated that anti-bandit operations had cost the federal government about £15,895,000 during the year; security-force and civilian casualties had been 940 killed, 894 wounded and 106 missing; bandit casualties were 639 killed, 147 captured and 344 wounded.

Morocco. Rioting broke out in Casablanca when nationalist extremists tried to prevent electors from voting in the elections for the Chambers of Commerce and Agriculture.

Poland. It was learned that Władysław Gomółka, former deputy prime minister and Communist party general secretary, would be tried with two other ex-ministers for " deviationism."

United States. Troops took part for the first time in tests of atomic weapons in Nevada.

2: **Australia.** The acting minister of commerce said that owing to falling wheat production Australia would not be able to fulfil her 1951 export commitments.

Canadian Royal Tour. Princess Elizabeth and the Duke of Edinburgh flew back to Montreal after their visit to Washington.

3: **Argentina.** A bomb exploded in the centre of Buenos Aires causing much damage.

Germany. Wilhelm Pieck, the East German president, sent a letter to Theodor Heuss, the West German president, proposing a meeting in Berlin to consider the convening of an all-German assembly.

South-West Africa. It was learned that the South African government had informed U.N. of its willingness to submit its trusteeship to the supervision of Great Britain, France and the United States.

U.S.S.R.-Turkey. The U.S.S.R. delivered a note to Turkey protesting at its adherence to the North Atlantic treaty.

4: **Burma.** Rebels destroyed part of a pipeline supplying Rangoon with water.

Korea. U.N. forces repulsed Communist attacks north-west of Chorwon (central front) but yielded hill positions northwest of Yonchon (western front).

Persia. Tehran university was closed following Tudeh-inspired disturbances.

Golf. The United States retained the Ryder cup when they beat Great Britain by 9 matches to 2 at Pinehurst, North Carolina.

5: **United Nations.** At the end of the general assembly's fifth session in Paris, a Soviet resolution on Chinese representation in U.N. was defeated.

Nobel Prizes. It was announced in Oslo that Léon Jouhaux had been awarded the 1951 peace prize.

6: **Great Britain.** A royal commission of peers opened parliament on the king's behalf.

Canadian Royal Tour. Princess Elizabeth and the Duke of Edinburgh visited Fredericton, New Brunswick.

Egypt. A British note to Egypt denounced the Egyptian repudiation of the 1936 treaty as illegal and repeated the British government's willingness to negotiate for its revision. The British c. in c. in the canal zone said in a broadcast that the security measures being taken by British forces were due to the failure of the Egyptian police to keep order.

United Nations. President Auriol of France opened the general assembly's sixth session at the Palais de Chaillot, Paris.

7: **Great Britain.** In the House of Commons, R. A. Butler, the chancellor of the exchequer, stated that there had been a serious worsening in the balance-of-payments situation.

Canadian Royal Tour. Their royal highnesses arrived at Halifax, Nova Scotia.

Germany. President Heuss replied to President Pieck saying that the proposal for an Eastern-Western German commission under four-power control was a retrograde step.

Jordan. Parliament passed constitutional amendments providing for the cabinet's responsibility to parliament and the hearing of the popular voice in government.

Korea. The U.N. delegates at the cease-fire talks rejected Communist proposals for an immediate formal cease fire.

United States. President Truman broadcast a full account of armament proposals put forward by Great Britain, France and the United States.

Cricket. England won the first test match against India in New Delhi by 153 runs.

8: **Great Britain.** The Labour party won the parliamentary election at Barnsley postponed from Oct. 25.

United Nations. The three-power disarmament proposals were submitted to the general assembly; the Soviet foreign minister submitted counter-proposals.

9: **Egypt.** The government protested to Great Britain against the influx of British troops into Egypt and the " almost total seizure " of the Suez canal.

United States. An unofficial dock strike in New York ended after 25 days.

10: **Middle East.** A joint statement by the U.S., British, French and Turkish governments on the middle east command was issued in Paris.

Poland-Eastern Germany. A trade agreement, valid from 1952 to 1955, was signed in Warsaw.

Syria. The government of Hassan Hakim resigned following disagreements over the four-power middle east command.

United Nations. In the general assembly steering committee a Thai motion for postponing consideration of Chinese representation was carried. The committee decided to place before the assembly Yugoslavia's complaint of " hostile activities " against it by the Soviet *bloc*.

11: **Canadian Royal Tour.** Princess Elizabeth and the Duke of Edinburgh arrived at St. John's, Newfoundland, in H.M.C.S. " Ontario."

Argentina. In presidential elections, General J. D. Perón was re-elected by a large majority.

Egypt. Two thousand dockworkers struck in Alexandria in support of the anti-British boycott.

Nepal. Five cabinet ministers, members of the Nepalese Congress party, resigned.

12: **Great Britain.** An opposition amendment to proposals in the king's speech concerning iron and steel and road haulage was defeated by 320 votes to 281.

Canadian Royal Tour. Princess Elizabeth and the Duke of Edinburgh left St. John's, Newfoundland, in the liner " Empress of Scotland," to return to Great Britain.

Nepal. The prime minister, Maharaja Mohan Shumshere Rana, resigned.

13: **Norway.** Oscar Torp succeeded Einar Gerhardsen as prime minister.

Cricket. Australia beat the West Indies by three wickets in the first test match at Brisbane.

14: **Argentina.** The government press announced that 97 army officers had been sentenced to imprisonment or cashiered after the rising of Sept. 28.

Indochina. French and Vietnamese forces in Tongking captured the Vietminh base at Hoa-Binh.

15: **Nobel Prizes.** The physics prize was awarded jointly to Sir John Cockroft, and Professor E. T. S. Walton. The chemistry prize was shared by Professors G. T. Seaborg and E. M. McMillan. The literature prize was given to Pär Lagerkvist.

16: **Great Britain.** The Yorkshire Electricity board was fined £20,000 and Col. W. M. Lapper, its chairman, sentenced to six months' imprisonment for exceeding a building authorization.

Bulgaria. It was announced that 35 imperialist agents had been sentenced to death in Sofia.

Greece. Fifty members of a Communist network discovered on Nov. 14 were arrested and 12 sentenced to death.

Nepal. The new cabinet of eight Congressmen and four independents was sworn in.

17: **Canadian Royal Tour.** Princess Elizabeth and the Duke of Edinburgh arrived in London after their tour of Canada.

18: **Egypt.** Fighting started in Ismailia after Egyptian police had fired at a British military police jeep.

Greece. The prime minister reprieved those sentenced on Nov. 16, under the leniency measures.

Korea. The Communist delegates asked for an adjournment of the cease-fire talks until Nov. 21.

Syria. Maruf ed-Dawalibi, leader of the People's party, was invited to form a government.

19: **Great Britain.** Many firemen throughout the country began a 48-hr. stoppage of routine duties in support of their claim to equal pay with the police.

Egypt. Following a conference between General Erskine and the Egyptian governor of the canal zone, the Ismailia police were disarmed.

Israel. Chaim Weizmann was re-elected president by the Knesset.

Tibet-China. It was reported that the Tibetan government had ratified the treaty between the two countries signed in Peking on May 23.

United States. An atomic explosion testing the effect on animals and equipment took place at the Frenchman's Flat proving ground, Nevada.

20: **Anglo-Egyptian Sudan.** Four leading members of the pro-Egyptian Ashigga party were arrested at Khartoum.

France. The National Assembly voted confidence in the government's economic plan by 246 votes to 228.

Nigeria. Elections to the House of Assembly took place in the western region; all five seats were won by the National Council of Nigeria and the Cameroons.

Rugby Football. The South African touring team beat Scotland by 44 points to nil at Murrayfield, Edinburgh.

21: **Great Britain.** The deputy mayor of Stalingrad, Mrs. Tatyana Murashkina, began a two-day visit to Coventry.

22: **Western Germany.** The three western foreign ministers and the German chancellor approved a draft agreement on the status of Germany.

23: **Malaya.** A conference of British representatives in east Asia opened at Bukit Serene, Malaya.

24: **Great Britain.** The merger of Lord Nuffield's Morris Motors, Limited, with the Austin Motor Company, Limited, was announced.

N.A.T.O. A meeting of the Atlantic Council opened in Rome.

25: **Persia.** Mohammad Mossadegh received a vote of confidence in the Majlis.

26: **Korea.** After a 7¼-hr. meeting, U.N. and Communist staff officers reached agreement on a 145-mi. truce line across Korea.

27: **Great Britain.** Harold Macmillan, minister of housing and local government, announced that the government had decided to increase from one-fifth to one-half the proportion of each local authority's housing allocation which could be built by private enterprise.

Czechoslovakia. It was announced that Rudolf Slansky, deputy prime minister and former secretary-general of the Communist party, had been arrested for espionage and subversive activity.

Korea. The armistice negotiators agreed on a provisional demarcation line at a plenary meeting at Panmunjon, western Korea.

28: **Egypt.** General Erskine reached an agreement with the Egyptian governor of the canal zone under which Egyptian police would be re-armed to round up terrorists and Ismailia, Port Said and Suez would be out of bounds to British troops.

Korea. An unofficial cease-fire took place all along the line.

Syria. Maruf ed-Dawalibi, leader of the minority People's party, formed a government.

Thailand. Military leaders, led by Field Marshal Pibul Songgram, staged a bloodless *coup*, dissolving parliament and restoring the 1922 constitution.

29: **Great Britain.** It was announced that prices paid to farmers for crops and livestock would be raised to meet increased costs.

Syria. Maruf ed-Dawalibi's government was deposed by an army *coup d'état* led by Colonel Adib es-Shishakly.

30: **France.** The foreign affairs committee of the National Assembly adopted by 26 votes to 18 a report in favour of ratification of the treaty instituting a European coal and steel community.

Indochina. French and Vietnamese troops were reported to have repulsed Vietminh forces northwest of Hoa-Binh.

United Nations. Andrey Vyshinsky agreed to private four-power disarmament talks under the president of the U.N. assembly.

DECEMBER

1: **Czechoslovakia-Eastern Germany.** A trade agreement covering 1952-55 was signed in Berlin.

France. The finance minister announced that France would receive $600 million in aid from the United States up to June 30, 1952.

Hungary. The prime minister announced increases in prices and social security benefits, and the end of food rationing.

Italy. Prince Valerio Borghese was elected president of the neo-fascist Movimento Sociale Italiano.

Korea. The Communist truce delegation insisted on the right to build airfields during armistice negotiations.

Persia. The cabinet recognized Farouk as king of Egypt and the Sudan.

Thailand. General Phin Chunhawan, army c. in c., who had headed a temporary executive body after the *coup* of Nov. 28, handed over to a new government.

United Nations. The *ad hoc* political committee voted by 50 votes to 5 in favour of a Yugoslav resolution on the hostile activities of the Soviet *bloc*.

2: **China.** Five Canadian nuns were sentenced in Canton to imprisonment and deportation for "murdering and maltreating children."

Syria. Hashim el-Atassi, the president, resigned and a military council proclaimed Colonel Adib es-Shishakly, chief of the army general staff, as chief of state.

Thailand. King Phumiphon Adundet and Queen Sirikit, with their daughter, arrived in Bangkok.

3: **Egypt.** Clashes between British troops and Egyptian police outside Suez resulted in the death of three British and eight Mauritian soldiers.

Hungary. The Hungarian government announced that a U.S. C47 bomber had been forced down in Hungary by Soviet fighters.

Kuwait. A new agreement was signed by the Kuwait Oil company and the sheikh, increasing the sheikh's revenues to about £50 million a year.

Syria. The higher military council appointed Colonel Fawzi Silo head of state, prime minister and defence minister.

Western Germany-Great Britain. Konrad Adenauer, federal chancellor, arrived in London on an official visit.

4: **Great Britain.** An opposition motion against the proposed increase in the permitted ratio of new houses to be sold was rejected by 296 votes to 274.

Philippines. About 650 people were killed in an eruption of the Hibok-Hibok volcano, Camiguin island.

5: **Great Britain.** Twenty-three boys were

killed and 19 were injured (one dying later) when a 'bus ran into the back of a squad of Royal Marine cadets at Gillingham, Kent.

Egypt. In Cairo and Alexandria Egyptian police fired on extremist demonstrators. A bomb exploded in the British institute, Alexandria.

Yugoslavia. It was announced that Archbishop Stepinac, senior Roman Catholic prelate of Yugoslavia, had been conditionally released from his 16-yr. sentence, imposed in Oct. 1946.

Cricket. Australia beat the West Indies by seven wickets in the second test match in Sydney.

6: **Great Britain.** The prime minister announced that the calling up of class Z reservists for the army would be repeated in the summer of 1952.

Bechuanaland Protectorate. The British government announced its intention to allow Tshekedi Khama to return to the Bamangwato reserve as a private citizen.

Persia. Severe rioting between student and schoolchildren's organizations and police-protected members of the "Toilers'" party took place in Tehran.

7: **Great Britain.** The minister of education asked local authorities to reduce education expenditure estimates by 5%.

8: **Korea.** A U.N. spokesman said that the armistice talks had reached stalemate.

Rugby Football. The South African touring team beat Ireland by 17 points to 5 in Dublin.

9: **China.** The U.S. government said that Chinese-Americans making blackmail payments to protect relatives in China would be liable to prosecution under the Trading with the Enemy act.

Poland-Sweden. The conclusion of a one-year trade agreement was announced.

Sudan. The formation of the Socialist Republicans, a party of "notables, government officials, merchants and tribal chiefs" was announced.

10: **Great Britain.** The king signed a warrant for letters patent revoking the appointment of counsellors of state appointed on Sept. 27.

Four-Power Talks. Private disarmament talks between Great Britain, the United States, France and the U.S.S.R. ended in Paris.

Indochina. The Vietminh launched a major offensive to recapture Hoa-Binh.

11: **Council of Europe.** The assembly recommended by 74 votes to 22 with 5 abstentions that each participating state should appoint a minister for European affairs.

Foreign Ministers' Conference. The conference on a European army at Strasbourg of the foreign ministers of France, Western Germany, Italy and the Benelux countries proposed an army controlled by a council of ministers responsible to an assembly.

12: **South Africa.** The government decided to withdraw its delegation from the U.N. general assembly pending satisfactory consideration of its complaints against the Trusteeship council.

United Nations. Andrey Vyshinsky, in a statement to the political committee, called for the general assembly's unconditional prohibition of atomic weapons and for international control.

13: **Egypt-Great Britain.** The Egyptian ambassador in London was withdrawn.

France. The National Assembly adopted the bill ratifying the Schuman plan treaty by 377 votes to 233.

Switzerland. The two houses of parliament, in joint session, elected a new government for a term of four years.

14: **Nepal.** Maharaja Mohan Shumshere Rana, former hereditary prime minister, left Kathmandu for Bombay.

15: **Finland.** Parliament passed an emergency law giving the government powers to curb inflation.

Indochina. The battle for Hoa-Binh ended in favour of the French and Vietnam forces after about 7,000 Vietminh casualties had been inflicted.

Western Germany. Forty-five war criminals were released by the British and U.S. authorities in a Christmas amnesty.

16: **Egypt.** The minister of the interior announced that the government would release the property of the Moslem Brotherhood, sequestered in 1948.

Uruguay. As the result of a plebiscite, the presidency was abolished and replaced by a council of nine.

17: **Great Britain.** Winston Churchill and Anthony Eden arrived in Paris for talks with French ministers.

The London Foreign Exchange market, closed since 1939, was reopened for forward dealing in currencies.

18: **International Court of Justice.** The court, in its judgment on the British-Norwegian fisheries dispute, decided by 10 votes to 2 that the method employed by Norway for the delimitation of the fisheries zone was not contrary to international law.

Korea. Communist and U.N. representatives at Panmunjom exchanged lists of prisoners of war.

19: **Korea.** At Panmunjom the U.N. delegates protested that the Communist list of war prisoners was incomplete; the Communists complained that the U.N. list was useless because the prisoners' names were in Latin characters; the U.N. delegates promised to supply a list in Chinese or Korean characters.

United Nations. The political committee voted in favour of the western powers' proposals for a disarmament commission. The *ad hoc* political committee adopted the western resolution for a commission to examine the possibility of holding free elections in Eastern and Western Germany.

Cricket. The second India-England test match ended in a draw in Bombay.

20: **Muscat-Great Britain.** A treaty of friendship, commerce and navigation was signed at Muscat.

United Nations. The assembly adopted the *ad hoc* political committee's resolution for a German election commission.

21: **Egypt.** General Erskine, the British c. in c., imposed a dusk-to-dawn curfew in key areas of Ismailia.

France. A strike of the flying staff of Air France began.

United States. One hundred and nineteen men were killed in an explosion at the New Orient bituminous coal mine at West Frankfort, Illinois.

22: **Czechoslovakia.** It was announced that Jaromir Dolanský, head of the state planning commission, would succeed Rudolf Slansky as a vice premier.

Egypt. Ibrahim Farag, acting foreign minister, stated that Egypt would not submit its dispute with Great Britain to U.N.

Greece. Parliament ratified the revised constitution by 132 votes to 8, the Greek Rally abstaining.

Rugby Football. South Africa beat Wales by 6 points to 3 at Cardiff.

23: **Hungary-United States.** The four members of the crew of the U.S. bomber forced down in Hungary (*see* Dec. 3) were fined 360,000 forints ($30,000) each for violation of the Hungarian frontier.

Exploration. The relief ship "Norsel" arrived at Maudheim, Antarctica.

24: **Libya.** Independence was formally proclaimed and the Emir Idris es-Senussi ascended the throne as Idris I, king of the United Kingdom of Libya.

25: **Great Britain.** A recording of King George VI's Christmas Day message was broadcast. The king had made the recording beforehand to avoid strain on his voice following his lung operation.

South Africa. Forty-one Africans were killed and 500 injured in clashes between tribal and other factions on the outskirts of Johannesburg.

Cricket. The West Indies beat Australia by six wickets in the third test match at Adelaide.

26: **Bulgaria.** A court in Sofia condemned to death 4 of 10 men accused of spying.

Egypt. General Erskine stated that if Egyptian "youth commandos" entered the canal zone to attack British troops he would be compelled to crush them.

Korea. General Ridgway was authorized to extend the 30-day period for agreement on an armistice for 30 more days.

27: **Egypt.** After further clashes between students and the police, the authorities ordered colleges and secondary schools in Cairo to be closed.

United States-U.S.S.R. It was announced that George Kennan had been nominated U.S. ambassador to the Soviet Union.

Sport. *Soviet Sport*, organ of the Soviet Union sports committee, announced that Russia would participate in the Olympic Games, Helsinki, 1952.

28: **Korea.** It was announced in the *London Gazette* that Private W. Speakman, Black Watch attached to King's Own Scottish Borderers, had been awarded the Victoria Cross.

Lawn Tennis. Australia held the Davis cup, beating the U.S. in the challenge round at Sydney.

29: **Korea.** The U.N. delegation made their final truce proposals.

30: **Persia.** A ban on travel abroad was announced.

31: **Great Britain-United States.** Winston Churchill, the British prime minister, and Anthony Eden, foreign secretary, sailed for the U.S. in the "Queen Mary."

Indonesia. The acting foreign minister announced that Indonesia had recognized Farouk as king of Egypt and the Sudan.

BOOK OF THE YEAR

ABYSSINIA: *see* ETHIOPIA.

ACCIDENT PREVENTION. *Road Safety.* The British government's National Road Safety campaign was continued in co-operation with the Royal Society for the Prevention of Accidents. The year's theme, linked to the Festival of Britain, was "Courtesy." Television and broadcast items included hints to overseas visitors.

One thousand local road safety committees held an average of 450 meetings a month and co-operated in a national safety week. Monthly statistics were published in the press. In June 1951, road casualties since the war reached the total of one million. *Fatal Road Accidents to Children—1950* showed that 1950 had the lowest child fatality total for 25 years. The improved trend continued during 1951.

The Pedestrian Crossings (General) Regulations, 1951, came into operation on Oct. 31. Their main provision was for precedence to pedestrians at authorized uncontrolled crossings only, in the vicinity of which vehicle waiting or parking was restricted. All authorized crossings were painted in zebra (black and white) lines.

Organizations and the public protested at limiting the number of crossings by two-thirds, demanded by the Ministry of Transport. The National Safe Driving competition was to withhold awards to drivers convicted under the pedestrian crossing regulations. The government's Committee on Road Safety set up sub-committees to consider (i) motor-cycling accidents and (ii) suggestions for making law of parts of the Highway code. The minister of transport addressed the National Safety congress, attended by 1,000 delegates, including representatives of overseas safety organizations.

The "Aetna Roadometer," a mechanical driving tester, giving an automatic analysis of driving characteristics, was sent from the United States by the Aetna Life Affiliated companies for showing at the congress. A new rear-projection cinema and mobile training centre was opened by the parliamentary secretary to the Ministry of Transport (Lord Lucas).

The Ro.S.P.A. assisted in preparing a paper presented at the Lisbon congress of the Permanent International Association of Road Congresses. Great Britain was represented on a working party on the prevention of road accidents (convened by the Inland Transport committee of the U.N. Economic Commission for Europe), which suggested uniformity in international statistics, temporary withdrawal of licences of drivers under the influence of drink involved in accidents, production of an international handbook on road safety and organization of an international propaganda campaign. More than 270,000 drivers were entered in the National Safe Driving competition. Two drivers received the society's award for 32 consecutive years of safe driving. The House of Lords debated "The problem of road accidents with special reference to road improvements and maintenance." The Ro.S.P.A. displayed at the Ideal Home exhibition, International Motor show, Cycle and Motorcycle show and the transport section of the South Bank exhibition. *The Times* re-published letters and articles in a booklet *Accidents on the Road.* A reprinted series of Highway Hints appeared in the London *Evening News.*

Home Safety. The report of the government's Interdepartmental Committee on Home Accidents, published after four years' work, stated that a substantial reduction of home accidents would depend on improvement of domestic appliances and greater public awareness. The Home Office electrical branch reported on 42 fatal home electrical accidents during 1950. The Board of Trade issued warnings against the use of an imported toy iron which could be connected to normal electrical equipment. Press publicity was given to the danger of leaving children unattended at home.

Recommendations for an adequate fire-guard were issued by the Women's Advisory Council on Solid Fuel. A report appeared of an enquiry by the chief scientific advisory division, Ministry of Works, into domestic accidents relating to building design. The research group of Old People's Welfare was investigating safe furniture designs. An exhibition on home fire prevention was staged jointly by the L.C.C. and the Home Office. The Ideal Home exhibition included a stand on home safety.

Industrial Safety. A national industrial housekeeping week was held in April and chambers of commerce, local



One of the "Zebra" pedestrian crossings which, in Nov. 1951, replaced the Belisha crossings.

authorities and industry generally co-operated. A " People at Work " conference, organized jointly by the Industrial Welfare society, the National Institute of Industrial Psychology and the Ro.S.P.A. was opened by the minister of labour and national service.

The 1951 National Industrial Safety conference and exhibition was held in May. Other conferences included a chemical works safety conference and the fifth annual conference of the Industrial Safety Officers' section.

Industrial safety stands were included in the Engineering, Marine and Welding exhibition and the Manpower exhibition at the Safety, Health and Welfare museum; a Birmingham industrial safety exhibition included displays showing how adoption of safety devices has reduced accidents.

The annual report of the chief inspector of factories for 1949 was published. It stated that reportable accidents fell by over 8,000. Accidents to young persons continued to decrease; in 1949 they numbered 9,000 as compared with 24,000 in 1944. The latest report of the chief inspector of mines (1949) showed reductions in fatal and non-fatal accidents. The chief inspector of factories set up committees to consider safety problems in the use of hydraulic presses and press brakes.

Revised preliminary draft regulations as to safety, health and welfare concerning engineering were published. A memorandum by the senior electrical inspector of factories on the electricity regulations was published for the first time since 1934.

Guide to the Regulations of the Factories' Act, 1947-48; *Guide to the Building (Safety, Health and Welfare) Regulations, 1948* (prepared by the I.C.I.); *Eye Protection for Industrial Workers*; *Supervisor's Guide to the Building Regulations*; and two new I.C.I. codes—*Portable and Transportable Plant and Equipment* and *Railways and Haulages (Design)* were published by the Ro.S.P.A.

A paper was given by C. Oakley at the British Association for the Advancement of Science on the prevention of industrial accidents. Eleven Ro.S.P.A. poster designs were included in the 1951 National Poster Exhibition among examples from 17 countries. (H. Su.)

TABLE I. ACCIDENTAL DEATHS AND INJURIES IN GREAT BRITAIN

	1948	1949	1950
Killed			
Railways	367	321	316
Roads	4,513	4,773	5,012
Coal Mines	468	460	493
Factories	861	772	799
Injured			
Railways	30,050	29,311	27,016
Roads	148,884	172,006	196,313
Coal Mines	182,600	229,000	237,800
Factories	200,225	192,210	192,260

TABLE II. ACCIDENTAL DEATHS IN AND ABOUT THE HOME, ENGLAND AND WALES

	1947	1948	1949
Falls and Crushing	4,001	3,498	3,591
Drowning	1,149	984	988
Burns, Scalds and Conflagrations	904	651	667
Suffocation	1,054	838	797
Others	1,482	1,315	1,398
Total	8,590	7,286	7,441

United States. Accidents caused 90,000 deaths in the United States in 1950. Information available at the end of Oct. 1951 indicated that the 1951 accidental death total would be somewhat higher than in 1950. In addition to the deaths, accidents in 1951 also caused more than the 1950 total of 9 million non-fatal injuries. In Dec. 1951 the millionth traffic accident fatality occurred, the first fatal motor vehicle accident on record having occurred in Sept. 1899.

Several hundred members of the committees and subcommittees of the President's Conference on Industrial Safety met in Washington in May to report on progress made on programmes agreed upon the previous year. It appeared, late in 1951, that the year's toll of occupational accident fatalities would probably be a little greater than the 1950 toll of 15,500.

As 1951 drew to a close, it appeared that the number of traffic accident deaths would be close to 37,500—the largest annual total since 1941. This increase in deaths was apparently matched by the increase in miles travelled by motor vehicles. A meeting of the President's Highway Safety conference was held in Washington in June. Leading points considered by the delegates were adequate accident records and tighter requirements in the issuance of drivers' licences.

Recognition of the seriousness of the farm accident problem was indicated by the fact that, in 1951, 26 states had state farm safety committees and 12 states had a full-time farm safety specialist, working through public and private agencies to spread information on the problem and ways and means of meeting it. The president of the United States, for the eighth successive year, proclaimed a National Farm Safety week, in July 1951, which attracted unprecedented attention to the problem of rural accidents. More than 1,100,000 pieces of educational material were distributed, and radio, newspaper and magazine support was outstanding.

The 1950 toll of deaths in home accidents was 27,500. Reports for the first ten months of 1951 indicated that they were about as many as in 1950.

During 1951 about 85 of the several hundred local and state safety organizations throughout the country qualified for acceptance as chapters of the National Safety council, to represent the National Safety council in the communities in which they worked, although at the same time to retain their autonomy. The 39th National Safety congress was held in Chicago in Oct. 1951, with an attendance of about 12,000. In addition, about 30 regional safety conferences were held during the year. (R. L. Fo.)

ACHESON, DEAN GOODERHAM, U.S. statesman (b. Middletown, Connecticut, April 11, 1893), attended Groton school and graduated from Yale university in 1915 and from the Harvard law school in 1918. He served in the navy in World War I and was for two years private secretary to Louis Brandeis, associate justice of the Supreme court. He practised law, served for six months as under secretary of the treasury in 1933 and entered the State department in 1941, first as assistant secretary of state and later (Aug. 1945-June 1947) as under secretary. He became secretary on Jan. 21, 1949. Acheson was one of the principal authors of the Truman foreign policy and strongly supported measures for international co-operation such as the North Atlantic alliance. Yet, because he had been high in government counsels during the war and postwar periods when the Soviet Union and international Communism gained greatly, he was the continual target of criticism from foreign policy critics within both political parties. Especially after the entry of Communist China into the Korean war, demands for his resignation grew, and President Harry S. Truman repeatedly issued denials that Acheson would leave his post. The storm about him became hottest after the dismissal on April 11, 1951, of General Douglas MacArthur from his far east posts.

He presided at the San Francisco conference on the Japanese peace treaty Sept. 4-8, signing the treaty on Sept. 8, and his capable handling of the conference won him admiration even from some of his former critics.

ADEN. British colony and protectorates and a free port on the southern coast of Arabia.

Colony. Area: 80 sq.mi. (incl. Perim island [5 sq.mi.], the

strait of Bab el Mandeb and Kuria Muria islands). Pop.: (1946 census) 80,876; (1950 est.) 100,000. Language: Arabic; Indian dialects and Somali also spoken. Religion: Moslem. Administration: governor; executive council, 3 *ex-officio* and 3 nominated members; legislative council, 4 *ex-officio* and up to 12 nominated members.

Protectorates. Western and eastern, the latter including the Hadhramaut and Socotra island. Area, 112,000 sq.mi. Pop. (1950 est.): 800,000. Religion: Moslem. Administration: indirect, by sultans with advice of political officers under British agents. Premier chieftain (western), Fadl Abdul Karim, Sultan of Lahej; premier chieftain (eastern), Sir Salih bin Ghalib al Qu'aiti, Sultan of Shihr and Mukalla. Governors (1951): Sir Reginald S. Champion and (from Aug. 3) Tom Hickinbothom.

History. A conference held in London in Sept. 1950 with representatives of the Yemen bore fruit early in 1951 in an agreement to establish diplomatic relations and the appointment of a joint commission to demarcate frontiers. Relations between Aden and the Yemen improved greatly in 1951. Nationalist disorders within the protectorate, in which the sultan of Mukalla and the British agent for the western protectorate had been attacked and several rioters killed and wounded in Dec. 1950, did not recur and the year was one of peaceful progress. Excellent progress continued to be made on the Abyan irrigation scheme, under which it was hoped to irrigate about 100,000 ac. of good land, mostly for cotton growing.

Education. Colony, 4,000 primary scholars; protectorate 6,500.

Finance and Trade. Currency: Indian rupee (Rs.1 = 1*s.* 6*d.*); (from Oct. 1951) East African shilling (20*s.* = £1). Budget (1951 est.): revenue Rs. 14,700,000; expenditure (incl. development) Rs. 20 million. Foreign Trade: imports (1950) Rs. 42 million; exports Rs. 19 million. Trade is mostly entrepôt. Principal exports of local origin: salt (255,865 tons in 1950) and fish (120,000 tons in 1949). In 1950 the port was used by 4,283 ships (tonnage 17,984,884). (K. G. B.)

See Lord Belhaven, *The Eagle and the Sun* (London, 1951).

ADENAUER, KONRAD, German lawyer and statesman (b. Cologne, Jan. 5, 1876), was educated at the Gymnasium St. Aposteln, Cologne, and at the universities of Freiburg-im-Breisgau, Munich and Bonn. In 1906 he was elected councillor and deputy mayor of Cologne, becoming lord mayor (*Oberbürgermeister*) in 1917. A leading member of the Catholic Centre party, he was a member of the Prussian upper houses from 1917 to 1933 (president from 1928 to 1933). He was dismissed by the nazis from the position of Oberbürgermeister in July 1933 and a year later was imprisoned for a short time in a drive against Catholic leaders. He was again imprisoned in 1944 after the attempt on Adolf Hitler's life. The United States occupation authorities made him mayor of Cologne in the spring of 1945, but in October the British, who had taken over the area, dismissed him, forbidding him to take part in politics; however, this prohibition was soon removed. A foundation member of the Christian Democratic union in Sept. 1945, he was president (1948-49) of the parliamentary council of the three western zones which drafted the basic law (constitution) of the German Federal republic; he became chancellor of the republic in Sept. 1949.

Adenauer's chancellorship was marked by the substantial economic recovery of the republic and by renewed German participation in external politics (*see* GERMANY). He visited Paris in April 1951 and Rome in June. He took the initiative in proposing to the three western occupying powers (Oct. 4) that the United Nations should be asked to appoint a commission to inquire in east and west Germany whether free all-German elections could be held. He again visited Paris (Nov. 20-23) for talks with Dean Acheson, Robert Schuman and Anthony Eden. In visiting London on Dec. 3 Adenauer was the first German chancellor since Heinrich Bruening (1931) to be received there. He had discussions with Winston Churchill and Anthony Eden and on Dec. 4 addressed members of the House of Lords and the House of Commons under the auspices of the Inter-Parliamentary union; he visited Oxford university, Dec. 5, and met Clement Attlee, leader of the opposition, and leaders of the Liberal party on Dec. 6. Adenauer was received by King George VI at Buckingham palace on Dec. 7 and returned to Bonn on Dec. 8. He paid another visit to Paris, Dec. 28-30, to continue discussions on the European army project. (R. JA.)

ADULT EDUCATION. Existing facilities for adult education continued to attract growing numbers of students in many countries. On the other hand, there were signs that the unpromising economic situation was having an adverse effect on the development of new facilities. In general, schemes for providing a fundamental education for backward peoples and attempts to bring national movements into closer international contact took precedence over any spectacular new developments in individual countries.

In Jan. 1951 adult educationists from the United States, the Scandinavian countries and India held a weekend conference at Pearson Foundation college (U.S.) to discuss means of tightening the links between adult colleges throughout the world. In September, the Carnegie Endowment for International Peace arranged a round-table conference of leaders in community education in New York and Washington. Its purpose was to begin a study of agencies for international relations, with special reference to the humanitarian aspects of the United Nations' work. In April the director general of U.N.E.S.C.O. spoke in London of his organization's plans for training 4,000-5,000 teachers and specialist field-workers for fundamental education during the following 12 years.

At Cambridge, members of the Colonial Office, the Universities Council for Adult Education and the Cambridge Board of Extra-Mural Studies met in August to discuss adult education in the colonies. The third annual report of the residential college at Burton Manor, Cheshire, recorded in July a growing relationship with industry illustrated by all courses in supervisory management being fully booked to the end of the year, while in Wales the report of the University Extension board showed that 40% of people attending classes were women, with agricultural workers close behind and industrial employees far down the list. A report presented at the conference of the National Institute of Adult Education, held at Oxford, claimed that enrolments in adult classes in England and Wales had risen from 1,165,000 in 1936-37 to 2,362,000 in 1949-50. In September, the well-known series of adult education aids, *Current Affairs* and *Map Review*, ceased publication and their progenitor, the Bureau of Current Affairs, began to wind up. The bureau had made a notable contribution to adult education in popularizing the discussion group.

At the congress of the Educational Institute of Scotland in January it was claimed that adult students were tending to turn from "bread and butter" subjects to literature, philosophy and political theory. In 1951, Glasgow and Edinburgh universities had fully equipped adult education departments and full-time directors of extra-mural studies, while all Scottish universities had extra-mural committees linking universities and local authorities.

The Adult Education Association of the United States held its first annual conference at Los Angeles in October. In Delhi an experimental public library, created by the Indian Government and U.N.E.S.C.O., was opened for the newly literate. It started with 10,000 books, 3,500 of them in Hindi, and would include a mobile unit and Braille and talking books. (H. C. D.; L. WN.)

ADVERTISING. A nine-day International Advertising conference, attended by 2,824 delegates from 38 countries, was held in London from July 7 to July 13, 1951. Before it broke up the conference passed a resolution recording the deep sense of responsibility of all those present " arising from the great development of advertising, the elaboration of its techniques and the widened scope of its functions in modern society." A formal declaration was then made on the use of advertising in the promotion of world trade and international understanding, and on the ethics of advertising and the standard of character and training of those engaged in it. The conference was opened by the Duke of Gloucester, and Lord Mackintosh of Halifax presided. It was the biggest international advertising gathering so far held and was also the largest international business or professional conference to be held in Britain since World War II.

Expenditure on press advertising continued to mount. The *Statistical Review* calculated that the value of space (excluding classified advertising) bought in publications of all kinds (newspapers, magazines and trade and specialized periodicals) in 1950 amounted to £36,913,899. This was 20·94% higher than the figure for 1949, when the same authority put the total at £30,522,199. For the first six months of 1951 the *Statistical Review* estimated the expenditure at £19,814,356, as against £18,441,862 in the same period of 1950. These increases were largely accounted for by the higher advertisement rates which publications of all classes were constrained to charge to cover themselves against the rising costs of paper and printing.

The government made further cuts in its advertising programme. Civil estimates published in March 1951 provided for the expenditure of £671,650 (as against £911,000 in 1950-51) on press advertising through the Central Office of Information in 1951-52. Poster-advertising expenditure was to be reduced from £253,000 to £173,500 and the outlay on films decreased from £497,500 to £313,840. A white paper issued in June 1951 noted that home information expenditure would be cut from £4,157,800 (1950-51) to £3,411,200 (1951-52) while the outlay on overseas information expenditure would be brought down from £10,821,950 to £10,184,000.

The report of the broadcasting committee under Lord Beveridge, published in Jan. 1951, recommended, among other things, that advertising should not be permitted from British radio and television stations, although Lord Beveridge himself, and two other committee members, expressed the view that publicity material, suitably controlled, should be allowed. Nevertheless British radio listeners continued to receive sponsored programmes broadcast to them from Luxembourg, which on July 2 opened up a powerful new transmitter, beamed to Great Britain and transmitting nightly programmes in English paid for by British advertising interests.

In the field of outdoor advertising manufacturers and users of electrical signs, as well as those shopkeepers who relied on the advertising value of illuminated window displays, noted the assurance of the Ministry of Fuel and Power that the absolute ban on the use of power for these purposes, re-introduced in the winter of 1950-51, would not be imposed again. Instead limited restrictions, to be applied during the " peak " hours of electricity consumption, were announced for 1951-52.

A plan to discover, by research and inquiry, how cinema audiences reacted to advertising on the screen was announced by a large firm engaged in this type of advertising. Co-operation in this investigation was promised by the Institute of Incorporated Practitioners in Advertising and the Incorporated Society of British Advertisers.

In July a novel advertising campaign was launched to explain the merits of free enterprise. Using large spaces in the press it was backed by the Institute of Directors. In the first year it was planned to spend £200,000 on this scheme, designed to show that " Free Enterprise gives everyone a chance and a choice."

The death of Sir William Crawford in Nov. 1950 brought to a close a distinguished career in advertising. He was a notable pioneer in the advertising agency field and, as vice chairman of the Post Office Publicity committee, was responsible for the introduction of the special greetings telegrams.

Commonwealth. Questions were asked in the Australian federal parliament following the revelation that the London *Daily Mirror* had acquired the biggest network of commercial broadcasting stations in Australia, including 2GB, Sydney. Between 60 and 70 transmitters were involved in the transaction. All the stations derived their revenue from the sale of time for advertising purposes and were said to reach 92% of the Australian radio audience.

South African growers launched a campaign, to cost £60,000, advertising the union's citrus fruits in Great Britain.

Europe. The Association of Advertisers in Ireland was formed in Dublin with the support of many of the biggest advertisers in the country. It aimed to protect the interests of advertisers, as opposed to the owners of advertisement media and advertising agencies, and would co-operate with



The Festival of Britain influenced the design of many of the posters displayed in 1951. This advertisement was erected near the South Bank exhibition in London.

similar organizations already established in other countries. A meeting of the advertising group of the International Chamber of Commerce was held during the I.C.C.'s 13th biennial congress which took place in Lisbon. It was reported that the I.C.C.'s *Code of Standards of Advertising Practice* had been officially adopted by 51 advertising and other organizations in 12 different countries. The European Society for Opinion Surveys and Market Research and the World Association for Public Opinion Research held a conference at Tunbridge Wells, England, the arrangements for this meeting being in the hands of the Market Research Society of Britain. Some 100 delegates from 12 countries attended and discussion covered the role of modern opinion and fact-finding research methods in advertising.

(A. J. Hy.)

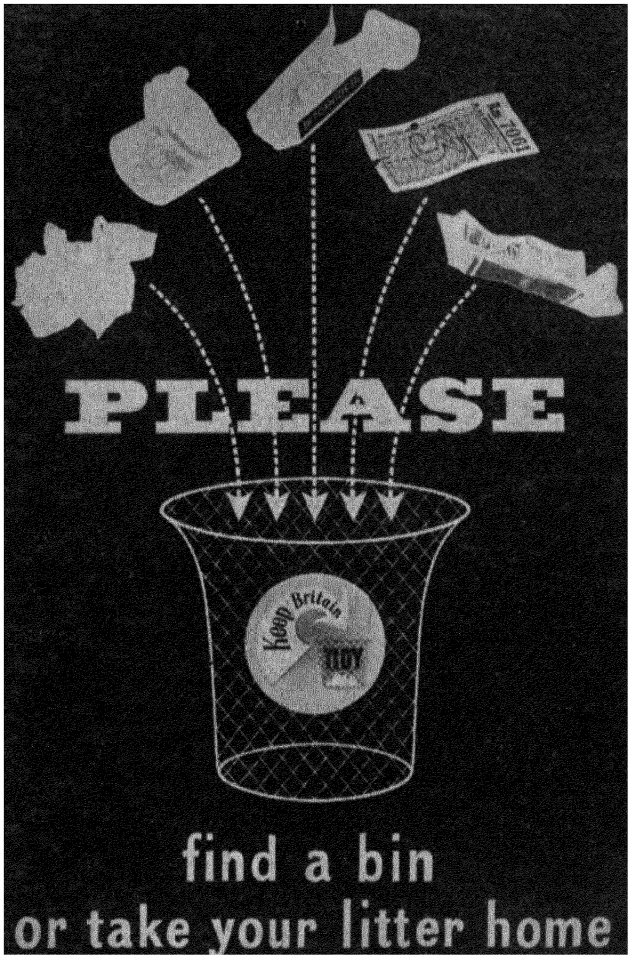
United States. The volume of advertising bought in the United States in 1951 was estimated by Robert Coen, McCann-Erickson Inc., to be about $6,300 million, an increase of 12% over 1950. Especial vigour was shown by television, magazines and direct mail as advertising media. Advertising charges continued to rise, but not with the speed of other costs; while the bureau of labour statistics wholesale price index had risen 65% since the end of World War II, it was estimated that the cost of advertising had risen only 23%.

Television. Television continued to show rapid growth, sets in use by the public on Jan. 1, 1952, being estimated at 14,500,000 with 108 stations covering 63 major market areas with 60 hours a week of regular programmes. It was estimated that 29% of U.S. families had television sets by Oct. 1951. The Publishers Information bureau reported that television time charges on the four major networks were $114 million for the first 11 months of 1951. The Columbia Broadcasting system estimated that all television time, talent and other costs amounted to about $355 million in the year. Basic hourly rates were increased during December; a station in New York city was expected to raise its hourly night-time price from $4,000 to between $4,500 and $4,700. Talent-production costs went as high as $40,000 for an hour's programme.

The National Association of Radio and Television Broadcasters announced that a code of practices for television would become effective on March 1, 1952, and that a national review board would be established to investigate complaints against television stations. Nearly half the code was devoted to advertising. It stated that messages were to be presented with courtesy and good taste, that liquor advertising should be rejected, and wine and beer accepted only in compliance with local law. Contests and premium offers should be carefully supervised.

Radio. Radio continued to grow during 1951, the number of homes with radio sets at the beginning of 1952 standing at 42,700,000, a gain of 800,000 during the year. However, in 1951 the total hours of radio usage in the home were 14% below the 1949 level, according to data supplied by A. C. Nielsen company.

In order to meet the competition of advertising on television, radio stations reduced their rates and resorted to other expedients. The Columbia Broadcasting system cut its night-time network rates by about 10% in the spring, and the other networks followed. Advertisers were also given more latitude in buying time on network stations. The National Broadcasting company revised its line-up of stations so that an advertiser was permitted to choose stations based upon the number of homes they reached, rather than upon the old basis of minimum groups designed by the network. Columbia Broadcasting system offered to sell advertisers a piece of a particular show; the advertiser could buy the show in whatever markets he chose and in the weeks he selected.



A poster by Reginald Mount which was used in the "Keep Britain Tidy" campaign during 1951.

A number of important advertisers returned to radio after an experience in television, and there was considerable interest by advertisers in morning radio programmes. It was also realized that the mere purchase of a television set did not mean that radios were thrown out, as more families were buying extra radio sets; while there were 42,700,000 homes with radios, there was a total of 105,700,000 sets in use. The Columbia Broadcasting system reported that advertising expenditures on the four major networks were $145,745,097 for the first ten months of 1951, a 4·1% drop from 1950.

Newspapers. An estimate by Media Records based upon newspaper advertising in 52 cities showed that total advertising linage was 1·9% higher during the first 11 months of 1951 than for the same period of 1950. The volume of all newspaper advertising in 1950 was more than $2,000 million. National advertising linage was down 5·7%, declines being noted in both the general and automotive classifications. Local (retail) advertising showed no change from its 1950 volume. Classified advertising linage increased 14·3%, however, saving the total newspaper advertising figure from a loss. Declines in national newspaper advertising were found in most classifications, laundry soaps and cleansers and alcoholic beverages being the most important classifications revealing gains. Advertising of new passenger cars and of groceries was off. It was estimated the dollar volume of national newspaper advertising would be close to the 1950 figure of $499 million, the drop in linage being offset by increases in rates.

Magazines. The volume of advertising in magazines was estimated by the Magazine Advertising bureau to be $508



An example of three-dimensional advertising on a bombed site in Piccadilly, London.

million for 1951, an increase of about 11% over 1950. The 11-months' total for magazine advertising (Jan.-Nov.), $469 million, was the highest on record. The circulation of magazines was also at a record level. The average circulation of all magazines who were members of the Audit Bureau of Circulations (excluding comics) was 150,638,004 copies an issue during the first six months of 1951, an increase of 2·7% over the 147,300,000 for 1950. This represented a circulation per 100 persons of 98·5.

Magazine advertising costs on a page-per-thousand basis increased about 3% for the first six months of 1951 over the preceding year, for both black-and-white and four-colour advertising. During 1951 many magazines announced rate increases and it appeared that magazine advertising costs in 1952 would be about 6% higher than those for the first six months of 1951 and about 12% higher than prior to World War II.

Other Media. The dollar volume of direct mail advertising during the first 10 months of 1951 was $879 million, a gain of 14·5% over the corresponding period of 1950 according to an estimate by the Direct Mail Advertising association. An estimate by Outdoor Advertising, Inc., put the national volume of outdoor advertising in 1951 at $90 million, a gain of 4·5% over 1950. There was still a shortage of outdoor advertising space and it was difficult to secure stainless steel for outdoor panels because of war demands. (R. A. BN.)

AFGHANISTAN. Independent kingdom in the centre of Asia bounded N. by the U.S.S.R., W. by Persia, S. and S.E. by Pakistan and E. by China (Sinkiang). Area: *c.* 270,000 sq.mi. Pop. (1947 est.): 12 million. Races: Afghans or Pathans or Pashtuns 53%, Tajiks 36%, others 11%. Language: Pashtu or Pakhtu, some Persian. Religion: Moslem (Afghans are Sunni, others mainly Shia). Chief towns (pop. 1950 est.): Kabul (cap., 206,000); Herat (85,000); Kandahar (77,000); Mazar-i-Shariff (55,000). King, Mohammed Zahir Shah; prime minister (from May 1946), Shah Mahmud Khan, the king's uncle.

History. As in the previous year, relations between Afghanistan and Pakistan were not happy in 1951, owing to charges and countercharges regarding border incidents and, on the Pakistan side, particularly because of the alleged encouragement by Afghanistan of the so-called "Pashtunistan" movement (see *Britannica Book of the Year 1951*).

Under the Four-Point programme, an agreement with the United States was signed in Kabul in February to assist the Afghan government in the economic development of the country. In May a high official of the Pakistan government, Colonel A. S. B. Shah, who had been counsellor to the British embassy in Kabul in 1944 and was regarded as particularly acceptable to Afghans, visited Kabul for private talks, and it was hoped that in due course Afghan relations with Pakistan would improve. With India the Afghan government maintained, through the year, a cordial relationship of which an indication was given by the visit of the prime minister, Shah Mahmud Khan, to Delhi in January.

The assassination of Liaquat Ali Khan called forth from Kabul a sympathetic message and a tribute to the ability of the dead statesman. The Pakistan government on their side were careful to stress the point that, although the assassin was stated to be of Afghan origin, there was no sinister significance in that fact, especially as he had been an exile in Pakistan for some time.

On Sept. 5, the Afghan prime minister, who was paying yet another visit to Delhi, was invited to address members of the Indian parliament and he reaffirmed his hope that the close and sincere relations already existing between Afghanistan and India would remain for the benefit of world peace. He indicated that the policy of his government was to improve commercial relations with other countries and particularly to develop trade with India. At a state banquet at which Jawaharlal Nehru presided, the two prime ministers exchanged more cordial greetings. At a subsequent press conference Shah Mahmud Khan stressed the friendliness of Afghan policy towards Pakistan, but maintained that in supporting the "Pashtunistan" movement, Afghanistan was not animated by hostility to Pakistan. (E. HD.)

Education. Schools (1948): primary 400, secondary 25, higher 7; teachers' training colleges 2. University at Kabul with four faculties.

Agriculture. Main food crops: wheat, barley, rice, millet, maize and fruit. Production ('000 metric tons): cotton (1949) 4; sugar beet (1950) 33; wool (1950) 8. Livestock ('000 head, Jan. 1948): cattle 3,000; sheep 14,000; goats 6,000; camels 350; horses 500; asses 1,000; poultry 40,030.

Industry. Fuel and power: coal (1950) 7,100 metric tons. Raw materials (1949): chrome ore 907 metric tons; salt 10,373 metric tons; skins and hides (number) 7,250,000.

Foreign Trade. Principal imports: textiles, sugar, china, petrol (1949: 4·5 million gal.), cement (1949: 18,100 metric tons), machinery, tea, coffee and cocoa. Principal exports: karakul skins (1950: $26 million), carpets, cotton, raw wool, spices and fruit.

Communications. Roads (1949) 2,265 mi. Licensed motor vehicles (Dec. 1950): cars 975; commercial 3,735. Telephone subscribers (Jan. 1949): 3,899. Radio receiving sets (1949): 4,800.

Finance and Banking. Note circulation (million afghanis, March 20, 1949; March 20, 1950, in brackets): 955 (845). Monetary unit: *afghani*, with an exchange rate (Nov. 1951) of £1 = Af. 47.38.

AGRICULTURE. During the first quarter of 1951 the demand for farm products continued to increase rapidly. In North America, rearmament necessitated a rapid building up of strategic reserves of wool and other raw materials, and of foodstuffs. The fear of "burdensome surpluses" of foodstuffs that had prevailed before the outbreak of the Korean war gave way to concern about shortages. By the end of Jan. 1951, prices received by farmers in the United States were already 26% higher than in June 1950, and retail prices of food were 12% higher. In an attempt to control inflation, internal prices and wage rates were fixed at the levels they had attained on Jan. 25. Apart from beef, veal and lamb, however, most important foodstuffs were exempt from control because, on official calculations, their prices were still below parity with the prices that farmers paid for goods and services purchased. Imports of agricultural products to North America from overseas were increased and much higher prices paid for them. During the year ended June 1951, as compared with the previous year, the U.S. imported 9% more rubber, 30% more wool, 2% more cocoa, 10% more coffee and 15% more sugar. In dollar value the increases were 184%, 140%, 62%, 58% and 19%

respectively. Before June, however, the rapid price advances had ceased and some substantial downward adjustments were made in wool and rubber prices. During the remainder of the year general price movements in dollar markets were less significant.

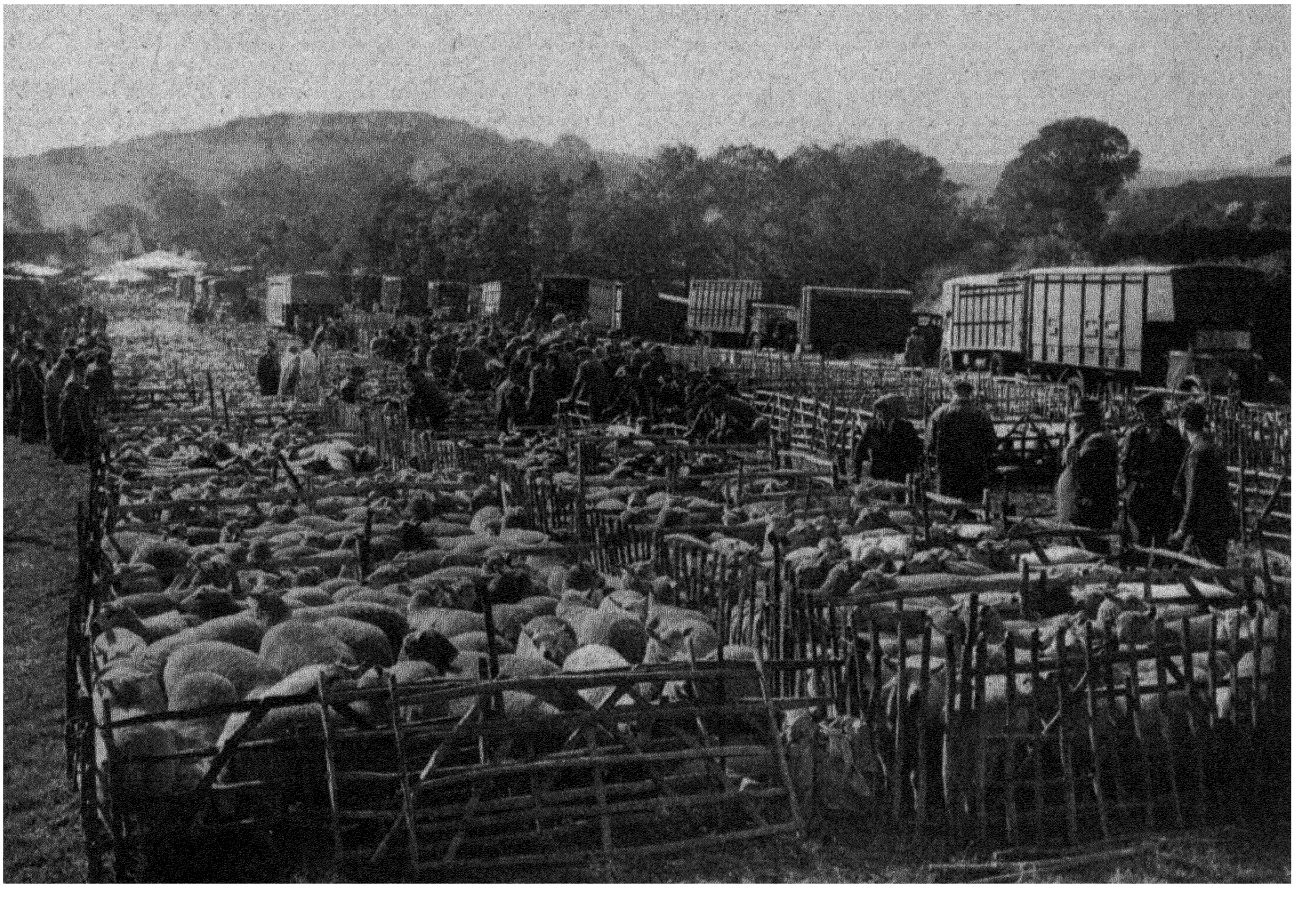
High prices for wool, rubber and cocoa tended to raise the dollar earnings of the sterling area as a whole, particularly during the early part of the year, but the concurrently high prices for wheat, feedingstuffs and other imports, aggravated balance-of-payment problems in the United Kingdom and western continental Europe. High prices for feedingstuffs, partly due to the poor harvests of 1950 in Argentina, made conditions particularly difficult for the U.K., Denmark and the Netherlands, where maintenance of recent rates of increase in livestock populations was largely dependent on imported feedingstuffs. The U.K. was, moreover, faced with an upward adjustment of long-term contract prices for food imports. These prices had been kept relatively low on the grounds that the contract arrangements gave promise of greater long-run stability. But increases in general price levels following the outbreak of hostilities in Korea finally made upward adjustment imperative. After many months of negotiation agreement was reached in April 1951 to pay much higher prices for meat to Argentina. In October a 15-yr. agreement with Australia also provided for large price increases for meat. For dairy produce Australian producers were not satisfied with the maximum price increase of 7·5% in any one year, as originally agreed with the U.K., and both New Zealand and Denmark were in serious difficulties because the prices of their exports were low compared with those of their imports. The bargaining position of the U.K. on dairy produce was further undermined by the ending of butter rationing in Australia, New Zealand and Denmark late in 1950, and by the decision of the Canadian government at the beginning of Jan. 1950 to discontinue the subsidization of exports of foodstuffs to the U.K.

The United Kingdom was moreover attempting during the second half of 1951 to rebuild stocks of foodstuffs that had been reduced during the period of rising prices of the previous 12 months. During the financial year 1951-52 it was intended to spend some £71 million on war-emergency stocks of foodstuffs.

Livestock Production of 1950-51. The 1950 European harvest of coarse grains, so badly needed for livestock, was 2·4 million tons less than in 1949, and 7·6 million tons less than in the late 1930s. Crops in the Danubian countries were especially small. Western and southwestern districts of Great Britain were also seriously affected. In North America the harvest was as great as in 1949, but it was again poor in Argentina, and international trade in feedgrains continued at a low level.

Shortage of feedingstuffs in Europe resulted in a marked reduction in the rate of increase of livestock production. Milk production during the first half of 1951 was significantly lower than in the same period of 1950 in the United Kingdom, Denmark and the Netherlands. By Sept. 1950, in England and Wales, the total number of cattle was 2% less and the number of calves 9% less than in Sept. 1950. The marked rise in the pig numbers gave cause for anxiety about the sufficiency of feedingstuffs for them. In the Netherlands the number of breeding sows was reduced by 10%.

In Argentina the effects of droughts in 1949 and earlier price-fixing became apparent in the sharply reduced flow of cattle to slaughter.



The sheep fair which was held at Findon on the South Downs in Sept. 1951.

TABLE I. POPULATION, AGRICULTURAL PRODUCTION AND TRADE, AND AVAILABLE SUPPLIES OF FOOD CROPS, 1950-51

	Population (1936 = 100)	Production	Exports (1934-38 = 100)	Imports	Supplies†
Europe*	107	95	61	93	97
North America	119	151	308	97	133
Latin America	131	120	88	159	145
Far East	111	98	44	91	104
Africa & Near East	119	119	115	165	123
Oceania	119	108	110	125	105
World*	113	109	100	99	—

* Excluding U.S.S.R. † Not counting changes in stocks.
SOURCE. F.A.O. *Monthly Bulletin of Statistics* July-Aug. 1951.

Harvests of 1951. The area sown to wheat and rye in western Europe for harvest during 1951 was some 2% smaller than that sown for harvest in 1950, and yields were lower. Wheat production was some 2 million metric tons (7%) less than in 1950 and rye production some 0·4 million metric tons (6%) less.

In eastern Europe bread grain harvests were substantially larger than in 1950. In Yugoslavia, where drought conditions in 1950 were unusually severe, wheat production in 1951 was greater by over 0·5 million metric tons (29%).

In North America, the wheat crop of the United States was slightly smaller than that of 1950 but still almost 8 million metric tons greater than the average of the years 1934 to 1938. Canada had a bumper crop, 3·3 million tons greater (and of better quality) than that of 1950 and 8·7 million tons greater than the prewar average.

In Australia, the acreage sown to wheat was again reduced and there were fears that the exportable surplus from the 1951 crop would fall below the amount under the International Wheat agreement. Argentina's wheat acreage was also reduced.

In India, the monsoon was a partial failure and severe drought damage was done to crops in the west and south. The need for a further increase in imports of food grains in 1952 seemed inevitable. Despite prospective reductions in supplies from the U.S., Australia and Argentina, and India's greater needs, the world bread-grain position was, in general, somewhat improved. In western Europe, however, additional purchases of "dollar" wheat or of wheat from eastern Europe became necessary.

The coarse-grain crops, barley and oats, as estimated in September, were some 0·6 million metric tons greater in western Europe in 1951 than in 1950. The maize crop was also somewhat greater, and, in eastern Europe, very much greater. On the other hand, in the U.K., where the spring came late and sowing conditions were difficult, production of barley and oats were down by some 0·3 million tons.

In North America, barley and oat production was up by 3 million tons in Canada but down by 2·1 million tons in the U.S. where the maize crop also seemed likely to yield less. The Argentine maize crop harvested during the first part of the year was expected to provide an exportable surplus of some 0·5 million to 1·5 million metric tons as against average exports of 6·5 million tons a year during the late 1930s. But little maize was in fact shipped during 1951, and no substantial additional acreages were sown for harvest in 1952.

Potato and sugar beet crops suffered from variable weather conditions. In the U.K. the potato acreage was reduced by 15% between 1950 and 1951 and yields fell by some 4%. Wet conditions in late summer and autumn provided plenty of grazing in northwestern Europe and, generally, supplies of hay were adequate though of low quality.

Marketing and International Trade in Farm Products. Countries that had negotiated tariff reductions at Geneva (1947) and Annecy (1949) agreed at a conference at Torquay, England, to renew practically all existing concessions for a three-year period up to Jan. 1, 1954. But the fears of agricultural surpluses in the U.S. that had grown up before the war in Korea were still evident in the Torquay negotiations.

The O.E.E.C. continued their commodity studies with a view to the liberalization of trade but the United Kingdom opposed the plan of Pierre Pfimlin, French minister of agriculture, preferring inter-government agreements rather than any supranational commodity commissions.

Arrangements for the marketing of cotton in Uganda, and cocoa and oilseeds in Nigeria and the Gold Coast were further developed, but strong opposition was raised to a proposal to establish a fund for the stabilization of rubber prices.

Scientific Research. Much attention continued to be devoted to grassland and grazing problems, particularly in the British Isles and western Europe. Growth inhibitors and plant toxins were further developed. Systemic insecticides were actively studied and some appeared to be particularly useful. Further progress was made in the study of trace elements (especially molybdenum), phosphate deficiencies in farm animals, various types of fowl pest, venereal infertility in cattle, and mastitis, and in many other chemical, biological and veterinary fields. Considerable progress was also made in tropical problems such as cattle management in Uganda and lime die-back disease in the Gold Coast. A secretary for agricultural and forestry research took up his appointment in the office of the secretary of the West African council in Feb. 1951.

In California, Great Britain and the Netherlands, the efficiency of fresh-water algae in photosynthesis was shown to be exceptionally high; this gave some promise of a useful food production technique for emergency conditions.

United Kingdom. In the face of the growing difficulty of securing cheap imported foodstuffs, the agricultural policy of the United Kingdom was to continue the programme of expanding home production, which had been announced in Aug. 1947. The objectives discussed by the farmers' leaders and the government in Feb. and March 1951 included (a) continuation until 1954-55 of the programme for increasing meat production, and (b) confirmation that the national requirement of barley, oats and mixed corn for animal feeding was "virtually unlimited." On the other hand, the government wished to stabilize the output of milk, eggs, wheat and sugar beet at about current levels and to reduce slightly the acreage of potatoes. The fixed prices for livestock guaranteed for the year ending April 1952 and for crops of the 1952 harvest reflected this production policy to some degree, and indicated the government's desire somewhat to reduce farming profits, which, in 1950-51, were about five times greater than in 1937-38.

Later in the year the census figures for England and Wales showed a reduction in the acreage of grain between 1950 and 1951 of 430,000 ac. This was partly due to weather conditions in the autumn of 1950 and spring of 1951, but, together with continuing difficulties in securing imports of feedingstuffs, it led the minister of agriculture in Sept. 1951 to inaugurate a campaign with the slogan "Plough more—Feed more." Despite the risk of grain losses at harvest-time, western areas of the country would, it was hoped, increase feed grain acreages.

The difficult upland areas were also expected to produce more. The Livestock Rearing act was passed in March with the object of further encouraging cattle and sheep breeding and rearing. It provided for grants to owners and tenants who carried out approved schemes of upland farm improvement. A total subsidy of £22 million might be paid out by the end of 1956.

Throughout the year, in the United Kingdom as elsewhere in western Europe, the prices of goods and services bought



This mechanically-operated elevator was used for stacking hay on a farm at Broughton, Hampshire, in June 1951, when there were generally good crops.

by farmers tended to rise. In October the Agricultural Wages Board of England and Wales decided on further increases in wage rates amounting in all to some £20 million a year. A special review of farm produce prices in the U.K. was therefore undertaken during November.

Western Europe. Elsewhere in western Europe no such automatic adjustments were made and farmers in many localities faced much uncertainty. In March the council of ministers of the Organization for European Economic Co-operation approved a report on agricultural production calling for a more rapid increase in output especially in 1951 and 1952. It showed that the food output of O.E.E.C. countries as a group was still only 8% to 10% greater than in prewar years although the human population was 11% greater. This report was also considered by the European economic recovery committee of the International Federation of Agricultural Producers in Paris in April, and governments were later advised to ensure that farmers had adequate finance and supplies of requisites to undertake further expansion, and to ensure also that they felt little risk in doing so. It was clear, however, that any increase in livestock numbers was subject to uncertainties about feedingstuff supplies, and expansion of crop production might sooner or later be limited by shortages of fertilizers (particularly nitrogenous fertilizers and superphosphates requiring sulphuric acid in their production), of chemicals for pesticides and of farm machinery. Defence programmes would also result in some withdrawal of labour from farms.

On the other hand, progress could be made in certain directions. The development of machinery suited to small farms continued and the desirability of extending successful co-operative organization to provide machine services was widely recognized. Revision of taxes on tractor fuels, tractors and implements and improvements in credit facilities were proposed. Further progress was made in trials of many maize hybrids and in selection of types of maize suited to various local conditions. Improvements in grassland management and conservation of grass continued. Control of Colorado beetles was made more effective, though the infestation was severe and tended to spread in Western Germany. Future supplies of potash fertilizers for western Europe as a whole became better assured through the discovery of large deposits of potassium chloride in Yorkshire, England. In Italy some progress was made in carrying out the land reform law passed in Oct. 1950. This provided for the expropriation of 600,000 ha. and about one-sixth of this was reported to have been brought under the control of regional boards by Sept. 1951.

Eastern Europe. The acceleration of the collectivization of holdings, begun in 1950, continued in 1951. In Bulgaria, 70% of peasant holdings were to be collectivized before the end of the year. The corresponding figure for 1948 was only 6·7%. Opposition to collectivization was active. In the U.S.S.R. the extent to which collective farms had been merged during 1950 was reported: the total number of collective farms was reduced from 252,000 to 123,000. This implied a new pattern of labour organization and strike control. A failure of livestock production plans was also reported.

In Yugoslavia, on the other hand, no substantial number of new collective or state farms was organized and attention was devoted entirely to improving the efficiency of existing units within the socialized sector of agriculture, which was heavily subsidized. A revival of co-operative societies of the prewar type received a measure of encouragement from the federal government and some of the republican governments. But, despite foreign aid, rapid inflation increased the difficulties of securing steady agricultural progress through wise capital investment and production and marketing organization.

Commonwealth. Realization of the need to give greater priority to agricultural development became more evident in Australia. The population was increasing at the rate

TABLE II. PRODUCTION OF BREAD GRAINS AND COARSE GRAINS
(Million metric tons)

	Prewar	1949	1950
Wheat and rye			
Europe*	61·4	58·5	59·1
North and Central America	28·2	42·4	42·0
South America	8·5	7·5	8·2
Asia	43·3	40·5	46·8
Africa	3·8	4·0	4·1
Oceania	4·4	6·1	5·1
Total*	149·6	159·1	165·3
Barley, oats and maize			
Europe*	54·8	49·6	47·2
North and Central America	81·2	122·3	122·3
South America	17·0	11·7	14·4†
Asia	33·4	32·4	33·7†
Africa	9·0	11·0	11·0†
Oceania	0·8	1·3	1·3†
Total*	196·2	228·3	229·9†

* Excluding U.S.S.R. † Preliminary.
SOURCE. F.A.O. *Monthly Bulletin of Statistics*, March and Sept. 1951.

of 3% a year but food production was rising at less than half this rate. Shortages of rural labour were further accentuated by industrial development schemes and the defence programme. Some distortion of normal agricultural output also resulted from the high prices of wool; in March 1951 wool prices were more than four times as high as they were in early 1950. Fears were expressed that, should Australia's population increase by 1960 to nearly 11 million, exports of meat and dairy produce would have to be greatly reduced. Rapid advances in retail prices of foods served to call general attention to these basic changes. Consideration was given to securing more superphosphate and sulphur-bearing materials for its production, more and better grass and fodder conservation, more intensive use of pastures, further improvements of the cattle routes from the Northern Territory to Queensland, increased mechanization and better conservation of soil, water and natural vegetation. Canada, too, with rising population and rapid development of mining and industry, had a clear indication of how well its expanding home market could absorb most of the output of its farms, apart from wheat.

The draft outline of India's first five-year plan, published in July 1951, indicated that it would direct the major effort to agriculture, and in particular to irrigation. The previous objective of self-sufficiency by 1952 was abandoned and instead an annual import of some 3 million tons of grain was recommended. Co-operative farming and the radical changes in land tenure which it would require were advocated. Operations were under way on three large river-valley projects, those of the Damodar, the Bhakra Nangal and the Kirakuddams. Eight other valley projects were under investigation.

These and other Indian projects were included in the Colombo plan (*q.v.*) for co-operative economic development in southeast Asia, which was officially inaugurated on July 1. Pakistan's plans included water control and irrigation projects for 6 million acres of land, and schemes for the distribution of improved seeds, fertilizers and farm machinery.

TABLE III. EXPORTS OF WHEAT AND WHEAT FLOUR (WHEAT EQUIVALENT) FROM PRINCIPAL EXPORTING COUNTRIES, 12-MONTH PERIODS, JULY-JUNE

	(Million metric tons) 1934-38 av.	1949-50	1950-51*
Exporting countries			
Argentina	3·4	2·4	2·8
Australia	2·9	3·1	3·2
Canada	4·8	6·3	6·1
United States	1·0	8·2	10·0
Total	12·1	20·0	22·1
Reported destinations			
United Kingdom	5·6	4·4	4·3
Europe (excl. U.K.)	3·0	6·5	7·5
North and Central America	0·7	1·1	1·5
South America	1·2	1·6	2·2
Asia	1·3	5·2	5·1
Africa	0·2	0·7	1·2
Others	0·1	0·4	0·3
Total	12·1	20·0	22·1

* Excluding exports of about 0·3 million metric tons from Australia during June 1951.

SOURCE. F.A.O. *Monthly Bulletin of Statistics*, Oct. and June, 1951.

Ceylon planned to complete a £25 million river-control scheme to irrigate 130,000 ac. and provide 21,000 peasant holdings, and to undertake other schemes of this type. Malaya, Singapore, North Borneo and Sarawak would together spend some £13 million directly on agricultural projects—out of a total of £107 million. Contributions of capital were to be made by the United Kingdom, Australia and Canada, and by the United States. The high prices of primary products also facilitated finance by the Asian countries themselves. Greater difficulties seemed likely to arise in trying to secure enough trained men, and (because of rearmament) certain capital goods.

Argentina. The desire of the Argentine government to strengthen agriculture and to export more farm produce was intensified by the growing need to earn more foreign currency. Serious drought in 1949-50, the fixing during the protracted trade negotiations with the United Kingdom during 1950 of cattle prices that induced the slaughter of too many young cattle and the low yields of cereal crops in 1949-50 and



Spectators watching a competitor in the British national tractor ploughing championships held in Nov. 1951 near Tadcaster, Yorkshire.

1950-51 all aggravated the effects of the general postwar policy of industrialization which led to reduced cereal acreages and restricted livestock numbers. The agreement to export 200,000 tons of carcase meat to the U.K., which was reached in April 1951, seemed unlikely to be fulfilled for lack of supplies, but the change in Argentine policy was significant for the future. (J. R. RA.)

United States. *Crops.* In spite of bad weather U.S. crops in 1951 were the third largest on record, exceeded only in 1948 and 1949. The total volume of all U.S. 1951 crops increased to 139% of the 1935-39 base as compared with 134% in 1950, but was nevertheless well below the 152% of 1948 and the 147% of 1949. Food grains declined moderately to an index of 144 as compared with 148 in 1950.

The 52 principal crops for 1951 were planted or growing on a total of 362,207,000 ac. But acreage losses prior to harvest were the largest since 1936, amounting to 26,390,000 ac., and the 335,817,000 ac. harvested were 647,000 ac. less than in 1950 and less than any year since 1941.

Yields per acre were relatively high, giving a composite-yield all-crop index of 143, the same as in 1950 and exceeded only in 1948. New high yields were set for all hay, tobacco, hops, dry beans and sugar beet. Spring wheat, oats, rye, cotton and several of the legume seeds exceeded 1950 but were not new records. The harvest in 1951 included 146,500,000 tons of the eight major grains, exceeded in several years but more than in any year prior to 1942. The tobacco crop was the second largest and the fourth to exceed 2,000 million lb.

The U.S. Department of Agriculture late in 1951 called for an enlargement of 1952 planted acreage by about 3 million ac. total, with about 7 million ac. more for feed crops.

TABLE IV. U.S. CROP PRODUCTION AND YIELD

	1951		1950	
	Yield per ac.	Production ('000s)	Yield per ac.	Production ('000s)
Field crops				
Corn, bu.	36·2	2,941,423	37·4	3,057,803
Wheat, bu.	16·1	987,474	16·5	1,019,389
Oats, bu.	36·1	1,316,396	34·6	1,410,464
Barley, bu.	27·1	254,668	27·2	303,533
Rye, bu.	12·5	21,995	12·3	21,264
Flaxseed, bu.	8·7	33,802	9·8	40,236
Rice, bags (yield in lb.)	2,250·0	43,805	2,388·0	38,689
Hay, tons	1·45	108,351	1·38	102,340
Beans, bags (yield in lb.)	1,231·0	16,000	1,117·0	15,155
Soyabeans, bu.	21·2	280,512	21·7	299,279
Groundnuts, lb.	802·0	1,595,025	893·0	2,021,730
Potatoes, bu.	240·7	325,708	253·4	429,896
Sweet potatoes, bu.	91·8	28,278	101·2	49,825
Tobacco, lb.	1,281·0	2,282,386	1,270·0	2,030,645
Sugar beet, tons	15·1	10,584	14·6	13,535
Cotton, bales (yield lb.)	274·5	15,29[illegible]	269·0	10,012
Fruit crops				
Apples, bu.	—	112,935	—	123,126
Peaches, bu.	—	70,265	—	53,485
Pears, bu.	—	32,687	—	31,140
Grapes, tons	—	3,281	—	2,707
Oranges, boxes	—	117,325	—	116,810
Grapefruit, boxes	—	40,690	—	46,580

Livestock. Abundant livestock production in 1951 filled some gaps left by lower crop production. Farmers and ranchers in the U.S. increased their cattle herds further during 1951, holding 84,179,000 head at the beginning of the year, as compared with 80,052,000 a year earlier. It was forecast that cattle on farms and ranches at the beginning of 1952 might exceed 90 million head. Meanwhile, during a hectic year of price controls and high cattle prices, enough animals came to market to provide 9,000 million lb. of beef, about 800 million lb. less than had been forecast for the year and 580 million lb. less than in 1950. The average price paid to farmers for beef cattle in Dec. 1951 was $27·50 a hundredweight, compared with $25·40 a year earlier.

Of the total cattle, 24,579,000 were classed as milk cows and heifers, a figure which had changed only slightly in late years, of which about 22,700,000 were milk cows. And, as in late years, those cows produced milk at a level approximating 120,000 million lb. for the year, and perhaps a new record of more than 5,292 lb. a cow.

There were 65,028,000 pigs on farms at the beginning of the year and a pig crop of 105,818,000 during the year. About 86 million head were slaughtered during the year, yielding about 11,800 million lb. of pork.

In spite of the high price for lamb and mutton, sheep numbers on farms made a 4% recovery from record low numbers; the 31,505,000 on farms on Jan. 1, 1951, probably increased further during the year and meanwhile 515 million lb. of lamb and mutton were produced, with 600 million lb. forecast for 1952. Lambs at $28·50 a hundredweight in Dec. 1951 were higher than the $27·60 a year earlier.

Total production of wool in the U.S. in 1951 was about 260 million lb. (greasy basis). Imports of wool for clothes for consumption amounted to 325 million lb. during the first eight months of 1951; in 1950, carpet wool in an amount of 315 million lb. was imported. In the latter part of the year consumption was declining. The gyrations of wool prices during the year were very rapid and extreme, but U.S. farmers in Dec. 1951 were receiving 62·7 cents a pound against 82·8 cents a pound a year earlier.

Poultry played a very significant part in supplying the meat demand of 1951. Approximately 703 million farm chickens, a production of broiler chickens as much as 25% to 30% more than the 616 million of 1950, and about 53 million turkeys contributed about 35 lb. of food a head during the year, much more than the total for veal, lamb and fish. Prices were rather low, and storage stocks very large.

Food Stocks and Exports. In spite of generally good crops, supplies of some of the major and minor agricultural commodities declined during 1951. This was especially the case as to the very storable bread grains and feed grains, but almost as true of butter, cheese and dried milk.

U.S. exports of farm products in 1950-51 accounted for 27% of the nation's total exports and amounted to a value of $3,409,245,000, about 14% more than in the previous year. Exports of cotton ($935,332,000), wheat ($747,570,000) and tobacco ($273,262,000) accounted for 57% of the farm products, by value.

Prices and Farm Income. The price effects of inflation and inventory accumulation of the latter half of 1950 carried over strongly into early 1951, so that, in spite of comparative abundance of most agricultural products, in mid-Feb. 1951 farm prices stood at record levels, 313% of the 1910-14 level and 32% higher than a year before, about 26·5% higher than when the fighting started in Korea and 2% higher than the previous record in Jan. 1948. Higher prices for meat animals were in considerable part responsible for the strong upturn, though soyabeans, cotton, cottonseed, rice and wool, as well as beef cattle, veal calves, sheep and lambs, were at or above probable legal minimum ceiling levels.

Then demand moderated somewhat and favourable prospects began to affect the situation. Prices declined until September to a level 291% of the 1910-14 average, then turned up again, ending the year at 305% of the average, 19 points, or nearly 7%, above the previous December.

Estimated gross farm income, including home consumed produce, for 1951 was $37,500 million, 14% higher than in 1950. Of the net increase of $37,500 million, 2% was credited to larger volume of marketings and 12% to higher average prices. Receipts from livestock and livestock products were estimated at $19,500 million, 20% higher than in 1950, whereas the estimated total for crops of $13,300 million was only 6% larger than in the previous year. Agricultural

production expenses also increased from a record $20,000 million in 1950 to $22,500 million in 1951.

Population and Farms and Farm Labour. Not nearly all the agricultural information to be derived from the 1950 census was yet available in 1951. But the trend toward fewer, larger and better-equipped farms was confirmed. Farms decreased by 713,000 as compared with 1940, from 6,097,000 to 5,384,000; the average-size farm unit grew from 174 ac. to 210·5 ac.

Agricultural employment in 1951 was estimated at about 400,000 less than in 1950, partly because of increased mechanization of farming but even more because of the strong drawing power of defence industries. Total farm employment included in late Sept. 1951 (the normal peak period of farm employment) 13,352,000 persons.

Wage rates, frozen early in the year, were somewhat relaxed under an order permitting up to a 10% increase without special authorization, but nevertheless averaged only about 66 cents an hour cash wages on Oct. 1, about 12% more than a year earlier. From Jan. 1951, regular hired farm workers were covered under the old age and survivors' insurance programme of the Social Security act as amended in 1950. (*See* also BEEKEEPING; COCOA; COFFEE; DAIRY FARMING; FERTILIZERS; FORAGE CROPS; FRUIT; GRAIN CROPS; HOPS; LIVESTOCK; NUTS; POULTRY; ROOT CROPS; SOIL CONSERVATION; SPICES; SUGAR; TEA; VEGETABLE OILS AND ANIMAL FATS; VEGETABLES; WHEAT; WOOL.) (J. K. R.)

AIRCRAFT MANUFACTURE. As a result of the armament drive, British manufacturers during 1951 were concentrating their efforts mainly upon military types of aircraft; aero-engine constructors were thus hard put to it to fulfil the need for power plants for the Royal Air Force, with the result that the output of civil transport types lagged.

The annual exhibition of the Society of British Aircraft Constructors, at Farnborough, in September, reflected the preponderance of military construction. The show included two four-jet bombers, the Vickers Valiant and the Short SA.4, and two new single-seater interceptor fighters, the Hawker P.1067 and the Vickers-Supermarine Swift, all powered by Rolls-Royce Avons. On the other hand, the civil transports exhibited had all been shown previously. Of the Vickers Valiant, the secretary of state for air, introducing the estimates for 1951-52, stated that it would be faster and have a greater load and range than the twin-jet Canberra bomber, then being mass produced in the United States under the designation B-57, with Armstrong-Siddeley Sapphire engines (first demonstrated at Farnborough in 1950) in place of the Avons which were being fitted in all R.A.F. versions of the type, which included a tactical bomber and a high-altitude reconnaissance aircraft. The Short SA.4, first flown on Aug. 10, presented original features in the installation of its Avon engines, in each pair of which one engine was mounted above the other.

The Hawker P.1067 fighter, somewhat similar in appearance to its predecessors the P.1040 and P.1052, was claimed to have a better performance than the Russian MIG-15 or the latest U.S. fighter. Its cousin, the Sea Hawk, adopted as the standard naval fighter and powered by a Rolls-Royce Nene engine, was given increased endurance by the provision of wing tanks of 180 gal. capacity.

The Swift, developed from the Supermarine 535 and first demonstrated at the 1950 Farnborough show, was accepted by the R.A.F. It had the swept-back wings first seen in the Type 510, and was powered by Rolls-Royce Avon. Meanwhile, the Attacker, an interim deck-landing fighter for the Royal Navy, was being delivered in quantity to the service.

Among civil transport aircraft, the De Havilland Comet, with Ghost engines, carried out a considerable amount of development flying on the British Overseas Airways corporation routes during the year. At an all-up weight of 105,000 lb., it had a cruising speed of 490 m.p.h. at 35,000 ft. and a still air range of 3,000 mi. In addition to those earmarked for B.O.A.C., orders were received from Canada and France. The Avon-powered series II Comets seemed likely to show much improved performance.

Two interesting new aero-engines were removed from the secret list during the year. The Napier Nomad was a composite, combining a turbine and a piston, connected to drive an airscrew and giving very low fuel consumption. The Bristol Olympus, a large turbo-jet for which an important future in both military and civil aviation was forecast, was Bristol's first venture in the pure jet field. A licensing agreement was made between Bristols and the Curtiss-Wright corporation for building this engine in the United States.

In January, it was announced that the Bristol Brabazon would not be put into production as an airliner. The second prototype ordered by the Ministry of Supply would be completed and used for experimental flying, thought it might ultimately have uses as a military transport. The total cost of the Brabazons, including the consequent aerodrome development at Filton, Bristol, would amount to about £12 million. Meanwhile, work continued on three 140-ton Saunders-Roe Princess flying boats powered, like the Brabazon II, with Bristol Proteus air-screw turbines. Originally intended for civil use, they were being completed for R.A.F. Transport command.

United States. Progress in 1951 was more notable in the field of aero-engines than in airframes, though a number of new military types were announced.

In transport aircraft, most manufacturers continued to produce existing models for military and civil needs. Much interest was being shown in the Canadian Avro Jetliner C-102, which paid visits to Washington for inspection by the U.S. air force and navy. Owing to backlogs in U.S. production, there seemed a possibility that Avro's might receive orders for Jetliners both as military and civil transports. Douglas sales of DC-6B transport aircraft numbered 83, and of DC-6 aircraft, 261. Consolidated Vultee's orders for their Convairliner 340 rose to just under 100, and deliveries were expected during the first half of 1952.

The shortage of used transport aircraft, due, to a considerable extent, to the needs of the Korean war, was accentuated. The market price of DC-3s and DC-4s was two to three times that before the Korean war. A Douglas DC-4 in good condition was worth $350,000. The Military Air Transport service Pacific airlift chartered 66 4-engined transports from the airlines.

Republic's swept-wing fighter, the F-84F, a development of the Thunderjet, was to be powered by the Armstrong-Siddeley Sapphire engine, known in the U.S. as the J-65. Another interesting aircraft was the Lockheed F-94B, a long-range ground-support fighter, with a Pratt and Whitney J-48 turbo-jet engine with afterburner.

It was expected that the Allison J-35-A-23 engine (9,700 lb. static thrust) would be installed in the B-47B 6-engined bomber. Meanwhile, Pratt and Whitney began flight tests on their 10,000-lb.-thrust J-57 jet engine which, they claimed, had a more economical fuel consumption than any other engine in a similar stage of development anywhere. The U.S. navy placed a production order for a number of Allison T-40 turbo-prop engines to power the Convair XP5Y flying boat and the Douglas XA2D Skyshark attack plane. The T-40 was made up of two identical power sections coupled through a common gearbox. Each power section was a complete T-38 engine, which was the power plant for the Convair turbo-liner, the prototype turbo-prop commercial transport undergoing trials during 1951.

The first theoretical phase of the project to study the possiblity of producing an atom-powered engine was completed by the Fairchild Engine company. Phase 2, the production of an actual blue-print for a nuclear-energy engine, was to be handled by the General Electric company, at Lockland, Ohio.

Canada. A Canadian-designed fighter, the Avro CF-100, fitted with Canada's first jet engine, flew during June. The engine, the Orenda, also an Avro product, had a rated thrust of over 6,000 lb.

U.S.S.R. According to a statement by the British secretary of state for air, on Sept. 29, the U.S.S.R. was turning out in quantity a twin-jet bomber, somewhat similar to the British Canberra, with swept-back tailplane and fin. A new fighter, the MIG-19, was reported to show great promise. It was thought that it derived directly from the TA.183 *bis* fighter designed by Professor Kurt Tank for the Luftwaffe shortly before Germany's capitulation.

Western Europe. In France, the Marcel Dassault Mystère fighter, a successor to the Ouragan, was successfully demonstrated in July. Actually equipped with a Hispano-built Nene, it was proposed to replace the power plant with a Tay jet engine. The Atar series of gas turbines were being produced by the Société Nationale d'Étude et de Construction de Moteurs d'Aviation and showed considerable promise. The Atar 101B, flight-tested on top of a Languedoc 4-engined transport, gave a static thrust of 5,291 lb.

In the Netherlands, Fokker, who completed the move of their factory from Amsterdam to Schiphol airport, produced an advanced trainer, the S-14, equipped with a Rolls-Royce Derwent 5 engine. They also produced, with backing from the Dutch government and KLM (Royal Dutch airlines), a design for a twin-engine turbo-prop passenger aircraft.

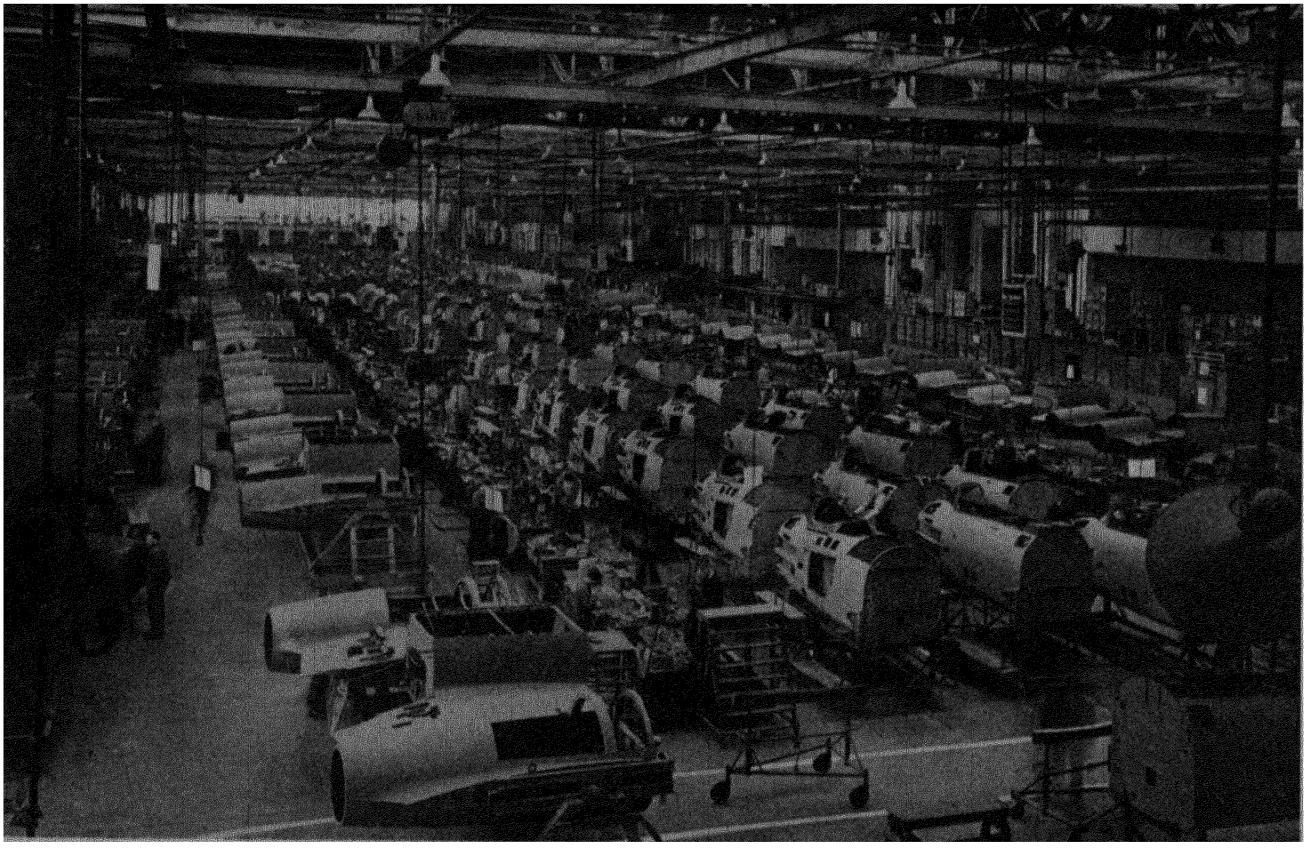
In Italy the aircraft industry, possessing considerable manufacturing capacity, unfortunately shrank still further during 1951, owing to lack of orders. (*See* also JET PROPULSION AND GAS TURBINES.) (D. CR.)

AIR FORCES OF THE WORLD. Great Britain and the Commonwealth. Although British aircraft production fell to a low ebb in the five years following World War II, research and development programmes, particularly in the field of high-speed jet aircraft, were maintained at reasonable levels and in 1951 were beginning to bear fruit in the form of fast fighter and bomber prototypes.

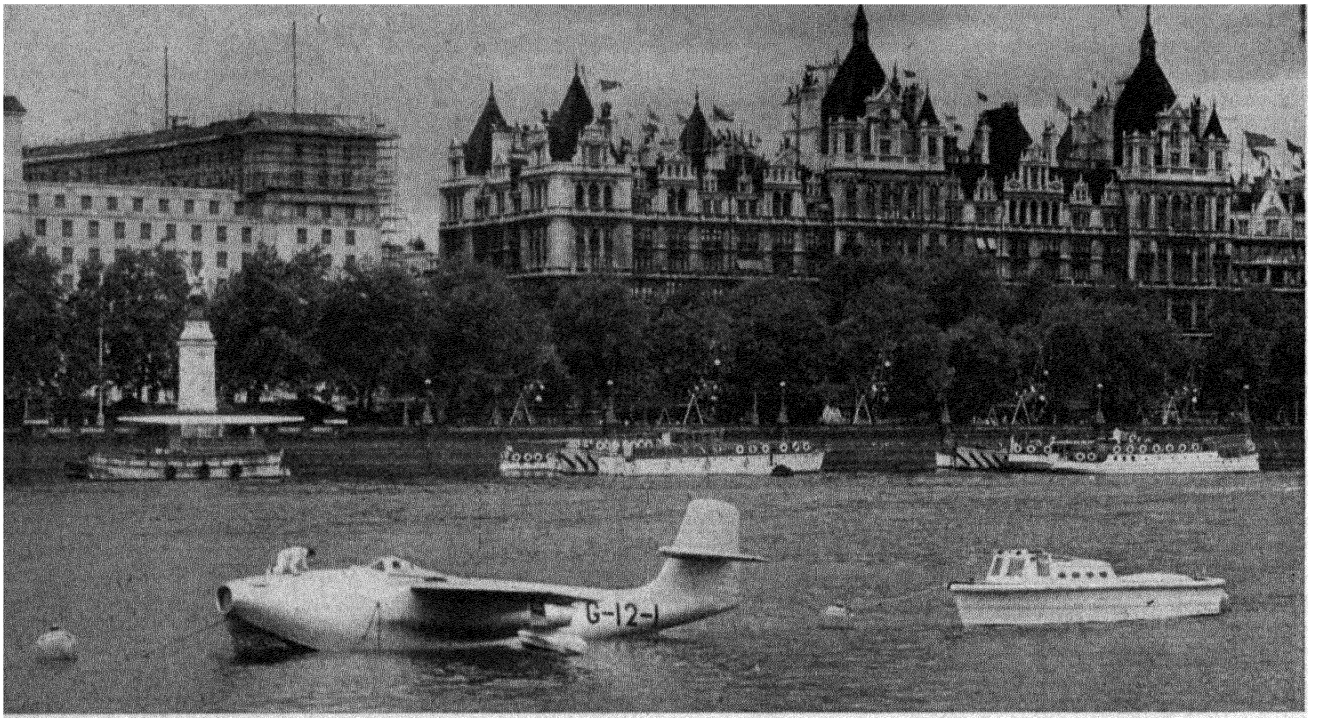
Prototypes of Great Britain's first four-engined jet bombers were flown in public at the Farnborough show in September. The Vickers Valiant was a swept-wing machine powered with four Rolls-Royce Avon jet engines completely housed in the wing root. The Short brothers SA.4 was a large monoplane with a pair of Avon engines, mounted one above the other and fitted into a single nacelle mounted on each wing. Production in quantity was still several years away. Meanwhile, the old post-World War II standbys, the Vickers Vampires and Venoms and the Gloster Meteors, continued to form the backbone of the R.A.F. fighter command. These jet fighters were also being produced for several nations, including France, Belgium, the Netherlands and the Scandinavian countries.

During 1951 Armstrong Whitworth put a new two-seat twin-jet night fighter into production, the MF.11. A development from the Gloster Meteor, it was fitted with Rolls-Royce Derwent engines. It was said to be very fast and capable of a variety of missions at night and in foul weather.

On the bomber side, the British Electric Canberra in the medium twin-jet category went into limited production and



A general view of the main assembly block of the Gloster Aircraft Co. at Gloucester, where Meteor jet aircraft were being manufactured during 1951. *(See page 32 for photograph of completed aircraft.)*



The world's first jet flying-boat fighter, the Saunders-Roe A.1, seen on the river Thames when it was moored near the South Bank exhibition.

the first of the jet bomber squadrons using these machines was put into commission by the R.A.F. The Canberra was also licensed for production in the U.S. by the Glenn L. Martin company of Baltimore, Maryland.

Most interesting of the British types flown during 1951 was a group of research aircraft intended for the study of flight at supersonic speeds. None of these machines had any immediate military value but they forecast the trends in combat designs. Three, the Fairey FD.1, the Avro 707 and the Boulton Paul P.111, were of the so-called delta-wing configuration.

During 1951 British jet engine development continued at a high level. No new types were announced but work progressed toward the attainment of high thrust and greater reliability. A number of engines that were considered experimental in 1950 were put into production in 1951; for example, the Rolls-Royce Avon was now specified for two R.A.F. fighters and two bombers, and plans for putting it into production in at least seven factories in Great Britain were being pushed at the end of 1951. The latest Derwent (the Mark 8) was also high on the Rolls-Royce production schedule.

De Havilland's Goblin and Ghost fighter engines were being widely used. The latest Goblin 35 had a rated sea-level thrust of 3,500 lb., the larger Ghost (5,000 lb. sea-level thrust) was fitted in a number of current R.A.F. and R.N. fighters, and the M.50 model powered the de Havilland Comet transport.

The Armstrong Siddeley Sapphire, with more than 7,500 lb. sea-level thrust, was one of the largest British jets. During 1951 the Wright-Aeronautical corporation of Wood-Ridge, New Jersey, was licensed to build this engine in the U.S.

To the so-called turbo-prop field (a conventional gas turbine driving a conventional propeller), two engines added considerable military significance in 1951, particularly for the R.N. The first was the Armstrong Siddeley Double Mamba fitted in the Fairey Gannet. It consisted of two Mamba turbo-prop engines mounted side by side, connected to a common gearbox and driving two separate four-bladed propellers on coaxial shafts. The other was the Armstrong Siddeley Python used in the Westland Wyvern torpedo carrier. This engine was rated at more than 3,500 shaft h.p. plus 11,000 lb. direct thrust at sea level.

The Commonwealth countries contributed little to British air power in 1951. Canada was in the lead with a two-seat long-range, twin-jet all-weather fighter, the Avro CF.100 Canuck. The power plant was to be the Canadian-built Avro Orenda jet engine. The prototype was flown in 1950, and limited production began in 1951. Canadair Ltd. of Montreal (a subsidiary of the U.S.-owned Electric Boat company) began quantity production on the North American (U.S.) Sabre jet fighter during the year.

In Australia, activities were limited to the development of jet-powered target drones, expendable radio-controlled aircraft for gunnery practice. Test flying had been initiated in the rocket testing ground at Woomera in South Australia, and several British guided-missile manufacturers started test programmes there.

United States. During 1951 the U.S. air force made considerable progress toward the goal of attaining, by the end of fiscal year 1952, a modernized 95-wing air force with the necessary supporting units. In November an acceleration of this expansion appeared in prospect when President Harry S. Truman and the National Security council approved recommendations of the joint chiefs of staff that an air force of 143 wings (including 126 combat wings) be achieved during 1954.

About 150,000 men ordered into active military service from the reserve forces were absorbed into the air force with a minimum of training. In October the air force announced a revised, long-range programme for the training and recall of reserve forces. The new programme provided for technical training of air force reserves by civilian schools under government contract and the complete integration of the reserve organization, its administration, training and supply, with the regular establishment.

The installations of the air force were re-evaluated in the light of defence and training needs. The increase in personnel required additional and expanded facilities, especially of bases for training. Many World War II bases in the

continental United States were not properly located for air defence operations or for strategic counter-attack. Construction of new bases, rather than the re-commissioning of former bases, was necessary in only a few cases, but many facilities had to be modernized at existing bases. Bases in Greenland, Britain, France and elsewhere were activated or were under construction to support the forces of the North Atlantic Treaty organization (N.A.T.O.).

Orders were placed for aircraft to meet operational requirements in Korea and throughout the world and to anticipate future requirements. Contracts for production of the Canberra, the British-designed jet bomber (the first jet aircraft to fly the Atlantic non-stop without refuelling), as a night intruder aircraft (the B-57A) were let in March, and announcement was made of the commencement of ground tests on the B-60, a swept-wing all-jet version of the B-36 bomber. The B-52, a new all-jet long-range strategic bomber, was ordered into production. There was a step up in production of the F-89 (Scorpion) twin-engine all-weather night fighter and the B-47 Stratojet, a six-jet medium bomber.

On Sept. 19 President Truman signed the Air Force Organization act of 1951, the first detailed organizational legislation affecting the air force, and an act that established by law the three major commands of the air force.

The 1st pilotless bomber squadron (light) was commissioned on Oct. 1 at the U.S.A.F. missile test centre, Cocoa, Florida. This unit, equipped with the B-61 pilotless bomber (the Matador), was the first unit of its kind in the air force.

While support of the U.N. forces in Korea was given priority in air force operations during the year, increased support was given General Dwight D. Eisenhower's N.A.T.O. force. In May the 3rd air division (formerly an independent command with headquarters in England) became the 3rd air force and was made a part of the United States air forces in Europe (U.S.A.F.E.) under Lieut. General Lauris Norstad, who also commanded the central European components of the U.S. and Allied air power assigned to supreme headquarters Allied powers in Europe (S.H.A.P.E.).

In mid-January six B-36s flown from Carswell air force base, Texas, via Limestone, Maine, to Lakenheath, England, and non-stop from England to Texas on a routine training mission, were the first B-36s to appear in Europe. On May 7 a small number of air force personnel arrived in Iceland to help strengthen the defences of that country. The 433rd troop carrier wing, an Ohio air reserve unit commissioned in Oct. 1950 and flying C-119s, became the first air force combat unit to be permanently assigned in Europe since World War II and the first U.S. air unit specifically assigned to N.A.T.O. It arrived at Rhein-Main (near Frankfurt) air base on July 29. The first unit of the 81st fighter interceptor wing, a squadron of F-86s, arrived in England in August, the first foreign air unit to become an integral part of the United Kingdom's air defence. The 126th bomb wing (B-26), a former air national guard wing with units from Illinois and Missouri, commissioned in April, was transferred to France, to be based at Bordeaux-Merignac aerodrome, the first U.S. combat force based in France since World War II.

From the beginning of the Korean war up to Nov. 27, 1951, aircraft under the operational control of the far east air forces flew a total of 336,063 sorties; during the same time, 354 aircraft of all types were lost to enemy fire. Casualty statistics to Nov. 23, 1951, indicated a total of 305 deaths, and 539 still missing in action, during the 16 months of the Korean war.

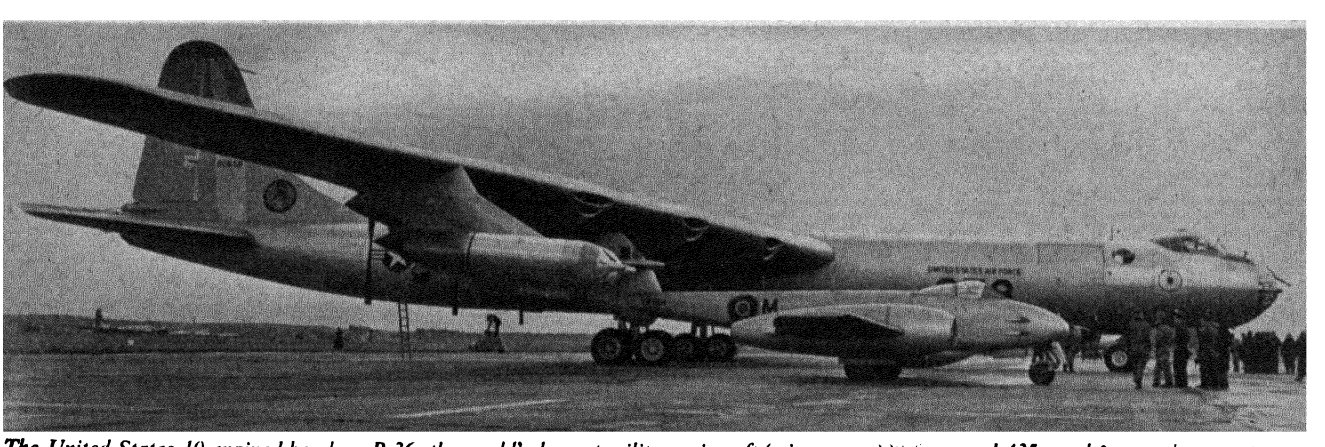
The U.S. far east air force flew about 615 sorties daily in support of ground action—most of them against ground targets from below 500 ft. altitude in the face of heavy automatic weapons' fire. U.S. heavy bombers dropped tons of propaganda leaflets over enemy territory, and night bombing attacks increased steadily. Radar aiming techniques were improved till night attacks attained an accuracy comparable to that of visual aiming methods. Particularly successful were the employment of B-26s against rolling stock and vehicles, and the B-29 strikes against Communist airfields. From August to mid-December, Operation "Strangle" exploited the dependence of the Chinese upon supplies from China and the Soviet Union. U.S. air attacks destroyed great quantities of Communist equipment: 67,850 vehicles, 1,236 locomotives, 23,500 railroad cars and 1,820 tanks were destroyed or damaged. The Communists suffered an estimated 138,388 casualties caused directly by air action.

The air force F-80 (Shooting Star), the faster F-84 (Thunderjet) and the still faster F-86 (Sabre jet) performed well against the Soviet-built MIG-15, an aircraft comparable in performance to the U.S. F-86 employed by the Communist forces, but a careful assessment of combat air action in Korea indicated that the real superiority of U.N. air forces over Communist air forces was in fire-control equipment and in the training and skill of U.N. pilots.

From Nov. 1, 1950, when the MIG-15 first made its appearance to Nov. 28, 1951, the day of the provisional cease fire, the U.S.A.F. lost 26 jet aircraft to enemy air-to-air action. During the same period it destroyed 152 Communist jets and probably destroyed 51 more—all MIG-15s.

At the beginning of the year, the U.S.A.F. had 560,000 personnel and 58 wings; on Oct. 31, 1951, it had 88 wings and its personnel strength was about 840,000, of whom less than 8% were officers. Women numbered about 12,000. The 95-wing air force had a personnel goal of 1,061,000.

(H. S. VG.)



The United States 10-engined bomber, B-36, the world's largest military aircraft (wing span 230 ft., speed 435 m.p.h.), seen here on its first visit to Europe in Jan. 1951. For comparison a Gloster Meteor can be seen beside it.

U.S.S.R. Reliable production figures were entirely lacking in 1951. Guesses as to annual output ranged from 5,000 to 15,000 and for available combat aircraft, up to 20,000. Comfortable theories had been advanced to the effect that although Soviet technical skill remained as good as that of any other country, capability to organize production in quantity was still lacking. This was an unfounded and unsafe assumption, however. Many capable German technicians disappeared into the U.S.S.R. in 1945—men with a first-hand knowledge of turning out aircraft under the most adverse conditions in wartime. It would be unlikely that the experience they gained would be overlooked by Soviet planners. Such assistance, coupled with the fact that Soviet aircraft manufacturing plants were neither destroyed during World War II nor shut down afterwards gave pause to any facile discounting of Soviet production potential. Large aircraft, engine and accessory manufacturing centres probably had been built in the central Asiatic regions, but their exact location and their production rates were not known.

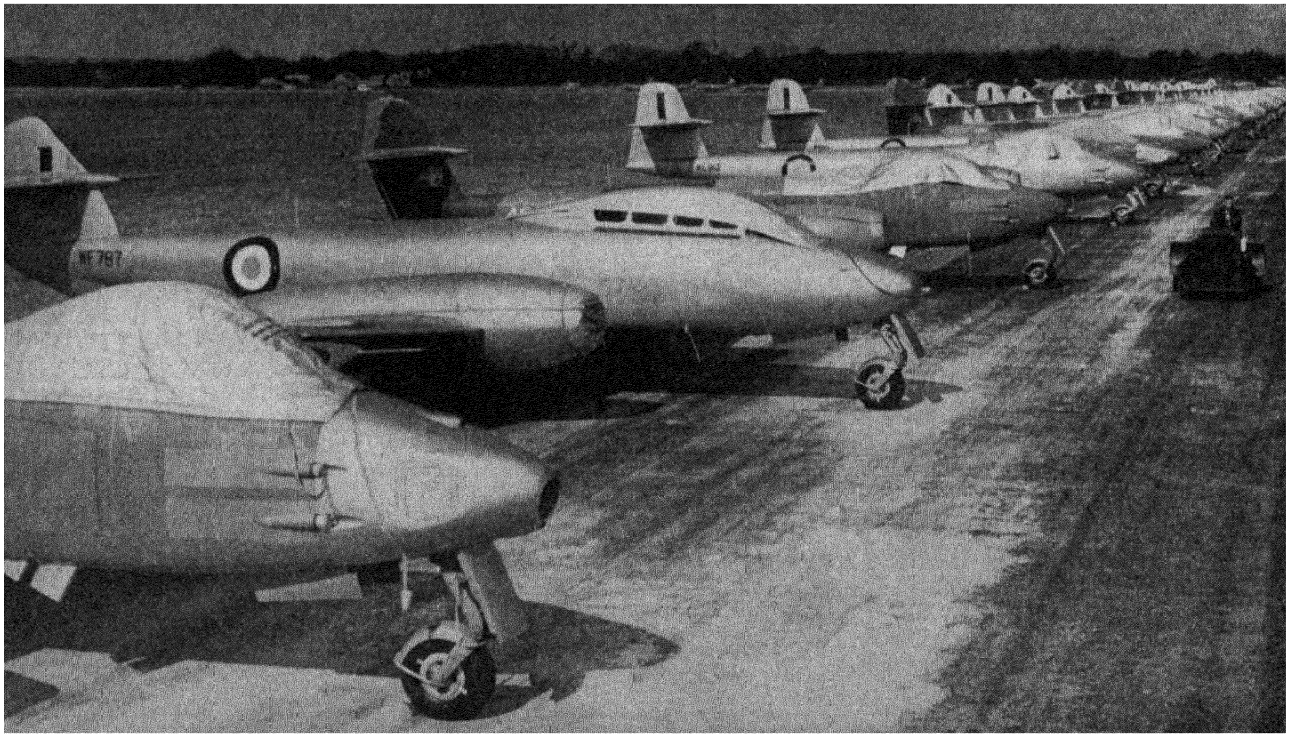
Information on Soviet aircraft, apart from observations made during the Korean war, came largely from reports during annual aircraft parades over Moscow, and from scattered sightings of new planes over the Soviet zones of Germany and Austria. It was, therefore, fragmentary and had always to be recognized as somewhat out of date when published.

When an MIG-15 was shot down in Korea in the summer of 1951 its power plant was identified with certainty. It became known that the Russians had combined the best of British and German jet engine practice into efficient designs of their own. They had not been blind copyists, but had made improvements in line with modern design, metallurgical and production techniques. There was no reason to believe that Soviet jet engines in use or under development in 1951 were inferior in any way to those on test beds in other parts of the world.

The same could be said of armament. Although the experience of the Korean war had indicated that the larger (37 mm.) calibre slower-firing aircraft cannon fitted in the MIGs were not as effective for air-to-air jet combat as the U.S. smaller-calibre, higher-firing-rate guns, that lesson had not been lost on the Russians. Meanwhile, the larger cannon were known to be excellent for ground support tactics. The Russians had long been proponents of aircraft rocket ordnance. Their wing-carried rockets were highly developed during World War II, and with the aid of German rocket experts it seemed probable that this form of ordnance had not been neglected. Whether or not they had developed anything new in proximity-type fusing was speculative, but the operating principles of this useful device were so well known that its use by the Russians was almost a certainty.

The greatest Soviet weakness in 1951 probably lay in the area of application of electronic devices. A modern military aircraft was little more than an aerodynamically shaped housing around a maze of electronically actuated control, navigating, gun-aiming and gun-firing gadgets. As speeds and general performance of aircraft go up, the human pilot must rely more and more on "quick-thinking" vacuum tubes and electronic circuits to do his work effectively. U.S. aircraft and missile designers had a vast reservoir of radio technology and a tremendous electronic equipment manufacturing capacity at their beck and call—an asset that seemed almost entirely lacking to the Russians.

Few new aircraft types were identified during 1951. There were rumours of a new swept-wing fighter (tentatively designated as an MIG-17) seen both in Korea and in western Europe, which evidently outperformed the five-year-old MIG-15. Another tailless type, probably a development of a German Heinkel fighter of 1945, was reported flying in the vicinity of Moscow. Delta-wing designs for very high speeds were well advanced in German experimental plants by the end of World War II, and it was certain that Soviet designers were exploring the possibilities of this type as supersonic interceptor fighters, as were British and United States designers. Power plants for

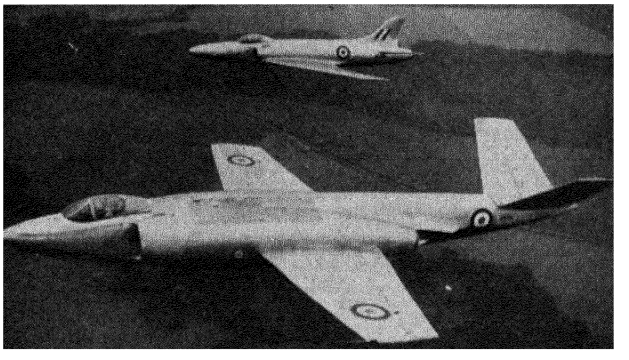


Completed Gloster Meteor aircraft at Moreton Valence airfield, Gloucestershire, in March 1951. The aircraft (which are shown under construction on page 29) were awaiting delivery to the Royal Air Force and the air forces of Belgium, Denmark and the Netherlands.

such machines would undoubtedly consist of combinations of rocket motors and ram-jets.

In the bomber field no startling developments came to light in 1951. There were rumours of a large long-range intercontinental type similar to the U.S. B-36, but no confirmation from sightings or other sources. Meanwhile the TU-71, a Soviet adaptation of the B-29, continued to be the basic heavy bomber. These machines could carry an atomic bomb on one-way missions to many key cities of the United States.

More detailed information on the configuration and characteristics of the TU-10 medium twin-jet bomber came to light during 1951. This machine carried a crew of three. It could be adapted to a wide range of tactical and training uses



The British Supermarine 508. This aircraft, claimed to be the world's fastest and most powerful naval fighter, was on view for the first time in 1951.

with easy modifications of its armament and equipment. It was thoroughly modern in design and construction. Its two jet power plants, believed to be 6,000-lb.-thrust Soviet versions of the British Rolls-Royce Nene engine, gave the TU-10 a probable top speed of about 580 m.p.h.

From the standpoint of aircraft design and production, none of the Soviet satellite states was thought to be active in 1951. Certain research centres outside the U.S.S.R. (*e.g.*, the rocket and guided missile testing station at Peenemünde, Eastern Germany, were being used, but under Soviet control. There were apparently scattered manufacturing plants building Soviet-designed aircraft in eastern Europe, but, as was illustrated by the capture of a U.S.A.F. C-47 transport in Hungary, and by the experience in air fighting in Korea, the Soviet Union's satellites were being supplied with Russian aircraft probably flown by Russian military pilots.

Other Countries. Practically all the fighting squadrons of N.A.T.O. countries that could be put into action immediately in 1951 were made up of aircraft of British or U.S. origin. The sole exception was Sweden, which listed a couple of jet fighters of Swedish design and construction. France had nothing to offer but a scattering of prototypes of only average military capability.

Argentina. Argentina was the only country in South America where military aircraft of modern design had been built, probably because of the presence of certain former French and German designers such as Kurt Tank and Amelio Dewoitine. The former was responsible for a high-performance, single-seat, swept-wing fighter, the I.Ae.33 Pulqúi II, powered with a British Rolls-Royce Nene jet engine. Dewoitine designed the I.Ae.27 Pulqúi I, also a Nene-powered jet fighter of less advanced type. This work was conducted at the Instituto Aerotecnico at Córdoba, a government-owned establishment. It was said to be the largest aircraft manufacturing plant in South America with a reported employment of more than 6,000.

France. The 19th Salon de l'Aéronautique held in Paris in the summer of 1951 revealed that the five-year rearmament plan for the French air force introduced in 1947 was progressing, but slowly. On the civil side, a number of transport, cargo and general utility types turned up, but results on the military side were disappointing. The only production was in British de Havilland Vampire Mark 5s with British engines, and the Dassault MD-450 Ouragan. The latter was a strictly French design of excellent performance. It was powered with Hispano-built Nene engines. A later Dassault jet fighter, the Mystère, was flown in prototype and was reported to show great promise, from the standpoints of both performance and production.

Sweden. Sweden's air force probably ranked as the fourth most powerful in the world in 1951. It was reported to include more than 50 combat squadrons, with a high proportion of jets. The programme called for an all-jet fighter force within two years. Although both U.S. and British aircraft were now used, an increasing number of Swedish-designed and built machines were coming off production lines. The J-29, the current production model, was a single-seat jet fighter of excellent performance powered with a Swedish-built Rolls-Royce Nene engine. A later model was reported in production, but details were lacking. It was significant that Sweden in 1951 was the only country (outside the U.S.S.R.) where large aircraft manufacturing and servicing plants had been put underground. (*See* also ROYAL AIR FORCE.) (S. P. J.)

AIRPORTS. During 1951, airport development was vigorously pursued. Although no new major airport of international class "A" classification was nearing completion—Jan Smuts airport in South Africa being subject to financial delays—new airports of class "B" standard established during 1951 included Luanda in Angola, intended for trans-Atlantic services to Brazil, and Khalde (Beirut) in the Lebanon. Entebbe, near the northern shores of Lake Victoria Nyanza, provided a good example of the type of long-established aerodrome that was being extended and improved to meet modern air traffic requirements. It was re-opened in its new guise on Nov. 10.

The importance of improving existing airports on world trunk routes lay in the necessity for providing adequate ground service for turbine-powered civil aircraft, shortly to go into scheduled operation for the first time. The high speed and high altitude at which these new types of airliners would fly demanded better runway specifications, quicker refuelling and handling at airports, more advanced navigational aids and telecommunications and, last but not least, improved meteorology, especially in forecasting weather at great heights.

Without such progress on the ground, all the economic advantages accruing from the introduction of the new power plants, whether they were gas turbines driving propellers or driving the airliner by pure jet thrust, would have been lost. The chief gain of turbine aircraft was expected to be seen not only in quicker passages for air travellers and freight but also in higher "utilization" as measured in flying hours per aircraft. In the case of Entebbe airport, for example, it should be appreciated that its location on the equator some 3,000 ft. above sea level demanded its improvement, having regard to the greater sensitivity of the gas turbine to tropical conditions and the need for longer take-off runs of aircraft at altitude.

Great Britain. In order to complete the sky surveillance available to control at London airport, Great Britain's chief airway terminal, it was expected that an intermediate radar system between the long range MEW (microwave early warning) and GCA (ground-controlled approach) would be used experimentally in 1952. This new azimuth scanner was designed to give better definition of incoming or outgoing aircraft in the control zone up to a range just short of 50 mi.

Constructional work at London airport continued steadily during 1951 with the excavation of the quadruple tunnel from the main highway to the central terminal site and the erection of several permanent hangar blocks on the maintenance sites, as previously planned. Some progress was also reported in the planning of the fuel "farm" with pipelines into the central area and in the completion of the design of some of the permanent buildings for the central terminal, which was intended ultimately to replace airport temporary buildings on the Bath road.

Australasia. Essendon airport (serving Melbourne) which had long been overshadowed by the Australian terminal of Mascot (Kingsford Smith airport) at Sydney, was raised to the status of "international." The opening, in 1951, of a direct air service between Melbourne and Christchurch, New Zealand, rendered this promotion inevitable. Progress in airport development in the latter country had been slow mainly because of labour and national finance problems. Harewood, at Christchurch, was likely to be speeded up in its development—it had to accommodate the finish of the proposed air race from Great Britain to New Zealand in 1953.

United States. During 1951 the Civil Aeronautics administration recommended the construction or improvement of no less than 4,945 civil airports within the U.S. This expansion, initiated by the Federal Airports act of 1946, would give the United States 64 airports of international class "A" standard, 77 for express routes (such as jet airliner operation), 303 terminal airports for ordinary trunk lines, 656 for feeder lines connecting to the trunk routes and the rest for secondary purposes such as town or private airfields. In the grand total, it should be noted, were 83 exclusive landing spaces for helicopters and 304 bases for marine aircraft operation. (C. F. As.)

On June 30, 1951, the end of the fifth year of the Federal Aid Airport programme, a total of $166,537,603 in federal funds had been allocated, of which $162,194,067 had been put under contract. Funds had been granted to 1,952 projects, of which 410 were under construction, 1,295 had been completed and 247 were being processed for construction.

Substantial progress was made in implementing the common system of air traffic control and navigation. At midyear, of the approximately 400 VOR (very high frequency omnirange) facilities required to cover the United States, 305 had been fully commissioned and 11 others were operating on a test basis. There were 98 instrument landing systems (ILS) in operation. Nine airport surveillance radar (ASR) systems and nine precision approach radar (PAR) facilities were in operation at Boston, New York International and LaGuardia, Newark, Washington National, Atlanta, Chicago Midway, Cleveland and Los Angeles airports. The two types of radar, when used together, constituted a ground-controlled approach system. (*See* also AVIATION, CIVIL.) (B. M. St.)

AIR RACES AND RECORDS. The 1951 British national air races were cancelled because of the very bad weather at Hatfield on June 23. Similar ill-luck attended the date planned for the *Daily Express* south coast race, but it was eventually staged for Sept. 22 over a 186-mi. course from Shoreham eastward, returning over a different route to a finishing line at Brighton. The winner was H. M. Kendall, flying a diminutive prewar Chilton D.W.1.

Several outstanding records were set up during the year, apart from the United States navy's claim that their Skyrocket had exceeded 1,000 m.p.h. and (in the same flight) had flown higher than any previous piloted aircraft—a claim inadmissible to the record book because of security restrictions—the most spectacular and significant achievements were the two east-west crossings of the North Atlantic by English Electric Canberra twin-jet bombers. The pilot on the first occasion, in February, was Squadron Leader A. E. Callard; the second flight (officially observed) on Aug. 31 was in the hands of Wing Commander R. P. Beamont. He and his crew of two set up a Belfast-Gander course record by covering 2,072 mi. (3,334 km.) in 4 hr. 18½ min.—average speed 481 m.p.h. During Aug. 4-5 another Canberra, piloted by Squadron Leader D. R. Cuming, flew to Melbourne from Lyneham (Wiltshire) in under 25½ hr.

Great Britain also set up the first four "rate-of-climb" records (a new category) on Aug. 31, when R. B. Prickett of Glosters took up a Meteor 8 (with two Sapphire turbo-jets) from Moreton Valence to 12,000 m. in 3 min. 9·5 sec.

The U.S. won back one major record—speed over 100 km. circuit: during the (U.S.) national races (in August), Colonel F. Ascani flew an F-86 Sabre at Detroit at 635 m.p.h. (1,023 km.p.h.), and F-86 pilots were also outstanding in another of the "nationals," the transcontinental Bendix trophy, in which Colonel K. K. Compton averaged 551·76 m.p.h. over 1,920 mi. Two "unobserved" flights in pioneer style were those of Capt. C. Blair, who piloted his single-engined Mustang from New York to London in 7 hr. 48 min., and later crossed the North Pole en route from Norway to Alaska and New York.

The D.H. Comet appeared once more in the record lists by covering London-Karachi in 12 hr. 13 min., with Capt. A. Majendie in command.

The Fédération Aéronautique Internationale upgraded two international class records into the "world absolute" category: distance in a closed circuit, and speed over 100 km. (the first holder in the new grade being Ascani). Among several other innovations that became officially admissible were "point-to-point speed records for airline aircraft," and parachute jump records. (G. D. H. L.)

See B. J. Hurren, *Fellowship of the Air* (London, 1951); Geoffrey Dorman, *Fifty Years Fly-Past* (London, 1951).

ALASKA. Northernmost territory of the United States, separated from Siberian U.S.S.R. by the Bering strait. The Aleutian islands, extending 1,200 mi. westward from the extremity of the Alaskan peninsula, constitute part of the territory. Area: 586,400 sq.mi. Pop. (1951 est.): 136,000 excl. military, naval and coast-guard personnel. Chief towns (pop. 1950): Anchorage (11,060); Juneau (cap., 5,818); Fairbanks (5,625); Ketchikan (5,202). Governor, Ernest Gruening.

History. The most significant event during 1951 was the announcement of construction of a $40 million pulp mill near Ketchikan. This basic forest industry was expected to do much to stabilize the economy of the southeastern region which had been of a seasonal character based on salmon and halibut fishing. Construction plans for Alaska's first plywood mill at Juneau were also announced.

Construction activities reached a new peak in 1950, the total programme being estimated at $500 million. Although the bulk of activities centred on defence installations, numerous projects important to development of the territory were undertaken. Construction commenced on Alaska's first large hydroelectric plant (30,000 kw. installed capacity) at Eklutna, near Anchorage. Great strides were taken toward alleviating the critical housing shortage with the erection of numerous apartment buildings in Anchorage, Fairbanks, Juneau, Ketchikan and other communities. Paving of the interior highway system continued throughout the year. New construction included the linking of Anchorage with Seward on Kenai peninsula by a 128-mi. road.

(ER. GR.)

Education. Schools in 1951: 27 high (2,363 pupils); 73 elementary (12,234 pupils); native 96, incl. 3 boarding (5,407 pupils).

Banking and Finance. Cash balance at Dec. 15, 1951, $4,331,687.

Fisheries. The salmon pack, considered the largest in the world, was 3,473,592 cases in 1951 with a value of about $90 million. The halibut, shrimp, crab and cod fishery brought the total value of seafood packed to more than $110 million.

Agriculture. Total value, $2,186,000, of which $1,275,000 came from Matanuska valley. A total of 1,061 ac. of new cropland were cleared during the year.

Mineral Production. Coal (1950) 412,455 tons; gold 289,272 oz.; sand and gravel 3,050,020 tons; other minerals, value $2,463,000.

ALBANIA. People's republic in the western Balkans, bounded N. and E. by Yugoslavia and S. by Greece, with an Adriatic coastline of 200 mi. Area: 10,629 sq.mi. Pop.: (1930 census) 1,003,097; (mid-1950 est.) 1,200,000. Language: literary Albanian and two dialects, Gheg north of the river Shkumbi and Tosk in the south. Religion: Moslem 65%, Greek Orthodox 23%, Roman Catholic 11%. Chief towns (1949 est.): Tirana (cap. 40,000); Scutari or Shkodër (30,000); Koritsa or Korçë (28,000); Elbasan (18,000). Chairman of the presidium of the People's Assembly, Dr. Omer Nishani; prime minister, minister of foreign affairs and of national defence, General Enver Hoxha.

History. The theme that ran through events in 1951 was isolation. The main preoccupation of the Communist government was with real or imaginary attempts to overthrow a régime apparently cut off from outside help. The Soviet government continued to exploit to the best of its ability Albania's natural resources without committing itself to Albania's defence. In the capital numbers of Soviet advisers and technicians were to be seen and the Soviet press gave considerable publicity to Albania, but no moves were made to sign a Soviet-Albanian mutual defence treaty.

Throughout the year state security was emphasized. The most striking news to reach the outside world (although not officially confirmed) was the reported explosion of a time-bomb outside the Soviet legation in Tirana on Feb. 19. The explosion apparently did little damage and casualties were few, but the incident was followed by the arrest of between 300 and 400 Albanians, of whom 40 were executed immediately without trial. Shortly afterwards, on Feb. 25, the government issued instructions calling for a ten-day intensive campaign against elements hostile to the régime and ordering the immediate surrender of all firearms and close-combat weapons.

The government frequently announced the death or capture of "enemy agents" who had allegedly entered Albania illegally on instructions from western governments; these amounted to 65 during the year. At the same time Albania maintained its hostile attitude to Yugoslavia, Greece and Italy, despatching frequent protests against alleged violations of Albania's frontiers and air space.

In this uneasy situation the Albanian government pressed on as best it could with the economic and social measures outlined in the two-year plan. The government's agricultural policy, proclaimed at a session of the central committee of the Albanian Workers' (Communist) party on April 12 as further development of the collectivization of agriculture, was reversed at a second meeting of the committee on May 14. A warning was then issued against undue haste, and the party's policy was laid down as consolidation of results so far achieved. The government continued to make exaggerated claims of industrial progress; and on Sept. 26 it announced the introduction of a new five-year plan based on Soviet experience.

Major changes in the Albanian cabinet during the year were: in March, Spiro Spano, one of the deputy premiers, was dismissed; on Sept. 6 Mehmet Shehu, member of the politburo of the Albanian Communist party, deputy premier and minister of the interior, was relieved of all his duties and succeeded by Iosif Pasko.

An interesting development was the decree published on Aug. 3 of a new statute for the Albanian Roman Catholic Church. Under this decree the church was required to break off all relations with the Vatican and to conduct its external relations through the Albanian government.

Albania's diplomatic representation in western Europe was restricted to legations in Italy and France. The negotiations between Britain and Albania over compensation for the loss of two British destroyers and 44 British lives in the Corfu channel mining incident of 1947 continued during the year, but no settlement was reached. (M. MACK.)

Education. Schools (1949): elementary 1,910, pupils 162,000; higher elementary 145, secondary 20, total pupils 19,140. A teachers' college was opened at Tirana in 1946.

Agriculture. Main crops ('000 metric tons): wheat (1947) 54; maize (1947) 140; olives (prewar) 17; grapes (prewar) 14; potatoes (1949) 4; tobacco (1945) 1·5. Livestock (1946 est., '000 head): cattle and buffaloes 371; sheep 1,700; horses 50; pigs 35; goats 854; asses 40; mules 10.

Industry. Crude oil production (1950): 150,000 metric tons.

Foreign Trade. Before 1939, main imports were cotton yarns and manufactures, petrol, wheat and maize. Main exports were crude petroleum, skins and hides, foodstuffs.

Transport and Communications. Roads (1949): 1,766 mi. Licensed motor vehicles (Dec. 1950): cars 500; commercial 1,200. Railways (1950): 26 mi. Shipping (1949): merchant vessels 6. Post and telegraph offices 53. Radio receiving sets (1950): 40,025.

Finance. Monetary unit: *lek*, until mid-1948 at par with Yugoslav dinar, with an official exchange rate (Nov. 1951) of 139·25 lek to the pound and 49·6 lek to the U.S. dollar.

ALGERIA. French territory of north Africa, situated between Morocco (west) and Tunisia (east), with a status of government general of the French Union. Total area: 851,078 sq.mi., administered in two parts: Northern Algeria (80,919 sq.mi.), comprising the overseas *départements* of Algiers, Oran and Constantine, and the four territories of Southern Algeria (770,159 sq.mi.). Pop.: (1936 census) 7,234,684; (1948 census) 8,676,016 including 816,993 (9·4%) in the southern territories. Arabs and Berbers, who are Moslem, constitute 86·7% of the population; Europeans (1936) 987,252, predominantly Roman Catholic; Jews (1949 est.) 130,000. Administration: Algerian Assembly, 120 members elected by two colleges. In the first college there are all citizens of French status and Moslems distinguished by military, university, administrative or judicial qualifications; in the second college are grouped all other Moslem citizens. The Assembly manages Algerian affairs in agreement with the governor general, who has wide powers. Chief towns (1948 census): Algiers (cap., 315,210); Oran (256,661); Constantine (118,774); Bône (102,823); Tlemcen (69,668). Governor general, Roger Léonard.

History. The elections on June 17, 1951, to the National Assembly in Paris were notable for the total victory, in the second college, of the moderate independents over the nationalists of the Mouvement pour le Triomphe des Libertés Démocratiques (M.T.L.D.), autonomists of the Union Démocratique du Manifeste Algérien (U.D.M.A.) and Communists. In the first college victory went to the independents and the Rassemblement du Peuple Français (12 seats against 1 Socialist and 2 Communists). Similar results had attended the elections to the Algerian Assembly in February and were to attend those to the general councils (of the three *départements*) in October; in the latter the M.T.L.D. and the U.D.M.A. did not take part, alleging pressure by the authorities. On Aug. 5 these parties formed an Algerian Freedom Front (Front Algérien de la Liberté) with the Communists and the religious movement of the ulemas. New communes, with elected municipal councils, were set up.

The yearly increase of population reached 150,000, the number of departures for France 85,000. Output of citrus fruits, livestock, minerals, industrial produce was higher.

Education. Schools (1949): primary 2,188, pupils 331,700; secondary 128, pupils 23,400; technical, pupils 3,000; University of Algiers, students 4,977.

Agriculture. Main crops (1950, '000 metric tons): wheat 1,030; barley 780; oats 150; citrus fruits 250; olives 100; figs 50; dates 20; potatoes 210; vegetables 450; tobacco 19; wine ('000 hectolitres) 14,000. Livestock (1950, '000 head): cattle 766; sheep 4,500; goats 2,900; horses 220; asses 330; mules 230; camels 120.

Industry. Mineral production (1950, '000 metric tons): coal 250; iron ore 2,572; phosphates 585; zinc 16. Industrial production (1950, '000 metric tons): cement 324,000; superphosphates 90,853; paper 12,000; pig iron 5,900; copper wire 3,500; matches (millions of boxes) 181; electricity (millions of kwh.) 500.

Foreign trade (1950, million Fr.): imports 983, exports 112,232 (including 82,279 to France).

Transport and Communications (1950) Railways 4,500 km.; state roads 8,500 km.; secondary roads 26,000 km.; tracks in the Sahara 11,000 km. Motor vehicles licensed, 173,000. Ships entered: Algiers 3,621; Oran 2,660. Aircraft landed 10,792.

Finance. Budget (1951-52 est.): balanced at Fr. 72,000 million. Currency: Algerian franc = metropolitan franc.

See *Etat des opérations du plan pour l'Afrique du Nord* (Imprimerie Nationale, Paris, 1951). (HU. DE.)

ALIENS. The number of aliens registered in the United Kingdom on Oct. 1, 1951, was 420,595 (males 254,547; females 166,048), of whom 140,390 were living in the metropolitan police district (London). The figure on Jan. 1 was 429,329. The principal nationalities represented and the numbers of each compared with similar figures at the same date in 1950 were: Austrian 9,737 (10,037); Belgian 5,295 (5,520); Chinese 9,966 (9,725); Czechoslovak 5,223 (6,017); Dutch 9,363 (9,117); French 15,316 (14,901); German 47,359 (47,762); Italian 25,664 (21,672); Latvian 13,427 (13,794); Lithuanian 6,303 (6,860); Norwegian 6,096 (5,966); Polish 138,439 (145,524); Russian, including White Russian 35,743 (38,172); Swiss 12,255 (12,878); U.S. 20,894 (18,283); Yugoslav 9,151 (9,391). The figures included 10,000 aliens to whom no nationality could be attributed.

Among aliens not required to register and therefore not included in these figures were children under 16 years of age, members of the diplomatic and consular services of foreign governments, certain officials of international organizations, members of the U.K. armed forces and of certain foreign armed forces on duty in the U.K., British protected persons, and tourists and other visitors who spent less than three months in the U.K. The number of incoming travellers to the U.K. during the first nine months was over 630,000. In July 1951, 128,015 foreigners landed at U.K. ports and 106,772 embarked. Figures for July 1950 were 114,738 and 97,062.

In March 1951 the United Kingdom concluded a visa abolition agreement with Cuba. As the result of earlier agreements the nationals of the following countries were not required to obtain visas for travel to the U.K.:—Belgium, Denmark, France, Iceland, Italy, Liechtenstein, Luxembourg, Monaco, Netherlands, Norway, San Marino, Sweden, Switzerland and the United States. The provisions of the Aliens order, 1951 (Statutory Instrument 966/1951) included the extension from two to three months of the initial period during which a foreigner arriving in the U.K. was not required to register with the police and the extension from two weeks to two months of the period during which a foreigner living in the U.K. might be absent from his registered address without reporting the fact.

The number of foreigners admitted after the end of World War II to allow relatives in the United Kingdom to offer homes to foreigners in isolated and distressed circumstances abroad rose to over 7,300. During 1951 about 1,300 foreigners were allowed to remain in the U.K. after marriage to British subjects.

In 1951 some 36,000 permits were issued for non-resident foreigners to come and work in the United Kingdom for periods of varying length. The majority of permits were for domestic employment in hospitals, institutions and private households. In addition, the number of German, Austrian and Italian women received under official schemes for employment in hospitals, institutions and the undermanned industries rose to 10,000, 2,300 and 2,000 respectively. Recruiting teams went to Italy to select men for work in coal-mining and other undermanned industries, and by Oct. 1951 1,100 men for the coal mines and 1,100 for other industries had arrived in the U.K.

There were also 77,000 foreigners, mostly of Polish or Baltic origin, who were temporarily accommodated in displaced persons' camps on the continent immediately after the end of World War II and had subsequently, prior to 1951, been admitted for employment in the United Kingdom with a view to settlement. With them came nearly 4,000 dependants. From Jan. 1, 1951, onwards, those with three years' residence were free to take any work they could obtain. In addition, some 15,000 former members of the German armed forces, 8,500 former Ukrainian prisoners of war and 1,000 Italian former prisoners of war who volunteered to remain in the U.K. to work in agriculture instead of accepting repatriation at the end of 1948, would be free to take any work they could obtain from Jan. 1, 1952, onwards.

Between Jan. 1 and Oct. 1, 1951, 3,576 new applications for naturalization were lodged compared with 5,702 for the same period in 1950. Certificates granted during the same period numbered 3,501. Under the British Nationality act, 1948, it was possible for alien wives of citizens of the United Kingdom and colonies (who did not now automatically acquire British nationality by their marriage) and alien minor children to obtain British nationality by registering as citizens of the U.K. and colonies: 4,528 alien wives and 768 minors were so registered between Jan. 1 and Oct. 1, 1951.

(T. G. W.)

United States. It is estimated that there were about 3 million resident aliens in the continental United States on June 30, 1946. This estimate does not take into account persons there temporarily, that is, non-immigrants, border crossers and imported labourers.

Naturalizations. The number of persons naturalized in 1951 was 54,716—the lowest total since 1910—and 2,935 petitions were denied.

In addition to those persons whose U.S. citizenship was revoked, 4,443 persons expatriated themselves by affirmative action: 1,401 by voting in a foreign political election or plebiscite; 1,084 through naturalization in a foreign state; 836 by taking up residence in a foreign state; 565 by serving in foreign armed forces; and 557 by leaving the U.S. to avoid military service and for other reasons.

NON-CITIZENS NATURALIZED IN THE U.S., 1948-51
(Years ended June 30)

Former nationality	1948	1949	1950	1951
British	12,361	13,284	12,697	10,867
Canadian	3,860	5,347	5,882	5,872
German	7,486	5,777	6,065	5,439
Italian	9,452	8,301	8,743	5,975
Polish	5,136	4,371	3,793	3,100
U.S.S.R.	3,143	2,752	2,122	1,830
Filipino	5,768	3,478	3,257	1,595
Mexican	1,895	2,227	2,323	1,969
Other	21,049	21,057	21,464	18,069
Total	70,150	66,594	66,346	54,716

New Legislation. On Aug. 27, 1951, S.2055—an omnibus bill having as its objective the complete revision of immigration and nationality laws—was introduced into the Senate.

The most important public law enacted during 1951 relating to immigration and naturalization, was the Internal Security act of 1950 (Public Law 831, effective Sept. 1950), the purpose of which was to protect the U.S. from subversive activities. The law required of each resident alien an annual

report of his address; it amended the immigration and nationality laws by refining, clarifying and augmenting the classes of persons to be considered as risks to internal security; it established that membership *per se* in Communist or other totalitarian groups should be cause for exclusion, deportation or denial of naturalization. It added ability to read and write English to ability to speak it as a prerequisite for naturalization.

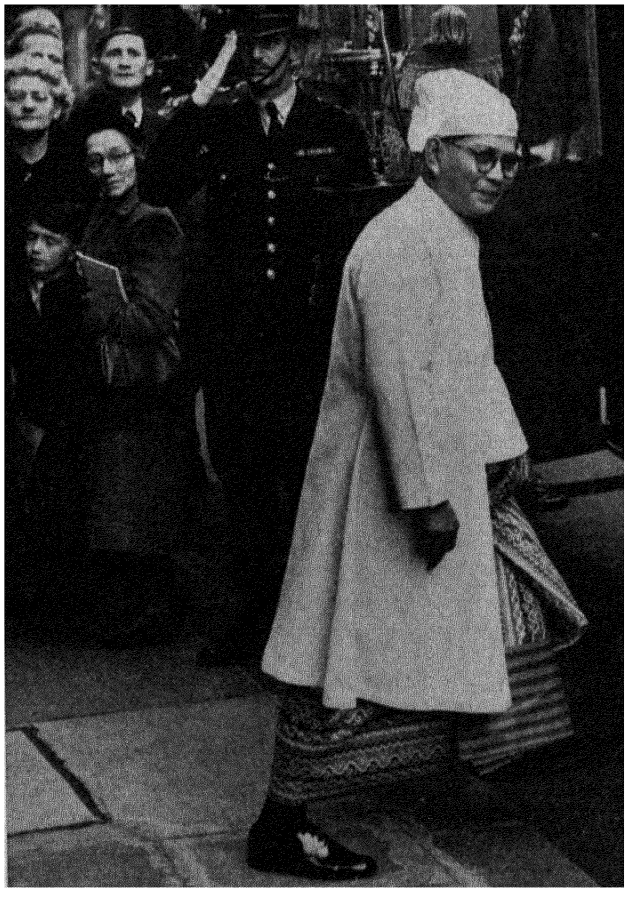
Public Law 717, approved Aug. 19, permitted the admission of racially ineligible spouses and minor children of citizen members of the U.S. armed forces. The time limit of this act was extended by Public Law 6, approved March 19. (*See* also IMMIGRATION AND EMIGRATION.) (A. R. MACK.)

ALIMENTARY SYSTEM: *see* STOMACH AND INTESTINES, DISEASES OF.

AMBASSADORS AND ENVOYS. The following is a list of the chief diplomatic representatives to and from Great Britain, Dec. 31, 1951.

To Great Britain	*Country*	*From Great Britain*
*Shah Wali Khan	Afghanistan	*Sir A. J. Gardiner
*Carlos Alberto Hogan	Argentina	*Sir W. H. B. Mack
§§Lothar Wimmer	Austria	*Sir H. A. Caccia
*Vicomte Obert de Thieusies	Belgium	*Sir C. F. A. Warner
*Napoleon Solares Arias	Bolivia	*J. G. Lomax
*J. J. Moniz de Aragão	Brazil	*Sir G. H. Thompson
Naiden K. Nikolov	Bulgaria	J. E. M. Carvell
*U Ka Si	Burma	*R. L. Speight
*Manuel Bianchi	Chile	*C. N. Stirling
—	China	†L. H. Lamb
*Rafael Sánchez Amaya	Colombia	Gilbert MacKereth
†Guillermo Padilla Castro	Costa Rica	H. B. Livingston
*R. González de Mendoza y de la Torre	Cuba	*A. Holman
*Josef Ullrich	Czechoslovakia	*P. H. Broadmead
*Count Eduard Reventlow	Denmark	*Sir Alec Randall
Julio Vega Batlle	Dominican Rep.	S. H. Gudgeon
*Gonzalo Zaldumbide	Ecuador	*Norman Mayers
*Abd-el-Fattah Amr Pasha	Egypt	*Sir R. C. S. Stevenson
*Ato Abbebe Retta	Ethiopia	*D. L. Busk
Eero Aarne Wuori	Finland	Sir A. N. Noble
*René Massigli	France	*Sir Oliver Harvey
‡ H. Schlange-Schoeningen	Germany, Western	§Sir Ivone Kirkpatrick
*Leon Victor Melas	Greece	*Sir C. B. P. Peake
Francisco Linares Aranda	Guatemala	W. H. Gallienne
Love O. Léger	Haiti	D. J. M. Irving
‖Archbishop William Godfrey	Holy See	W. St. H. Roberts
Tiburcio Carius	Honduras	G. E. Stockley
Imre Horváth	Hungary	R. M. Hankey
Agnar Klemens Jónsson	Iceland	J. D. Greenway
*Subandrio	Indonesia	*D. W. Kermode
*Emir Zeid ibn al-Hussein	Iraq	*Sir J. M. Troutbeck
*Frederick H. Boland	Ireland	*Sir Walter Hankinson
Eliahu Elath	Israel	Sir F. E. Evans
†Livio Theodoli	Italy	*Sir Victor Mallet
¶Koishiro Azakai	Japan	**Sir Esler Dening
Farozi Pasha al-Mulki	Jordan	G. W. Furlonge (minister designate)
Myo Mook Lee	Korea	†A. C. S. Adams
Victor Khouri	Lebanon	E. A.Chapman-Andrews
Baron R. A. de Lynden	Liberia	J. G. Baillie
—	Libya	Sir Alec Kirkbride
André Clasen	Luxembourg	Geoffrey Allchin
*Federico Jimenez O'Farrill	Mexico	*J. W. Taylor
*Shanker Shumshere Jung Bahadur Rana	Nepal	*C. H. Summerhayes
*Jr. E. Michiels van Verduynen	Netherlands	*Sir N. M. Butler
—	Nicaragua	N. O. W. Steward
*Per Preben Prebensen	Norway	Sir M. R. Wright
Juan R. Morales	Panama	E. A. Cleugh
Pedro Godinot de Vilaire	Paraguay	Ian Henderson
*Ali Soheily	Persia	*Sir F. M. Shepherd
*Ricardo Rivera Schreiber	Peru	*Sir O. A. Scott
José E. Romero	Philippines	F. S. Gibbs
*Jerzy Michałowski	Poland	*Sir C. H. Bateman
*Ruy Ennes Ulrich	Portugal	*Sir Nigel Ronald
Nicolae Cioroiu	Rumania	W. J. Sullivan
J. Arturo Castellanos	Salvador, El	R. H. Tottenham-Smith
*Sheikh Hafiz Wahba	Saudi Arabia	*G. C. Pelham
*Duke of Primo de Rivera	Spain	*Sir John Balfour
*Bo Gunnar R. Hägglöf	Sweden	*R. B. Stevens
Henri de Torrenté	Switzerland	P. S. Scrivener
Edmond Homsy	Syria	W. H. Montagu-Pollock
*Phra Bahiddha Nukara	Thailand	*G. A. Wallinger
*Cevat Açikalin	Turkey	*Sir A. K. Helm
*Gheorghy N. Zarubin	U.S.S.R.	*Sir Alvary Gascoigne
*Walter Sherman Gifford	United States	*Sir Oliver Franks
*Enrique E. Buero	Uruguay	*D. F. Howard
*Carlos Sosa-Rodriguez	Venezuela	*Sir Robert Urquhart
Tran Van Don	Vietnam	‡‡H. A. Graves
Hassan Ibrahim	Yemen	M. B. Jacomb
*Jože Brilej	Yugoslavia	*W. I. Mallet
	United Nations	††Sir Gladwyn Jebb

* Ambassador. Unstarred, Minister. † Chargé d'Affaires. ‡ Consul General. § High Commissioner to Western German Federal government. ‖ Apostolic Delegate. ¶ Chief overseas representative in Great Britain. ** Political representative. †† Permanent U.K. representative to the United Nations. ‡‡ Also accredited to Cambodia and Laos. §§ Status raised to ambassador, Jan. 1952.



U Ka Si, the new Burmese ambassador to London, seen leaving his embassy on Oct. 23, 1951, to present his letters of credence to King George VI.

The following is a list of high commissioners within the Commonwealth of Nations, Dec. 31, 1951.

From Australia to	
Canada	Francis Michael Forde
Ceylon	(vacant)
Great Britain	Thomas Walter White
India	Herbert Roy Gollan
New Zealand	Arthur Roden Cutler
Pakistan	John Egerton Oldham
South Africa	(vacant)

From Canada to	
Australia	Gdlin Fraser Elliott
Great Britain	L. Dana Wilgress
India	Warwick Fielding Chipman
New Zealand	Alfred Rive
Pakistan	Kenneth Porter Kirkwood
South Africa	T. W. L. MacDermot
From Ceylon to	
Australia	J. Aubrey Maartensz
Great Britain	Edwin Aloysius Perera Wijeyeratne
India	C. Coomaraswamy
Pakistan	T. B. Jayah
From Great Britain to	
Australia	Edward John Williams
Canada	Sir Alexander Clutterbuck
Ceylon	Sir Cecil George Lewis Syers
India	Sir Archibald Nye
New Zealand	Sir Charles Roy Price
Pakistan	Sir John Gilbert Laithwaite
South Africa	Sir John Helier le Rougetel
Southern Rhodesia	Ian M. R. MacLennan
From India to	
Australia	K. S. Duleepsinhji
Canada	R. R. Saksena
Ceylon	K. P. Menon
Great Britain	V. K. Krishna Menon
Pakistan	Mohan Sinha Mehta
From New Zealand to	
Australia	G. E. L. Alderton
Canada	Thomas Charles Atkinson Hislop
Great Britain	Frederick Widdowson Doidge
From Pakistan to	
Australia	Yusaf A. Haroon
New Zealand	(resident in Australia)
Canada	Mohammad Ali
Great Britain	Habib Ibrahim Rahimtoola
India	Mohammad Ismail
From South Africa to	
Australia	(vacant)
Canada	Alfred Adrian Roberta
Great Britain	Albertus Lourens Geyer
Southern Rhodesia	Terence Henry Eustace
From Southern Rhodesia to	
Great Britain	Kenneth M. Goodenough
South Africa	Anthony Drinkwater Chataway

AMERICAN LITERATURE. The 11,000 titles published in the United States in 1951 offered the reader the widest choice. In particular the enormous sale of paper-bound books amazed publishers. Harry Bennett's sensational story of his years as Henry Ford's right-hand man, *We Never Called Him Henry*, rejected by various trade publishers, became a best seller in paper covers.

Non-fiction came close to outselling fiction. Such trouble spots as the U.S.S.R., China, Japan, Israel, Argentina and the near east were much discussed. Robert J. Alexander's *The Peron Era* gave a history of the Argentine dictatorship. Justice William O. Douglas, after a trip through the middle east, questioned the wisdom of U.S. foreign policy there in *Strange Lands and Friendly People.* Paul Blanshard covered controversial territory in *Communism, Democracy and Catholic Power.*

Two important books were George Kennan's *American Diplomacy, 1900-1950* and Hans J. Morgenthau's *In Defense of the National Interest.* There were surprisingly few books about the war in Korea and a distinct falling off in the number of books about World War II. The Forrestal *Diaries*, edited by Walter Millis and E. S. Duffield, covered the war years and Omar N. Bradley told of his role in *A Soldier's Story.* Samuel E. Morison added another volume to *The History of United States Naval Operations in World War II*, " The Aleutians, Gilberts and Marshalls," covering amphibious warfare from June 1942 to April 1944. Eliot Janeway's *The Struggle for Survival*, one of the " Chronicles of America Series," surveyed the country's economic mobilization for World War II. Sumner Welles wrote about Franklin D. Roosevelt's important diplomatic decisions in *Seven Decisions That Shaped History.* Alan Barth, in his balanced study *The Loyalty of Free Men*, examined the methods by which loyalty was being determined.

In *Crime in America*, Estes Kefauver drew up a report of the connections found between local politicians and the crime syndicates. Howard Whitman, in *Terror in the Streets*, developed the theory that the current wave of hoodlum terrorism was based on a psychological love of violence. Jack Lait and Lee Mortimer wrote their latest low-down report, *Washington Confidential.* Karl Schriftgiesser's *The Lobbyists* was a study of pressure politics.

In *The Conduct of Life*, the final volume of his distinguished series, Lewis Mumford proposed individual regeneration as the basis of a social philosophy for survival in our time. James B. Conant wrote *Science and Common Sense* and Hans Reichenbach, in *The Rise of Scientific Philosophy*, studied the background and growth of the new scientific philosophy.

One of the most widely read and praised nature books of the year was Rachel L. Carson's *The Sea around Us*, a beautifully written discussion of the sea, its history and inhabitants. Edwin Way Teale, in his elegiac *North with the Spring*, described the varying aspects of spring as it travelled north from Florida to New England.

In historical and biographical studies, Marshall B. Davidson's impressive two-volume *Life in America* provided a profusely illustrated social history of the country. Malcolm Cowley's revised and expanded *Exile's Return* was a personal account of the trek of the " lost generation " from Greenwich Village to the Left Bank and back. Selden Rodman made a social and psychological study in his *Portrait of the Artist as an American: Ben Shahn.* Dale Kramer's *Ross and The New Yorker* appeared only a few weeks before the death of Harold Ross.

The Harper History of Painting: the Occidental Tradition, by David M. Robb, covered time from the Stone Age to 1951, and John I. H. Baur assessed contemporary art in *Revolution and Tradition in Modern American Art.* Two histories of the drama were Alan S. Downer's *Fifty Years of American Drama, 1900-1950* and Glenn Hughes's *A History of the American Theatre, 1700-1950.* Abel Green and Joe Laurie, Jr., covered the past 50 years of the popular stage in *Show Biz: From Vaude to Video.*

Among historical figures, Jefferson received much attention during the year. The second volume, *Jefferson and the Rights of Man*, of Dumas Malone's excellent biography, *Jefferson and his Time*, appeared. Leonard D. White's *The Jeffersoniana* was a study in administrative history. Under the editorship of Julian P. Boyd, Lyman H. Butterfield and Mina R. Bryan, two more volumes of the *Papers* of Thomas Jefferson were published, volume iii, 1779-80, and volume iv, 1780-81. Other biographies included volume iii of Douglas Southall Freeman's monumental *George Washington: A Biography;* the third and final volume of Calhoun's life by Charles M. Wiltse, *John C. Calhoun;* Bradford Smith's *Bradford of Plymouth;* and Waldo Frank's *Birth of a World*, the life and times of Simon Bolivar. Elting E. Morison published the first four volumes of the *Letters* of Theodore Roosevelt. Richard H. Royere and Arthur M. Schlesinger, Jr., wrote *The General and the President and the Future of American Foreign Policy*, a pro-administration analysis of the Truman-MacArthur controversy.

Fiction. The most successful of the war novels was Herman Wouk's *The Caine Mutiny*, a fine sea story, though a less convincing account of a Princeton boy's maturing in the stress of Pacific naval war. In contrast was John P. Marquand's portrait, *Melville Goodwin, U.S.A.* Robert Bowen's *The Weight of the Cross* described the spiritual regeneration of a man during years in a Japanese prison camp.

The most controversial novel of the year was James Jones' *From Here to Eternity*, a diffuse naturalistic exposure of the

depravity in the regular army just before Pearl Harbour. Norman Mailer's *Barbary Shore*, forsaking the solid realism of *The Naked and the Dead* and developing its latent strain of symbolism, attempted an ambitious allegorical treatment of political and moral issues, but the form soon dissolved into overt discussion.

J. D. Salinger, in *The Catcher in the Rye*, caught most successfully the mood, agony and language of a 16-year-old boy getting tough with the world. William Styron won considerable notice with his first novel, *Lie Down in Darkness*. It was the familiar story of the degeneration of a southern family. Wright Morris, in *Man and Boy*, presented a satirical character study of a mother as she christens a ship named after her dead son.

William Faulkner did not enhance his reputation with *Requiem for a Nun*. John Dos Passos, in *Chosen Country*, through the story of his character's American antecedents, brought them to a peaceful contentment with the country of their parent's choice. Sinclair Lewis' posthumous novel, *World so Wide*, was far from his great works.

George R. Stewart's attempt, in *Sheep Rock*, to give personality to a landscape, though less effective than his studies of storm and fire, was nevertheless vivid. James Aldridge's *The Hunter* was an almost idyllic story of trappers in the north woods. Laura Z. Hobson satirized a man risen suddenly to literary fame in *The Celebrity*. Stephen Becker's first novel, *The Season of the Stranger*, told the story of an American professor in southern China

Belles Lettres. The year 1951, the 100th anniversary of the publication of *Moby Dick*, brought several important contributions to Melville studies. Jay Leyda's monumental documentary biography, *The Melville Log*, gave a record of Herman Melville's life with new materials gathered from all contemporary sources. Closely related was Leon Howard's *Herman Melville*, a new and circumstantial interpretation with a detailed account of the composition of his works. Another figure who was being currently rediscovered was studied in Arthur Mizener's *The Far Side of Paradise*, a critical biography of F. Scott Fitzgerald.

There were three additions to the distinguished " American Men of Letters Series ": F. W. Dupee's *Henry James*, F. O. Matthiessen's *Theodore Dreiser* and Irving Howe's *Sherwood Anderson*. James Schevill's *Sherwood Anderson: His Life and Work* gave a new interpretation. Henry Seidel Canby added *Turn West, Turn East* to the list of his able studies of American writers. Mildred R. Bennett's *The World of Willa Cather* was a collection of interviews and reminiscences from her Nebraska home country. Harry Modean Campbell and Ruel E. Foster wrote *William Faulkner: A Critical Appraisal*. Two other biographical studies of contemporaries were Donald Sutherland's *Gertrude Stein* and William Manchester's *Disturber of the Peace: The Life of H. L. Mencken*.

A. H. Quinn edited a one-volume survey, *The Literature of the American People*. Studies of 20th-century literature were Frederick J. Hoffman's *The Modern Novel in America, 1900-1950* and John Aldridge's *After the Lost Generation*.

Among collections of essays the most notable were *The Kenyon Critics*, edited by John Crowe Ransom, and Edmund Wilson's *Classics and Commercials: Literary Chronicle of the Forties*. George Santayana, in *Dominations and Powers*, discoursed on liberty, society and government. Peter Russell edited *An Examination of Ezra Pound*, and Hugh Kenner wrote a study, *The Poetry of Ezra Pound*. Virgil Thomson collected his musical criticism in *Music, Right and Left*.

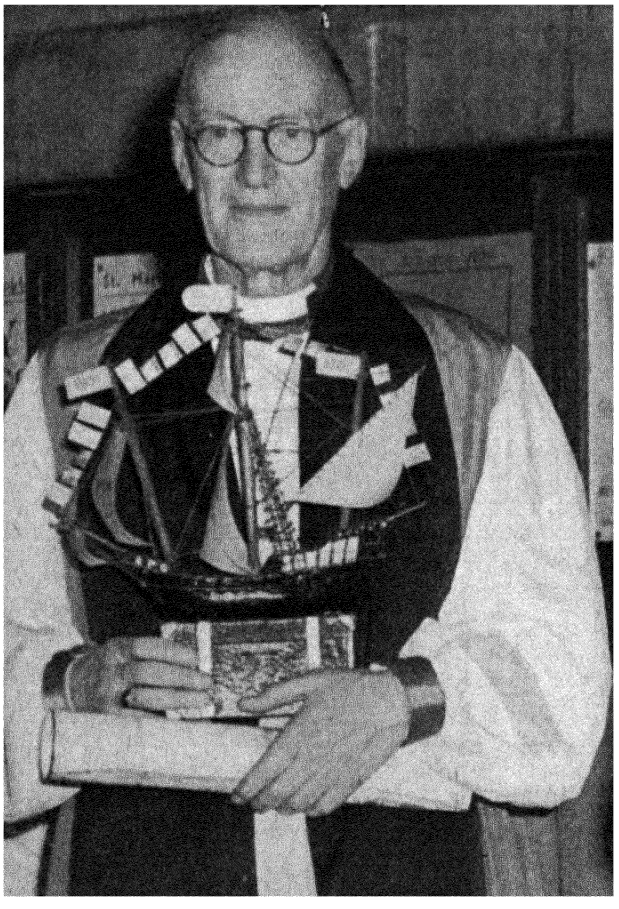
Poetry. William Carlos Williams completed his long work with *Paterson*, book iv, and published *Autobiography*, his life as physician and poet. Robert Lowell, former Pulitzer prize winner, wrote *The Mills of the Kavanaughs*. The reflective lyrics of Theodore Roethke's *Praise to the End!* reached back into the experiences of the poet's childhood. *Celebration at Dark*, by William Jay Smith, and *Ceremony and Other Poems*, by Richard Wilbur, were collections of lyrics by young writers. W. H. Auden published *Nones*, 31 new poems dealing with the problems of our civilization. Randall Jarrell wrote *The Seven-League Crutches*, and Kenneth Rexroth's *Beyond the Mountains* was a group of four one-act verse plays on classic themes. Horace Gregory's *Selected Poems* covered the range of his work and consolidated his reputation. On the whole, the year's poetry was more impressive than its fiction. (*See* also LITERARY PRIZES.) (H. M. H.)

ANAEMIA: *see* BLOOD, DISEASES OF THE.

ANDORRA. Small autonomous principality between France and Spain, bounded on the N. by the *départements* of Ariége and Pyrénées Orientales, and on the S. by the Spanish province of Lerida. Area: 191 sq.mi. Population (1951 est.): 5,400. Language: Catalan. Religion: Roman Catholic. Capital: Andorra-la-Vieja (pop., 1951 est., 980). Co-princes: the president of the French republic and the bishop of Urgel, Spain, respectively represented in 1951 by André Bertrand and Jaime Sansa Nequi, their *viguiers*. An elected general council of 24 members appoints one of its members as the *syndic général des vallées* (from 1946: Francisco Cayrat).

ANDREYEV, ANDREY ANDREYEVICH, Soviet politician (b. 1895). The son of a peasant, he joined the Communist party in 1914 in Petrograd. In 1919 he was organizer of the metal workers in the Urals and from 1920 to 1926 chairman of the Railwaymen's union. From 1924 he served as one of the secretaries to the central committee of the party. Elected a member of this committee (1925), he was also appointed a substitute member of the politburo of which he became a full member in 1932. In 1930-31 he was chairman of the Party Control commission. From 1931 he served as people's commisar of transport and in Oct. 1935 was made chairman of the Council for Collective Farm Affairs. In 1943-46 he was minister of agriculture and as such responsible for food supply during a critical period. On March 19, 1946, he was appointed a deputy chairman of the council of ministers. On Feb. 19, 1950, *Pravda* criticized him for favouring the operation of collective farms by small units of workers or links, against the party view that they should be worked by large units or brigades. Andreyev made a public self-criticism but his standing in the party hierarchy appeared unshaken. On March 12, 1950, he was elected a member of the Soviet of the Union for Ashkhabad and on Feb. 16, 1951, the member of the Supreme Soviet of the Russian S.F.S.R. for Novosibirsk.

ANGLICAN COMMUNION. At the 1951 Church of Ireland general synod, the primate (the Most Rev. J. A. F. Gregg) drew attention to the lack of ordination candidates. The proposal to reduce the size of the Irish *Church Hymnal* was referred back to its committee, as also was the question of relations with the Church of South India. A " week of witness " was held in Belfast, the biggest mission in the Church of Ireland for many years. For the restoration of Armagh cathedral £19,000 was raised. The archbishop of Armagh, together with the bishops of Derby and Gibraltar, represented the Anglican communion at the 19th centenary celebrations of St. Paul the Apostle in Greece. The archbishop of Wales appointed a liturgical commission to draw up amendments to the " law of worship." The commission would report to the bench of bishops who would bring approved amendments before the governing body of the Church in Wales. A mission was conducted throughout the diocese of Monmouth.



The Rt. Rev. A. H. Howe Browne, one of the six English bishops commissioned by the Society for the Propagation of the Gospel to take greetings to countries where the society has worked. The galleon—a collecting box—was a model of the "Centurion" in which the society's first missionary sailed to America in 1702.

Thirty chaplains of the diocese of Northern and Central Europe met at Fulham palace for their annual conference. The bishop of Fulham presided. He reported that he had visited Moscow, Warsaw and Prague. In July a garden party was held at Fulham palace to raise funds for the diocese. It was opened by Princess Alice.

Insufficient numbers of clergy, which concerned the Episcopal Church in America as most other churches of the Anglican communion, were partly made good, especially in the dioceses of Minnesota and Missouri, by the ordination of laymen, who had to be not less than 32 years old. They were excused certain examinations. The House of Bishops, under the Right Rev. H. K. Sherrill, the presiding bishop, made regulations for chaplains to U.S. forces in Europe and the Pacific. In Europe they were placed under the supervision of Bishop John I. B. Larned and in the Pacific under that of the bishop of Honolulu. The Presiding Bishop's Committee on Laymen's Work reported an increased number of "parish keymen" (3,201) who interpreted the missionary and educational policy of the Episcopal Church to the parishes. They were especially successful in the "Every Member Census" to raise money for these objects. Clerical stipends in the Episcopal Church rose. Films were now being produced by the Department of Promotion, the National Council of the Episcopal Church and by the Cleveland (Ohio) Film council.

Church people in Japan sent a cope to the bishop of Chicago in gratitude for a month's mission that he had conducted among them. He flew to Japan from the United States and was greeted by the presiding bishop (the Most Rev. Michael Hinsuke Yashiro) and four other Japanese bishops. The bishop of Exeter visited the Episcopal Church of America and lectured on canon law at Berkeley, California, and on moral theology at San Francisco. He also preached at Los Angeles, Washington, Wilmington, Delaware and New York. The bishop of Sheffield lectured at McGill university, Montreal, and visited the U.S. The bishop of Gibraltar toured the U.S. Dr. S. C. Carpenter, the former dean of Exeter, visited churches in the West Indies. The bishop of Q'Appelle (Canada) established a community on Franciscan lines to conduct mission work in rural dioceses.

The general synod of the Church in Australia reported on the archbishop of Canterbury's visit (1950) and discussed the problems of the World Council of Churches, the Church in South India, the Central Anglican college (St. Augustine's, Canterbury, England) and the Society for Promoting Christian Knowledge. It made an appeal for the work of the Australian Board of Missions in New Guinea, Japan and the Pacific islands. The diocese of Auckland (New Zealand) held a mission on the lines of the Mission to London (1949). This was inspired by the archbishop of Canterbury's visit to New Zealand at the beginning of 1951. The archbishop of York toured Australia, New Zealand, Tasmania, Fiji, New Guinea, Singapore and Malaya. A fund was opened to rebuild the pro-cathedral at Tokyo; the cathedral at Hong Kong was restored. The cathedral at Gibraltar was damaged by an ammunition explosion. The bishop of Derby's committee on the scheme for reunion in Ceylon gave cautious general approval to it.

The bishops of Southern Rhodesia, Nyasaland and Northern Rhodesia met at Likwenu (Nyasaland) and at Lusaka (Northern Rhodesia) to draft a constitution and canons for the new province of Central Africa. The archbishop of Canterbury, accompanied by the dean of Manchester (Bishop Wilson) and the assistant bishop of Worcester, inaugurated at Lagos the new province of West Africa. The bishop of Lagos (the Right Rev. L. G. Vining) was elected the first archbishop. A plan for the reunion of certain churches in Northern India and Pakistan was published. The draft of a new prayer book for the Church in India, Pakistan and Burma was approved by the general synod. (*See* also CANTERBURY, ARCHBISHOP OF; CHURCH OF ENGLAND; CHURCH OF SOUTH INDIA; MISSIONS, FOREIGN RELIGIOUS; WORLD COUNCIL OF CHURCHES.)

(A. J. MACD.)

ANGLING. The feature of 1951 was the numerous special competitions held by inland clubs and coast towns in conjunction with the Festival of Britain celebrations. An international contest on the Thames in August attracted several continental anglers; the Birmingham team were runaway winners with 73 lb. Plymouth staged a successful first sea angling festival in September. The first individual sea angling championship of Great Britain was held at Dover; the winners were J. B. Hurd (pier) and H. Maybee (boat). Another innovation (also to be an annual event) was the amateur sea casting championship at Deal, Kent, in which casts of up to 131 yd. were recorded.

The annual all-England match, fished on the River Witham, Lincolnshire, in September, was won by Doncaster and District Anglers' association with 63¼ lb.; a member of that team, S. Buxton, was individual winner with 20¾ lb.

New record weights were set up for chub (8½ lb., River Rother, Sussex, July), gudgeon (5 oz. 1 dm., Dorset Stour, August), mirror carp (31¼ lb., River Wye, Herefordshire, October), Crucian carp (4 lb. 15 oz., Brynmill lake, August),

thornback ray (57 lb., Exmouth, Devonshire, July) and porbeagle shark (300 lb., Looe, Cornwall, June). Another remarkable specimen was a 12½ lb. tench from the River Kennet, Berkshire, which was not accepted for record purposes as it was a freak, egg-bound fish measuring only 18 in. (D. F. KY.)

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ANGLO-EGYPTIAN SUDAN. Territory in north-east Africa under the joint sovereignty of Great Britain and Egypt. Area: 967,500 sq.mi. Pop. (no census ever taken, 1948 est.): 7,547,500. Language: English, Arabic, and various Nilotic and Negro tribal dialects in the south. Religion: Arabic minority is Moslem; the bulk of the Negro population is heathen; only *c.* 20% of population in the south is Christian. Chief towns (1948 est.): Khartoum (cap., 71,400); Omdurman (125,300); El Obeid (70,100); Wad Medani (57,300); Port Sudan (47,000). Governor general, Sir Robert Howe.

History. It was inevitable that the events of 1951 should be overshadowed by the mounting Anglo-Egyptian dispute, in which the future of the Sudan was one of the two major issues at stake. This dispute naturally attracted a great part of Sudanese attention, and towards the end of the year it had considerable repercussions in the Sudan itself, but there was too a steady development along the predetermined path to self-government and independent statehood. The characteristics of life in a contemporary state, good and bad, again showed themselves ever more frequently in Sudanese life.

The Sudanization of government proceeded apace. It was announced on Jan. 20 that a Sudanese had been appointed director of the Obeid district, and echoes of the world-wide conflict were heard when, on Feb. 3, the police raided the homes of a number of adherents of the so-described "peace campaign" and seized a quantity of Communist literature. Subsequently 16 young Sudanese were put on trial for participating in this movement and were convicted on May 9. Meanwhile, on April 23 over 100,000 Sudanese workers began a three-day strike under the auspices of the Sudanese Trade Unions federation in an attempt to obtain substantial wage increases, shorter working hours and other advantages. The rejection of demands for higher wages led in May to a strike of public transport in Khartoum which seriously interrupted the life of the city for a period of five days. More serious perhaps was the strike of policemen that took place in Khartoum in June, leading to the declaration of a state of emergency on June 13 and the eventual imprisonment of 11 strike leaders. Following all this, a four-day strike of government unions occurred in Khartoum.

Meanwhile the issue of the demand for early self-government received close attention. On Dec. 15, 1950, the legislative assembly had voted by 391 to 38 in favour of asking the United Kingdom and Egypt for Sudanese self-government in 1951. At the conclusion of its second session on April 4, 1951, the assembly heard a message from the governor general to the effect that this request was receiving the fullest consideration.

Later in the year the question of the future of the Sudan became magnified once more from one of overmastering domestic interest into the status of a major issue in international relations, when the intensification of the Anglo-Egyptian conflict concentrated attention on the renewed Egyptian demand for the "unity of the Nile valley."

This development produced substantial changes in the situation of Sudanese political parties as it had first emerged in 1948. The Ashigga group, led by Ismail el-Azhari, aspiring to the Nile valley unity was seriously disrupted by the announcement of the deflection of the followers of Ali el Mirghani to the side of full self-government. Egyptian attempts to restore unity to the "internal struggle front" were unsuccessful.

The pro-Egyptian faction in the Sudan was thus seriously weakened by the events of the year. On the other hand it became abundantly clear that the Independence front, led by Abdurrahman el-Mahdi, head of the Umma (Nation) party, and Miralai Abdullah Khalil, president of the legislative assembly, was in no sense a mere instrument of British interests as they made clear their desire for immediate self-government. Their principal objective continued to be resistance to Egyptian claims for the absorption of the Sudan and their aspirations clearly coincided with the intention of the British government, which reiterated its refusal to consent to the renewed Egyptian demand for the acknowledgment of Egyptian sovereignty in the country. (*See* also EGYPT.)

(H. S. D.)

Education. (1950) *Northern System.* Government schools: elementary 262, pupils 37,000; sub-grade and Koran 540, pupils 40,000; intermediate 21, pupils 2,661; secondary 6, pupils 1,457; technical 3, pupils 264; teachers' training colleges 5, teachers trained annually over 255. Non-government schools 172, pupils 15,900. University education at Gordon Memorial college and higher education at Kitchener School of Medicine. *Southern System.* Schools: elementary 3, pupils 327; secondary 1; intermediate 1, pupils 150; pupils at mission schools 23,384. Government training schools 2; primary teachers' training centres 2.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): cotton, ginned, 66 (86); cottonseed 110 (70); sesame seed 72·3; gum arabic, exports, 33·9; groundnuts 9; dates 25; maize 19; millet 100; sorghum 642. Livestock ('000 head, Jan. 1949): cattle 3,500; sheep 5,500; camels 1,500; horses 20; pigs 4; goats 4,300; asses 500.

Foreign Trade. (£E million, 1950): imports 26·8; exports 33·2. Main sources of imports: U.K. 40%; India 14%. Main destinations of exports: U.K. 54%; India 12%. Main imports: sugar, coffee and tea 18%; cotton piece-goods 12%; coal, oil fuel and petrol 5%. Main exports: raw cotton 69%; gum 8%; cottonseed 6%; livestock 5%.

Transport and Communications. Railways (1950): 2,056 mi. Licensed motor vehicles (Dec. 1950): cars 3,500; commercial 4,500. Telephone subscribers (1949): 3,520. Wireless licences (1949): 3,227.

Finance and Banking. Budget (£E million): (18 months 1950-51, actual) revenue 44·8, expenditure 23·2; (1951-52 est.) revenue 24·8, expenditure 17·8. Total external debt (Dec. 31, 1949) 12·3, of which 5·3 to Egypt for development. Monetary unit: Egyptian *pound* with an exchange rate of £E 0·975 to the pound sterling and £E 0·348 to the U.S. dollar.

ANGOLA: *see* PORTUGUESE OVERSEAS TERRITORIES.

ANNAM: *see* INDOCHINA.

ANTARCTICA. There was considerable activity in the Antarctic in 1951. Most of the expeditions were sponsored by governments. Exceptions were the International Norwegian-British-Swedish expedition to Queen Maud Land, a small British expedition to South Georgia and the French Adélie Land expedition. Even these were assisted by government money and material.

International Norwegian-British-Swedish Expedition. During the southern summer of 1950-51 this expedition carried out extensive journeys with dog teams and "weasel" tractors from Maudheim. The longest lasted five months. A. Reece, a British geologist, damaged his eye with a splinter of rock and some months later it became necessary to remove the eye. This operation was successfully performed after members of the base had been trained in operating theatre practice and some of the instruments made locally. In addition to the geological and survey work accomplished during the principal journey, seismic sounding of the ice continued and detailed meteorological records were maintained at the base. In Dec. 1951 the motor sealing ship "Norsel" (Capt. Guttorm Jakobsen) left Tromso on her third journey to the Antarctic, this time to take off the whole expedition on the conclusion of its work in Jan. 1952.

South Georgia Survey. This private expedition was organized and led by Duncan Carse to survey the southeastern part of the island including the high mountain backbone. These difficult mountains had only once been crossed when Shackleton's boat journey from Elephant island ended on the south side of the island and he was compelled to cross the mountains to the whaling base at Grytviken. Carse's party was expected to return to Britain in 1952.

Falkland Islands Dependencies Survey. The six bases of the survey continued with three-hourly meteorological observations and at the bases on South Georgia and the South Orkney islands biological work on seals and penguins was in progress. During 1950-51 sledging was restricted to short journeys but the re-establishment of the base at Hope bay on the northern tip of the Graham Land peninsula early in 1952 was expected to be the beginning of new and more extensive survey journeys. The survey's ship "John Biscoe" left Southampton with relief personnel for all bases on Oct. 22, 1951.

French Activity. The private French expedition to Adélie Land under A. Liotard was relieved by a second party which was to stay until 1952. The base was named Port Martin after a member of the expedition who died during the outward voyage in 1948. The expedition used "weasels" and dog sledges. Journeys were made east and west across the width of Adélie Land both on the sea ice and on the plateau. In all, these totalled some 1,600 mi. Sir Douglas Mawson's old base of 1911 at Cape Denison was visited and found intact. The expedition's work included survey, meteorology, seismology, ionspheric soundings and biology. A party sponsored by the French government and led by Lieut. Colonel Sicaud was established on Kerguelen island where an aerodrome was being constructed and attempts were being made to introduce new species of animals such as deer and freshwater fish.

Other Expeditions. The bases on Heard island and Macquarie island were relieved and the scientific studies already in progress there were continued. The royal research ship "Discovery II" under the direction of the Oceanographical institute completed a 20-month commission in the Australian and Pacific sectors where she carried out a complete circumpolar voyage to complete work with lines of comprehensive deep sea stations in special areas and in particular seasons, including winter.

Both Argentina and Chile extended their activities within the Falkland Islands dependencies sector of the Antarctic. Both countries set up new bases during the 1950-51 season in the area of Paradise harbour (lat. 64°50′S, long. 62°45′W), but the Argentine base was reported to have been destroyed by fire shortly afterwards. In addition it was reported that Argentina had opened another base named General San Martin in lat. 66°55′S, long. 67°30′W.

All nations previously occupied in whaling continued their operations in a successful season. The tendency to return to the old grounds of the Ross sea area was again in evidence. The Russian factory ship "Slava" accompanied by 15 catchers took 106,752 barrels of oil, the largest catch they had made in five postwar seasons. It was reported that they visited certain islands discovered by Bellinghausen 130 years ago; it was presumed that these were the South Sandwich islands. (*See* also EXPLORATION AND DISCOVERY.) (V. E. F.)

See E. W. Hunter Christie, *The Antarctic Problem* (London, 1951).

ANTHROPOLOGY. **Eastern Hemisphere.** The primary importance of blood group research in the study of the history of present peoples, their migrations and their genetic and racial affinities was strikingly emphasized in 1951 by the Royal Anthropological institute. In March, a symposium was organized at which papers were read by Professor R. A. Fisher (Cambridge), C. D. Darlington (John Innes Horticultural institution, Bayfordbury, Hertfordshire), J. A. Fraser Roberts (London), I. M. Watkin (National Blood Transfusion service) and A. E. Mourant (Medical Research council) (see *Man*, London, July 1951). As a result of the meeting, it was decided to form a Blood Group centre of the Royal Anthropological institute; a grant of £14,000 over five years was made to the institute by the Nuffield foundation and it was announced that the new centre, to be called the Nuffield Blood Group centre of the Royal Anthropological institute, would become active early in 1952. A. E. Mourant was appointed honorary director. One important piece of field research was carried out by means of a grant from the Royal Anthropological institute. N. A. Barnicot (London) proposed to undertake blood-sampling among the Tuareg; this work was regarded as of special importance as being likely to throw light on the relationship of the Berber peoples to those of Europe and, in particular, on the possibility of a connection between Basques and Berbers, existing data on both peoples showing a high frequency of group O and a high frequency of Rh negative.

In 1950, U.N.E.S.C.O. issued a statement on the concept of race. This led to much discussion and considerable criticism from anthropologists (see *Man*, Oct. 1950, Jan. 1951 and April-Sept. 1951). In June 1951 it was announced that, as a result of the article "U.N.E.S.C.O. on Race" (*Man*, 220, 1950), the director general of U.N.E.S.C.O. had decided to convene a panel of physical anthropologists and biologists to prepare a new statement; the panel met in Paris in June, and the new statement was considered.

E. Voce published (*Man*, Jan. 1951) the spectrographic analysis of a broken celt from Scotland (from the National Museum of Antiquities of Scotland), on behalf of the Ancient Mining and Metallurgy committee of the Royal Anthropological institute. The same committee published (*Man*, March 1951) a technical report by H. H. Coghlan, W. Watson and E. Voce on a fragment of the Welwyn bowl in the British museum. H. H. Coghlan, in an article "Native Copper in Relation to Prehistory" (*Man*, July 1951), drew attention to the need for more research into the rise and technical progress of the early metal-working cultures and, in particular, to the development of the process of annealing.

In human palaeontology work went forward particularly on the interpretation of the finds in southern Africa. In this connection J. T. Robinson (Pretoria museum) addressed the Royal Anthropological institute on "The South African Apemen and their Affinities," his interpretation inclining to agree with that of Professor W. E. Le Gros Clark rather than with that of Professor S. Zuckerman. L. H. Wells (Witwatersrand) also addressed the Royal Anthropological institute on "Fossil Man in Southern Africa." Others pursuing field work in Africa were the Americans William R. Bascom, who conducted research among the Yoruba of Nigeria, Martin Gusinde, who worked among the Bushman-Hottentot in South Africa, and G. L. R. von Koenigswald, who studied the ape-man fossils in Transvaal. The Abbé Breuil worked on the prehistoric rock-paintings in France and in the autumn paid a brief visit to England where he addressed the Royal Archaeological institute.

Zeitschrift für Ethnologie resumed publication, under the editorship of Georg Eckert, after an interruption of six years. The *Zeitschrift für Eingeborenen-Sprachen* was also revived, with A. Klingenheben, L. Lukas and E. Mayer as editors. The anthropological institute of the University of Frankfurt-on-Main, founded by Franz Weidenreich in 1928 but dissolved by the nazi authorities, was re-established as the Franz Weidenreich Institut für Anthropologie, with Peter Kamp as director. Adolf Jensen, director of the Froebenius institute at Frankfurt, conducted ethnological and archaeological work in southwestern Ethiopia.

A report was published in *Lidove Noviny* (Feb. 11 and 22)

on recent archaeological work in Czechoslovakia. A translation of the articles by S. E. Mann appeared in *Man* (Sept. 1951). Mesolithic discoveries in sites along the River Elbe in Bohemia, at Slánsko and at Ražice, were described; work at a neolithic site at Hluboké Mašúvky and bell-beaker settlements at Lhánice were also described.

In Yugoslavia, results of certain investigations carried out in 1950 were published in 1951 by Professor B. Skerlj in "The development of secondary school students of Ljubljana," and "Anthropometric Differences between normal and consumptive youth," and, in collaboration with J. Kastelic, he reported on an examination of early Slav skulls from Bled.

The first meeting of a new International Congress of European and Western Ethnology was held in Stockholm from Aug. 26 to Sept. 2. The East African Institute of Social Research, Makerere college, Uganda, held its first conference during Dec. 17-23, 1950, on field methods and field statistics. The West African Institute of Social and Economic Research was established at University college, Ibadan, Nigeria.

The British Association for the Advancement of Science held its annual meeting at Edinburgh. Sir Cyril Fox, in his presidential address to Section H (anthropology and archaeology), contributed a valuable and constructive dissertation on "The Study of Early Celtic Metalwork in Britain." He drew attention to the need for further and more organized study of this subject and urged the study of the evolutionary progress of patterns and of the motifs in patterns, in post-graduate research. Further, he stressed the need for an index of Celtic art, comprising a record of "all decorated examples of Celtic metal work" whether privately owned or in museums; the index, to be of maximum use to students, would need to be associated with a museum or some institution able to organize and maintain it.

J. P. Mills succeeded Professor E. E. Evans-Pritchard as president of the Royal Anthropological institute. The University of Edinburgh welcomed Ruth Landes, an American anthropologist, to its department of social anthropology. Mrs. Irawati Karvé (Poona) came to the School of Oriental and African Studies, University of London, also for a year. Elizabeth Colson gave up the directorship of the Rhodes-Livingstone institute, Northern Rhodesia, to take up appointment to the department of social anthropology, University of Manchester. Professor A. R. Radcliffe-Brown delivered the annual Huxley Memorial lecture of the Royal Anthropological institute on "The Comparative Method in Social Anthropology" (*Journal R. Anthropol. Inst.*, vol. 81) and received the Huxley medal. E. F. Fortune was awarded the Rivers Memorial medal, 1951, for anthropological field work in Melanesia and North America, J. A. Barnes was awarded the Wellcome medal for his essay "Divorce in a Changing Society," and the Curl prize essay competition (1951) of the Royal Anthropological institute was won by E. R. Leach (this was the first Curl prize to be awarded). (S. F. SN.)

Western Hemisphere. The American Anthropological association observed its 50th anniversary and the Viking fund its 10th. A volume summarizing the activities of the latter organization (now the Wenner-Gren Foundation for Anthropological Research, Inc.) was published under the title *The First Ten Years, 1941-1951.* Harvard university, through its Russian research centre, began a four-year study of the Russian people and the Soviet social system. The project, under the direction of Clyde Kluckhohn, began with the interviewing of more than 3,000 persons who had left the U.S.S.R. for various reasons. With a grant from the Rockefeller foundation, Cornell university, Ithaca, New York, broadened its programme of southeast Asia studies, directed by L. Sharp. Northwestern university, Evanston, Illinois, established an Institute on Contemporary Africa.

The South Pacific was the scene of considerable anthropological activity during the year. The South Pacific commission made a survey of the status and needs of anthropology in the Pacific islands and authorized investigation of depopulation and over-population problems and of means for assisting island peoples to play a more important part in commerce and industry in the area. The Pacific Science board of the National Research council continued its coral-atoll research programme, sending a six-man team, including Ward Goodenough, anthropologist, to make a general ecological study of the interrelationships of all forms of life, including that of the native population, on Onotoa, a heavily populated dry atoll in the southern Gilberts. Anthropological and ecological studies were carried out under the same auspices at Arna, in the Marshall Islands, by Harry Uyehara of the University of Hawaii, and by Mary Murai, who made a nutritional survey of the island of Udot in the Truk archipelago. The Peabody museum of Salem, Massachusetts, sent a two-year expedition to Polynesia, under the direction of Donald S. Marshall, to conduct ethnological work in the Cook and Society Islands, the Marquesas and Niue. Homer G. Barnett, of the University of Oregon, made ethnological studies in Micronesia as staff anthropologist for the U.S. Department of the Interior in the Trust Territory of the Pacific Islands.

Under the sponsorship of the University of Michigan Centre for Japanese Studies, Micha Titiev conducted research at Okayama on the general problem of the effect of western civilization on Japan's folk culture. Douglas Haring, Clarence Glacken and William W. Burd began anthropological work on Okinawa, Amami and Miyako, as part of the Pacific Science board's comprehensive programme of scientific research in the Ryukyu Islands. Other anthropologists working in Japan were Earl Reynolds, who studied growth problems at Hiroshima, and Allan H. Smith and Ann G. Smith, who made ethnographic studies on Yaeyama in the Ryukyu Islands.

A series of articles by anthropologists, geneticists and palaeontologists summarizing the present status of knowledge of human genetics, primate evolution, classification of fossil men and the concept of race was published in *Origin and Evolution of Man*, a volume resulting from the 1950 Cold Springs Harbor (New York) symposia on quantitative biology. Another important contribution in this field was a volume of papers on the *Physical Anthropology of the American Indian*, presented at the fourth Viking fund seminar and edited by William S. Laughlin. Joseph B. Birdsell's article, "The Problem of the Early Peopling of the Americas as Viewed from Asia," published in this volume, marked a fresh and original approach to this much-discussed question. Catherine McClellan spent a year in northwestern British Columbia working among the interior Athabaskan tribes, and Fred Hulse directed a programme of blood typing of northwestern Indians.

Adolph H. Schultz resigned from Johns Hopkins university, Baltimore, Maryland, to become professor of anthropology and director of the Anthropological institute, University of Zürich. Gordon T. Bowles went to Tokyo as visiting professor of anthropology. Viking fund medallists for 1951 were Clyde Kluckhohn for ethnology; W. M. Krogman, physical anthropology; and Emil W. Haury, archaeology.

The *Ethnographic Survey of Africa*, edited by Daryll Forde, continued its series of concise ethnographic accounts of African peoples with *The Southern Lunda and Related Peoples*, by Merran McCulloch; *Bamba and Related Peoples of Northern Rhodesia*, by Wilfred Whiteley; *Akan and Ga-Adangbe Peoples of the Gold Coast*, by Madeline Manoukian; and *Peoples of the Lower Luapula Valley*, by J. Slaski.

(H. B. Cs.)

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ARABIA. Peninsula of southwestern Asia (area *c.* 1,071,300 sq.mi.; total pop. est. 9,500,000). It consists politically of two independent Arab states, Saudi Arabia and Yemen (*q.v.*); the independent sultanates of Oman and Masqat or Muscat; the autonomous sheikhdoms of Bahrein, Kuwait, Qatar and the Trucial sheikhdoms; and Aden colony and protectorates (*q.v.*). Language: Arabic. Religion: Moslem (Sunni).

Saudi Arabia. Area: *c.* 597,000 sq.mi. (excluding the Rub al-Khali desert covering approximately 193,000 sq.mi.). Pop. (1947 est.): 6,000,000. Chief towns: Riyadh (cap., 60,000); Mecca (150,000); Medina (45,000); Jedda (40,000); Hufuf (31,500). Ruler, King Abdulaziz ibn Abdurrahman ibn Faisal Ibn Sa'ud; viceroy of Nejd and commander in chief, Emir Sa'ud, crown prince; viceroy of Hejaz and minister of foreign affairs, Emir Faisal, king's second son.

History. Throughout 1951, the Saudi Arabian government participated in the deliberations of the Arab league and in January signed the Arab league security pact (*see* ARAB LEAGUE). In October its delegate attended a meeting in Cairo called by the Egyptian minister of foreign affairs to discuss the Arab implications of Egypt's denunciation of the Anglo-Egyptian treaty of 1936 and of the Sudan condominium convention of 1899. In April the Saudi Arabian government publicly expressed its sympathy with Syria during the Israeli-Syrian outbreak on the Jordan.

In June the appointment was announced of A. N. Young, an American financial expert, to the post of financial adviser to the Saudi Arabian government and on June 18 an agreement was signed between the government and the United States dealing with the use and development of the Dhahran airfield serving the oilfields of the Arab-American Oil company (Aramco) in the gulf province of Hasa. By it the Saudi Arabian government assured to the U.S. government the continued use of the Dhahran airfield in return for which the United States would assist Saudi Arabia with the supply of military equipment and in the training of Saudi Arabians in its use. The agreement stipulated that the Dhahran airfield would not be converted into a U.S. base. It was accepted however that facilities could be prepared for its use in wartime.

At the end of the year Aramco started commercial production at Ain Dar, also in the Hasa province, where in 1948 eleven new oil wells had been brought into bearing.

In August Emir Faisal visited London where he had discussions with the British government regarding the fixing of the boundary between Saudi Arabia and the British protected sheikhdoms along the Trucial coast at the southwestern end of the Persian gulf. The ownership of certain islands and sea-bed shores along the Persian gulf was also discussed.

On Oct. 24 the four powers—Great Britain, France, Turkey and the United States—communicated to the Saudi Arabian government their plans for the organization of an international command for the defence of the middle east. On the rejection of these proposals by Egypt, the four powers informed the Saudi Arabian government that their defence plans in the middle east would nevertheless proceed.

On Nov. 10 King Talal of Jordan arrived in Jedda on an official visit to King Ibn Sa'ud. (O. Tw.)

Education. Schools (1950): primary 30, secondary 5; pre-university 1.

Agriculture. Dates form the main crop but there is a small production of wheat, barley, limes and coffee. Principal livestock are camels, horses, donkeys and sheep.

Industry. Crude oil production ('000 metric tons, 1950; 1951, six months, in brackets): 26,904 (16,381). Raw materials: copper (metric tons, 1948) 67; gold (troy ounces, 1949; 1950 in brackets) 66,835 (66,202); silver (troy ounces, 1949; 1950 in brackets) 81,295 (124,287).

Foreign Trade. Main imports; textiles, cereals, tea, coffee, sugar, rice and motor vehicles. Main exports: oil, gold concentrates, hides and skins, gum, dates and clarified butter.

Transport and Communications. Roads (1948) metalled, 45 mi. Licensed motor vehicles (Dec. 1950): cars 6,000; commercial 7,700. Telephones (1946), 2,500. Radio receiving sets (1949), 9,000.

Finance. Pilgrimage dues (1948 est. £10 million) and oil royalties (1948 est. over £20 million) are the main sources of revenue. Monetary unit: *riyal*; there is no fixed exchange rate but in Nov. 1950 it was 8·14 riyals to the £.

Oman and Muscat. Area: *c.* 65,000 sq.mi. Pop. (1947 est.): 830,000. Capital, Muscat. Ruler (from 1932), Sultan Said bin Taimur. British consul, Major F. C. L. Chauncy.

A new treaty of friendship, commerce and navigation was signed at Muscat on Dec. 27 by the sultan and Sir Rupert Hay, British political resident in the Persian gulf. The treaty, which displaced a treaty of 1939 expiring on Dec. 31, would



The second son of King Ibn Sa'ud, Emir Faisal, foreign minister of Saudi Arabia, seen here during a visit to London in Aug. 1951.

remain in force for 15 years. Britain retained extra-territorial rights, by which British citizens were entitled to trial before British consular courts.

Bahrein. Area: 213 sq.mi. Pop. (1947 est.): 125,000. Ruler: Sheikh Sulman bin Hamad al Khalifah. British political agent, C. J. Pelly.

Crude oil production ('000 metric tons, 1949; 1950 in brackets): 1,500 (1,500).

Kuwait. Area: *c.* 9,000 sq.mi. Pop. (1949 est.) 120,000. Ruler, Sheikh Abdullah bin Salim as-Subah. British political agent, H. G. Jakins.

Crude oil production ('000 metric tons, 1950; 1951, six months in brackets): 17,018·6 (13,636·7).

Qatar. Area: *c.* 4,000 sq.mi. Pop. (1947 est.): 25,000. Ruler, Sheikh Ali bin Abdullah al-Thani.

Crude oil production ('000 metric tons, 1949; 1950 in brackets): 100 (1,600).

Trucial Sheikhdoms. Area: *c.* 16,000 sq.mi. (including the sheikhdoms of Sharjah, Ras al-Khaimah, Umm al-Qawain, Ajman, Dubai, Abu Dhabi and Kalba). Pop. (1947 est.): 115,000.

ARAB LEAGUE. The League of Arab States came into being on March 22, 1945, when its covenant was signed in Cairo by the representatives of Egypt, Iraq, Lebanon, Saudi Arabia, Syria, Transjordan and Yemen. The council of the league, on which each member had one vote, had its seat in Cairo. The main object of the League was stated to be to co-ordinate the political action and safeguard the independence and sovereignty of the Arab states. Secretary general, Abdurrahman Azzam Pasha.

After its first session of the year in Jan. 1951 the Arab league published a communiqué (1) that the league understood its obligations under the United Nations charter and would do everything possible to ensure world peace; but that whole-hearted co-operation was impossible while Arab national aspirations remained unsatisfied and while military and economic assistance was not forthcoming for the organization by each member of its national defences; (2) that a collective security pact had been signed by all members except Jordan, which had put forward alternative proposals, while Iraq had asserted its liberty not to be bound by the league in financial matters and the Yemen had maintained its former reservations; (3) that the league unanimously accepted a policy for the settlement of the Arab refugees from Palestine in those countries where they had fled, but without prejudice to their rights to repatriation and compensation; the league would co-operate with the U. N. Refugee organization which, it hoped, would provide more funds for re-settlement schemes; (4) that the league placed on record a unanimous resolution denouncing French intervention in Morocco, and that the Egyptian government would send a note to the French government urging the grant of independence to Morocco; (5) that, through the Egyptian government, the league would closely study the progress towards Libyan independence to ensure the fulfilment of the United Nations' decision that Tripoli and Cyrenaica should be fully independent by Jan. 1, 1952.

Later in the year (Sept. 19) the secretary general of the league stated that it opposed the retention of British troops in Cyrenaica and Tripoli after these countries had achieved their independence.

On May 14, at the time of the Israeli-Syrian clash on the upper Jordan, the Egyptian foreign minister, Salah ed-Din Pasha, attended a league meeting in Damascus.

In July the Egyptian government ratified the Arab league security pact and on Sept. 3 the league in session recorded its support for Egypt in its rejection of the United Nations' resolution dealing with Suez canal oil traffic to Israel. The league maintained Egypt's right to self-defence under this heading and rejected the implication that the United Nations could override Egyptian sovereignty on this issue. It was also resolved to maintain the total Arab boycott of Israel.

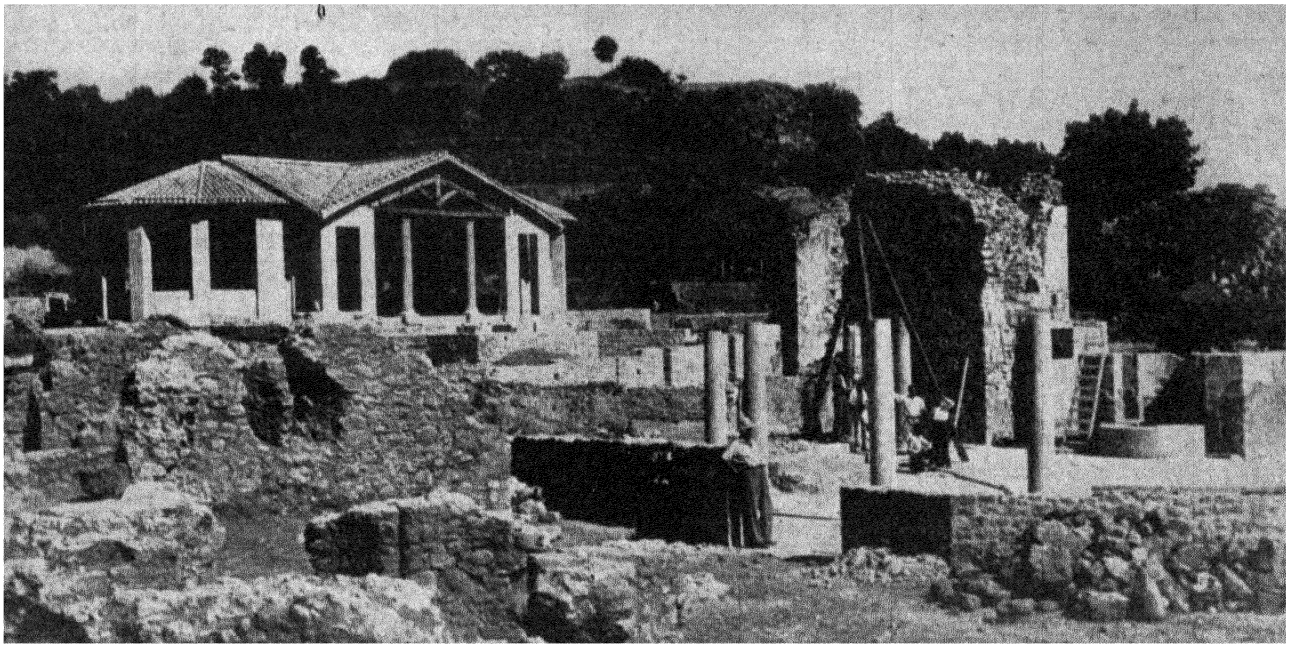
On Sept. 10 the U.N. Palestine Conciliation commission met in Paris. Representatives of Israel, Syria, Jordan, Lebanon and Egypt attended. Proposals for a settlement included war damages; the repatriation by Israel of a specified number of Arab refugees, the remainder to be compensated by Israel on a scale fixed by the commission; the demarcation of the Israeli frontier; the creation of a free port at Haifa and of an international water authority to adjudicate the problems of the Jordan and the Yarmuk rivers and Lake Tiberias; and the organization of facilities of access to the Holy Places in Jerusalem and Bethlehem. On Sept. 25 the Arab delegations rejected the proposals and on Nov. 21 the commission announced the failure of its efforts.

On Oct. 24 Great Britain, France, Turkey and the United States communicated to the other members of the Arab league their invitation to Egypt to participate as an equal partner in a middle east defence command. Egypt refused and on Oct. 29 the four powers announced that, despite Egypt's refusal, the defence plans would proceed.

On Nov. 10 Abdurrahman Azzam Pasha, speaking before the U.N. Security council in Paris, criticized the joint defence plan as being unilateral action which was inconsistent with United Nations principles and as ignoring the Arab league and its joint military pact integrating Arab forces under unified Arab command. (*See* also ISLAM.) (O. TW.)

ARCHAEOLOGY. Great Britain. Work continued at the mesolithic settlement of Seamer, Yorkshire. R. J. C. Atkinson and N. Thomas excavated the prehistoric sanctuary known as Big Rings near Dorchester, Oxfordshire. The earthwork, which had been interfered with during the iron age, was found to have points of resemblance with the circles at Hilton Moor and Thornborough, Yorkshire. At Stanton Harcourt, N. Thomas excavated, in the neolithic area, a superimposed Romano-British farm-settlement, which yielded mainly 1st-century and 2nd-century finds. R. E. M. Wheeler began the excavation, for the Ministry of Works, of the Brigantian stronghold at Stanwick in the North Riding of Yorkshire, the principal centre of that tribe at the time of the Roman conquest and city of Cartimandua, the betrayer of Caratacus. Work was concentrated on the massive defences (which, with their annexes, protected over 700 ac.). They were of earth, with dry-stone revetment. Finds included native pottery of typical Yorkshire type, pottery attributable to the time of the campaigns of Petilius Cerialis and a perfect specimen of an iron age sword still in its scabbard. Other iron-age sites examined included Sutton Walls, three miles northeast of Hereford, where some 20 skeletons were found; and Meare, Somerset, where dwelling-mounds in the eastern of the two lake-villages produced quantities of iron-age "B" pottery.

At Canterbury further digging directed by S. Frere cleared more of the monumental structure previously found and confirmed its resemblance to a large curving corridor (presumably of a theatre). Other finds were a cemetery, the position of which agreed with the siting of a Roman road from the Queningate to the port of Richborough, and a 9th-century Saxon house. Later discoveries included the disclosure, beneath the bombed cathedral library, of the dormitory sub-vault, a building some 135 ft. long, erected by Lanfranc in 1080. In the River Eden near Carlisle, Cumberland, massive bridge foundations were discovered during dredging-work. They carried the Roman wall supply-road from the military cohort-fort at Stanwix (*Petriana*) to the depot-town at Carlisle (*Luguvallium*). In Dorset I. A. Richmond and



The site of the excavations near Piazza Armerina, in Sicily, where a large Roman villa of the 4th century was uncovered.

J. P. S. Bradford continued their excavations at Hod Hill, an iron age hill-fort with a Roman fortlet, thought to be of the conquest period, in one angle. The iron-age inner rampart was found to be of two periods, the second probably an extensive repair. Further work by D. Smith at Malton, Yorkshire, where Roman buildings had been previously examined south of the fort, produced a series of early timber buildings. Later massive stone buildings were associated with much painted wall-plaster. J. Wenham excavated part of a Roman cemetery at the Mount, two miles south of York; it was probably the richest in Great Britain to have been scientifically excavated.

During the restoration of the bombed nave of All-Hallows-Barking-by-the-Tower, London, part of an inscribed circular cross-head, attributed stylistically to the late 10th or early 11th centuries was found. This fragment, with that of a large sculptured cross-shaft, found some years before, could perhaps be associated with the establishment of Canute's sovereignty in 1017.

Shetland. The continued exploration by the Ministry of Works of the site of Jarlshof was reported by J. R. C. Hamilton. The site, already famous for its bronze-age and iron-age remains, was later settled by a small, possibly Christian, group of Picts, who lived in large round huts. They were succeeded *c.* 800 by Viking settlers, who built typical "long houses" some of the features of which survive in existing Shetland dwellings. The Viking occupation, which lasted well into the middle ages, was based on fishing and mixed farming. A large collection of associated objects was found.

Europe. *Czechoslovakia.* Recent work was briefly recorded in *Archeologické Rozhledy*, III (Prague, 1951). The main items reported were: mesolithic sites at Ražice, southern Bohemia, and Tachlovie, western Bohemia; a bronze-age cemetery near Holechov, Moravia; an iron age site at Nezdžev, near Blatnc; first-century and second-century Roman graves at Mikulová, Moravia; and several interesting early Slav sites.

France. Professor D. A. E. Garrod and Suzanne de Saint-Mathurin continued their exploration of the Angles-sur-l'Anglin (Vienne) rock-shelter, which now appeared to have been of much greater extent (over 100 ft.) and to have had a continuous frieze of human and animal figures of early Magdalenian (Mag. III) date; an occupation-layer yielded hearths, bones and artifacts of that period. Much of the frieze, especially its upper part, had fallen away in very ancient times, but many of the figures were capable of reconstruction. Though the human figures were the most interesting carvings of horses were most numerous—a significant fact in view of the predominance of horse-bones associated with the occupation-layer. The carvings could be paralleled; *e.g.*, in the Dordogne, but the extent and quality of the new discoveries suggested that other work of this character might well exist in central France.

Germany. Further discoveries on bombed sites made at Trier by Dr. Kempf and Dr. Eiden produced important traces of the Constantinian epoch of *Augusta Treverorum.* They reported that the basilica was in fact the imperial throne-room from the time of Constantine the Great and that the cloister of St. Irmina represented a granary complex, perhaps of late 3rd-century date, which served both military and civilian uses. A large mosiac pavement displayed an interesting admixture of Christian and pagan figure-subjects. Other finds were a filigree glass vessel of an extremely rare type, found with a 4th-century coin in a sarcophagus near Niederemmel, ten miles from Trier; and an important hoard of parade-armour at Straubing in Bavaria. This, of 2nd-century or 3rd-century date, was probably ceremonial regimental armour looted, or buried for safety, during the mid 3rd-century German invasions. Of thin gilded or silver bronze, it included visor-masks, greaves and horse-frontlets, many decorated in incised or repoussé technique with figures of gods, heroes, etc. Figure subjects and ornaments showed some mixture of styles and displayed eastern features; a lower Danubian provenance was suggested. (*See* J. Klein and H. Klumbach, *Der Romische Schatzfund von Straubing*, Munich, 1951).

R. Schindler reported on investigations (1949-51) of the precinct and neighbourhood of the ancient cathedral of Hamburg, in particular of its earliest and latest forms and of its relation to the history of the neighbourhood. The famous early church (*ecclesia miro opere*) was built by St. Ausgar and was destroyed by the Danes in 843, being rebuilt in the 11th

century. The latest building was of various dates from the mid-13th century to the late Gothic period. It was demolished 1805-6. Excavations revealed traces of an early wooden building, possibly the early church, and of what may have been the original enclosure of the precinct, encompassed by a ditch and a timber-revetted earth rampart. Finds included a useful series of late Saxon potsherds, including hand-made stamped and incised wares of local type (see *Hammaburg*, 11, vol. v/vi, Hamburg, 1951).

Greece. The American School of Classical Studies in Athens, under H. A. Thompson, continued its exploration of the Agora, in the north of which a Mycenaean chamber-tomb yielded a superb bronze vase (*c.* 1600-1100 B.C.). Its quality suggested some reassessment of the cultural importance of Athens in the Mycenaean age.

Italy. Further work by G. Jacopi at the Magna Graecia city of Sybraris in Calabria showed its extent to be about 100 ac. and produced traces of a Greek theatre. At Palestrina (*Praeneste*), 23 mi. east of Rome, excavations continued on the site, cleared by bombing, of the ancient Temple of Fortune. Though many of its features, especially its lower storey, were known from the time of Andrea Palladio (1518-80), its upper portion was obscured by later buildings largely destroyed by bombing in World War II and being removed by the Ministry of Fine Arts. This removal revealed much of the grandiose reconstruction of the temple carried out by Sulla.

In Sicily, G. Gentili continued the excavation (for the Sicilian regional government) of the large 4th-century Roman villa at Casale, near Piazza Armerina. The villa site, which, it was suggested, had been occupied until Norman times, was of great extent and included a long narrow hall which was decorated in mosaic with figures of wild beasts and of hunters in Byzantine costume. Apart from the great general interest of the finds as exemplifying a gradual transition from Late Roman to Byzantine art, the villa was noteworthy for its series of coloured mosaic pavements, which displayed a wealth of figure-subjects, including the Labours of Hercules (an earlier discovery) and Orpheus and his lute, with a large collection of fauna, female gymnasts and a vast and elaborate hunting-scene of impressive design.

Sweden. At Kvarnby, near Malmö, Carl-Axel Althiu investigated an ancient pit in a chalk-quarry containing, among many fragments of flint, two small blades, ox and sheep bones, part of a shed antler and quantities of potsherds of late-Roman/iron age date. The investigation and study of comparative material suggested that the chalk-pits of the district were not necessarily flint-mines (see *Arsberattelse*, Lund, 1951). At Lilla Loshult, about 30 mi. north of Kristianstad, a chance find produced a quantity of fragments of arrow-shafts, in one of which were embedded two microliths, one as point, the other as barb.

Near and Middle East. *Crete.* A. J. B. Wace reported the resumption of digging at Mycenae and investigated two house-sites. Both had cellars containing the remains of stamped wine-jars. One incorporated some earlier work; the other had apparently been destroyed before 1200 B.C.

Cyprus. At Enkomi more work by C. Schaeffer further elucidated the history of the Achaeans. In the middle of the 14th century B.C. they conquered the island and built the palace of Enkomi. It was destroyed *c.* 1200 B.C. by iron age invaders. Rebuilt on a humble scale, it was finally abandoned in the middle of the 11th century. Among the bronze objects found were statuettes of goddesses and a gilt-bronze Egyptian figure. In its second year's work at Old Paphos a joint expedition of Liverpool and St. Andrews universities examined a great stone-built mound, which was found to overlie several rock-cut tunnels. Nearby a monumental wall of draughted blocks, backed by a mud-platform, was probably built before 500 B.C., and was perhaps a temple. At Kouklia late prehistoric (late bronze-age) finds were made under a Roman house. Other finds included tombs of chalcolithic, geometric and archaic periods. (See *Bulletin of the Liverpool Libraries, Museums and Art Committee*, Liverpool, 1951).

At Pigadhes, near Myrtou, Miss J. du P. Taylor and Miss Seton Williams continued the excavation of a late bronze-age sanctuary. Fragmentary traces were found of an earlier (middle bronze age) occupation. This was followed in *c.* 1500 B.C. by a group of stone buildings with earth floors, later enlarged with buildings of squared rubble walls and plaster floors and with a store-house, in which were found a group of sanctuary vessels—two ring-stands, three bronze tripods and a Mycenean rhyton of *c.* 1300 B.C. In the following century these buildings were incorporated in the great sanctuary courtyard, found in 1950. The latest occupation found was of the early iron age. Tombs examined at Stephania proved rich in finds of from mid to late bronze-age date.

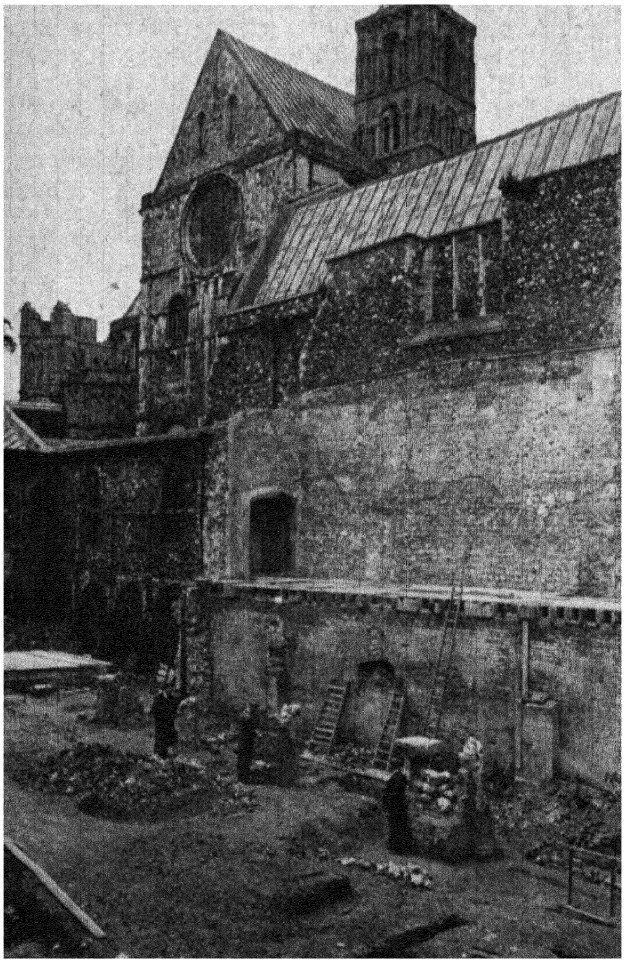
Iraq. M. E. L. Mallowan continued the excavation of the mound at Nimrud, the great Assyrian city and army centre, 20 mi. north of Mosul, on behalf of the Department of Antiquities and the British School of Archaeology, Iraq. The most striking results came from the examination of the palace of Assur-nasir-pal II (884-859 B.C.), the source of the sculptures found by Sir A. Layard and now in the British museum. Outside the north entrance of the palace was found *in situ* a large monumental slab, carved in low relief with the figure of the king in full regalia and symbols of Assyrian deities. It also bears a long and very important inscription (dated 879 B.C.), a remarkable social document which gives, *inter alia*, a detailed list of the temples and public works executed by the king and some account of festivities, in which 69,574 people are stated to have participated, which marked the completion of the palace. Two large rooms excavated in the same area were probably a store-room and a guard-house. Areas partly dug by 19th-century explorers again proved fruitful; there were fine ivories from the king's audience chamber and others, with fragments of frescoes, from near the palace foundation-stone, found by Layard and now re-excavated. The rich discoveries of ivories were not confined to these earlier examples associated with Assur-nasir-pal; another large collection, of perhaps a century later, was secured from the southeast corner of the mound, where W. K. Loftus's finds were made in the 19th century. The buildings of this area, which included a great hall, which had contained frescoes, were standing high, but had been burnt, it was suggested, in 705 B.C. The many ivories, though damaged by fire and broken, were of exceptional interest for their quality, variety of subject and for their Phoenician treatment of Egyptian elements and motifs.

North Africa. The Roman Map of Libya committee completed its work. The discoveries of its executive party included the site of Berenice (Euhesperides) near Benghazi and an imposing Diocletianic border-monument on the western confines of the Roman province. At Leptis Magna an impressive restoration of the great theatre was carried out and J. B. Ward Perkins continued the investigation of the growth and character of the city. At Sabratha Kathleen Kenyon excavated earlier levels beneath the Roman city, finding remains of mud-brick buildings, associated with distinctive pottery-types. One level could be assigned to the 5th century B.C. by association with Greek decorated wares of that date, but earlier sherds were also found of a type common in Palestine in the 7th and 8th centuries B.C. The Antiquities Department of Cyrenaica reported the discovery by C. N. Johns of the site of the first Cyrenaican Greek settlement at Azaris, 30 mi. north of Derna. Surface examination suggested that the settlement took the form of a promontory fort.

Turkey. The Turkish Department of Antiquities and the

British Institute of Archaeology at Ankara joined in the investigation of monuments near Harran in southeastern Turkey, believed to be one of the centres of the Mesopotamian moon-cult. It was an important Assyrian stronghold, was sacked by the Medes and Persians in the 7th century B.C., but rebuilt by Narbonidus. It flourished under the Romans especially during the early Empire and under Islam was occupied by the pagan Sabians. The main work (directed by Nuri Gokçe and Seton Lloyd) was the sounding of the imposing mound of Sultantepe. A large 7th-century or 8th-century Assyrian building was partly cleared and near it a large repository containing many inscribed tablets, mainly standard texts, was briefly examined. Search for the moon-temple was hampered by the great depth of rich deposits. In the city D. Storm Rice excavated part of the mediaeval castle, uncovering a black basalt gateway, carved with hounds, and fragments of an inscription dated A.D. 1059. In Istanbul work continued in St. Sophia. Discoveries there included mosaics of St. John Chrysostom and the patriarchs of Constantinople and Antioch and an earlier series (*c.* A.D. 900) of Christ in majesty flanked by the Virgin and St. John and by the apostles, and patriarchs with prophets and saints. Of particular artistic and iconographic interest were the early 14th-century lunettes of the life of Christ in the Chora narthex, uncovered and repaired by P. Underwood for the American Byzantine institute.

Further work at Kültepe, directed by Tahsin Ozguç, was divided between the outer town, the site of the large Assyrian trading enclave and the Anatolian town on the great mound. In the former, the character of the four main periods (*c.* 2000-1700 B.C.), recognized in the previous excavation, was further investigated. The latest (period 1) was seen to have been divided into two, it was suggested, by a great fire occurring at about the beginning of the 18th century B.C. and ending the century-old Assyrian colonization. The town was rebuilt shortly afterwards, in general on the same lines. Remains of the hey-day of the Assyrian epoch were found to be well preserved and finds, especially of pottery (which included a fine series of *rhyta*) and epigraphic relics, abundant. The coincidence of native Anatolian and foreign Assyrian elements was striking. In the native area on the great mound the earliest level encountered was ascribed to *c.* 1200 B.C.; the latest, represented by the remains of a small fortified town, to the 1st and 2nd centuries B.C.



The site of the new library of Canterbury cathedral where in 1951 a row of columns forming part of the dormitory of the cathedral built by Lanfranc, archbishop 1070-1089, was uncovered.

East Africa. A survey was made by G. Mathew and excavations undertaken by J. Kirkman among the coastal and inland settlements of the Tanganyika and Kenya seaboard. Of the earliest occupations noted, one had a somewhat poor Islamic culture, and dated from the 9th century onwards; another was clearly non-Islamic. Late in the 13th century there arose, particularly among the Kilwa islands, a civilization, originally Islamic, which, prospering greatly in this entrepôt of middle and far eastern trade, spread to most of the East African islands and developed its own distinctive culture during the next two centuries. Next came a period of Portuguese dominance, followed in the 17th and 18th centuries by the rise of a series of smaller trading communities. Substantial remains had been located, including those of mediaeval mosques on Kilwa and of a very complete mediaeval town on Songo Mnara. Near Lake Chad at Tago, J.-P. Lebeuf and Mme. A. M. Detourbet explored the region occupied during the middle ages by the Sao people, whose grave-goods suggested that they were experts in bronze casting. (*See* E. Guernier and G. Froment-Guieysse, ed., *Afrique Equatoriale Française*, Paris, 1951.) (J. CHN.)

North America. W. F. Libby and J. R. Arnold of The University of Chicago announced the results of their work on the age determination of archaeological and geological specimens by the Carbon ^{14} technique. (See *Science*, 113: 2927, pp. 111-120, Washington, Feb. 2, 1951.) The significance of this series of dates and the degree of correlation with archaeological chronologies were discussed in a symposium published as memoir no. 8 of the Society for American Archaeology.

With the new device of radiocarbon dating, the archaeological studies of early man in North America were beginning to form a consistent pattern and also to assist in dating the last glacial maximum. Robert F. Heizer secured bat guano from the lower levels of Leonard rock shelter near Lovelock, Nevada. This was mixed with gravels of a beach of Lake Lahontan and gave a date of 11,199 ± 570 years ago. Other dating for the Manketo maximum fell between 11,000 and 12,000 years ago and demonstrated that man was already in North America as the continental glaciers began to wane. Several radiocarbon dates were obtained for the Eskimo archaeological sequence. Wood from a house at Gamble, St. Lawrence Island, Alaska, assigned to the Old Bering Sea I or Okvik period, gave a date of 2,258 ± 230 years. Two dates were obtained for the Ipiutak period: one from the type site at Point Hope, Alaska, was 912 ± 170 years; the other, from a site near Deering on Seward peninsular, was 973 ± 170 years.

Test excavations were made at Musqueam near the mouth of the Fraser river by Charles E. Borden of the University of British Columbia. The deposit was more than 11 ft. deep and extended well below the water table; unusually well-preserved perishable material was discovered and excavations on a larger scale were planned for this site.

At the mouth of Willow creek, Monterey county, California, a site consisting of two shell midden layers separated by ten feet of water-laid gravel was excavated by Robert F. Heizer and ten students from the University of California. There was cultural difference between the layers and evidence of subsidence of the coast since the lower midden was deposited. A radiocarbon date from this level was 1,879 ± 250 yr. ago.

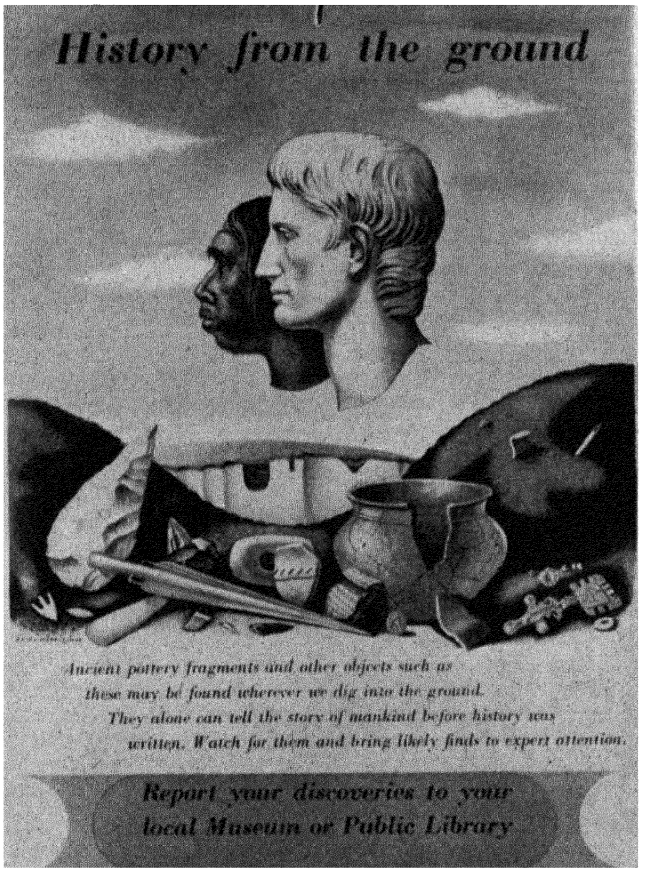
The University of Colorado field session, under the direction of Robert H. Lister, excavated two caves and several open sites south of Grand Junction, Colorado. The refuse in one of the caves contained pottery, but the other was entirely pre-ceramic. Several of the open sites were deeply buried and apparently rather old. H. Marie Wormington of the Denver Museum of Natural History directed a party in the excavation of a rock shelter in the same vicinity as the University of Colorado excavations. Occupation debris extended to a depth of 13 ft. and contained a wide variety of projectile point types. The pre-ceramic, pre-agricultural culture was similar to that found in two shelters in Montrose county, Colorado, in 1938 and 1939.

Charles DiPeso of the Amerind foundation excavated at the historic site of Quiburi and discovered a number of Spanish metal objects associated with Indian artifacts. The University of Arizona field school, under the direction of Emil Haury, continued work at Point of Pines on the San Carlos Apache reservation. A series of sites was examined ranging from early Mogollon to late Pueblo remains, dating from the 14th or 15th centuries.

The River Basin surveys of the Smithsonian institution had eight major field parties working in the Missouri basin in the summer of 1951: seven were engaged in the excavation of selected sites in areas to be flooded, and one party continued survey. Work in the Keyholes reservoir of eastern Wyoming was conducted by a Smithsonian party, and also by a second group headed by William T. Mulloy of the University of Wyoming. One of the three sites excavated by Mulloy yielded artifacts similar to Signal butte II. Two Smithsonian excavation parties worked in the Garrison reservoir area in North Dakota. One of these excavated Fort Stevenson, a frontier military post of the 19th century, and the other worked on pre-historic Indian sites. Indian contact-period sites were excavated in several other reservoir areas further down the Missouri valley. The Nebraska State Historical society field party, under the direction of Martin Kivett, worked in South Dakota in the Fort Randall reservoir at an earth lodge village site. The contents of the houses suggested a culture related to the Lower Loup and the Talking Crow site.

The first group of Carbon ^{14} dates released for sites in the eastern half of the continent contained several surprises. Hopewell culture specimens from Ohio and Illinois dated between 386 and 1 B.C., and dates for related Marksville period sites in Mississippi and Louisiana were A.D. 674 and 792. Adena sites of Ohio and Tchefuncte sites of Louisiana, thought to precede the Hopewell-Marksville culture in time, produced later dates. Early Archaic sites in Kentucky and New York gave approximately equal dating measurements of about 5,000 years elapsed time. An old buried fishweir excavated from beneath Boylston street in Boston several years earlier gave about the same measurement.

The New York Science service and the State museum excavated sites in central and northern New York state. An early Laurentian site was dug on the upper Hudson river near Schuylerville, and near Catskill in the same valley a late Laurentian site was examined. The Carnegie museum of Pittsburgh was conducting an extensive survey of Pennsylvania under the direction of William J. Mayer-Oakes. Several mound sites had been discovered, and examination of local collections suggested Hopewellian and Adena-Middlesex influences.



A poster, designed by Brian Hope-Taylor, issued in 1951 by the Council for British Archaeology.

The University of Georgia field session, under the direction of A. R. Kelly, worked on a late Kellog and early Cartersville period site on Pine Log creek in northern Georgia. Several caves were found containing cultural material with Copena relationships. W. Sears continued excavation in Kolomoki State park in southern Georgia and uncovered a number of burials accompanied by Weeden Island-type artifacts.

A joint field party from the American Museum of Natural History and Peabody museum, dug at the Jaketown site near Belzoni, Mississippi. Beneath natural levee deposits of an old course of the Ohio river, a pre-ceramic cultural complex was found which corresponded to that described from Poverty point, Louisiana.

Central America. Under the direction of the Instituto Nacional de Antropología y Historia, the Mexican government had begun an extensive programme of restoration at the major sites of Chichen-Itza, Palenque, Tajín, Uxmal and Cabah. The annual round-table conference on Meso-American anthropology was held in July at Jalapa, Veracruz, and the subject of discussion was " The Totonac, Huastec and Their Neighbours." The conference was well attended and the stimulating discussion dealt with both ethnological and archaeological aspects of the problem. Radiocarbon tests from Archaic period sites in central Mexico ranged from 3,400 to 2,400 years ago. Apparently the earliest pyramidal mounds dated about 500 B.C.

The Museo de Arqueología y Etnología of Guatemala announced the formal inauguration of its sherd laboratories. Comprehensive files had been arranged representing the results of the work of the Carnegie institution, the Philadelphia museum and a number of private individuals.

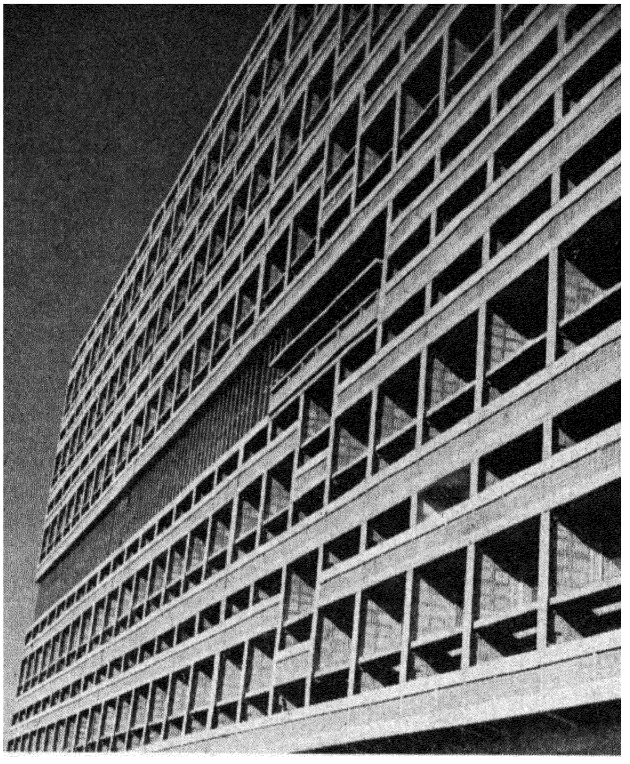
South America. In Colombia the Instituto Etnologico Nacional, under the direction of Luis Duque Gomez, excavated a late Chibcha site on the Hacienda Mondonedo, Municipio de Mosquera, in Cundinamarca. In the site there was a mound, on top of which were found the outlines of a ceremonial building made of wood. Ross T. Christianson completed excavations in the Piura valley in northern Peru. A habitation site at Chusís, about 400 m. square, was examined by means of stratigraphic tests in the refuse and a fairly simple culture was discovered showing no relationships to Inca or Mochica. Radiocarbon dates for the north coast Peruvian sequence were summarized by Junius Bird in the memoir of the Society for American Archaeology referred to above. These data suggested that the pre-ceramic Huaca Prieta site in Chicam valley was settled about 2550 B.C. and that the earliest ceramics, the beginning of the Guañape period, dated about 1225 B.C. (J. A. F.)

ARCHERY. The Fédération Internationale de Tir à l'Arc decided that world championships would only be held in alternate years from 1950. There was therefore, no world championship held in 1951. The governing body in Great Britain, the Grand National Archery society, adopted a new constitution and appointed self-governing regional societies through which archery clubs would become affiliated to the G.N.A.S. The executive committee of the G.N.A.S. was replaced by a national council to which the regional societies each became entitled to elect two members. Regional societies, in turn, began to sponsor the formation of county associations of clubs in their areas.

The 98th meeting of the Archers of the United Kingdom (the British national championships) was held by the G.N.A.S. at Oxford in July. The results were, ladies: highest score, Birgitta Bange (Stockholm, Sweden), 1,218; Mrs. Marion Felix (Yeovil, Somerset) won the British championship with 1,182; second, Mrs. T. H. Fisher (Portsmouth), 1,181. The gentlemen's results were, first: J. B. Arch (Grantham, Lincolnshire), 1,360; second, F. L. Bilson (London), 1,300; third, T. C. Morgan (Shrewsbury), 1,249. Both the ladies' and gentlemen's county team championships were won by Yorkshire. (C. B. E.)

See A. E. Hodgkin, *The Archer's Craft* (London, 1951).

ARCHITECTURE. The Festival of Britain South Bank exhibition (May 3-Sept. 30) alone made 1951 an historic year for contemporary English architecture. Though none of the buildings in themselves was of revolutionary significance, most of them showed imagination, daring, wit and ingenuity. All informed critics agreed that the important aspect of the exhibition was the *ensemble*—the brilliant handling of informal spaces, the way in which the buildings were related one to the other and the skilful incorporation of such historic landmarks on the north bank as the Palace of Westminster, Whitehall court, Somerset house and St. Paul's cathedral, thus giving to what was in fact a very small site (27 ac.) an appearance of great spaciousness. The only permanent building on the South Bank, the Royal Festival hall, was opened by King George VI on May 3. Since it had to be designed and erected to a close timetable (the actual construction took just under two years) the architects (R. H. Matthew and J. L. Martin with Edwin Williams and Peter Moro as senior and associate architects respectively) avoided structural experiment. The framework was of reinforced concrete with panel infilling, except for the auditorium which had double reinforced concrete walls, each 10 in. thick, with a 12-in. cavity between. The floor and roof of the auditorium were also double, the latter being constructed in the shape of a tied concrete barrel vault supported on the inner wall. The finishes were exceptionally



The side elevation of part of the "unité d'habitation" at Marseilles designed by Le Corbusier.

fine and well-detailed and included the wide use of Derbydene stone, highly polished on the foyer, restaurant and staircase walls and unpolished for floors—which were also of teak, cork and *muhimbi* (a hardwood from Uganda). Exterior facings were of Derbydene stone, Portland stone and tiles. All the furniture, carpets and fabrics were specially designed for the building.

At Lansbury, Poplar, in the East End of London was held the Festival of Britain "live architecture" exhibition. The development of this 30-ac. site represented the first instalment of the County of London plan. It would form a quarter of the final Lansbury neighbourhood, which would itself be one of 11 neighbourhoods in the reconstructed Stepney-Poplar district. The two chief buildings in it, completed in 1951, were a primary school designed by F. R. S. Yorke, E. Rosenberg and C. S. Mardall and a Congregational church by Cecil Handisyde and D. Rogers Stark.

A large factory designed by the Architects Co-operative Partnership was completed at Brynmawr, Breconshire. The main building included a production floor of about 77,000 sq.ft. This floor was a flat slab supported on columns at 19 ft. 1½ in. intervals which in turn were supported on piles. The roof was made up of nine domes of reinforced concrete shell-construction 3 in. thick, covering an area measuring 70 ft. by 90 ft., and supported by a reinforced concrete girder at each edge. The crown of each dome was about 8 ft. above the springing, and the curved surface was formed by two radii, that in the longer direction being 108 ft. and that in the shorter direction 82 ft. 9 in.

A housing scheme in Busaco street, London, for the Finsbury Borough council was completed to the designs of Lubetkin, Skinner and Drake ("Tecton"). This scheme, which comprised 270 flats (95 would be built later) showed in its design a further development of the principles which this firm of architects had been developing over a number of years starting at Highpoint, Highgate, in 1935. Their aim was, while using reinforced concrete construction, to free

" the elevations of their structural burden, to introduce a richer, three-dimensional treatment, combined with the use of different materials and colours." By employing, at Busaco street, a method of construction introduced into this country from Denmark after World War II and sometimes called the box-frame system, the architects eliminated, as they also did at the Spa Green flats, Islington, (where the system was first used in England) all projecting stanchions and beams; for by it the walls themselves did the work of stanchions and beams.

Of the buildings completed in the new towns, the most interesting were the blocks of flats known as The Lawn, which would form part of the Mark Hall North neighbourhood of Harlow new town. The architect was Frederick Gibberd, and the scheme comprised two blocks, one three storeys high and the other ten, both so placed (on high ground) as to form the pivot to the design of the whole housing area. The ten-storey block had a reinforced concrete frame, with external walls of 14-in. brickwork, and the three-storey block had load-bearing brick walls, 14 in. to the first floor level with 11-in. cavity walls above. Both buildings were faced with bricks of different kinds, which were laid in various types of bond to give contrast in colour, surface pattern and texture.

Results were announced of the competition for the new Coventry cathedral. The architect of the winning design was Basil Spence. In addition to the new cathedral itself with its chapter house and chapels, there would be a Christian Service centre. It was also proposed to retain the existing cathedral in its ruined state as a garden of rest with an open-air pulpit and stage within the walls.

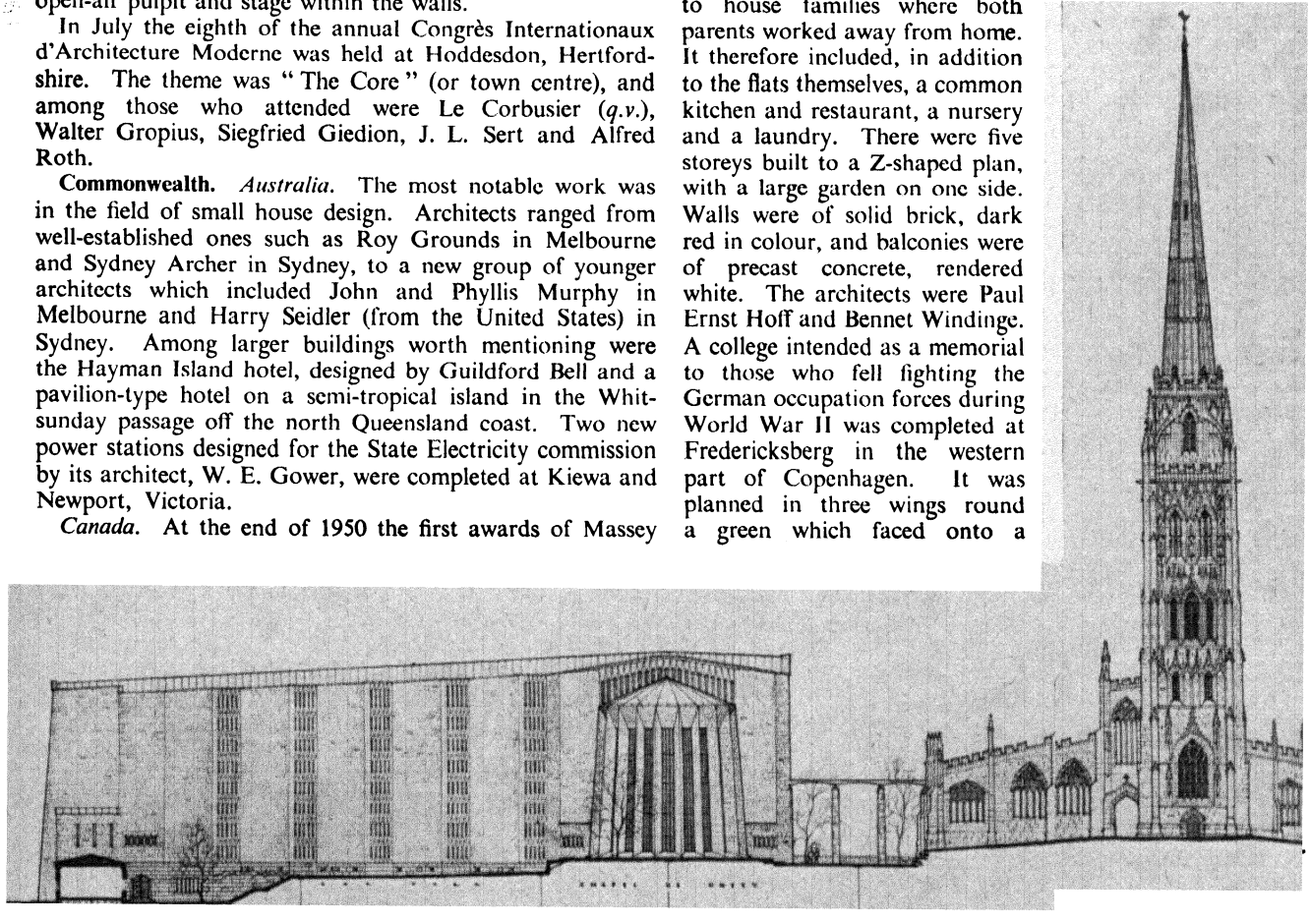
In July the eighth of the annual Congrès Internationaux d'Architecture Moderne was held at Hoddesdon, Hertfordshire. The theme was " The Core " (or town centre), and among those who attended were Le Corbusier (*q.v.*), Walter Gropius, Siegfried Giedion, J. L. Sert and Alfred Roth.

Commonwealth. *Australia.* The most notable work was in the field of small house design. Architects ranged from well-established ones such as Roy Grounds in Melbourne and Sydney Archer in Sydney, to a new group of younger architects which included John and Phyllis Murphy in Melbourne and Harry Seidler (from the United States) in Sydney. Among larger buildings worth mentioning were the Hayman Island hotel, designed by Guildford Bell and a pavilion-type hotel on a semi-tropical island in the Whitsunday passage off the north Queensland coast. Two new power stations designed for the State Electricity commission by its architect, W. E. Gower, were completed at Kiewa and Newport, Victoria.

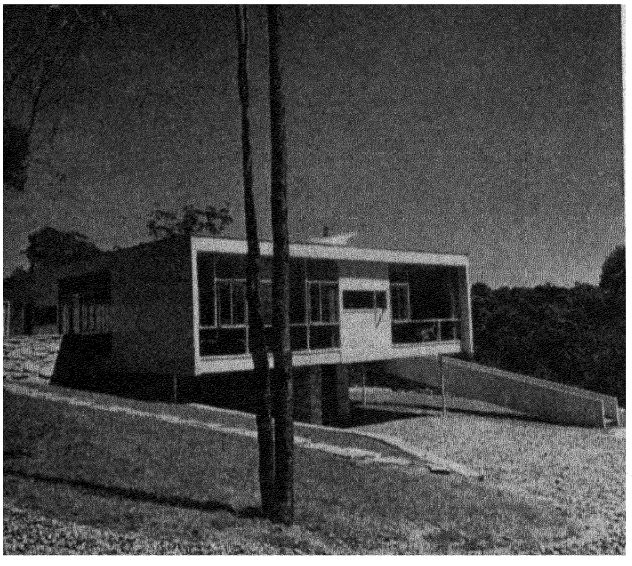
Canada. At the end of 1950 the first awards of Massey medals for architecture were announced. The scheme of awards was sponsored by the Massey foundation " for the benefit of the public of Canada to recognize outstanding examples of Canadian achievement in the fields of architecture and thus to give encouragement to the members of the architectural profession and to promote public interest in their work." Eight silver medals were awarded and the gold medal for the best of all the buildings entered went to the firm of John B. Parkin Associates for the Oshawa High school, Oshawa, Ontario.

Europe. *Czechoslovakia.* A new bridge was constructed across the river Vltava in Prague. Of reinforced concrete in three arches, its width was 86 ft., making it the longest bridge in Prague. It was designed by V. Hoffmann and the city architects' department and replaced an iron suspension bridge, designed by British engineers in 1868, which was in use until 1946. On Oct. 1 the death was announced in Prague of Karel Teige, one of the leaders of modern Czech architecture and art, who in 1923-24 had been a lecturer at Gropius' Weimar *Bauhaus*.

Denmark. A single-storey school with 24 classrooms for 800 children was opened in Gentofte, a suburb of Copenhagen. The architects were Hans Erling Langkilde and Martin Jensen. The buildings were grouped round a series of courtyards and had solid brick walls, concrete floors and tiled, pitched roofs of timber. Yellow bricks with thin mortar joints were used both for the exterior and for corridor walls inside. One of the first flat-blocks of its kind was completed in Gladsaxe, six miles northwest of Copenhagen. It was financed by a building society to house families where both parents worked away from home. It therefore included, in addition to the flats themselves, a common kitchen and restaurant, a nursery and a laundry. There were five storeys built to a Z-shaped plan, with a large garden on one side. Walls were of solid brick, dark red in colour, and balconies were of precast concrete, rendered white. The architects were Paul Ernst Hoff and Bennet Windinge. A college intended as a memorial to those who fell fighting the German occupation forces during World War II was completed at Fredericksberg in the western part of Copenhagen. It was planned in three wings round a green which faced onto a



The design for the new Coventry cathedral by Basil Spence, F.R.I.B.A., which was chosen in Aug. 1951 from the entries submitted by 219 architects throughout the Commonwealth.



A small country house in Australia designed by Harry Seidler.

public park. The central block was of three storeys with dining and recreation rooms on the ground floor; the flanking wings were of two storeys each. Fifty-six rooms were provided for the students. Walls were of solid brick, floors of concrete and balconies of timber. The architect was Hans Hansen.

France. In Paris a new building was erected as the headquarters of the French Master Builders' federation. It was a five-storey building consisting of continuous reinforced concrete floor slabs, supported on reinforced concrete columns and cantilevered out 10 ft. on the two long sides. The walls on these sides were of prefabricated aluminium wall panels, brought to the site ready glazed and painted, and inserted at the rate of one storey each day. The end walls were faced with Oise stone laid in courses of varying depth.

Italy. The three buildings completed during 1951 most worth recording were: the Textile exchange at Pistoia, constructed of reinforced concrete and faced with stone (architect, Giovanni Michelucci); an orthopaedic hospital at Bari by Guiseppe Samona; and a youth hostel at Cervinia in the Val D'Aosta constructed of wood and stone (architect, Franco Albini). The architectural event of the year in Italy was the ninth *Triennale* held in Milan from June to October. Though largely an exhibition of industrial design and architectural theory, there was one particularly ingenious building, commissioned by the New York Museum of Modern Art to house the United States exhibit and designed by Belgiojoso, Peressutti and Rogers. Circular in plan with an eccentric circular garden in the centre, it was constructed of wood studs with beams spanning radially, the whole structure tied by wire stays to a suspended metal ball in the middle of the garden. In addition to the central exhibition there was also " QT8," an international experimental quarter on the outskirts of the city, started at the time of the 1947 *Triennale*, and forming part of the general plan for Milan; it included housing of many types, as well as community buildings.

Switzerland. In Zürich the Felix and Regula church by Fritz Metzger was completed. The main roof was an oval shell-concrete dome 72 ft. across at its longest span and 5 ft. 4 in. high. It was supported on sloping concentric columns and the enormous horizontal thrust was countered by a circular cable. The inauguration of the largest structure in Switzerland, the Zürich Cantonal hospital designed by a team of architects headed by Rudolf Steiger, took place in July. (I. R. M. M.)

United States. During 1951, a number of important advances were made in the design of school buildings. Examples of unusual architectural interest were the work of Lawrence B. Perkins and Philip Will, Jr., in the Chicago area; of Ernest Kump in and about San Francisco; of Henry Wright in southern California; of Walter Bogner and Carlton Richmond in Massachusetts; of Maloney and Whitney in the northwest; and of Bomberger and Reid in California. There was constant improvement in the planning of hospitals and among the important buildings of this type were: the Maimonides Health centre, San Francisco, by Eric Mendelsohn; the work of Loebl, Schlossman and Bennett in Chicago; of Magney, Tusler and Setter in Minneapolis; of James R. Edmunds, Jr., in Baltimore; and of Erhart, Eichenbaum and Rauch at Little Rock, Arkansas.



A large factory at Brynmawr, Breconshire, designed by the Architects Co-operative Partnership, which was completed in 1951.



Blocks of flats, known as The Lawn, which were completed in 1951 at Harlow, Essex, one of the new towns being built around London. The flats would form part of the Mark Hall North neighbourhood of Harlow.

Excellent modern houses were designed and built in 1951 in various parts of the United States; unfortunately, however, the mass of new dwellings for the low and middle-income groups showed no improvement in design except in rare instances. Although the inherent conservatism of the people might be a contributing factor in this lack of advance, there were many who held that the public had not been given the opportunity to become acquainted with a more enlightened form of dwelling-design.

Architecturally, designs for public housing did not come up to the expectations of local authorities and federal agencies. The disappointing character of most design was attributed by the architects to the restrictions of federal specifications, the high cost of construction and the discouragement of advanced architectural projects by the maze of governmental red tape. Architects fell back on established designs well within the federal specifications in order to free themselves for other work of greater architectural promise. The governmental authorities on their part expressed disappointment that unusual designs had not been forthcoming. In this field the American Institute of Architects continued to encourage the design of something better than mere stereotyped housing units.

In 1951, because of the drastic curtailment of the public buildings programme, there were few outstanding examples of governmental architecture. The general accounting office in Washington, D.C., designed by the public buildings service, was perhaps the only significant building in this category completed during the year. This building was one of the first of the so-called " block " type—a single building spanning a whole standard city block. Although still in the experimental stage, this type of building was being carefully studied as the solution to the problem of housing a great many workers in one spot without recourse to the skyscraper type of structure. (*See* also BUILDING AND CONSTRUCTION INDUSTRY; HISTORIC BUILDINGS; HOUSING; INTERIOR DECORATION; TOWN AND COUNTRY PLANNING.) (ED. R. P.)

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AREAS AND POPULATIONS OF THE COUNTRIES OF THE WORLD.

The political entities of the world are listed here with their areas, populations and number of persons per square mile. The latest census or official estimates are given for each country. Areas in square miles are in accordance with the boundaries for the year of the population figure unless otherwise noted.

Name of continent and state	*Area (in sq.mi.)*	*Population ('000)*	*Persons per sq.mi.*
WORLD TOTAL	58,209,392	2,409,108	46·1*
AFRICA	11,596,222	182,287	15·7
Belgian colony and trusteeship	925,094	14,929	—
†British colonies, dependencies, etc.	3,045,539	67,724	—
Egypt	386,110	20,439	53·4
Ethiopia	350,000	16,700	47·7
French overseas territories and protectorates	4,252,124	50,324	—
Italian trusteeship	216,310	972	4·5
Liberia	43,000	1,350	31·4
Libya	679,183	1,175	1·8
Portuguese overseas territories	794,959	10,561	—
South-West Africa (mandate of Union of South Africa)	317,725	430	1·4
Spanish colonies and protectorate	134,715	1,554	—
Tangier, International Zone of	232	150	—
Union of South Africa	472,494	12,646	26·8
ANTARCTICA	6,000,000	Uninhabited	—
ASIA (exclusive of U.S.S.R.)	10,575,223	1,288,764	121·9
Afghanistan	270,000	12,000	44·4
Arabian desert	193,000	Largely uninhabited	
Bhutan	18,000	300	16·7
British colonies, dependencies, etc.	245,932	10,453	—
Burma	261,749	17,000	65·0
Ceylon	25,332	7,500	300·0
China (including Formosa, Kwantung, Manchuria and Tibet)	3,876,956	475,000	122·5
French overseas territory and associated states	285,987	27,920	—
India (Including Sikkim)	1,138,814	356,892	313·0
Indonesia	583,479	80,000	137·1
Iraq	168,043	4,800	285·7
Israel	8,084	1,555	192·4
Japan	146,690	83,200	554·6
Jordan	37,110	1,267	34·1
Korea	85,225	29,000	340·3
Kuwait	9,000	120	13·3
Lebanon	3,475	1,257	362·2
Mongolian People's Republic	606,000	900	1·5
Nepal	54,000	7,000	129·6
Netherlands New Guinea	151,789	1,018	6·7
Oman and Muscat	65,000	830	12·8
Pakistan	337,524	75,687	224·2
Persia	634,413	18,772	29·6
Philippines	115,600	21,120	182·7
Portuguese overseas territories	8,876	1,606	—
Qatar	4,000	25	6·3
Ryukyu Is. (U.S. occupied territory)	935	917	980·7
Saudi Arabia	597,000	6,000	10·1
Syria	66,063	3,043	46·1
Thailand (Siam)	198,272	18,480	93·2
Trucial Sheikhdoms	16,000	115	7·2
Turkey	296,184	20,935	70·7
Yemen	75,000	1,600	21·3
AUSTRALIA and OCEANIA	3,303,607	13,057	4·0
Australia	2,974,581	8,316	2·8
Australian dependencies	183,553	1,444	—
British colonies, dependencies, etc.	23,800	515	—

Name of continent and state	Area (in sq.mi.)	Population ('000)	Persons per sq.mi.
French overseas territories	9,199	110	—
New Zealand	103,416	1,940	18·8
New Zealand dependencies	1,656	99	—
United States possessions	7,402	633	—
‡EUROPE (exclusive of U.S.S.R.)	1,903,652	395,821	207·9
Albania	10,629	1,200	112·9
Andorra	191	5	26·2
Austria	32,375	6,881	212·5
Belgium	11,783	8,639	732·1
British colonies and dependencies	124	340	—
Bulgaria	42,796	7,235	169·1
Czechoslovakia	49,330	12,536	255·7
Denmark (incl. Faeroe Islands)	17,109	4,279	250·1
Estonia	18,357	1,200	65·4
Finland (including Åland Islands)	130,161	4,076	31·3
France	213,010	42,400	199·1
Germany (including Saar)	137,335	68,944	503·2
Greece (including islands)	51,182	7,604	148·6
Hungary	35,893	9,313	259·5
Iceland	39,768	144	3·6
Ireland, Republic of	26,601	2,959	111·2
Italy	116,226	47,021	404·6
Latvia	25,395	2,100	82·6
Liechtenstein	61	14	229·5
Lithuania	25,173	3,000	119·2
Luxembourg	999	299	302·0
Monaco	0·6	20	—
Netherlands	12,868	10,286	799·3
Norway (excl. Svalbard)	125,182	3,277	26·2
Norwegian dependency (Svalbard)	24,295	5,787	—
Poland	120,359	24,977	207·5
Portugal (incl. Azores and Madeira Islands)	35,415	8,490	239·7
Rumania	91,671	16,094	175·6
San Marino	38	13	342·1
Spain (including Canary Islands)	194,945	28,287	145·1
Sweden	173,390	7,047	40·6
Switzerland	15,944	4,715	295·8
Trieste, Free Territory of	293	378	—
United Kingdom	94,501	50,370	533·0
Vatican City	0·5	1	—
Yugoslavia	98,826	16,250	164·4
U.S.S.R.	8,598,700	201,300	23·4
NORTH AMERICA	9,375,934	215,779	23·0
British colonies and dependencies	21,060	2,840	—
Canada	3,843,144	13,893	3·6
Costa Rica	19,238	794	41·3
Cuba	44,217	5,400	122·1
Dominican Republic	19,129	2,121	110·9
El Salvador	13,176	1,859	141·1
French territory and departments	1,206	567	—
Greenland (Danish possession)	840,000	23	0·03
Guatemala	45,452	2,787	61·3
Haiti	10,748	3,112	289·5
Honduras	59,160	1,534	25·9
Mexico	760,373	25,715	33·8
Netherlands Antilles	403	163	404·5
Nicaragua	57,145	1,053	18·4
Panama (excluding Canal Zone)	28,575	802	28·1
United States	2,977,128	150,697	50·7
United States possessions	590,521	2,419	—
SOUTH AMERICA	6,856,054	112,100	16·4
Argentina	1,079,965	17,885	16·6
Bolivia	416,040	3,990	9·6
Brazil	3,286,170	52,124	16·0
British colonies and dependencies	90,681	427	—
Chile	286,323	5,877	20·5
Colombia	439,714	11,260	25·6
Ecuador	104,510	3,077	29·4
French Guiana	34,740	28	0·8
Netherlands territory (Surinam)	54,291	211	3·9
Paraguay	157,047	1,406	8·9
Peru	482,258	8,405	17·4
Uruguay	72,172	2,365	32·8
Venezuela	352,143	4,986	14·2

* In computing the world density the area of Antarctica is omitted. † Includes Eritrea as military trustee area. ‡ Areas and populations of Estonia, Latvia and Lithuania included in U.S.S.R. totals.

ARGENTINA. Second largest South American republic, occupying the southeastern portion of the continent. Area (excluding the so-called "Zona Austral" which is supposed to comprise the "Malvinas"; *i.e.*, Falklands, and other islands or territory in Antarctica): 1,079,965 sq.mi. Pop.: (1947 census) 16,108,573; (end-1951 est.) 17,885,000. The population is overwhelmingly European in origin (mostly Spanish and Italian, with Irish, German, Croat and Polish admixtures); in 1940 about 9% were of mixed blood, the dwindling Indian population was estimated at 262,600 and the total of foreign-born population was 2,355,900. The distribution of the population is uneven: the federal capital and the four provinces of the littoral (La Plata, Corrientes, Paraná and Sante Fé) cover only one-fifth of the total area but have two-thirds of the population; urban population is estimated at 75%. Language: Spanish. Religion: mainly Roman Catholic; Jewish 360,000. Chief towns (pop. 1947 est.): Buenos Aires (*q.v.*; capital and leading port, 3,000,371); Avellaneda, a Buenos Aires suburb (279,572); Rosario (464,688); Córdoba (351,644); La Plata (271,738); Lanús (242,760); Santa Fé (168,011); Tucumán (152,508). President of the republic, General Juan Domingo Perón (*q.v.*).

History. 1951 was an eventful year in Argentina. It began with an unofficial railway strike, which was the first indication that considerable discontent had developed within President Perón's own party. Peron announced in March that scientists working in southern Argentina had succeeded in releasing atomic energy by a new process. In April the government expropriated the most famous of Argentine independent newspapers, *La Prensa*. An Anglo-Argentine trade agreement was signed on April 23. During the winter months (May to August) there were rumours of plots to overthrow the Perón régime; bombs exploded on several of the main railway lines; and arrests were made. A serious drought affected the cattle industry and caused a reduction in the area sown for grain crops. Inflation increased, and there were widespread complaints at the rising cost of living. In August, at a large public meeting in Buenos Aires, the supreme council of the Peronista party nominated General Perón and his wife as the party's candidates for the offices of president and vice president of the republic in the forthcoming national elections; but Señora Perón's candidature met with opposition within the party and in the army, and on Sept. 1 she publicly declined to accept the vice presidential nomination. A few days later it was announced that she was gravely ill. In October an abortive revolt against the régime occurred at the military and air bases in the vicinity of the capital. The government thereupon imposed martial law and arrested many officers of the armed forces and many members of opposition political parties. The higher ranks of the army were subsequently purged of anti-Peronistas. The elections for the presidency, the vice presidency, and the federal and provincial legislatures took place democratically on Nov. 11, with women voting for the first time. The result was a decisive victory for General Perón, who thus attained the presidency of the republic for a second term of six years. At these elections the Peronista party again obtained complete control of the Senate and Chamber of Deputies.

The course of events during the year was illuminated by numerous public speeches delivered by senior members of the régime. At the time of the railway strike, the president broadcast a message in which he stated that the strike was a political attack on the government. He added:

> All railwaymen will be mobilized. Those who refuse to work will go to military barracks and will be submitted to military discipline. In Argentina we have suppressed the injustices of the capitalists, but we will not permit the injustices of the workers to be enthroned.

Within three days of that speech, the strike collapsed.

In February, when bidding farewell to a mission that sailed to establish a new Argentine base in the British zone of Antarctica, Perón announced:

> Step by step we will take possession of that territory. Though our rights may now be challenged, the growing power of the nation—coupled with time—will contribute to an assertion of our rights.

Commenting on the success of Argentine scientists in atomic research he remarked :

If experimental plans continue to be fulfilled as at present, the Argentine republic will possess within two years the first atomic power-houses capable of supplying the whole of the national electric power network. Only then will the world know with absolute certainty all the money and time they have wasted working for war.

At the beginning of June the president addressed a deputation of sugar workers and said:

I cast out of the country all big foreign interests. I bought everything they had, though I never paid them one centavo. That is why I have become public enemy No. 1 of the imperialist concerns—people who took millions away from us and now cannot do it; people who got our meat free and now must pay for it.

After his re-election to the presidency in November, Perón said that Argentina was progressing towards a syndicalist state.



President Juan Perón seen announcing the creation of the Grand Peronista medal for presentation on Oct. 17, 1951, to his wife (left).

Some of the year's most significant public pronouncements dealt with economic matters. Argentine pastoral and agricultural production was insufficient to provide an adequate surplus for export; the president's programme of industrialization was hampered by the difficulty of obtaining supplies of scarce raw materials and capital goods from abroad; and inflation was unchecked. These three problems were the subject of many speeches. In May and June, Perón broadcast to the farmers announcing that the official I.A.P.I. (Instituto Argentino de Promoción del Intercambio) would pay them higher prices for their crops in future, and he assured them that although the urban workers constituted the social force of the new Argentina, the agricultural workers were the fundamental economic force. On July 10 the minister of finance stated that the new Argentina did not tie herself to the principles of orthodox economics, but considered the acquisition of goods more important than the accumulation of mere monetary reserves. He said that the time had come to arrest inflation by stabilizing prices, wages and profits. But it seemed that during 1951 no adequate measures were introduced for this purpose. In October it was estimated that the cost of living had risen by about 25% during the previous six months and by about 50% since Sept. 1950.

The most important of several bi-lateral trade pacts negotiated during the year was the Anglo-Argentine agreement which was concluded in April after many weeks of haggling. This agreement provided for the shipment to Great Britain of a minimum of 230,000 tons of meat within 12 months at an average price increase of nearly one-third; a payment by the United Kingdom of £6,250,000 to Argentina in full and final settlement of meat shipped under provisional invoices in the first half of 1950; the shipment to Argentina of crude oil and fuel oil to the maximum of 4 million tons, other petroleum products to a maximum of 40,000 cu. m., 500,000 tons of coal and 27,000 tons of tin plate; the payment by Great Britain of £10,500,000 in settlement of outstanding issues arising out of the devaluation of sterling in 1949; the transfer by Argentina to Great Britain of accumulated invisible payments, and the limited conversion of certain sterling balances into other currencies. A mixed consultative committee was established to prepare a list of less essential goods to be imported by Argentina. This committee continued to study the situation during the remaining months of 1951; but Argentina, having ceased to ship meat since July 1950 because of disagreement on prices, had insufficient sterling available for the importing of British consumer goods, with the consequence that general Anglo-Argentine trade could not be resumed in normal proportions. Argentine dollar resources also diminished, mainly because of the fall in the value of wool and the cessation of wool exports to the United States. Commercial relations with Japan revived, and trade with Germany increased.

The November elections were preceded by a bill reforming the electoral law. This bill, which was passed by Congress in July, established that in future all citizens over 18 years of age must vote; that the president, vice president and senators should in future be elected by direct vote, instead of by an electoral college; that the deputies should be elected by direct vote; and that ten seats in the Chamber of Deputies should be allotted to the strongest losing party, so as to ensure the existence of a minority in the chamber. At the elections General Perón received 4,651,976 votes, his nearest rival being the Radical leader Ricardo Balbín (who had been in and out of prison on charges of disrespect of the president) with 2,358,860 votes.

The best-selling Argentine book of the year was Señora Perón's autobiographical work *La Razón de mi Vida* (" My Life's Meaning "). (G. P.)

Education. Schools (1945): primary 14,294, pupils 2,064,464, teachers 79,741; secondary (1946) 1,145, pupils 221,409, teachers 28,360; universities (1943) 8, students 62,870.

Agriculture. Main crops ('000 metric tons, 1949-50; 1950-51 in brackets): wheat 5,144 (5,500); barley 395 (708); oats 540 (692); maize 836 (3,500); rye 277 (413); potatoes 1,167 (1,500); rice, paddy 130 (140); cotton, ginned 142 (110); sugar, raw value 549 (613); tobacco 25 (33); groundnuts 49; cottonseed 284 (217); linseed 676 (532); rapeseed 15; sunflower seed 712 (1,000). Livestock ('000 head): horses (1949) 7,238; asses and mules (1949) 501; cattle (1951) 43,000; sheep (1951) 50,000; pigs (1951) 2,800.

Industry. Industrial establishments (1947) 101,884; persons employed in manufacturing industries (1949) 1,169,000. Fuel and power: coal ('000 metric tons, 1950) 25; electricity consumption (million kwh., 1949; 1950 in brackets) 4,116 (4,428); crude oil ('000 metric tons, 1950; 1951, six months, in brackets) 3,396 (1,830). Raw materials ('000 metric tons, 1949; 1950 in brackets): lead, smelter basis, 18 (23); zinc ore, metal content, 11 (12); sulphur 9. Manufactured goods ('000 metric tons, 1950; 1951, six months, in brackets): cement 1,572 (763); cotton yarn 75·6; rayon yarn 6·92.

Foreign Trade. (Million pesos, 1949; 1950 in brackets): imports 4,642 (4,829); exports 3,719 (5,421). Main sources of imports (1950): U.S. 16·2%; France 14·5%; U.K. 11·8%; Brazil 7·8%. Main destinations of exports: U.S. 20·4%; U.K. 17·9%; Brazil 8·6%; Italy 6·4%. Main imports (1950): machinery and vehicles 20%; iron and steel products 15%; fuel and lubricants 12%; textiles 12%. Main exports: cereals and linseed 21%; wool 16%; hides 13%; meat 11%.

Transport and Communications. Roads (1950): 37,000 mi. Motor vehicles licensed (Dec. 1950): cars 250,000, commercial 160,000. Railways (1949-50): 26,568 mi.; passenger-mi. 8,260 million; freight net ton-mi. 10,580 million. Shipping (merchant vessels of 100 gross tons and over, July 1950): 405; total tonnage 928,106. Air transport (1949): mi. flown 8 million. Telephone subscribers (1949): 679,335. Wireless licences (1949): 1,704,893.

Finance and Banking. (Million pesos) Budget: (1950 est.) ordinary revenue 5,202, ordinary expenditure 5,102; expenses met by the issue of bonds 2,740. National debt (June 1949; Dec. 1950 in brackets): 13,992 (16,000). Currency circulation (July 1950; July 1951 in brackets): 9,174 (12,655). Gold reserves (million U.S. dollars, July 1950; July 1951 in brackets): 216 (288). Savings and bank deposits (Jan. 1950; Jan. 1951 in brackets): 10,359 (12,220). Monetary unit: *peso*, with a basic export rate (Oct. 1951) of 14·0 pesos to the pound and 5·0 pesos to the U.S. dollar, and a free market rate (Oct. 1951) of 39·9 pesos to the pound and 13·7 pesos to the U.S. dollar.

ARMIES OF THE WORLD. During 1951 fighting continued in Korea, the threat of a Chinese intervention in Indochina did not materialize and in Europe the North Atlantic Treaty organization (N.A.T.O.) made slow progress. Rearmament in the United States reached the point where $2,000 million in military items were being delivered each month.

United States. Army strength increased during 1951 from 1,100,000 and the equivalent in organized combat units of 18 divisions, to 1,600,000 and the equivalent of 24 divisions, composed of 18 divisions and 18 regiments. The budget for the army, which was $4,000 million in 1950 and $19,500 million in 1951, increased only slightly to $20,700 million in 1952 (all fiscal years). Although there were serious deficiencies in equipment, particularly new medium and heavy tanks, specialized vehicles, rockets, guided missiles and radar, arms were flowing from the factories. Deliveries of equipment to N.A.T.O. powers were gradually building up, and 2,148 light and medium tanks had been delivered to France at the end of 1951. Over-all deliveries to all powers included 1,185 aircraft, 219 naval vessels, 6,907 tanks and combat vessels, 10,679 artillery pieces and 643,369 small arms and machine guns. (*See* also MUNITIONS OF WAR.)

Organization. Although the role of tactical aircraft and control of ground support missions continued to be a hotly debated subject between the army and the air force, no changes were made in controls. The air force announced the establishment of a pilotless bomber squadron to launch guided missiles in the direct support of ground troops. Ranger units were reduced in size and were to be assigned at the rate of one company to a division.

Disposition. By the end of 1951 the seven U.S. divisions in Korea were all up to strength and there were two divisions in reserve in Japan. The arrival of the 28th and 43rd infantry divisions in Germany completed the organization of the 7th army which consisted of these units plus the 1st and 4th infantry divisions, the 2nd armoured division and the constabulary which was the equivalent of another armoured division. In the United States the 37th (Ohio national guard) and 44th (Illinois national guard) divisions were alerted for federal service early in 1952.

Training. An air-ground support centre was established at Fort Bragg, North Carolina, to strengthen the field forces for combined exercises. A new training programme was developed for national guard units. Several major training exercises were held, both in the United States and in Germany.

Exercise Southern Pine held during September was a controlled operation using the "aggressor force" as a training aid and stressing large-scale offensive and defensive night operations. Airborne troops and tactical aviation played important roles as about 103,000 troops were used, including the 7th corps, 28th and 43rd infantry divisions, 82nd airborne division, 511th regimental combat team of the 11th airborne division, 2nd armoured cavalry regiment, 301st logistical command and elements of the 9th air force. While the exercise showed that the drop technique for heavy equipment was well advanced, it proved the value of the C-122 assault transport for landing troops behind enemy lines.

Exercise Combine was the largest training operation yet held by U.S. troops in Germany. Using the characteristic attack from the east, the exercise indicated poor camouflage discipline, inadequate dispersal of troops and no security measures in rear area, but showed good speed in counter-attacking and air-ground liaison.

Equipment. The 57-, 75-, and 105-mm. recoilless rifles proved themselves in battle and contributed to the doubling of the fire power of infantry divisions. New atomic weapons for tactical use in the field were tested. Canada, Great Britain



A pontoon bridge which was built in four hours across the River Main near Hanau, Germany, by troops of the U.S. 4th Division. The division arrived in Europe in 1951 to serve under General Dwight D. Eisenhower.



Troops of the Swiss army taking part in a ski-run endurance test during mountain exercises held for reservists in Feb. 1951.

and the United States agreed to standardize the use of 400 items, including the T-41 U.S. light tank and 8-in., 75-mm. and 240-mm. howitzers. But controversy continued over the adoption of a standard rifle, with the British ·280, the U.S. ·30 and the Belgian 7-mm. as the outstanding contenders. A new armoured personnel carrier was developed as well as an amphibious vehicle with great mobility over sand and tundra.

Development of tanks still lagged. The T-41 light tank was acknowledged one of the best in the world, with a 76-mm. gun, speed of 25 m.p.h. and weight of 25 tons, although it was too heavy for airborne operations. Unreliable turret control hampered development of the T-47, which mounted a high-velocity 90-mm. gun and weighed 47-48 tons. No heavy tanks with 120-mm. guns were yet in operation.

Great Britain. Defence expenditure increased to 24% of the budget and 8% to 10% of the national income. Tank production was doubled, including production of the 50-ton Centurion, which was supplied to the armoured divisions in Germany. The arrival of the 6th armoured division in Germany completed the Army of the Rhine, which included, in addition, the 2nd infantry and the 7th and 11th armoured divisions. British troops participated with Norwegian, Dutch, Danish and Belgian brigades in joint manoeuvres. Egyptian attempts to eject British forces from the Suez canal area resulted in the reinforcement of that region at the end of the year with the 1st division from Libya and the 16th parachute brigade from Cyprus. (*See* also BRITISH ARMY.)

Other N.A.T.O. Powers. *France.* The continued fighting in Indochina was the chief factor affecting the French army. Although France under General Jean de Lattre de Tassigny had made some progress in containing the Vietminh forces, the attrition was considerable, with a total of 28,000 men and 1,014 officers listed as killed or missing. At the end of the year, there was apprehension of a major Vietminh assault, perhaps with open intervention on the part of Communist Chinese. During the year the Vietminh progressed from guerrilla bands into well-equipped infantry organized into regimental combat teams and using such modern weapons as the 75-mm. recoilless rifle.

In metropolitan France conscription was lengthened from a year to 18 months, but the principal problem was equipment. Of the ten French divisions, two infantry and one armoured division in Germany were at combat strength, another armoured division was at 70% of strength and five infantry divisions and one armoured division in France were at from 20% to 70% of strength. The manpower, in trained reserves, awaited only the equipment to fill out the divisional strengths.

The French army revised the officer training system, abandoning the use of Coëtquidan (which replaced war-damaged Saint-Cyr after World War II) as a single school for the training of officers in all branches. The modification adopted represented a change toward the pre-World War II system. One academy at Coëtquidan would provide two years of training for the *élite* of the officer corps capable of advancing to higher ranks and also would train in a one-year course non-commissioned officers and officer candidates from the ranks. Graduates would be sent to Saumur for motorized and cavalry training, Châlons for artillery, Angers for engineering and Fontainebleau for quartermaster specialization.

In addition to manoeuvres conducted in Germany with other N.A.T.O. powers, France held special Alpine operations in August using the 27th Alpine infantry division. Experiments in these exercises included the use for the first time of mountain paratroopers in the "capture" of the mountain fortress of Briançon on the French-Italian frontier.

Belgium. The armament industry was developed as a major contributor to N.A.T.O. equipment. Among the

important items being produced were five-inch rockets, anti-tank grenades, non-detectable land mines, motor transport, Bofors anti-aircraft guns and radar equipment. In Korea the Belgian battalion changed its equipment from British to U.S., and adopted the U.S. 75-mm. recoilless rifle and U.S. company strength of 160 compared with the previous 120 to 130. Belgium extended the period of compulsory military service to 24 months.

Canada. Canada announced a three-year defence plan that would cost a total of C$ 5,000 million and indicated that it planned to form another division towards an ultimate goal of 115,000 full-time personnel in its armed services. In addition to the brigade in Korea, the 27th brigade was sent to Germany, as part of the 12,000 troops destined for Europe. Arms were supplied to one Dutch, one Belgian and one Italian division, and artillery to a Luxembourg artillery regiment.

Denmark. The term of compulsory service was increased from 12 to 18 months to add 7,500 to 16,000 to the numbers called to active duty each year. One brigade continued to serve with the N.A.T.O. forces as plans were made to form one complete division. Defence expenditure increased by 40%.

Italy. The most important development affecting the Italian army in 1951 was the lifting of the peace treaty limitations on the strength of the army as a result of notes from the major treaty signers. The biggest drawback to increasing the strength of the army beyond the previous 250,000 limit was the lack of equipment. The Italian units that appeared to be in greatest combat readiness were the Alpine brigades. Conscription was increased from 12 to 15 months.



Italian soldiers being taught how to use a U.S.-made bazooka at an infantry training school near Rome. Much of the equipment of the Italian army was supplied by the United States.

Netherlands. The conscription period was increased from 12 to 16 months.

Norway. Conscripts were retained for additional defence courses, and reserve personnel were recalled. A budget of $350 million for special defence measures up to the end of 1954 was passed.

Portugal. A United States military mission was assigned to assist the development of the 30,000-man army, which was both under-trained and under-equipped. The ultimate goal was eight to ten divisions.

Western Germany. No rearmament was accomplished in 1951, as debate continued on the structure of the European army. Plans called for the organization of an army modelled on U.S. lines. Men from 18 to 21 would be conscripted toward the development of an army composed of 12 divisional slices of 30,000 men each, with the U.S. or Great Britain supplying the heavy artillery and tanks. Another obstacle to the development of the army was German reluctance to bear the cost of its organization while paying the occupation costs of the U.S., British and French armies amounting to $1,400 million a year. The probable composition of the German army would be 3 armoured divisions with about 300 tanks each, 6 motorized divisions with 70 tanks each and 3 infantry divisions. (*See* NORTH ATLANTIC TREATY ORGANIZATION.)

European "Neutrals". *Spain.* The outstanding development of 1951 affecting Spain was preliminary discussion with the United States on the use of bases in exchange for assistance. The U.S. was expected to be granted facilities at Cádiz, Cartagena, Ferrol, Santa Cruz, Barcelona, Madrid and Seville. U.S. inspection of the Spanish army revealed about 250,000 men in the army formed into about 22 weak divisions, although the largest manoeuvres that could be held were in less than regimental strength. Small arms were plentiful, but all other equipment was an assortment left from the Spanish Civil War and was a combination of German, Italian, French and Russian. However, a good potential was revealed with wartime mobilization of 2 million and a natural ability for guerrilla warfare. Immediate steps were planned to train Spanish officers and non-commissioned officers in the United States, to increase the number of officers by increasing the programme at universities, to provide artillery, radar and anti-tank weapons and to make essential economic improvements such as those in highways, railways and ports.

Sweden. The commander in chief of the armed forces asked for a change in the draft law to permit 70,000 men to be called up for a refresher course of six months.

Switzerland. Steps were taken to increase the armoured force by 550 medium tanks. The annual budget of $115 million for the army was to be augmented by $250 million for extra equipment during the period 1951-55.

Yugoslavia. Military aid began to arrive from the United States, and the U.S. chief of staff inspected the army. A U.S. military mission arrived to assist in training in the use of the equipment.

U.S.S.R. There was no indication of any change of Soviet strength during the year. The army strength continued at about 2·5 million men organized into 175 divisions, of which about 65 were armoured or motorized. There were definite indications that Soviet equipment was improving in quality, and tank strength was estimated at 30,000. About one million men were being drafted each year for a three-year period of military training, and trained manpower was estimated at 12 million to 13 million.

Six Soviet occupation armies—the 1st, 2nd, 3rd, 4th and 7th guards armies, and the 3rd shock army—were in Germany, all up to strength. Under the command of General Vasily I. Chuykov, manoeuvres in 1951 tended to concentrate more on defence than previously. The last conscripts with battle experience, the class of 1927, returned to the U.S.S.R.

There were no indications of any important changes in Soviet dispositions in Europe. There were reports of increased Soviet forces in the far east.

Soviet European Satellites. *Czechoslovakia.* The reconstructed armaments industry played an increasingly important role in the Soviet programme with arms being sent to China. The army reached a strength of ten divisions including four motorized and one armoured corps of three brigades, with an over-all strength of around 150,000 men.

Eastern Germany. The people's "police" Bereitschaften were reorganized into 23 formations, each intended to be a 2,000-man cadre for a Soviet-type infantry division of 11,000 men. It was reported that the top command was now under the Russians, and 150 senior officers were trained in the U.S.S.R. In addition, 5,000 officer candidates were trained

in a nine-month course, with one in every seven specially trained as a political commissar.

Hungary. Reports varied on the actual strength of the Hungarian army. There was little question that the sovietization of this force reached a new high level in 1951, perhaps including the insertion of Hungarian regiments into Soviet divisions and the elimination of purely Hungarian higher headquarters. Satellite manoeuvres were reported near Szolnok in September, including Soviet, Rumanian, Bulgarian and Czechoslovak troops as well as Hungarian.

Rumania. Compulsory military service for all specialized branches of the army was extended from two to three years. (*See* also POLAND.)

China. *Communist.* Full mobilization continued in an effort to develop an army of 2·5 million. Five new military training schools were organized including artillery, tank and anti-aircraft artillery. The Chinese Communist forces identified in Korea included large elements of the 4th army group, including the 12th, 13th, 14th, 15th, 16th, 17th, 21st, 51st, 53rd, 55th, 56th and 57th armies. Chinese Communist armies generally consisted of three divisions, each of 6,000 to 8,000 men. (*See* also KOREAN WAR.)

Nationalist. The U.S. military advisory group advocated a shake-up of the army concentrated on Formosa, and a reduction of its size to take advantage of the available equipment. Of the 550,000 men, only about 300,000 were rated of good quality.

Middle East. *Arab Countries.* Little increase in strength was shown during the year; a total combined strength was two divisions. Jordan's Arab legion, with the equivalent of an understrength division, and the Egyptian army with one organized division, were the strongest forces. In addition, Egypt had a regiment of tanks composed of 16 British Centurions and a few U.S. Shermans.

Israel. The defence budget was more than tripled, and favourable reaction was indicated to the plan for a middle east command with a possible wartime contribution of 200,000 men.

Japan. With the signing of a peace treaty, plans were made for the formation of an army. The natural cadre for this body was the Japanese national police reserve, composed of 75,000 men organized into two corps of two divisions each and armed with small arms, machine guns and mortars. Initial plans called for the doubling of this force.

Philippines. The strength of the army was increased by 10 battalion-size combat teams, bringing numbers up to 24 battalions of 1,000 men each in addition to the constabulary of 7,500. Considerable progress was made toward cutting down the strength of the Hukbalahaps, whose armed strength was around 5,900. (L. B. K.)

ART EXHIBITIONS. The outstanding exhibition of 1951 was undoubtedly that of Caravaggio and his followers at Milan. This exhibition, of which the prime mover was Professor Roberto Longhi, responded to the revived interest in and enthusiasm for Caravaggio which had been growing in recent years and, in turn, gave them fresh impetus. It displayed the greater part of the master's known output, calling attention in particular to those noble last works which for centuries had been virtually incarcerated in the impenetrable gloom of Sicilian churches. And, what was no less necessary, it set Caravaggio in his historical perspective by including a few examples of those Cremonese mannerist pictures in which his style is latent and numerous works by his immediate followers in Italy and elsewhere and by those who absorbed his overwhelming influence at further remove.

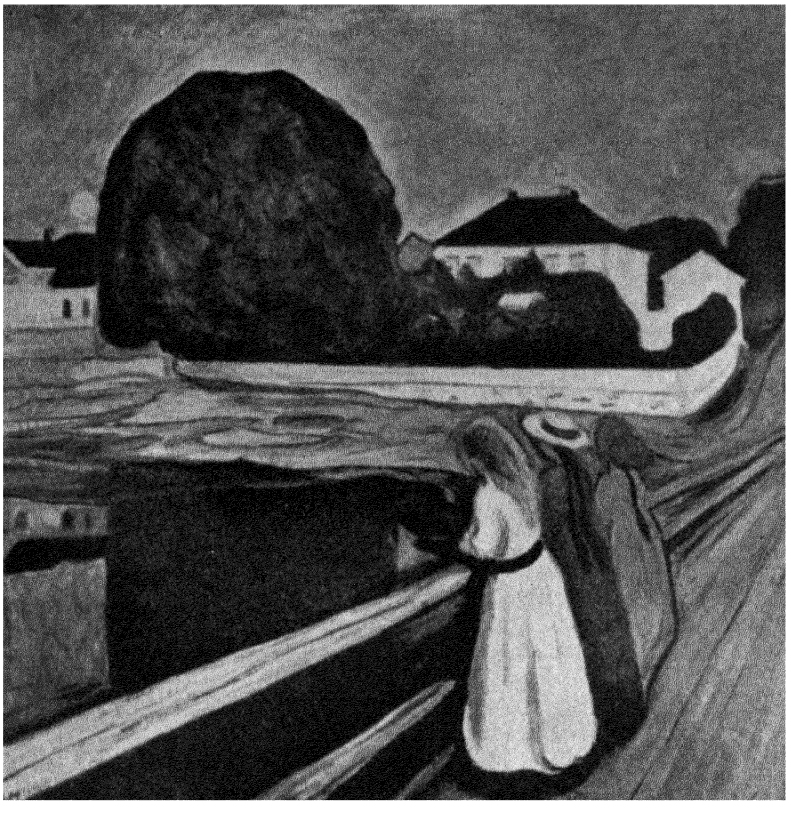
The exhibition at Venice of the two Tiepolos, Giovanni Battista and Giovanni Domenico, was a little disappointing owing to the fact that the Giardini, where it was held, proved unsuitable for the display of these supremely sumptuous and decorative artists. Although the bulk of Giovanni Battista's altar-pieces and a rich variety of his sketches were brought together, his great wall-decorations could not, of course, be transported from the palaces around Venice and elsewhere for which they were conceived.

A Burgundian exhibition, first assembled at Dijon and later shown in Amsterdam and Brussels, included notable works by Jan van Eyck and Rogier van der Weyden, while the Museum of Arras staged an exhibition of mediaeval art in Artois. An interesting exhibition displaying the connections between Flemish and Italian art in the 15th, 16th and 17th centuries was shown at Bruges, Venice and Rome. Unfortunately, the 16th and 17th centuries were not adequately represented. An extensive exhibition of 17th-century Dutch landscapes was held in Paris at the Orangerie. An exhibition of "Costume in Five Centuries of Painting," held at the Palazzo Madama, Turin, included works by Parmigiano, Lucas Cranach the elder, Rubens, Renoir and many others.

There were a number of interesting 19th-century exhibitions. That of Goya at Bordeaux suffered from its lack of works from the Prado, Madrid; later, however, it was moved to the Prado itself. A remarkable collection of French Impressionist pictures from German collections was shown at the Orangerie in Paris, as was the comprehensive exhibition of Toulouse-Lautrec, which included a number of important loans from the United States. The rise of interest in the origins of expressionism produced important exhibitions of Edvard Munch, shown in a number of capitals, and of James Ensor, at Antwerp.

An extremely well-arranged and documented exhibition of the group of Dutch architects and abstract artists known as *de Stijl* was held at the Stedelijk museum, Amsterdam. Three outstanding shows of modern sculpture took place in Paris: a retrospective of Pablo Picasso's work in sculpture at the Maison de la Pensée Française; a retrospective of Henri Laurens at the Musée d'Art Moderne; and the long-awaited exhibition of new works by Alberto Giacometti.

In Great Britain, 1951 being Festival year, English art tended to monopolize the countless loan exhibitions arranged by official bodies, national and regional. With dealers' shows to fill in some of the gaps, almost every aspect and period of English art was thus represented, more or less comprehensively, at one time and place or another. The main section of the Royal Academy's 1950-51 winter exhibition at Burlington house, London, entitled "Works by Holbein and other Masters of the 16th and 17th Centuries," was devoted to Tudor portraits. All but a handful of the paintings and drawings by Hans Holbein the younger himself belonged to his English periods; these were supplemented by an extensive selection of pictures by Holbein's followers in England, notably Hans Eworth. (The remainder of this exhibition is referred to below.) Stuart art was represented by the examples of the Mortlake period which dominated an important exhibition of English tapestries held in Birmingham, and by the first exhibition of William Dobson, painter to Charles I's court at Oxford, which was shown initially at Worcester and then transferred to the Tate gallery, London. It was very desirable that the father of English painting, William Hogarth, should be properly represented during the Festival year. But, unfortunately, owing to the inevitable exclusion of the important series of narrative pictures and to the inclusion of certain irrelevant works, the exhibition devoted to him at the Tate did not show him to be the great master he undoubtedly was. The golden age of English portraiture was represented by Gainsborough at Bath, by Reynolds at Plymouth, by John Opie at Truro, by Lawrence in Bristol, Brighton and London



"Girls on the Bridge," by Edvard Munch, shown in 1951 at the Tate Gallery, London.

(at Agnew's), and at the Tate by a selection of Eton Leaving-portraits, which, however, apart from the Romneys were of little artistic, though of considerable historical, interest. The re-opening of the Walker Art gallery, Liverpool, was marked by a comprehensive exhibition of the work of George Stubbs. The tempera paintings of William Blake—most of them recently restored—were brought together in London at the Arts Council's gallery. A large exhibition of John Martin at the Laing Art gallery, Newcastle, included five newly discovered oil paintings. The Whitechapel Art gallery resuscitated William Frith. And in Hampstead there was shown a well-chosen selection of "Constable and his Contemporaries."

The Festival of Britain coincided, by a happy chance, with the centenary of the death of Turner, often acknowledged to be his country's greatest artist. Disappointment was widespread, therefore, that no comprehensive Turner exhibition was arranged. Some compensation was provided by the showing, for the first time in London, of the 18 Turners from Petworth house, Sussex, which were on view at the Tate (some of them side by side with related works from the gallery's own collection), by a remarkable selection of drawings and water-colours by the artist and his contemporaries at the British Museum (where emphasis was laid on Turner's most summary and daring later works) and by a loan exhibition of water-colours at Agnew's (which consisted chiefly of more "finished" works).

Of the moderns, W. R. Sickert was seen to advantage in London at Roland, Browse and Delbanco's and at the South library, Islington, while at Southampton he figured in an important exhibition of the Camden Town group. Memorial exhibitions to Edward Wadsworth, Randolph Schwabe and A. S. Hartrick were held in London. There was a large-scale retrospective show of Henry Moore at the Tate, and a smaller one of Graham Sutherland at the Institute of Contemporary Arts. A general survey of English painting of the last 25 years, in the form of two rather haphazardly chosen anthologies, was presented by the Arts Council in London and various provincial centres.

This formidable panorama of English art was completed by three exhibitions of wider scope. The Arts Council's "Three Centuries of British Watercolours and Drawings" was an avowedly personal anthology compiled by Brinsley Ford. "Ten Decades: a Review of British Taste, 1851-1951," organized by the Institute of Contemporary Arts, was perhaps the most adventurous exhibition of the year. Each decade was represented by a selection of British works of the period which had appealed to some section or other of the public: thus the parallel traditions of serious, fashionable and popular art were displayed together. Certainly this was the most instructive and the most entertaining exhibition of English art held in Great Britain in 1951. The most distinguished artistically was that which brought the year to a splendid conclusion: the Royal Academy's "First 100 Years of the Royal Academy, 1769-1868," in which all the leading English artists within the period were represented, with the exception of Romney, Rossetti and Whistler.

Although there was little room for large-scale shows of continental art, a number of modern foreign artists were given one-man exhibitions in London, most of them for the first time. The Tate showed the memorial exhibition of Munch which had been touring Europe; the Institute of Contemporary Arts, to celebrate Pablo Picasso's 70th birthday, arranged a retrospective exhibition of his drawings composed for the most part of works from the artist's own collection. Dealers' galleries staged shows of Othon Friesz, Louis Marcoussis, Salvador Dali, Bernard Buffet, and the sculptors Charles Malfray, Henri Laurens, Alexander Calder, Marino Marini and Fritz Wotruba. Selections of pictures by Toulouse-Lautrec, Renoir and the Fauves were shown, as also the complete set of Degas' bronzes. The Burrell collection of French paintings of the 19th century was exhibited in London. The second International Exhibition of Sculpture at Battersea park, London, was held. But the most ambitious exhibition of modern art, the Royal Academy's show of the Paris school, was a great disappointment, thanks to ill-considered selection and deplorable hanging.

The "Other Masters" section of the Academy's winter exhibition of 1950-51 was an uneven and arbitrary agglomeration of 16th and 17th century works, mainly Italian. Nevertheless, it included a number of extremely interesting items: the great Glasgow "Christ and the Adultress" and important paintings by Titian, van Dyck, Caravaggio, Bernardo Strozzi and Massimo Stanzione, sculptures by Bernini and Giovanni Bologna, numerous drawings by Guercino, Bernini, Giovanni Castiglione and the Carracci, the great Leonardo da Vinci cartoon from the Diploma gallery and groups of superlative Raphael and Michelangelo drawings from Windsor castle.

The Whitechapel Art gallery presented a charming exhibition of 18th-century Venetian art. The National gallery put on show a number of paintings from the Liechtenstein collection, including first-rate examples of Rubens, Franz Hals and Orazio Gentilleschi. Rubens' magnificent paintings for the ceiling of the banqueting hall, Whitehall, having lately been restored, were shown at Kensington palace, where they could

be closely examined, before their return to the upper regions of the banqueting hall. Outside London, mixed exhibitions of old masters were presented at Newcastle, York and Perth, the mediaeval art from the Burrell collection was shown in Glasgow, and the National Gallery of Scotland assembled a number of Spanish paintings which included unfamiliar masterpieces by El Greco, Velasquez and Goya.

Finally, three important exhibitions of non-European art were held in London during the year: the Rothenstein collection of Indian paintings at the Victoria and Albert museum, T'ang art at the British museum, and, at the Imperial institute, " Traditional Art from the Colonies," including some newly excavated terracottas from Nigeria. (A. D. B. S.)

United States. A revival of interest in German Expressionism came about with the large showing of paintings by Lovis Corinth (1858-1925) at the Boston Institute of Contemporary Art. This museum also organized an interesting exhibition of the work of the 82-year-old Irish painter, Jack B. Yeats, brother of the poet, William Butler Yeats.

With 100 works from 85 artists, New York's Museum of Modern Art showed "Abstract Painting and Sculpture in America," covering the period from 1913 when the famous Armory show gave the U.S. its first view of advanced art trends from abroad. The Cleveland Museum of Art and the Museum of Modern Art combined in a full-length retrospective exhibition of paintings and some sculpture by the Italian-born Amedeo Modigliani (1884-1920).

Yale university's Gallery of Fine Arts and the Baltimore Museum of Art joined forces to do " Pictures for a Picture " of Gertrude Stein as a collector and as a writer on art and artists. This stimulating exhibition was largely drawn from Yale's rich collection of Stein manuscripts and from the noted Cone collection recently left to the Baltimore museum. Added to this was Pablo Picasso's famous portrait of Gertrude Stein lent by the Metropolitan Museum of Art, New York.

A comprehensive memorial exhibition of paintings by C. S. Price was arranged by the Portland (Oregon) Museum of Art. Price, born in Iowa in 1874, was a cowboy in Wyoming and ultimately became a painter. Largely self-taught, he was a semi-abstract, visionary painter who evolved his advanced viewpoint from inner compulsions rather than from contact with other artists.

The art of the northwest coast Indian was featured at the Brooklyn museum where house posts, totem poles and many other wooden objects and weavings showed the highly developed culture of the tribes inhabiting the narrow 1,000-mi. coast area stretching from the Columbia river to Alaska. A similar exhibition was a summer event at the Colorado Springs Fine Arts centre where the noted designer Herbert Bayer did a special installation.

The Carnegie institute in Pittsburgh showed eight centuries of French painting, 1100-1900, with 172 paintings, illuminations and drawings. First-rate material was borrowed from collections all over the country, the climax being Jean-Baptiste Chardin's " Saying Grace," lent by the Louvre in Paris.

The Art Institute of Chicago featured an " all-invited " exhibition in its 60th annual of painting and sculpture. The $2,000 Logan prize went to William de Kooning for " Excavation," the $1,000 Logan prize to Theodore J. Roszak for " Sea Quarry" (later purchased for the Norton gallery at West Palm Beach, Florida), and the $1,000 Walter Campana Purchase prize was awarded to Herbert Katzman for " Views of Prague."

One of the outstanding events of the season was the large retrospective exhibition, at the Museum of Modern Art, of the work of Henri Matisse. The finest of his works were borrowed from the French government and from museums and private collections in the U.S., liberally supplemented by loans from abroad including many items from the artist himself. The exhibition was scheduled in 1952 for Cleveland, Chicago and San Francisco., (*See* also ART SALES; ARTS COUNCIL OF GREAT BRITAIN; DRAWING AND ENGRAVING; MUSEUMS; PAINTING; SCULPTURE.) (F. A. Sw.)

ARTHRITIS: *see* RHEUMATIC DISEASES.

ART SALES. During 1951 economic conditions helped to maintain the brisk flow of art sales and to support a continued high level of prices. In Great Britain the event of the year was the sale of the works of art collected over many years by Walter Hutchinson (d. 1950). He had intended to develop a " National Gallery of British Sports and Pastimes " around this collection, but his death had intervened and the directors of Hutchinson and Company, the publishers, arranged for its disposal at Christie's, London. The sale opened with the disposal of John Constable's " Stratford Mill " for £44,100, bidding having opened at £10,500. The National Gallery of Canada bid strongly, but the eventual purchaser was Major R. N. Macdonald-Buchanan, who also bought the famous " Gimcrack standing near the Rubbing House at Newmarket," by George Stubbs, for £12,600. The Constable had appreciated by over £1,000, the Stubbs by more than £8,000. Both prices were records for the works of the two artists, as was the £4,830 paid by the Duke of Rutland for Ben Marshall's " Sam Chifney on the Duke of Rutland's Sorcery, winner of the Oaks, 1811." Two other works by Marshall had also increased greatly in value, and it was obvious that there was still a considerable demand for the pictures of the more important sporting painters. Altogether there were a dozen Stubbs paintings for sale, and they fetched a total of over £20,000. The two paintings by George Morland, " Children Birdnesting " and " Juvenile Navigators " which Hutchinson had bought for £10,200, brought in £10,930, and a painting by Thomas Gainsborough of partridge-shooting doubled its 1946 price. Seventeen paintings by the past president of the Royal Academy, Sir Alfred Munnings, were sold for £9,901, and a painting by James Tissot of Henley regatta brought in £945.

Another record was broken at Christie's in June when a magnificent copy of J. J. Audubon's " Birds of America " was sold for £7,000. Another high price paid at the same sale was the £147 given for a pencil drawing by Augustus John. The Earl of Lanesborough sold at Christie's in the same month a collection of paintings for a total of £18,598; of these the most outstanding was a panel by Peter Paul Rubens of the death of a stag. Thomas Lawrence, whose genius was commemorated during the course of the year by two important exhibitions, one at Agnew's, London, the other at Brighton, commanded very respectable prices; his " Portrait of Miss Bloxam " brought in £1,102 in July. Constable's works were now so much sought after that even his slightest manifestations commanded high prices: nearly £9,000 was paid in January for a collection of 46 of his small sketches. On the other hand, this " name-hunger " often resulted in quite remarkable works being disposed of very cheaply: a Vincenzo Foppa was sold for £950, and a very fine small Gabriel Metsu for £520.

Several Harewood house paintings of rather smaller interest were sold during the year. The increasing value of even an attributed painting was shown by this sale: an arched panel attributed to Botticelli brought in five times the price for which it had been sold in 1935.

In the summer Sotheby's, London, sold a number of important Dutch paintings including a Pieter de Hoogh, bought by a New York firm for £1,700, a Jacob van Ruisdael of a fish market, which sold for £1,700, and a flower piece by Nicolaas van Verendael (Flemish school, 1640-91) for £620.

The popularity of paintings and other works of art with an American connection was marked. For instance, a half-length

portrait of George Washington was sold in October for £997 10*s*. The paintings which had belonged to Lord Lothian, former British ambassador in Washington, contained no Americana, the most important work among them being by Jean-Honoré Fragonard. One of the most interesting price-reversals of the year concerned a painting by Melchior d'Hondecoeter (Dutch school, 1636-95) which in 1894 had cost £1,575 but in Oct. 1951 brought in only £399. In Christie's last sale of the year, on Dec. 21, 1,700 guineas was paid for a W. Van de Velde seascape, " The Evening Gun "; a Raeburn portrait " Colonel Thomas Balfore, of Elwick " (ex collection D. Balfour) and another Marshall also changed hands.

Sir Philip Hendy, the director of the National Gallery, London, complained at some length in *Britain Today* about the drain of works of art away from Great Britain but in *The Economist* Denys Sutton, a well-known art critic, put forward, very persuasively, the opposite view that in the free export and import of works of art a kind of rough justice was eventually established. In this connection it is worth noting that one of the more interesting features of art sales during the previous few years had been a tendency for Italian works of art to find their way back to their own country after a century or so of exile.

Christie's received a permit to rebuild their premises in King street, St. James's, London, which had been destroyed in an air raid in 1941.

In Paris the Hôtel Drouot celebrated its centenary with a year of prodigious activity in which probably the most important sale was that of the Schloss collection of old masters. There was a general increase of from 25% to 50% on the previous season's prices for works by contemporary masters. Paul Cézanne's paintings were fetching upwards of Fr. 2·5 million, those of Henri Matisse about Fr. 1 million.

Porcelain was as popular as ever; at Sotheby's in June a pair of Chelsea figures of partridges, which in 1949 had been sold for a little over £500, more than doubled in value. An unrecorded Chelsea white owl sold at Sotheby's on July 20 for £3,400, and in October £1,050 was paid for a rabbit soup tureen of the same origin. French furniture continued to fetch high prices and the collection of A. E. H. Digby realized £14,742 on June 22. Old English furniture was also popular; a pair of Sheraton rosewood commodes brought in £1,155 and a mahogany writing desk by William Kent was sold for £483.

A sale of literary and associative interest rather than artistic importance, but conveniently dealt with here, took place at Sotheby's on Dec. 17. A battered copper loop-type hunting horn, once used by John Peel, was bought by W. N. Johns-Powell of Cardiff for £600, after an opening bid of £100. (*See* also ART EXHIBITIONS.) (B. DR.)

ARTS COUNCIL OF GREAT BRITAIN. In 1951, in addition to its normal work, the Arts Council was responsible for ensuring that the arts were appropriately represented in the programme of the Festival of Britain (*q.v.*). This entailed a nation-wide operation, consisting of a London season of the arts, arts festivals at 22 specially chosen centres in Great Britain and festival activities in many other places.

The London season took place in May and June, when a formidable concentration of concerts, plays and exhibitions was staged in the metropolis. With the help of the leading musical organizations, the Arts Council arranged nearly 300 concerts in London concert halls and churches. Special opera and ballet seasons were held at the Royal Opera house, Covent Garden, and at Sadler's Wells theatre. The annual opera festival at Glyndebourne, Sussex, took place and the English Opera group appeared at the Lyric theatre, Hammersmith. Many theatre managements, including the Old Vic, put on festival productions, Shakespeare and Shaw being particularly well represented. Eleven exhibitions of painting and sculpture were arranged by the council specially for the London season.

The 22 arts festivals throughout the country with which the council was associated ranged from a long-established festival such as the Three Choirs (Worcester) to an entirely new festival at York, and from the large-scale international festival at Edinburgh to the small intimate one at Aldeburgh, Suffolk. Each was successful in developing or consolidating its own individual type of programme and presenting the arts in a unique and attractive setting; there were excellent attendances everywhere.

The Arts Council took the opportunity afforded by the Festival of Britain of placing various commissions. Operas and ballets were commissioned for the leading companies. There were competitive schemes for operas and for poetry in English, Scots, Gaelic and Welsh, the English prize-winning poems subsequently being published (see below). Twelve sculpture commissions were placed, of which several were shown at the South Bank exhibition, and 60 painters were invited to paint large canvases. These were exhibited, and the council purchased eight of them. A number of composers accepted invitations to write new works, all of which were performed during the festival. (E. W. WTE.)

See Arts Council of Great Britain, *Sixth Annual Report, 1950-51* (London, 1951); *Poems 1951*, the prize-winning poems in English at the Arts Council Festival of Britain poetry competition (Penguin Books, London, 1951).

ARUBA: *see* NETHERLANDS OVERSEAS TERRITORIES.

ASCENSION ISLAND: *see* SAINT HELENA.

ASSASSINATIONS. Assassinations during 1951 included the following:

Jan. 4. Penang, Malaya. Cheoh Hai-leng, correspondent of the Chinese Central News agency and manager of an advertising bureau, was shot dead in his office by an unknown assassin, who escaped.

Jan. 12. Saigon, southern Vietnam, Indochina. Henri de la Chevrotière, editor of the newspaper *Union Française*, was killed by grenades thrown by two terrorists.

March 2. Nablus district, Jordan. Khaled Husseini, district organizer for the United Nations relief works agency, was shot by unknown gunmen while travelling in his car.

March 7. Tehran, Persia. General Ali Razmara, the Persian prime minister, was killed outside the Maschede Soltaneh mosque by four shots fired by Abdollah Rastigar, a member of the fanatical Fadayan Islam group.

March 19. Tehran, Persia. Abdol-Hamid Zamganeh, former Persian minister of education and a close friend of General Razmara, was shot on the steps of Tehran university; he died in hospital on March 25. A divinity student of the university, Nusratollah Abdol-Hossein Kumi, believed to be a member of Fadayan Islam, was arrested after the shooting.

May 11. Dalat, southern Vietnam, Indochina. M. Haaz, head of the French security services at Dalat, was assassinated by a member of the Vietminh.

July 16. Amman, Jordan. Riad es-Sulh, prime minister of Lebanon, 1943-45 and 1947-50, was killed while travelling in his car by three bullets fired from automatic weapons; of his assassins, a Palestinian and a Lebanese both believed to belong to the Syrian Nationalist party, one was killed by guards and the other shot himself.

July 20. Jordanian sector of Jerusalem. King Abdullah of Jordan was shot dead while entering the El-Aqsa mosque; the assassin, who was killed by the bodyguard, was Mustafa Shukri Ashu, a member of the " Holy War " organization which fought the Jews in Palestine, 1948-49. Musa Abdullah

el-Husseini (a cousin of the ex-mufti of Jerusalem), Abdel Kadir Farahat and the brothers Abed Mahmud and Zakaria Mahmud Okka were executed at Amman on Sept. 4 for direct complicity in the murder; the ringleaders, Colonel Abdullah el-Tel and Musa Ahmed el-Ayubi, had escaped to Cairo. The Husseini, a prominent Jerusalem family other members of which were arrested in connection with the assassination, were leaders of the " Holy War " organization.

July 31. Sadec, southern Vietnam, Indochina. The governor of southern Vietnam, Thai Lap Thanh, and General Charles M. F. Chanson, French commissioner and commander of French Union forces in the province, were killed by a Vietminh " death volunteer "; the assassin set off two hand grenades in his own trouser pockets and was also killed instantly.

Sept. 1. Sadec, southern Vietnam, Indochina. Vietminh agents killed Ho Van Frao, leader of an important youth organization and owner of a printing and publishing house at Sadec.

Oct. 6. Kuala Kubu-Pahang road, near Fraser's Hill, Malaya. Sir Henry Gurney, high commissioner for the Federation of Malaya, was ambushed and shot dead by Communist terrorists.

Oct. 16. Rawalpindi, Punjab, Pakistan. While addressing a public meeting Liaquat Ali Khan, the prime minister of Pakistan, was shot dead by Syed Akbar, a member of the quasi-fascist Moslem Khaksar organization.

Oct. 30. Pnom-Penh, Cambodia, Indochina. Jean de Raymond, French commissioner in Cambodia, was stabbed to death in his sleep by his Vietnamese houseboy.

Nov. 29. Bremen, Germany. Adolf Wolfard, editor of the *Bremer Nachrichten*, was killed in his office by a parcel-bomb, believed to have been posted by a neo-Nazi at Verden.

Dec. 29. Near Hyderabad, India. Maniklal Gupta, a member of the Indian parliament, was shot dead by an unknown assassin.

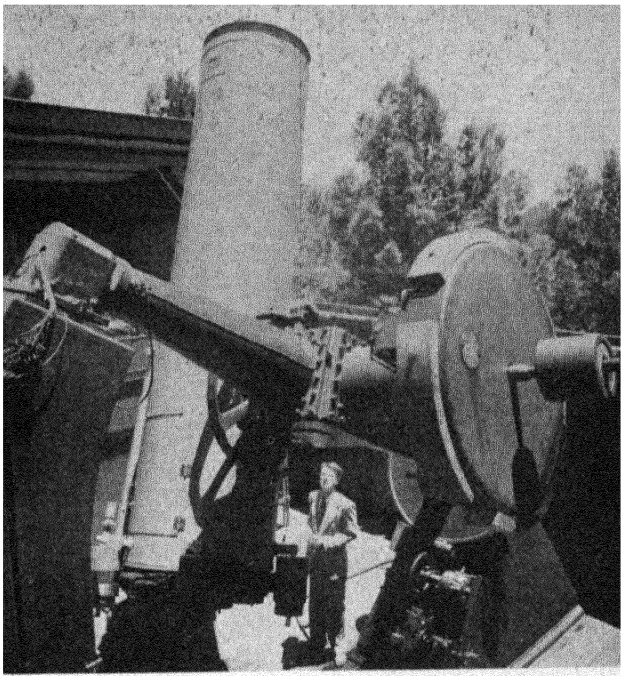
ASSOCIATION FOOTBALL: *see* FOOTBALL.

ASTRONOMY.

Instruments. The year 1951 was noteworthy for the variety of new instruments being brought into operation. The Armagh-Dunsink-Harvard 36-in. " Baker-Schmidt " telescope, operated jointly by the three observatories named and installed at the Harvard station, Bloemfontein, South Africa, was reported as giving high performance. Its photographic plate covered about 18 square degrees of the sky, giving detail hitherto unattainable for such a large field by any telescope in the southern hemisphere. Its first programme was to secure stellar magnitude standards in selected areas of the southern sky. An objective prism for the instrument was being completed and was to be the largest in the world. The largest telescope in that hemisphere was still the 74-in. reflector of the Radcliffe observatory, Pretoria, and its spectrograph was installed in 1951. The mounting of a similar telescope, under construction for the Mt. Stromlo observatory, Australia, was shown at the Festival of Britain exhibition.

The first of the new " super-Schmidt " meteor cameras to be constructed was installed at the Harvard station in New Mexico. It was estimated that it would record some 40 times as many meteors as any previous meteor camera. Comparison of observations made by it and by other similar instruments to be located elsewhere would give details of the meteor trajectories.

A new chromospheric telescope for the Pulkovo observatory, U.S.S.R., was described. A branch of the Rome observatory at Monte Mario (7,000 ft.) in the central Appennines was nearly complete and observations were begun with a coronagraph. The main instrument was to be a 36-in. Schmidt telescope.



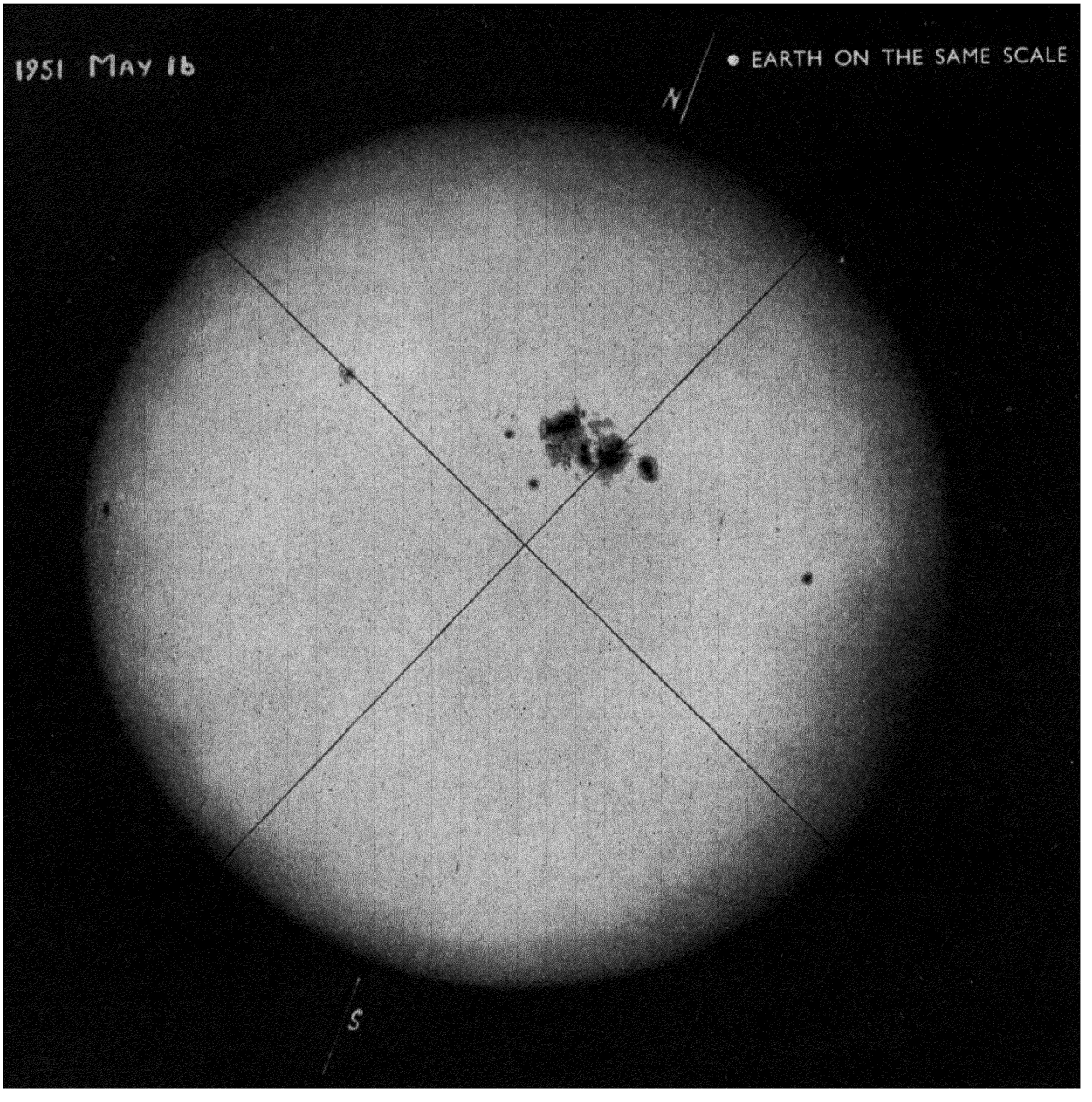
The A.-D.-H. Baker-Schmidt telescope which in 1951 was installed at the Harvard station, Bloemfontein, South Africa.

The solar corona was observed for the first time without a total eclipse of the Sun in 1930 by B. Lyot using his newly invented coronagraph. In subsequent years Lyot greatly improved his techniques, especially by using the new interference filters developed by himself and others. Until 1950, however, the observations still required very favourable atmospheric conditions to be found only at great heights above sea level. Some details were published of a method by which Lyot then succeeded in overcoming this handicap. It consisted in using filters, which would transmit in a wavelength interval of only about one angstrom unit, to compare the radiation intensity outside the solar limb at the wavelength of the green coronal emission line with that at wavelengths a few angstrom units on either side of this line. The excess at the line was, of course, due to the corona itself, and could be measured at normally situated observatories.

Remarkable astronomical photographs were published which had been taken with a camera of novel type designed by L. G. Henyey and J. L. Greenstein and constructed at the Yerkes observatory, Wisconsin, U.S. This instrument covered the astonishing field angle of 140° with fine definition. The light was gathered by a concave mirror of large curvature and the curvature of the image was compensated by a camera lens of novel design. The photographs were like naked-eye views of the sky. They were specially adapted to the study of large areas of diffuse luminosity and the first application was to the difficult task of recording the " counter-glow." Excellent pictures of aurorae were also obtained.

This instrument also produced photographs of hydrogen emission regions of interstellar matter, and it is interesting to note that filters of the type used by Lyot were also being used in the direct photography of these regions. Thus new techniques were beginning to yield much-needed additional observational results on this fundamental subject of interstellar material.

Solar System. A huge recalculation of the motions of the five outer planets was reported from the United States. It was organized by Dirk Brouwer (Yale University observatory) and G. M. Clemence (U.S. Naval observatory) and the bulk of the computation, necessitating over 12 million



The giant spot that crossed the sun's disk from May 9-22, 1951. The spot was the third largest in the records of the Royal Greenwich observatory since 1874.

arithmetical operations, was done by the selective sequence electronic calculator of International Business Machines, New York, under the direction of W. J. Eckert. This machine made it possible to use a method, that of "special perturbations," which it had previously been practicable to apply only to simpler problems and in a less accurate form. The paths of all five planets were traced out for the years A.D. 1653 to 2060 and gave immensely improved agreement with observed positions as compared with previous methods. So far as these planets were concerned, this work was expected to supply the needs of nautical almanacs for the next 100 years.

Following its discovery in 1949 by G. P. Kuiper, Neptune's second satellite Nereid had been observed by G. van Biesbroeck. Its orbit was found to have greater eccentricity than that of any other known satellite in the Solar system, the distance from Neptune varying between 830,000 and 6,100,000 mi. The provisionally deduced mass of Neptune was some 3% greater than the value from the inner satellite.

As for many years past, work on cosmic rays was vigorously pursued. However, despite much theoretical investigation, no considerable progress appeared to be made concerning the astronomical origin of the primary cosmic rays entering the Earth's atmosphere from outside. The difficulty was still the relatively small amount of direct observational information about the "primaries" (most observations being of "secondaries" produced in the atmosphere). Therefore much interest attended the results obtained by workers from the Universities of Minnesota and Rochester, U.S., by sending balloons with recording apparatus to heights of about 100,000 ft. At the latitude of Minnesota, they found the main constituents of the primary rays entering the top of

the atmosphere per sq. cm. per hr. to be about 4,000 protons, 500-1,000 α-particles, 20 carbon nuclei and one iron nucleus. But they concluded that the nuclei of all elements up to atomic number about 40 are present and that their relative abundances are about the same as in solar and planetary material. The energies of the nuclei appeared to be roughly proportional to their positive electric charge and some nuclei had estimated energies exceeding 2×10^{10} ev. In 1947 C. A. Bauer had proposed a different way of obtaining such information: he remarked that meteorites before reaching the Earth must have been exposed to the primary cosmic rays which would be expected to produce induced radioactivity in the meteoric matter. H. Stücklen published an investigation which appeared definitely to confirm this effect. However, it appeared that such an investigation would need to be done on freshly fallen meteoric material in order to give results of quantitative value.

Stars. Among long-term programmes of observation and collation of results that were proceeding with accustomed vigour may be mentioned the work on radial velocities done at Mt. Wilson, California, U.S., with other American observatories collaborating, and at Simeis, Crimea, U.S.S.R.; that on bright-line stars at Mt. Wilson and at Bloemfontein, South Africa, under the auspices of the University of Michigan: and that on variable stars particularly by the Soviet astronomers.

E. M. Lindsay published from Armagh observatory, Northern Ireland, a study of the distribution of stars brighter than photographic magnitude 14 in the southern Milky Way. The star counts were made from plates taken at the Harvard station in South Africa. Among other purposes, such studies are important for giving information about the distribution of obscuring material in interstellar space. While Lindsay's work showed the expected general concentration of obscuration towards the galactic plane, it showed also some clear regions surprisingly near that plane. Why the distribution of the material should be such as to permit the existence of these " windows," which astronomers had recognized for some time, was still unexplained.

Radio Astronomy. The work of M. Ryle and his colleagues at Cambridge, England, was a notable example of the new and more systematic study of " radio stars "; *i.e.*, discrete sources of radio waves in the heavens. They had developed a radio interferometer whose use gave greatly improved resolving power for the detection and location of these " stars." In 1951 they published a preliminary survey of such " stars " in the northern hemisphere. This comprised 50 " stars," and these did not show a concentration towards the galactic plane as the general background radio radiation from the Galaxy had been observed to do. Therefore the 50 " stars " were presumably either the nearer members of an aggregate within the Galaxy or objects outside the Galaxy. These observers favoured the former interpretation and concluded that the majority of the " stars " were a hitherto unobserved type of stellar body about as abundant as ordinary stars. Generally similar observational results were obtained by Australian workers for " stars " in the southern hemisphere.

Late in 1950 R. H. Brown and C. Hazard of the Jodrell Bank station of Manchester university had announced the measurement of radio radiation (about 2 m. wavelength) almost certainly originating in the Great Andromeda nebula; *i.e.*, in a galaxy outside the Milky Way. In 1951 the Cambridge observers confirmed such a result for four conspicuous external galaxies including the Andromeda nebula. The measured intensities were about what would be obtained if each of these galaxies gave the same absolute emission as the whole Milky Way.

The most important constituent of interstellar matter is neutral atomic hydrogen in its ground state. Astronomers had known this for some years from various lines of inference but had no means of directly observing the hydrogen in this state. Following a theoretical prediction by H. C. van de Hulst, a remarkable success of radio astronomy was to provide a means. Quantum theory shows that hydrogen has two ground states with an energy separation corresponding to radiation of 21 cm. wavelength. Though the interstellar matter was believed to comprise on the average only about one atom per cu. cm. capable of emitting a quantum of this radiation about once in 10 million years, it was calculated that the total resulting intensity could be detected by radio methods. This was verified by observers at Harvard university and in Australia. But more extensive work was done by C. A. Muller and J. H. Oort at Kootwijk, Holland. Developments of this were expected to give new information about the distribution of interstellar gas and also about the structure of the central region of the Galaxy.

External Galaxies. As observations accumulate, the study of any class of astronomical objects has always revealed an ever-increasing variety of properties. Current work on external galaxies was a notable illustration of this. Investigations reported by H. Shapley, Harvard, U.S., and preliminary inspection of results coming from the new equipment at Mt. Palomar, California, U.S., showed a greater range in size of individual galaxies and a greater variety of composition of " groups," " clusters " and " clouds " of galaxies than had been known before. M. Humason with the 200-in. telescope at Mt. Palomar measured the speeds of recession of three very remote clusters, obtaining values of about one-fifth the speed of light. (W. H. McC.)

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ATHLETICS. The season of 1951 was not so productive of new world records as other postwar seasons. Not a single men's world record for a standard Olympic event was broken. E. McD. Bailey (Great Britain), however, added his name to those of four Americans who share the best 100 m. time of 10·2 sec. and the general level of performance throughout the world rose markedly.

Several records in the more rarely contested events were improved. Apart from the prodigies performed by the Czech distance runner E. Zatopek, new figures were, curiously enough, the exclusive preserve of British and Soviet athletes. The absence of an American from among the new world record holders was significant, for the United States had long been regarded as the training ground for the best athletes. Nevertheless, the clearance by four U.S. athletes of 6 ft. 9 in. in the high jump during the year and the existence of six U.S. javelin throwers capable of distances of 225 ft., and three pole vaulters who have scaled 15 ft., represented an overall excellence never before attained. On the other hand, the gap of a foot between the 25 ft. 9 in. and the 24 ft. 9 in. of the season's third- and fourth-best long jumpers demonstrates how far competitors in 1951 fell short of the standards achieved at Berlin in 1936 in this particular event.

Nationally, the improvement of the U.S.S.R., Germany and Yugoslavia was most striking. The first U.S. team to tour Japan since the war met evidence of a revival there too. France and Sweden suffered heavy defeats in their international fixtures. Finland, host in 1952 for the 15th Olympic Games, showed a timely return to something of its former greatness.

The improvement of Great Britain, with new national records in 11 different events, continued, although its standards in long jumping and discus throwing remained obstinately low. It was becoming increasingly clear that the

only direction in which its international fixtures could be extended was to Germany and the U.S.S.R.

Women's athletics made little further headway in those countries, such as Sweden and the U.S., where they had never been fully accepted. In France, Italy and Holland there was little of note but great progress was made in the U.S.S.R. as a result of mass physical culture programmes. Russia continued to dominate the long distance and throwing events and Commonwealth countries consolidated their superiority in the sprint races.

In 1951 the Asian Games were held at New Delhi, the Mediterranean Games at Alexandria and the Pan-American Games (see below) at Buenos Aires. All these regional gatherings were inaugural and showed the continued increase of international competitions. The standard of performances at the Asian Games, which were won by Japan, was low and teams of French and U.S. athletes respectively tended to dominate the other two meetings.

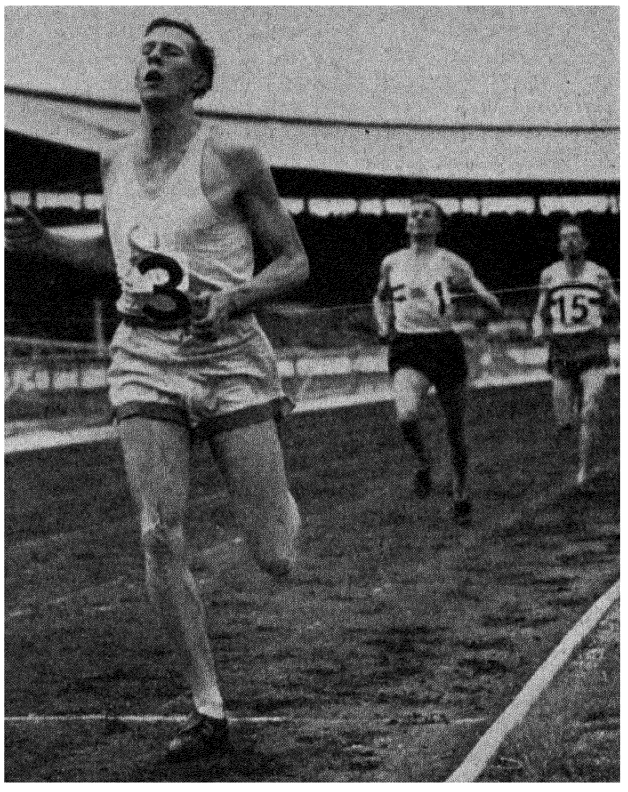
In Great Britain the 1950-51 cross country season closed with an English victory over France and Belgium over a waterlogged course at Caerleon in South Wales. Oxford defeated Cambridge for the fourth successive year and their combined forces regained the Kinnaird trophy and also handsomely defeated (for the fourth time since 1935) the U.S. universities of Harvard and Yale in their 52-year-old series of matches.

The 62nd Amateur Athletic association championships were attended by a record crowd of 44,000. Among the most notable of many great performances were a half-mile by the Jamaican A. S. Wint in 1 min. 49·6 sec. and a mile by R. G. Bannister in 4 min 7·8 sec. Both these performances were the best recorded anywhere in the world during the 1951 season. (N. McW.)

United States. Bob Richards, Illinois Athletic club, won the pole vault with 15 ft. 4¾ in. in the *Chicago Daily News* meet. Three times in outdoor contests Richards achieved 15 ft. or more and added to his laurels by capturing the national decathlon championship with 7,834 points.

Jim Fuchs, New York Athletic club, pushed his indoor shot-put mark up to 58 ft. 3½ in. Although he retained his championship indoors, Fuchs was dethroned in the national Amateur Athletic union outdoor games at Los Angeles when Parry O'Brien of the Los Angeles Athletic club put the shot 55 ft. 9¼ in.

Fred Wilt, New York Athletic club, was the nation's leading distance runner and ended the long string of mile victories by Don Gehrmann when he won by six yards in 4 min. 8·4 sec. in New York, March 3. On April 28, however, at Philadelphia, Roger Bannister of England defeated both Wilt and Gehrmann in the Benjamin Franklin mile in 4 min. 8·3 sec. Wilt was also timed at 8 min. 54·5 sec. for the fastest two miles ever covered by an American and won the national A.A.U. indoor mile and the outdoor 5,000-m. titles.



Roger Bannister winning the one mile A.A.A. championship at White City in July 1951 from G. W. Nankeville (No. 1) and H. Parlett (No. 15). His time of 4 min. 7·8 sec. beat the previous record by 1 sec.

Roscoe Browne, Pioneer club of New York, who won the A.A.U. 1,000-yd. championship, returned the fastest time of the year, 1 min. 49·3 sec., for 800 m. in an overseas meet, and ran 1,000 m. in 2 min. 25·2 sec. Mal Whitfield gained his third straight title in the A.A.U. 800-m. race when he defeated Browne.

Jim Golliday, Northwestern university, George Brown, University of California, and J. Lewis Hall, University of Florida, were among the newcomers to sparkle. Golliday reached the heights in the United States outdoor games at Los Angeles when he tied for the championship record of 10·3 sec. for 100 m. With Andy Stanfield of Seton Hall slowed by injury, Golliday gained distinction as the season's top sprinter. Stanfield, however, remained a star performer, winning the A.A.U. indoor long jump and the Intercollegiate A.A.A.A. 100-yd. and 220-yd. outdoors and 60-yd. sprint and long jump indoors.

Pan-American Sports Congress. This was held at Buenos Aires, from Feb. 25-March 9. The U.S. track-and-field team

BRITISH ATHLETIC PERFORMANCES, 1939 AND 1951

Event	Best Performance		Tenth Best Performance	
	1939	1951	1939	1951
100 yd.	9·7 sec.	9·4 sec.	10·1 sec.	10·0 sec.
220 yd.	21·8 sec.	21·0 sec.	22·2 sec.	22·2 sec.
440 yd.	47·6 sec.	47·2 sec.	50·4 sec.	49·3 sec.
880 yd.	1 min. 52·1 sec.	1 min. 49·6 sec.	1 min. 57·0 sec.	1 min. 54·8 sec.
One mile	4 min. 7·4 sec.	4 min. 7·2 sec.	4 min. 21·6 sec.	4 min. 14·8 sec.
Three miles	14 min. 8·0 sec.	14 min. 2·6 sec.	14 min. 38·0 sec.	14 min. 15·4 sec.
120 yd. hurdles	14·7 sec.	14·8 sec.	15·9 sec.	15·3 sec.
440 yd. hurdles	55·4 sec.	53·6 sec.	59·2 sec.	56·7 sec.
High jump	6 ft. 2¾ in.	6 ft. 6 in.	5 ft. 11 in.	6 ft. 1½ in.
Pole vault	12 ft. 7 in.	13 ft. 6 in.	11 ft. 3 in.	11 ft. 6 in.
Long jump	23 ft. 10½ in.	24 ft. 0¼ in.	23 ft. 0½ in.	22 ft. 9 in.
Hop, step and jump	47 ft. 3 in.	48 ft. 6 in.	44 ft. 1¾ in.	44 ft. 11 in.
Shot-put	46 ft. 1¾ in.	54 ft. 5 in.	42 ft. 0½ in.	44 ft. 0½ in.
Discus	144 ft. 6 in.	155 ft. 3 in.	127 ft. 0 in.	134 ft. 10 in.
Hammer	165 ft. 7½ in.	180 ft. 8 in.	133 ft. 7¼ in.	149 ft. 6 in.
Javelin	202 ft. 2¾ in.	206 ft. 5½ in.	166 ft. 10 in.	183 ft. 6 in.

of 128 scored a decisive triumph. The men scored an unofficial 250 points as against Argentina's 192 points, while U.S. women just managed to defeat Chile for the team award by 75-73. (T. V. H.)

See R. and N. McWhirter, *Get to Your Marks* (London, 1951); Achilles Club, *Athletics* (London, 1951).

ATOMIC ENERGY. While a considerable amount of information on the scientific and civilian aspects of atomic energy was published in western countries during 1951, various official and semi-official pronouncements made it clear that much the greatest effort in this field was being directed towards the development of military weapons. In the United States atomic artillery shells of various calibres were said to be in production as well as atomic bombs, and work on thermonuclear explosives (the hydrogen bomb) continued. Contracts were announced for the construction of an atomic-powered submarine and (as a longer-term project) an atomic-powered aircraft. Following an announcement by President Harry S. Truman on Oct. 3 that a second atomic bomb had recently been exploded in the Soviet Union, Joseph V. Stalin gave an interview to *Pravda* on Oct. 6 in which he said that " tests of atom bombs of different calibres will be conducted in the future as well in accordance with the plans for the defence of our country." Attempts towards establishing international control of atomic energy through the United Nations were continued in a U.S. proposal that a commission should be established under the Security council to deal with the control of both atomic and conventional armaments. However, Stalin described the U.S. proposals for control as a " mockery," because they envisaged limitation rather than total prohibition. The deadlock, and the accelerated arms race, seemed likely to continue. On Oct. 22 the White House announced that another atomic explosion had taken place in the U.S.S.R.

International. At a U.N.E.S.C.O. conference in May scientists of Great Britain, France, Italy, Switzerland, Belgium, the Netherlands, Sweden and Norway met to discuss the possibility of building a European regional laboratory for nuclear physics. The main piece of equipment would be a circular accelerator (cosmotron) to give particles of energy several thousand million electron-volts. It was agreed to prepare definite plans for submission to the governments concerned. The object of the proposals was to promote international scientific co-operation by providing a centre where fundamental work on high-energy physics could be pursued by scientists from all nations.

Great Britain. Prospects for using atomic energy as a source of industrial power were reviewed in a report of the Advisory Council on Scientific Policy. It was expected that at least a generation would pass before atomic power stations could contribute substantially to Britain's power resources. Nevertheless there was a reasonable prospect that atomic energy could be developed on a large scale, and that costs would not in the end differ widely from those of power from coal.

The technical problems to be solved were outlined by Sir John Cockroft (*q.v.*), director of the British Atomic Energy Research establishment at Harwell, England, in a lecture delivered in Copenhagen in April. They included: (1) operation of atomic piles at sufficiently high temperatures for thermodynamic efficiency, (2) heat transfer from the pile to the power unit, (3) mechanical design to allow for changing of the fuel elements, (4) maintenance of the heat transfer system despite the intense radioactivity, (5) disposal of radioactive waste products. Cockcroft expected that development would begin with small-scale pilot plants using uranium enriched in the isotope U^{235}. This might lead to mobile power units (*e.g.*, for submarine or aircraft propulsion as indicated above), but the expense of the enriched uranium would be prohibitive at first from a commercial point of view. Natural uranium reactors would possibly provide electrical power at a cost similar to that from coal, but the efficiency of utilization of the uranium would be only about 1%. Full utilization of the uranium might become possible with the development of " breeder " reactors. These would require highly enriched uranium or plutonium as the primary fuel, but would be able to convert all the U^{238} in natural uranium into fissile material and so increase the supply of nuclear fuel by a factor of a 100.

Technical details of " Bepo " (British Experimental Pile), the larger of the two experimental piles at Harwell, were released by the Ministry of Supply in April. " Bepo " was described as a graphite-moderated and air-cooled pile containing up to 40 tons of uranium and with a maximum thermal neutron flux of 10^{12} neutrons/cm.^{2}/sec. " Bepo " had been used for pure research, for studies of the effects of radiations on structural materials and for production of the radioactive isotopes used in medicine and industry. In the first six months of the year 961 consignments of isotopes were exported as compared with 483 in the corresponding period of 1950. A conference in Oxford on isotope techniques was attended by medical and industrial scientists from Great Britain and the continent, and regular courses at graduate level were instituted at the Isotope school at Harwell.

The Ministry of Supply confirmed that the United Kingdom was proceeding with the development of atomic weapons, and promised a further statement before any tests were carried out. A Civil Defence Tactical study was opened by the parliamentary under secretary to the Home Office on July 10, and civil defence problems were also touched upon at the Building Research conference in London during September.

Strong criticism of the slowness with which atomic weapons were being developed in the United Kingdom was voiced in a House of Lords debate on July 5. Lord Cherwell called on the government " to transfer work on this subject from the Ministry of Supply to a special organization, more flexible than the normal civil service system, under the direct control of the head of the government." He considered the existing arrangements to be unsatisfactory because of the delays in the administrative machinery and the inadequacy of the security precautions.

Commonwealth. Reports from the Commonwealth referred to intensive mining activity for uranium and thorium in Canada, South Africa, South Australia and Ceylon. In Canada plans were announced for the construction of another heavy water pile at Chalk river.

Europe. In Europe, the Norwegian-Netherlands reactor at Kjeller, near Oslo, began operation on July 30. The seven tons of heavy water for the pile were supplied by Norway, the three tons of uranium by the Netherlands. The pile was built to provide a supply of isotopes for the Scandinavian countries, the Netherlands and Belgium. Work continued on the building of a second (heavy water) reactor at Saclay, near Paris, France, and of a low-energy reactor at Stockholm, Sweden. The largest nuclear fission apparatus in continental Europe was the synchrocyclotron put into operation in Amsterdam in 1951 by the Netherlands Atomic Energy commission. Though its voltage was only 30 million electron-volts, it had the highest current rating of any cyclotron in existence, from 20 to 40 micro-amperes. (H. R. A.)

Argentina. On March 24, 1951, President Juan D. Perón announced that a process employing a thermonuclear reaction for the controlled release of atomic energy had been perfected by Argentine scientists under the direction of Ronald Richter, Austrian-born director of the Argentine atomic energy project. The announcement was greeted with extreme scepticism by scientists in the United States and Europe.

United States. Four series of atomic test explosions were

staged by the United States in 1951. The first series took place at Frenchman's Flat, part of the air force bombing and gunnery range on a 5,000-sq.mi. tract of land about 75 mi. from Las Vegas, Nevada. Five atomic explosions were set off on Jan. 27 and 28 and Feb. 1, 2 and 6. The second explosion seemed to be three times as powerful as the first; the dazzling flash and the thunderous noise were observed 200 mi. away in Arizona, southwestern Utah and southeastern California. The fifth explosion was the largest of the group. The flash was seen 250 mi. south of the Mexican border, a distance of 500 mi. from Las Vegas. It was believed that the five explosions were preliminary tests of tactical atomic bombs.

The second series of tests—operation " Greenhouse "—was held at the Eniwetok proving grounds in the Marshall Islands in April and May. It was believed that four bombs—apparently several times more powerful than those exploded over Hiroshima and Nagasaki—were set off; there was speculation about the possibility that an atomic bomb had been exploded in conjunction with hydrogen isotopes to test the ability of an atomic bomb to " trigger " the thermonuclear reaction required for a hydrogen bomb.

The tenth semi-annual report of the Atomic Energy commission revealed that the Eniwetok tests demonstrated that lingering radioactivity after an air burst need not delay rescue and recovery work. After explosions, many scientists and technicians promptly returned to the test sites for sufficient periods to recover instruments and specimens. Anaesthetized mice, dogs and pigs had been exposed to the explosions.

The third series of tests took place at Yucca Flat, east of Frenchman's Flat, Nevada, in October and the first week of November. Five explosions were set off. It was believed that they were the final tests of revolutionary new tactical atomic weapons originally tried out in the first series of explosions of the year. The second explosion of this series was that of a bomb dropped from an aeroplane (Oct. 28) which observers believed to be a test of a small " air-to-ground " atomic bomb for use against ground troops. The third explosion (Oct. 30) was also that of a bomb dropped from an aeroplane. It exploded at about 1,000 ft. with a dazzling flash and the formation of a fireball. The blast was seen 270 mi. away and observers agreed that it was several times bigger and brighter than the previous explosion. The general opinion was that this was a compact, tactical bomb with the explosive violence of the strategic bomb set off at Bikini. The fifth explosion (Nov. 5) was the most powerful of the series.

The 1951 tests came to an end with a fourth series consisting of two nuclear explosions at Frenchman's Flat on Nov. 19 and 29. The final explosion was believed to have been an underground detonation, the first of its kind ever attempted.

Exercise " Desert Rock "—the first simulated atomic warfare manoeuvre in history—was held at Yucca Flat on Nov. 1 in conjunction with the explosion of the fourth bomb in the third series of tests. About 5,000 officers and men of the army, navy and air force took part or were present as observers. The chief participant was a reinforced battalion combat team of about 1,000 men, who set up simulated battlefield positions of a normal type with foxholes, barbed wire entanglements, etc. They then withdrew, leaving behind, however, equipment, scientific measuring instruments and a number of anaesthetized sheep, dogs and rats. The entire armed force contingent, as well as about 2,000 other observers, including congressmen, government officials and scientists, took up their stations at positions from six to ten miles from the " battlefield."

The bomb, dropped from an aeroplane, exploded at an estimated altitude of 1,000 ft. After the explosion, the combat team returned to its " battlefield " positions to examine the damage that had been done to exposed equipment and the anaesthetized animals.

U.S. and Soviet Atomic Strength. It was difficult to evaluate the comparative atomic strengths of the United States and the U.S.S.R. during 1951 because neither had disclosed the essential information for such a comparison. It was generally assumed that the U.S. had a stockpile of about 1,000 strategic atomic bombs, while the U.S.S.R. was believed to have less than 50. The most formidable U.S. bomb was certainly more than two and a half times as powerful as the bomb exploded at Nagasaki; indeed it might be as much as six times as powerful. Although the United States had not yet achieved a hydrogen bomb, it was assumed that the Atomic Energy commission was satisfied that one could be built.

The expanded atomic energy programme embarked upon by the United States in 1950, following the announcement of the first atomic explosion in the U.S.S.R., was further enlarged in 1951. Congress appropriated more than $2,000 million for the U.S. Atomic Energy commission in the fiscal year 1951. Nearly three-quarters of this was spent on construction and equipment.

The Atomic Energy commission increased its supplies of raw material and its output of fissionable material during the year. Deliveries of uranium concentrates from the Belgian Congo and from Canada continued at scheduled rates. Domestic production increased to the point where the United States became second among the free nations in the mining and processing of uranium ores. The commission expanded its programme of exploration of possible ore reserves in the United States. Progress was made during 1951 on two new important production plants. One was the plant at Paducah, Kentucky, for the separation of uranium 235 from ordinary uranium by the gaseous diffusion process. The other, which would be capable of producing either fissionable materials or hydrogen isotopes, was at Savannah river, near Augusta, Georgia.

Atomic Propulsion. On Aug. 21, 1951, the U.S. navy's bureau of ships announced that a contract for the first atomic-powered submarine had been given to the Electric Boat company of Groton, Connecticut. Subsequently a contract for the driving mechanisms of the submarine was awarded to the Westinghouse Electric corporation. It was



A demonstration of a remote-handling device to students of the atomic energy school at the Atomic Energy Research establishment, Harwell, Berkshire, in April 1951.

believed that this company would also be commissioned to build the nuclear power plant for the submarine although both Westinghouse and the General Electric company had been working on the design of suitable nuclear reactors.

The U.S. air force announced on Sept. 5, 1951, that it had awarded a contract for the development of an atomic-powered aeroplane to the Consolidated Vultee Aircraft corporation, of San Diego, California. The General Electric company, it was announced, was working on the design of a nuclear power plant for such a plane. The problem was to design a plane capable of carrying the considerable weight of a nuclear reactor with its necessary shielding to protect the crew from radioactivity.

The United States Programme. Speaking in the Senate on Sept. 18, 1951, Senator Brien McMahon, chairman of the Congressional Joint Committee on Atomic Energy, proposed a vast expansion of the nation's atomic energy programme, increasing expenditure to $6,000 million a year. He insisted that with mass-production methods it would be possible to manufacture an atomic bomb for the current cost of a tank. He called for the creation of "an atomic army and an atomic navy and an atomic air force."

Speaking in Los Angeles on Oct. 5, Gordon Dean, chairman of the Atomic Energy commission, made the first positive statement that the United States possessed tactical atomic weapons and that the time had arrived for considering their use on the battlefield. He stated that the weapons called for a revolutionary change in concepts of warfare and that their use against troops in the field, unlike the strategic bombing of cities, involved no greater moral considerations than the use of conventional battlefield weapons.

The Congressional Joint Committee on Atomic Energy unanimously adopted a resolution on Oct. 17 calling on the Department of Defence and the Atomic Energy commission to prepare by Jan. 3, 1952, a detailed programme for the maximum expansion of the role of atomic energy in national defence.

A report issued on Oct. 19 by the Congressional Joint Committee on Atomic Energy, under the title of "Development and Control of Atomic Energy," revealed that the experimental breeder reactor had been put into operation at the reactor testing station at Arco, Idaho. It was hoped that this reactor would create more atomic fuel than it consumed. The reactor used enriched uranium as fuel and a blanket of natural uranium around the core as the "fertile" area in which breeding could take place. Other reactors under construction at Arco included a materials testing reactor and a land-based prototype of a reactor for submarine propulsion. Long-range experiments included the design of a homogeneous reactor in which the atomic fuel was mixed with the moderating material in a liquid.

In June 1951 the U.S. Atomic Energy commission entered into agreements with four groups of industrial companies for joint studies of ways in which private firms might carry a larger share of the task of developing, building and operating nuclear reactors. The four groups were: Monsanto Chemical company and Union Electric company, both of St. Louis, Missouri; Detroit Edison company of Detroit, Michigan, and Dow Chemical company of Midland, Michigan; Commonwealth Edison company and Public Service company of Northern Illinois, both of Chicago; and Bechtel corporation and Pacific Gas and Electric company, both of San Francisco.

The U.S. Atomic Energy commission expanded the manufacture and distribution of radioactive isotopes during 1951. Isotopes were sent to 500 institutions in the United States and to 175 institutions in 31 foreign countries.

Research. Four new pieces of nuclear fission equipment, financed partly or entirely by the U.S. Atomic Energy commission, went into operation during 1951. They included cyclotrons at Oak Ridge National laboratory, Oak Ridge, Tennessee, and Brookhaven National laboratory, Upton, New York, and synchrocyclotrons at the University of Chicago and the Carnegie Institute of Technology, Pittsburgh. At Brookhaven, the west face of the research reactor was partitioned off and "declassified" so that authorized scientists not "cleared" for access to restricted information could use that face of the reactor for non-secret experiments.

Production of plutonium in the gigantic reactors at Hanford, Washington, was accompanied by the accumulation of vast quantities of radioactive fission products. A search for industrial uses for these waste products was initiated with a study by the Stanford Research institute, Stanford, California. It was pointed out that five principal capabilities of fission products were the killing of organisms, the inducement of chemical reactions, the ionization of gases, the activation of phosphors and the production of rays that penetrate solids. (*See* MINERAL AND METAL PRODUCTION; PHYSICS.) (D. Dz.)

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ATTLEE, CLEMENT RICHARD, British statesman (b. London, Jan. 3, 1883), was educated at Haileybury and University college, Oxford. For his early career see *Britannica Book of the Year 1951.* Attlee presided at the meetings of the Commonwealth prime ministers which opened in London on Jan. 4, 1951. He proposed the toast of Walter S. Gifford, United States ambassador, at the dinner on Feb. 2 of the English Speaking union. On March 13 he had talks in London with Alcide De Gasperi, the Italian prime minister, and Count Sforza, the foreign minister. He went into St. Mary's hospital, London, on March 21 to be treated for a recurrence of a duodenal ulcer from which he suffered in 1948 and was there until April 26, when he went to Chequers. On April 24 he had left hospital for some hours to attend the memorial service in Westminister abbey for Ernest Bevin. Attlee returned to London on April 30 to resume his full duties. Glasgow university conferred on him the degree of LL.D. when he attended and spoke at the quincentenary celebrations of the university, June 20-21. He flew to Edinburgh with Mrs. Attlee on Aug. 2, and they left in the frigate "Widemouth Bay" for a holiday in Norway. On Aug. 12, the last day of the holiday, they were entertained to lunch by King Haakon on board the royal yacht "Norge." In a broadcast on Sept. 19 Attlee announced that a general election would be held on Oct. 25. At the Labour party conference on Oct. 1 he introduced the party's election manifesto, and made another offer to the U.S.S.R.: the British government was ready "to meet and deal with the people on the other side of the Iron Curtain when they made a response, not only in words, but in action." With the leaders of the other parties he attended the pre-election service at St. Paul's cathedral on Oct. 4 and set out on his main election tour on Oct. 6; with 2 days' rest he made 53 speeches in 8 days. Mrs. Attlee drove him throughout the tour in their own car. He was returned with a majority of 11,574 in his constituency of West Walthamstow, but his party lost its majority and at 5 P.M. on Oct. 26 Attlee was received by King George VI who accepted his resignation. On Oct. 31 the parliamentary labour party re-elected Attlee leader of the party. He moved on Nov. 1 from the prime minister's residence at Downing street to Cherry cottage,

Great Missenden, Buckinghamshire, which he had bought in 1949. The king again received him on Nov. 5 and invested him with the insignia of the Order of Merit. He entertained Konrad Adenauer, Western German chancellor, to lunch at the House of Commons on Dec. 6. He was given the freedom of Leeds on Dec. 18.

AURIOL, VINCENT, French statesman (b. Revel, Haute-Garonne, Aug. 27, 1884), president of the French republic since 1947. For earlier career see *Britannica Book of the Year 1951.* In March 1951 he was called upon to resolve a cabinet crisis over the electoral laws and was nearly prevented by it from leaving for an official visit to the United States and Canada. He and Mme. Auriol, accompanied by Robert Schuman, the foreign minister, left on the " Ile de France " on March 20 and arrived in Washington on March 28 for the first visit ever paid to the United States by a president of France while in office. His main theme in the 45 speeches he made in the United States and Canada was an outspoken defence of France against those who doubted its will to resist aggression. He explained recurring ministerial crises by saying that it was not the government team that was changed from time to time, but only the leader. In New York he received an honorary degree from Columbia university and left for Canada on April 5 to visit Ottawa, Toronto, Quebec and Montreal. A chain of mountains in southwest Yukon territory was named after him in honour of the visit. He left by air from Montreal on April 9 and reached Paris on April 10. Opening the U.N. general assembly at the Palais de Chaillot in Paris on Nov. 6, Auriol expressed the hope that a meeting might take place in Paris between the distinguished men towards whom all anxious eyes were turned for direct conversations on outstanding international problems. In a speech at a luncheon of the Foreign Press association on Nov. 15, Auriol spoke on the rôle of the president of the republic. He should be neither a presidential prop nor an exponent of personal rule. Between silence and indifference on the one hand and decision and effective action reserved to responsible government on the other, there was room for this moral magistracy (*magistrature morale*), for the power of advising, warning and conciliating which should be that of a head of state.

AUSTRALIA, COMMONWEALTH OF. Self-governing member of the Commonwealth of Nations, situated in the southern hemisphere. Areas and populations of the six federated states, Australian Capital territory and Northern territory are given in the table below.

In 1944 full-blooded aboriginals were estimated at 47,000 and half-castes numbered 24,881. Territories under the administration of the Commonwealth but not included in it comprise Papua-New Guinea (*q.v.*), Norfolk Island, the territory of Ashmore and Cartier islands and the Australian Antarctic territory. Language: English. Religion (1947 census): Anglican 2,957,032; Roman Catholic 1,569,726; Methodist 871,425; Presbyterian 743,540; Baptist 113,527; Lutheran 63,243; other Christian 354,443; Jewish 32,019; other non-Christian 4,543; indefinite and no religion 45,036; not stated 824,824. Chief towns (pop., 1949 est.): Sydney (1,550,000); Melbourne (1,288,000); Adelaide (470,000); Brisbane (430,000); Perth (294,000); Newcastle (1947, 127,188); Hobart (1950 est., 84,000). Governor general, Sir William McKell; prime minister, Robert Gordon Menzies (*q.v.*).

States and Territories	*Capital*	*Area* (sq.mi.)	*Population* (1947 census)	(Dec. 1950)	*Prime Minister*	*Ministry*
New South Wales	Sydney	309,433	2,985,464	3,278,036	J. McGirr	Labour
Victoria	Melbourne	87,884	2,055,252	2,231,255	J. G. B. McDonald	Liberal-Country
Queensland	Brisbane	670,500	1,106,269	1,191,245	E. M. Hanlon	Labour
South Australia	Adelaide	380,070	646,216	712,010	T. Playford	Liberal-Country
Western Australia	Perth	975,920	502,731	573,671	D. R. McLarty	Labour
Tasmania	Hobart	26,215	257,117	294,397	R. Cosgrove	Labour
Australian Capital Territory	Canberra	939	16,905	20,054	—	—
Northern Territory	—	523,620	10,866	15,131	—	—
		2,974,581	7,580,820	8,315,799		

History. The Liberal-Conservative government came into office in 1949 without a majority in the Senate. During the first quarter of 1951 outstanding events were the passage of the much-disputed Communist Party Dissolution act after the Labour party opposition had been suddenly withdrawn and other legislation, particularly the Commonwealth Bank Amendment act to restore control by a board, which the Labour-controlled Senate had held up. On the application of the government the governor general held that this bill had " failed to pass both houses " and a double dissolution was granted. In the election that followed the government was returned with a majority in both houses although that in the House of Representatives was reduced (*see* ELECTIONS).

H. V. Evatt, deputy leader of the Labour party led an application by several unions to the High court to test the Communist Party Dissolution act which affected trade union leaders alleged to be Communists. The court held the act to be unconstitutional. The government proceeded in the new parliament to enact law to hold a referendum to give it powers to pass the disputed bill into law and also to pass similar or related matters. The referendum was defeated by an absolute majority in the Commonwealth as a whole and in three of the six states. On June 13 the whole Commonwealth was overshadowed by the news of the sudden death in Canberra of J. B. Chifley, leader of the Labour party and former prime minister (*see* OBITUARIES). The funeral of the late prime minister deeply affected people throughout the nation. In Victoria an act to provide for the election of the legislative council by adult franchise was passed just 100 years after its establishment and 93 years after attempts were first made to secure such election.

Foreign Affairs. Australia's contribution to the Korean war continued with the engagement of all three arms of the services. The Japanese treaty was signed at San Francisco allowing Japan unrestricted economic and military powers. The treaty was supported by the Australian government but there was strong resistance from the Labour party with no occasion for a vote in the house. Australian foreign policy continued to move closer to that of the United States which offered Australia assurances of assistance in the event of attack. During the year a meat marketing agreement was signed with the United Kingdom under which Australian producers were guaranteed for several years 1951 prices as minima.

Industrial and Economic. There were few strikes and none of more than local significance. The most notable event was a marked increase in inflation. The " C " series retail price index for the six capital cities increased at an annual rate in the quarters as follows: June 1950 to Sept. 9·9%, Sept. to Dec. 17·1%, Dec. to March 1951 17%, March to June 27·5%. The federal metropolitan basic wage was £A 9 9*s.* in Sept. 1951, all the increase during the year (£A 2 14*s.*) being the result of automatic adjustment for price increases. The average weekly earnings of 80% of all wage and salary earners at March 1951 were £A 11 6*s.* 8*d.* Economic activity



Part of a spectacular procession held in Sydney on Jan. 29, 1951, as part of the celebrations to mark the 50th anniversary of the Commonwealth of Australia.

continued at much above full employment level. The setback in wool prices had had no apparent deflationary effects by the end of the year. The average total personal income in 1950-51 was £A 2,916, an increase of 24% over 1949-50. There were 2,629,600 wage and salary earners in employment; nominal unemployment was shown at 0·8% and less.

The rise in the value of exports continued to be the main force behind inflation. Exports in 1950-51 were £A 984 million, an increase of £A 370 million, more or than three times the highest annual increase ever recorded before. Imports reached £A 742 million, an increase of £A 206 million on the year before. These factors in the balance of payments were unable to prevent a fall in overseas funds. The dollar loan obtained from the International Bank for Reconstruction and Development was allocated during the year. Its effect on capital imports could be seen in the percentage of producers' goods among total imports. In 1948-49 the figure was 22·1%, in 1949-50 it was 32·3%, and in 1950-51 27·5%. Expenditure of loan money earmarked for capital goods might have increased these percentages a little, but, at any rate, must have prevented them from falling to what they would otherwise have been. However, only about one-quarter of the goods which would be obtained from the loan had arrived by the end of the year.

The 1950-51 actual Commonwealth budget expenditure was £A 881 million and there was a net increase in government indebtedness during the year of £A 94 million; part of this was financed by loan money and part by the issue of treasury bills. Approximately 37% of revenue came from indirect taxes and 54% from direct. It was expected that the 1951-52 budget would maintain a high expenditure with an increase on war and defence to £A 200 million but there would be some reduction in other directions. The main anti-inflationary device of this budget was increased taxation, mainly indirect. The index of wool prices fell by 23% in April, 11% in May and 26% in June; there was no fall in July but August showed another slight fall. Taking all these matters into consideration it was possible that deflationary influences might be operating in the Australian economy but this would depend particularly upon the level of U.S. and European buying.

Immigration and Housing. Permanent new arrivals during the year were 154,290. This meant a rate of increase based on existing population that had rarely been exceeded in any year of the last century of immigration to the new world. Easy absorption of immigrants into primary and secondary industries continued but the housing of them became more acute. During the year 1949-50 55,485 houses were completed, an increase of 4,146 on the year before. Although these were the highest figures ever reached in any one year they were still below the requirements of existing population demands for new houses and normal replacements.

Arts and Sciences. Lord Bruce was appointed first chancellor of the Australian National university. Professor G. Paton was appointed vice chancellor of the University of Melbourne on the retirement of Sir John Medley. During the year the Commonwealth celebrated the 50th anniversary of its foundation and the state of Victoria its centenary. A legal convention was held which brought to Australia leading legal figures of the British Commonwealth including Viscount Jowitt, the lord chancellor. J. B. Conant, president of Harvard, and Professor K. C. Wheare of Oxford university visited Australia during the year. The Edward Dyason trust lecturer was Salvador de Madariaga. Visiting artists included Yehudi Menuhin. During the year the Commonwealth government entered directly into the provision of finance for Australian universities. This departure from normal practice was necessary because of the increased requirements of the universities for larger student rolls and because of higher costs, the falling off in Commonwealth assistance for the training of servicemen and the final dependence of state governments upon the Commonwealth for revenue.

General. The most conspicuous feature of the year was high money incomes and inflation. In all fields money demand was so high that resources were strained beyond capacity. Inflation moved from a suppressed state into an open-air uncontrolled one. Politically, the characteristics were

uncertainty and lack of positive government action, much of the time of parliament being taken up with the abortive attempts to provide new legislation to deal with the Communist party. Again, in this respect, the difficulties in the way of changing the constitution were revealed. Some dangers to civil liberties were felt to be present from authoritative quarters but there was little of a positive or overt nature about them. War and defence continued to influence public discussion and activity. (*See* also AUSTRALIAN LITERATURE.)

(J. F. C.)

Education. Schools (1950): state 7,969, pupils 869,906, teachers 33,271; private schools 1,835, pupils 281,056, teachers 12,425; universities 8, students 33,000.

Agriculture. Main crops ('000 metric tons, 1949-50; 1950-51 in brackets): wheat 5,939 (4,981); oats 498 (471); barley 443 (517); maize 160; sugar, raw value, 959 (920); potatoes 481 (500). Livestock ('000 head, March 1950): sheep 112,891; cattle 14,640; pigs 1,123; horses 1,057. Wool production ('000 metric tons, greasy basis, 1949; 1950 in brackets) 503 (534). Milk production (million gal., 1949-50; 1950-51 in brackets): 1,252 (1,211). Food production ('000 metric tons, 1949-50; 1950-51 in brackets): butter 171·2 (162·4); cheese 45·6 (45·3); meat 1,067·8 (1,028·4), of which beef 618·6 (660·0).

Industry. Manufacturing establishments (1948-49): 40,010; persons employed, including working proprietors, 890,454. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 16,788 (7,836); lignite 7,416 (3,857); manufactured gas (million cu. m.) 1,064 (523); electricity (million kwh.) 10,251 (5,159). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): refined copper 13·8 (6·6); refined lead 203 (98); zinc 85 (37); pig iron 1,336 (616); steel ingots and castings 1,448 (668); gold ('000 fine ounces) 861 (429). Manufactured goods ('000 metric tons, 1950; 1951, six months, in brackets): wool yarn 21·5 (9·8); cement 1,278 (611). New dwelling units completed (1949; 1950 in brackets) 52,884 (61,884).

Foreign Trade. (£A million, 1950; 1951, six months, in brackets): imports 630 (408); exports 744 (593). Main sources of imports (1950-51): U.K. 48·1%, U.S. 8·2%, India 4·8%. Main destinations of exports: U.K. 32·5%, U.S. 15·2%, France 9·2%. Main imports: oils 10%; machinery 24%; piece goods 14%; vehicles 12%; oils 10%. Main exports: wool 65%; wheat and flour 11%; meat 3%; metals, minerals and ores 4%.

Transport and Communications. Roads (1946 est.): 50,497 mi. Licensed motor vehicles (Dec. 1950): cars 876,902; commercial 475,926. Government railways (1949-50): 26,980 mi.; passenger journeys 504·6 million; goods carried 40·6 million tons; train miles run 93·3 million. Shipping (merchant vessels of 100 gross tons and over, July 1950): 355; total tonnage 541,424. Air transport (1950): mi. flown 44 million; passenger mi. 788·0 million; freight, including mail, net ton-mi. 31·4 million. Telephones (March 1951): instruments 1,182,035. Wireless licences (March 1951): 2,074,775.

Finance and Banking. (£A million) Budget: (1950-51) revenue 783·6, expenditure 783·6; (1951-52 est.) revenue 1,041·5, expenditure 927·0. National debt (Dec. 1949; Dec. 1950 in brackets): 1,838·4 (1,850·9). Currency circulation (July 1950; July 1951 in brackets): 235 (275). Gold and foreign exchange (million U.S. dollars, March 1950; March 1951 in brackets): 1,431 (1,878). Bank deposits (July 1950; July 1951 in brackets): 867 (1,100). Monetary unit: Australian *pound* with an exchange rate of £A 1·25 to the pound sterling and £A 0·45 to the U.S. dollar.

See O. L. Ziegler, ed., *Jubilee of the Commonwealth of Australia: Official Commemoration Book* (London, 1951).

AUSTRALIAN LITERATURE. The year 1951 was mainly notable for the discussion aroused by three novels: Frank Hardy's *Power Without Glory*, the subject of an unsuccessful libel case, Eric Lambert's *Twenty Thousand Thieves*, a picture of the Australian soldiers' life in the middle east written with bitterness and left-wing bias, and Dal Stivens's *Jimmy Brockett*, a ruthless study of "a notable Australian." Other novels included Moira Gaskin's *Heaven Knows Where* which, like those of Lambert and Stivens, was a first novel, Catherine Gaskin's *All Else is Folly*, Eric Lowe's *O Willing Hearts, and Prelude to Waking* by "Brent of Bin Bin." Lambert, Stivens and Lowe had all worked under fellowships from the Commonwealth Literary fund, whose fellowships for 1951 were granted to Judith Waten, Victor Kennedy and Kylie Tennant.

Poetry included John Hibery's *Nine Poems*, Nancy Keesing's *Imminent Summer*, H. E. Boote's *The Dim Rainbow and Other Poems*, D. G. Campbell's *For Friend and Fireside*, and *A Book of Australian and New Zealand Verse* chosen by Walter Murdoch and Alan Mulgan. Walter Murdoch also, with Henrietta Drake-Brockman, made the selections for *Australian Short Stories* in the World's Classics series.

H. M. Green's *Australian Literature, 1900-1950* provided a concise and valuable guide, and A. P. Murphy's *Contemporary Poets* added a useful volume to Australian literary criticism. Two works of bibliography of importance appeared: the third volume covering the years 1839-1845 of J. A. Ferguson's monumental *Bibliography of Australia*, and George Mackaness's *Annotated Bibliography of Henry Lawson.*

(C. A. BR.)

AUSTRIA. Republic of central Europe. Area: 32,375 sq.mi. Pop.: (1939 census) 6,652,720; (1951 census) 6,881,100. Language: German 98%; other 2% (mainly Slovene in Carinthia). Religion (1939): Roman Catholic 88·27%, Protestant 5·35%, Jewish 1·26% (0·2% in 1945), other 5·12%. Principal towns (pop., 1951 census): Vienna (cap., 1,760,784); Graz (226,271); Linz (185,177); Salzburg (100,096); Innsbruck (94,599); Klagenfurt (62,792). President, Theodor Körner (*q.v.*); chancellor, Leopold Figl. The Austrian government had jurisdiction throughout Austria, with certain limitations regarding matters control over which was reserved to quadripartite decision in the Allied Council for Austria. By Dec. 31, 1951, members of the A.C.A. were: France, Jean Payart; United Kingdom, Sir Harold Caccia; U.S., Walter S. Donnelly; U.S.S.R., Lieut. General V. P. Sviridov.

History. Throughout 1951 unsuccessful attempts were made to persuade the Soviet government to do away with the special permits necessary to enable citizens of the three western occupants to travel through the Soviet zone. The British and U.S. commercial airports respectively at Schwechat and Tulln (both in the Soviet zone) continued to operate without restrictions. Attempts to induce the Soviet government to sign the Austrian peace treaty were again unsuccessful. The points of difference on the treaty itself were narrowed down to four minor ones but the Soviet government made its signature dependent on acceptance by the west of various matters, such as the status of Trieste, entirely unconnected with the treaty.

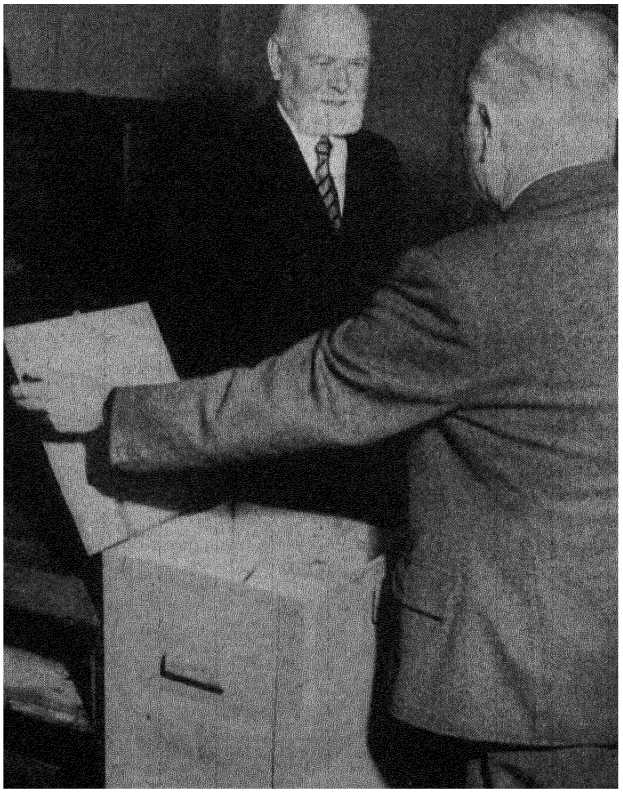
In these circumstances, the Austrian scene continued to be dominated throughout the year by the wider question of the relations between the four Great Powers. While the U.S. government poured $104,360,000 into Austria through the medium of the E.R.P. (July 1, 1950, to June 30, 1951), the Soviet government took at least $50 million out through the network of ex-German firms and undertakings administered by the U.S.I.A. (Upravlenye Sovietskim Imushchestvom v Avstrii, or Administration of Soviet Properties in Austria). About one quarter of this sum was the value of oil from the wells round Zistersdorf in the Soviet zone of Austria. During the year, the U.S.I.A. extended its operations by setting up a large number of retail stores in the towns of the Soviet zone and the Soviet sector of Vienna. The U.S.I.A. stores imported goods free of customs duty and most of them, like the U.S.I.A. factories, did not pay taxes or social insurance contributions. Consequently they competed on specially favourable terms with Austrian private enterprise. The non-Communist political parties called on their followers to boycott the U.S.I.A. stores and most Austrians did so.

In spite of E.R.P. help, the Austrian economy again found itself in serious difficulties. A new wage-price agreement (the fifth since Aug. 1947) had to be negotiated in July 1951. This was followed by an all-round increase in rents in the autumn. Though the changes were not accompanied by Communist-inspired riots as in 1950, they meant hardship

for many people. The prices of many consumer goods and also bread were subsequently reduced slightly but the economic crisis was not solved. Austrian imports during the year, excluding Marshall aid, were greatly in excess of exports and it was clear that production would have to be raised if the country was to avoid a drastic decline in its standard of living.

Considerable progress was made during the year in developing Austria's water power resources. The first half of the giant hydro-electric station at Kaprun which harnesses water from glaciers around the Grossglockner was completed in Sept. 1951. Electrification of the Austrian railway system also progressed considerably. Reconstruction of buildings destroyed during World War II continued on an increased scale. Thanks largely to this, unemployment which reached the high level of 219,490 in February fell to 79,581 in June 1951. This was the lowest figure recorded since the war. On the other hand there was a serious shortage of coal, and all Austria's suppliers, especially the Ruhr, Poland and Czechoslovakia, raised their prices as well as cutting supplies.

Much of the reconstruction in all fields was the result of the release of E.R.P. counterpart funds. In September, General Sviridov, the Soviet high commissioner, accused the three western occupants of remilitarizing Austria under the pretence of reconstruction. His accusation, raised under the heading " other business " at a meeting of the Allied council, touched off a furious campaign in the Communist press. The Austrian " Peace council " later published a *White Book* of specific charges which was given to the delegates of the World Peace council who met in Vienna in November. At a meeting of the Allied council on Nov. 30, the Soviet representative brought forward a resolution in two parts, one calling for a quadripartite commission of inspection and the other requiring the council to write to the federal chancellor ordering him to reduce the number of gendarmerie, cease the construction or reconstruction of military installations, switch all military production to peacetime needs and repeal various measures aiming at remilitarizing Austria. The U.S. representative tabled a substitute resolution which declared that internal security was the affair of the Austrian government, demanded the restoration of inter-zonal freedom of movement so that everyone could judge the truth of the militarization charges for themselves and the immediate signing of the peace treaty. All three western representatives dismissed the Soviet charges as having been advanced purely for propaganda purposes.



Theodor Körner, the successful candidate, voting in the Austrian presidential elections on May 27, 1951.

In the political sphere, the year was marked by the election at the second ballot on May 27, 1951, of Theodor Körner, formerly Socialist burgomaster of Vienna, as president of the republic in succession to Karl Renner who died on Dec. 31, 1950. Relations between the three western occupants and the Austrian government continued to improve. Progress was also made in dealing with the grievances of Austrians in the South Tirol and in establishing more friendly relations between Austria and Yugoslavia, which dropped all territorial claims against Austria in the course of the year. The three western occupants agreed to the Austrian request to elevate their mission to the rank of embassy. The Soviet reply was expected to be favourable. But the Soviet government refused to accept the Austrian proposal, supported by the three western occupants, to abolish the so-called Austrian censorship. Accordingly, on Nov. 21, the Austrian postal authorities gave notice to all the 863 employees of the department that their employment would cease on Jan. 1, 1952. If, as expected, the Soviet element still refused to discontinue the censorship they would have to be taken on to the strength of the occupation forces after that date. The Austrian government also failed to get satisfaction from the Soviet authorities on the subject of prisoners of war and Austrian political prisoners in the U.S.S.R. Such prisoners were, however, allowed to write to their families after Sept. 5, 1951. It was learned from one of these letters that the Austrian chief inspector of police, Anton Marek, who disappeared in June 1948, had been sentenced to 25 years for anti-Soviet activities. A number of other Austrians serving sentences in the Soviet Union were released during the year but were unable to leave the U.S.S.R. because they could not obtain the necessary permits.

During the year, Austria was again host to a number of persons and organizations from abroad. The World Scout jamboree held at Bad Ischl in August attracted some 15,000 scouts from all over the world. In September the British Iron and Steel institute held a joint session with the Austrian institute at Graz, Styria. A less welcome arrival was the secretariat of the World Federation of Trade Unions which established itself in Vienna under Soviet protection in April.

In the 1950-51 winter an unprecedented series of avalanches struck the alpine districts of Austria causing over 100 deaths and damage calculated at £2 million. (G. Ls.)

Education. Schools (1949-50): elementary and private 5,073, pupils 846,846, teachers 35,874; secondary 168, pupils 50,140, teachers 3,550; technical and commercial 63, pupils 17,623, teachers 1,738; teachers' training colleges 28; students 4,338, lecturers 530; universities 4, students 17,029, professors and lecturers 1,787.

Agriculture. Main crops ('000 metric tons, 1950; 1951 in brackets): wheat 384 (400); barley 230 (263); oats 223 (330); rye 388 (415); maize 150; potatoes 2,548; sugar 67 (95). Livestock ('000 head, Dec. 1950): cattle 2,279; sheep 363; pigs (March 1951) 2,094; horses 283; goats 323; poultry 6,934.

Industry. Insured persons employed (Aug. 1951): 2,046,000. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 182 (97); lignite 4,308 (2,410); manufactured gas (million cu. m.) 356 (164); electricity (million kwh.) 4,908 (2,717); crude oil ('000 metric tons) 1,525 (900). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): iron ore 1,860 (1,124); pig iron 883 (478); steel, ingots and castings 943 (492); magnesite 545 (299); lead, smelter

9·2 (4·4). Manufactured goods: woven cotton fabrics 13·4 (6·8); cotton yarn 19·4 (10·7); wool yarn 11·0 (5·7); rayon staple fibre 31·1 (19·9); fertilizers 364 (206); chemical pulp and paper 489 (260).

Foreign Trade. (Million schillings, 1950, 1951, six months, in brackets): imports 7,092 (5,405); exports 6,516 (4,418). Main sources of imports (1950): U.S. 23%; Germany 17%; U.K. 8%; Italy 7%. Main destinations of exports: Germany 16%; Italy 13%; Czechoslovakia 6%; U.S. 6%. Main imports: coal, machinery and vehicles, and grain. Main exports: iron, steel and manufactures, textile manufactures and wood.

Transport and Communications. Roads (1947): 53,000 mi. Licensed motor vehicles (Dec. 1950): cars 45,000, commercial 48,000. Railways (March 1951) 3,761 mi.; passenger-mi. (1950) 2,670 million; goods, ton-mi. (1950) 3,311 million. Telephones (1950): subscribers 261,000. Wireless licences (1950): 1,200,000.

Finance and Banking. Budget (million schillings): (1950 actual) revenue 12,023, expenditure 12,234; (1951 est.) revenue 11,869, expenditure 12,570. Internal debt (Dec. 1948; Dec. 1949 in brackets): 11,152 (11,826). Currency circulation (July 1950; July 1951 in brackets): 5,857 (6,796). Bank deposits (June 1950; June 1951 in brackets): 5,330 (8,197). Monetary unit: *schilling* with an exchange rate (Nov. 1951) of Sch. 60·20 to the pound and Sch. 21·49 to the U.S. dollar.

AVIATION, CIVIL. Traffic on most air lines was good in 1951 but was accompanied by higher operating costs. Few operating companies made a profit, yet most reported smaller losses and some were evidently approaching a period of prosperity. On a number of routes, fares were increased to meet higher costs and plans were in hand to develop tourist or third-class travel by fitting aircraft with more seats. This plan had already been adopted by Air France on routes between France and French North Africa, as distinct from the method of reducing fares at " off " seasons and in " off-peak " hours. As Air France, alone among the chief European operators, made a profit in 1950, third-class air travel seemed worthy of careful examination. Early in 1951 U.S. operators, at regional meetings of the International Air Transport association, urged the provision of tourist travel on the North Atlantic services. A tentative agreement was reached to introduce it on these routes in Oct. 1952. But in the summer general meeting of I.A.T.A. the Americans pressed for an earlier start to include the 1952 holiday season, and meetings at the end of the year were considering this demand.

In preparation for tourist traffic Scandinavian Air services was arranging to fit at need into its Atlantic D.C.6s 80 seats instead of the normal 69. British Overseas Airways, reluctant to embark on this project until its Comets were in service, was nevertheless contemplating an optional increase in Constellation seats from 43 to 68. Royal Dutch Airlines (K.L.M.), in ordering new Constellations, arranged to have the seats set on rails so that they could be differently spaced for first, second and third class services. Schedules of tourist fares had not been announced at the end of the year, but certain U.S. operators forecast a saving of more than 30% on the return fare between New York and London or Paris. The expectation was of an average saving of 20% to 25%. Some experience of this type of traffic had already been gained by private charter companies and tourist agencies in transporting holiday parties and groups of emigrants. Given full loads, it had yielded remarkably low fares. The need was to endeavour to obtain full, or nearly full loads as against the usual computation of fares on a basis of filling 65% of available capacity.

This development, at a time of rising fares, emerged not only from the success of Air France but also from the marked success on shorter routes of special fares at " off-peak " hours. In British European Airways in the year to March 30, 1951, " off-peak " rates led to an improvement of 20% in overall aircraft utilization, and of 29% in those aircraft used on the popular routes. Meanwhile ordinary fares on several of B.E.A.'s services were raised by about 12%. This applied to the less profitable of the home routes as well as to some overseas services. Smaller proportional increases were made by B.O.A.C.; *e.g.*, the London-Sydney fare was raised from £260 to £280 with corresponding increases for intermediate sections. There was also an increase of £14 on the fare between London and Johannesburg, but on the section between Nairobi and London substantial concessions were offered to families at a time when a charter company was applying unsuccessfully for permission to run charter flights to London from east Africa. The threat of competition had to be met in one way and another by the big operators throughout the year. South African Airways sought to have K.L.M.'s services between Amsterdam and Johannesburg reduced from two to one a week, but failed. On the London-New York run, British, French and U.S. operators vied with one another in offering luxurious travel. In the holiday season B.O.A.C. ran one service a day non-stop between London and New York. K.L.M.'s contribution to the summer attractions on the Atlantic route was an all-sleeper service with 30 berths instead of the customary 43 seats in its Constellations.

In these efforts was reflected the desire to continue the improvement shown in the previous year's accounts. B.O.A.C. in 1950-51 had reduced its deficit by £3,250,000 but was still left with a loss of £4,500,000. B.E.A.'s loss was reduced by 28% and stood at £979,267. K.L.M.'s deficit of £3,500,000 in 1949-50 was brought down to about £1 million. Sabena, which had lost £636,800 the previous year, was reported as breaking even. Swissair, with more traffic, still suffered a loss largely through the effects of devaluation. Scandinavian Air Services too had a deficit. The only profit was earned by Air France and that amounted to £10,500. There were profits for some of the smaller companies. Aer Lingus showed a profit of £14,646; Cyprus Air Lines made £17,478 and Iberia, the Spanish company, made £258,212. All the evidence pointed to the willingness of the public to make increasing use of the air services and to the difficulty on the part of the operators in preventing increased revenue from being defeated by increased costs. K.L.M. with 16,000 more passengers, 3,700 tons more of freight and revenue up by 44% still lost money. B.O.A.C., flying 26% more passenger-miles, having revenue increased by £4,750,000 and staff reduced by 1,340 in the year, still showed a large deficit, though with still further improved traffic in the first half of the year 1951-52 it made a profit of £113,000. B.E.A.'s traffic in 1950-51 was so much improved that revenue advanced by 30%, but operating expenditure increased by 20·9%. B.E.A. also showed a profit of £243,000 in the first half of the year 1951-52.

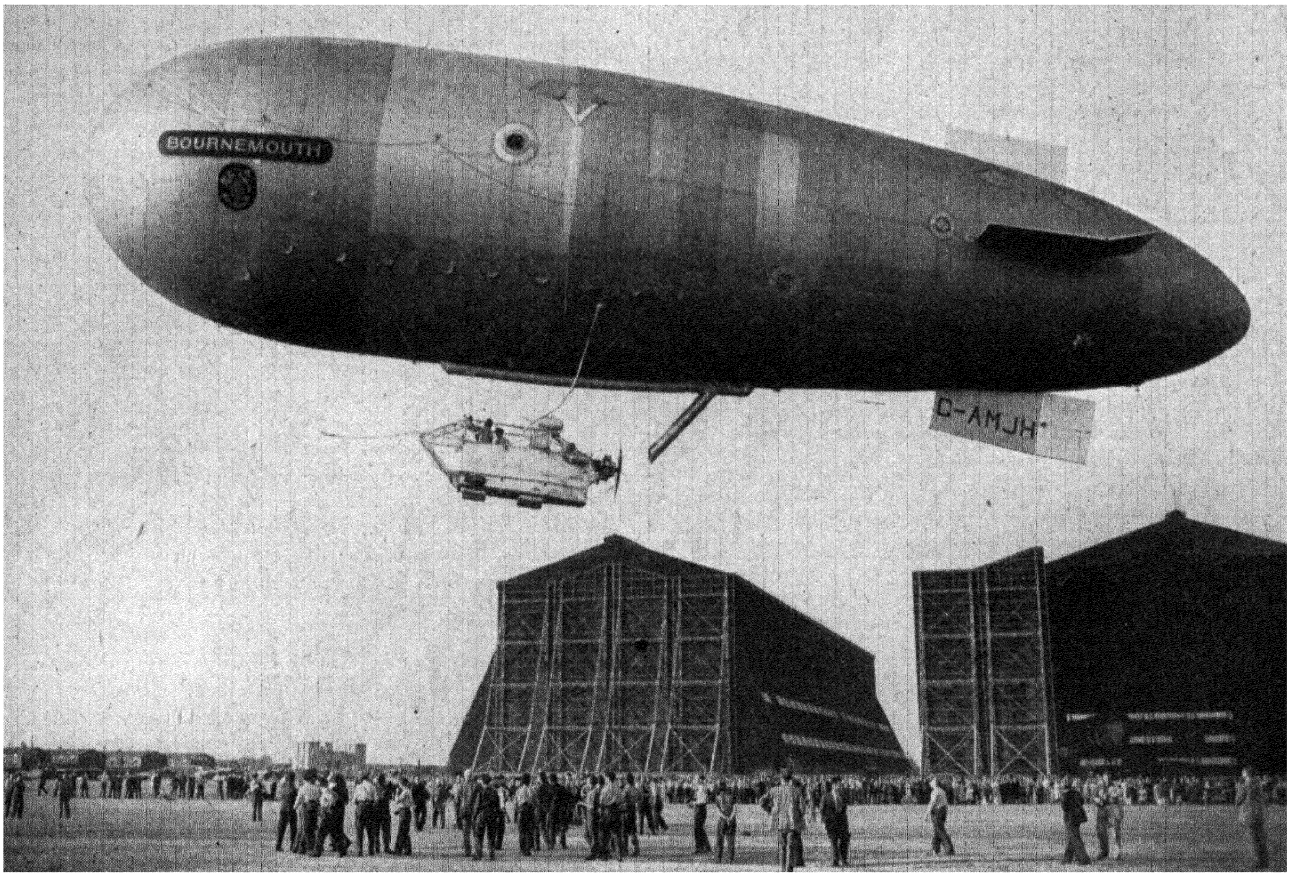
Attention was directed more towards attracting traffic and making economies than to expansion. B.O.A.C. cut some of its losses by discontinuing its service along the west coast of South America to Lima. B.E.A. expected to save £20,000 a year on motor transport by moving from Gatow to Tempelhof airport in Berlin. Air France suspended its service to Brisbane via Noumea during the winter of 1950 but resumed it in Feb. 1951.

Some small expansions took place. S.A.S. extended its

TABLE I. UNITED KINGDOM CIVIL AIR TRAFFIC

	All Services*		Internal		External	
	1949-50	1950-51†	1949-50	1950-51†	1949-50	1950-51†
Mi. flown ('000)	44,516	50,609	6,151	7,095	38,365	43,514
Pass. carried ('000)	971	1,201	461	488	510	713
Pass. mi. ('000)	643,064	865,583	74,267	80,968	568,797	784,615
Freight ('000 short tons)	16,547	22,037	2,145	2,203	14,402	19,834
Freight ('000 short ton-mi.)	20,599	26,330	405	404	20,194	25,926
Mail (short tons)	6,177	7,531	1,435	1,653	4,742	5,878
Mail ('000 short ton-mi.)	12,063	14,214	238	274	11,825	13,940

* B.O.A.C., B.E.A. and associated companies. † Including B.O.A.C. charters.



The airship "Bournemouth" which flew for the first time on July 19, 1951. This was the first airship to be built in Britain for over 20 years. On its second flight, on Aug. 17, it was damaged as it was about to land when one of its guy ropes caught the railing on a workshop roof.

South American service from Buenos Aires to Santiago de Chile and its far eastern service from Bangkok to Tokyo. B.O.A.C. opened a service from New York to Nassau, Bahamas, and included a call at Zürich in its far eastern service. B.E.A. opened a London-Milan service and started a helicopter service between London and Birmingham. Air France linked its Paris-London service with Scotland by engaging a British charter company to operate the section London-Glasgow. El Al, the Israeli company, added services from Lydda to London and Lydda to Johannesburg. Aquila Airways, the one British company continuing to use flying-boats, ran summer services from Newcastle to Jersey, Southampton to Jersey and Newcastle to the Isle of Man while continuing its service to Lisbon and Madeira. The motor-car ferry from Folkestone to Le Touquet completed its third year with such success that Silver City Airways was given a 10-yr. licence and plans were made to start service between Southampton and Cherbourg in 1952.

In preparing for the future, few operators were ready to embark straight away on the use of jet or turbo-prop aircraft. B.O.A.C. remained fully committed to the use of the Comet jet liner from 1952 on main routes where stage lengths up to about 1,500 mi. were normal and it looked for the first deliveries of the turbo-prop Bristol 175 liners about a year later. It had also ordered some of the later Comets which, with Rolls-Royce Avon engines, were estimated as suitable for 2,000 mi. stages while carrying the same pay load of 14,000 lb. The first of these was expected during 1953. Orders for this mark of Comet were placed by Panair do Brasil. Two of the earlier Comets were still on order for Canadian Pacific Airlines. Intended originally for the Arctic route between Vancouver and Tokyo, these were now said to be planned for use on those stages of the company's route to Australia which lie south of Honolulu. Air France, too, showed much interest in the Comet; it raised its order for Viscount turbo-prop liners from 5 to 12. Qantas Empire Airways was attracted by the long-range Comet, having particularly in mind the new route it hoped to develop between Western Australia and South Africa by way of the Cocos islands and Mauritius. B.E.A. began acquiring experience with turbo-props by fitting two of its freighter Dakotas with Dart engines similar to those used in the Viscount, 22 of which it had on order. First impressions of this turbo-prop in heavy service were extremely good.

Beyond this, active interest in the gas turbine for commercial purposes did not go in 1951, although anxiety among some U.S. operators lest they should find jet competition hard to meet was evident. In Europe the general tendency was to stick to established types. K.L.M. boldly declared its lack of faith by ordering five of the new Constellation 1049Cs and taking an option on four more. Sabena added two more Convair liners to its fleet, making a total of eight. Most of the other principal companies continued to rely on Constellations, D.C.4s and D.C.6s. This disinclination to abandon the piston engine rested wholly on fears of the gas turbine's high fuel consumption, particularly at low levels. Operators foresaw serious difficulties, especially in European winter weather, if gas turbine aircraft were kept waiting to land, and were not persuaded that traffic patterns at the approaches to busy airports could be sufficiently adjusted to diminish delays. British authorities, after nearly two years of flight by the Comet along the principal European routes, acknowledged the need for careful organization but did not share the general scepticism concerning the

TABLE II. REVENUE STATISTICS FOR BRITISH AIR LINES*
(Financial year, April 1-March 31)

	B.O.A.C.		B.E.A.	
	1949-50	1950-51	1949-50	1950-51
	£	£	£	£
Operating revenue .	19,530,584	24,252,115	6,884,935	8,998,821
Operating expenditure	26,102,495	27,564,071	8,104,285	9,796,079
Operating deficit .	6,571,911	3,311,956	1,219,350	797,258
Non-operating expenditure . . .	1,219,976	1,253,472	144,244	182,009
Loss for year . .	7,791,887	4,565,428	1,363,594	979,267

* Figures exclude profit or loss on disposal of assets and redemption of stock.

prospect of an early solution. B.O.A.C., after a full eight months of route survey flying with the Comet on the runs to Johannesburg and Singapore, was equally hopeful of control modifications sufficient to meet the Comet's high speed and critical endurance limitations at airport approaches.

This aspect was submitted by the British authorities to a conference of Commonwealth representatives in the autumn. Emphasis at that conference was placed on better communications between airport and airport, better weather reporting particularly in relation to winds at great heights and better radio or radar aids for aircraft approaching to land. An example of the importance of these aids was found in the provision of distance-measuring equipment at London and Rome to allow the pilot of a fast liner to check his distance from the airport during the last 200 miles of approach. A similar beacon was due to be installed at Cairo. In the face of all doubts and disbelief B.O.A.C. was preparing with great satisfaction and high hopes to put Comets on the run to Cairo early in 1952, and to extend their service subsequently, first southwards through Africa to Johannesburg and later eastwards through Pakistan and India to Singapore and ultimately to Australia. It had plans also for starting, late in 1952, a Comet service between New York and Bermuda and afterwards between New York and Nassau. Confidence in these prospects led the corporation to begin trimming its fleet. It sold 23 Yorks and 4 Hermes IVs and declared a fifth surplus to requirements. It finally declined the three 140-ton Princess flying-boats which were being built for it, and these were promised to the R.A.F. for troop-carrying. Meanwhile, B.E.A., which had expected to have the use of its Ambassador aircraft to help with the heavy summer traffic, was still without them at the end of the year, mainly because of modifications to reduce the drag of the engine cooling system and to improve radio reception. There was



The Bristol 173, Britain's first twin-engined helicopter, which was designed to carry 12-14 passengers. The helicopter flew for the first time on Jan. 3, 1952.

some delay, too, in the conversion of 26 Dakotas into Pionairs with four extra passenger seats and a crew of two instead of three. Nevertheless the corporation contrived to carry a million passengers in the year and to become the first operating company outside the United States to do so.

All lines working between Europe and the far east in the second half of the year were at some disadvantage through the cessation of fuel supplies from Abadan. The effect was to restrict the fuel available at places east of Persia. B.O.A.C. cancelled for a time its freight services between London and Singapore. No passenger service was abandoned but charter flights to the far east became impossible. In consequence the movement of goods by air to the far east was subject to delays; congestion was increased by the heavy loads of Christmas traffic and mails and delay at one time amounted to more than a month. In November, B.O.A.C. restored one of its freight services to Singapore.

British helicopter services were continued throughout the year. The original passenger service between Liverpool and Cardiff was discontinued and a new one, over 95 mi., between London and Birmingham was started. B.E.A. expected by 1953 to take delivery of a two-engine helicopter with seats for 14 and to develop in succeeding years services between city centres in preparation for greatly expanded home services with 40-seater aircraft in 1963. (E. C. SD.)

United States. Air transportation in the United States showed a spectacular growth in every respect during 1951. Revenue passengers increased from about 19 million to more than 24 million, a gain of 28%.

TABLE III. U.S. COMMERCIAL AIR TRANSPORT INDUSTRY*

	1950 (actual)	1951 (est.)	Increase
Traffic			
Revenue passengers .	19,083,517	24,416,000	28%
Revenue passenger mi. ('000) . . .	10,929,799	14,133,000	30%
Mail ton mi. . .	68,066,580	85,906,000	26%
Freight ton mi. . .	318,870,093	389,386,000	22%
Revenue			
Passenger revenues .	$629,477,421	$801,580,000	27%
Mail revenues, U.S. .	118,400,622	114,474,000	3%†
Freight revenues .	74,335,946	91,311,000	23%
Total operating revenues	858,596,708	1,043,325,000	21%

* The figures cover operations of 16 domestic trunk airlines, 10 international lines under the U.S. flag, 15 domestic local service air carriers, 4 certificated cargo air lines and more than 50 irregular service operators. † decrease.

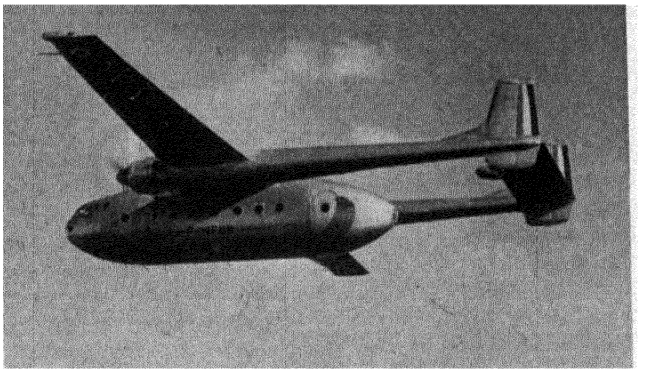
Passenger traffic on commercial air carriers had by 1951 forged well ahead of Pullman traffic, which totalled 9,340 million passenger railroad-miles in 1950 and was not expected to exceed 11,000 million in 1951. With the introduction in 1952 of lower air-coach fares on a far wider scale than ever before attempted, this dominance of air passenger travel was expected to increase during 1952.

After years of pioneering effort, primarily by the U.S. irregular domestic operators, the idea of a second class or coach service at less than first-class rates finally caught on. Instead of about six cents a mile, transcontinental fares on the coach services were expected to average about four cents a mile. Coast-to-coast flights would cost $99 or less. Coach fares between New York City and Miami would drop to three cents and a half a mile to match those between Los Angeles and San Francisco. Meanwhile, first-class rates on railroads in the U.S. averaged four cents and a fourth a mile or higher.

It was estimated that, with transatlantic air coach (tourist) services starting on May 1, 1952, total transatlantic air travel would increase from 339,000 passengers in fiscal year 1951 to more than 500,000 by 1953. U.S. flag carriers had faced increasingly stiff competition on the heavily travelled Atlantic routes in the previous few years. Immediately after World War II, before Europe had rebuilt its civil air fleet, U.S. operators had the field largely to themselves and carried about 95% of the traffic. By the fiscal year 1951, United States flag lines traffic accounted for only about 60% of the passengers arriving from Europe.

In anticipation of the rush for coach business, United States carriers had at the close of 1951 a substantial amount

of new equipment on order for early delivery. Although about 95% of the U.S. aircraft manufacturing industry's efforts during 1951 was devoted to military production, the demand for modern air transports increased unfilled orders at the end of the year to more than 500 units.



The French Nord 2501, a civil or military transport plane, powered by two Bristol Hercules engines.

Lockheed Aircraft Corporation, for example, reported 75 orders for its new L-1049 Super Constellation, which was certificated late in 1951 and had space for up to 93 first-class passengers or 110 coach fares. Late in Dec. 1951, Douglas Aircraft Company announced that American Airlines had contracted for 25 DC-7 aeroplanes, a new version of the Douglas DC-6B, powered with four Wright turbo compound engines rated at 3,250 h.p. each and cruising at 363 m.p.h. with 60 passengers in standard seating, or 95 in coach service.

After lengthy hearings before the Committee on Interstate and Foreign Commerce of the U.S. Senate, the Civil Aeronautics board established an administrative separation of service-mail pay from subsidy-mail pay. For the fiscal year 1951 the board estimated that a subsidy of $34,565,000 had been included in the total domestic mail pay of $61,934,000 for that period. It was the board's belief that by 1953 the subsidy would decline to about 30% of the total mail pay for that year.

On Dec. 17, 1951, Robert A. Lovett, secretary of defence, and Charles Sawyer, secretary of commerce, jointly announced the establishment of a civil reserve air fleet consisting of several hundred four-engined aircraft with crews normally engaged in commercial air transport service.

The fatality rate in 1950 for every 100 million passenger miles of domestic and international flying by the scheduled air carriers was 1·3, the same as the estimated rate for 1951. In domestic operations the estimated fatality rate was 1·4, compared with 1·1 in 1950. In international operations the rate decreased from 2·1 in 1950 to an estimated 1·2 in 1951.

An estimated 2,700 civil aircraft were manufactured in 1951 as compared with 3,520 in 1950. Discussion was carried on with aircraft manufacturers concerning certain turbine-type engines which they were considering for use in civil transport aircraft. One civil transport aircraft was equipped with a turbine-propeller power plant and was flying on an experimental basis. Twenty-four new engine models ranging in power from 90 h.p. to 3,500 h.p. were approved. Major type certification projects during the year included the Douglas DC-6A and DC-6B models.

Work on the agricultural aeroplane, AG-1, which was completed and successfully test-flown in Dec. 1950, continued. The aeroplane was demonstrated over much of the United States. The federal government adopted a policy of intensified support of commercial transport helicopter development, as the result of a study and report made by President Harry S. Truman's air co-ordinating committee during the year. It was found that the military development and use of transport helicopters had advanced to the point where effective utilization of large multi-engined rotary wing aircraft on short-haul air line routes could be foreseen. The report called upon the post office department to continue the use of helicopters in terminal handling of mail in the Los Angeles and Chicago areas. (*See* also AIRCRAFT MANUFACTURE; JET PROPULSION AND GAS TURBINES.) (J. P. V. Z.; B. M. St.)

AVIATION, MILITARY: *see* AIR FORCES OF THE WORLD.

AZORES: *see* PORTUGAL.

BACON: *see* MEAT.

BACTERIOLOGY. Recent events had promised new weapons and a new methodology in medical microbiology. One new agent isolated, Protaptin, was an antibiotic produced by a bacterium trained specifically for the task of destroying the bacillus of tuberculosis. The antibiotic was obtained by cultivating a bacterium of the genus *Proteus* in a meat broth containing dead tubercle bacilli. By the gradual elimination of the meat, the bacterium became adapted to a diet exclusively of tuberculosis organisms and produced a substance capable of destroying virulent tubercle bacilli, yet which was harmless to experimental animals. Years elapsed before the pure antibiotic was successfully isolated, and by the end of 1951 it was believed that the ultimate value of this drug might soon be demonstrated when its performance in clinical trials was evaluated. Perhaps more important, however, was the illustration of a new method which, it was thought, would greatly increase the scope of microbiology, namely, the growth of "killer" microbes adapted for the role of antagonist to a specific pathogen.

The ability of penicillin to penetrate scar tissue and to exterminate the organisms protected by it was increased by the addition of iodine to the antibiotic. This product was reported to have penetrated scar tissue in the lung in cases involving lung abscess, chronic bronchitis and other chronic lung conditions where penicillin had normally been ineffective.

Botulism from Wounds. Botulism, most deadly of the food-borne intoxications, was reported to have occurred as the result of wounds. Two patients, one a 13-yr.-old boy with a minor gunshot wound, the other a victim of a handsaw cut, died with symptoms of botulism. These deaths reopened the question of the pathogenicity of *Clostridium botulinum*, which had long been thought to be capable of intoxication only *per os*.

Coxsackie Virus. In 1947 a virus isolated during a polio epidemic at Coxsackie, New York, was found to be the aetiological agent for a disease symptomatically similar to but milder than poliomyelitis. The agent, named the Coxsackie virus, was thought to be the vector of a disease which occurred in Europe about 1870 and was called epidemic muscular rheumatism. Sporadic outbreaks of epidemics having much in common with the Coxsackie epidemic had been reported in medical literature but speculation on this virus increased with the Fannin county (Texas) epidemic which produced more than 8,000 cases. Whether the virus there was the same as the Coxsackie virus originally isolated in 1947 was conjectural; another even more startling development was the fact that the disease resembled poliomyelitis and that only one case of true poliomyelitis was reported from Fannin county, a far lower incidence than usual for that area. Research on both these facets of the disease was continuing in 1951.

Positive proof of the identity of the Coxsackie virus was offered by scientists who investigated an outbreak of 50 cases in Hoquiam, Washington state, and isolated group B Coxsackie virus from stool specimens of patients. Increased

frequency of identification of viruses helped to reveal a rapidly growing incidence of Coxsackie virus epidemics.

Poliomyelitis. There was much evidence that certain predisposing factors might increase the incidence of certain types of poliomyelitis or the severity of poliomyelitis attacks. Evidence of an increased incidence of bulbar poliomyelitis following tonsillectomy had been presented and refuted on numerous occasions; the consensus now was that tonsillectomies during the epidemic poliomyelitis season should be avoided.

Observations were made in Australia, England and Wales that inoculation of children with pertussis vaccine, diphtheria toxoid or penicillin was followed by a greater occurrence of paralytic poliomyelitis than was warranted by usual incidence rates, and that the paralysis was associated with the site of injection to an inordinately high degree. A causal relationship was presumed and data to establish facts collected. Animal experimentation in mice injected intraperitoneally with pertussis vaccine alone or with diphtheria toxoid showed a significant decrease in the incubation period before the onset of paralysis as compared with controls. The *Journal of the American Medical Association* discussed the clinical reports but withheld judgment until more data had been received, and advised clinicians to postpone immunization with pertussis vaccine and diphtheria toxoid until poliomyelitis outbreaks had subsided.

Basic research on poliomyelitis continued to offer more clues to the cryptic source of poliomyelitis and the often attendant paralysis. An investigation indicated that the cockroach, *Periplaneta americana*, excreted infective amounts of Coxsackie virus for a 15-day period and that faeces from the insects fed poliomyelitis virus resulting in the death of monkeys to which they were transferred.

Bacteria in Oil Production. Bacterial inoculation of exhausted oil wells was reported to increase the flow of petroleum. From the cores of Louisiana oil wells, in Pacific ocean mud taken from a depth of 6,000 ft. and from the waters of the Chicago Drainage canal a micro-organism was isolated which has the power to extract oil from rock. *Desulfovibrio hydrocarbonoclasticus* is capable of breaking down heavy hydrocarbons into lighter ones, producing acids which dissolve rock in oil-bearing strata and generating carbon dioxide gas which increases the flow of oil by exerting pressure. Research in progress during 1951 was designed to find out how to make petroleum by microbial action.

Bacteria and Atomic Energy. Milk and meat irradiated for 20-40 hr. by X-rays and gamma rays from radio-active cobalt 60 were observed to remain unchanged after three weeks of storage in plastic bags at room temperature. Bacteriological analysis of the milk revealed it to be sterile. No trace of radioactivity remained in these foodstuffs. The possibility of food preservation as a by-product of the atomic pile thus presented itself, subject to further experimentation and analysis. (M. N.)

BADMINTON. The second contest for the Thomas cup, officially styled the International Badminton championship, was begun in 1951. Eleven nations challenged Malaya, the holders. India won the Pacific zone championship after victories over Thailand and Australia. European and U.S. zone play was not due to be completed until 1952.

The All-England championships were held in London in March. Wong Peng Soon (Malaya) and Frk. Aase Jacobsen (Denmark) won the singles titles, and E. L. and E. B. Choong (Malaya), Fru Tonny Ahm and Frk. Kirsten Thorndahl (Denmark) and Paul Holm and Fru Ahm (Denmark) the doubles events.

A Danish team toured South Africa and both Rhodesian and Indian teams visited Australia, and several top grade Malayan players came to Europe. In addition, a number of U.S. and Canadian players visited Glasgow in November for an international invitation tournament of champions.

Apart from the Thomas cup contest, many international matches took place. England defeated Ireland and Scotland, but lost to Denmark and Sweden; Ireland again beat Scotland, and Denmark overcame South Africa four times.

County or provincial competitions were played in most English-speaking countries, the winners being Middlesex (England), Victoria (Australia), Transvaal (South Africa), Bombay (India), Otago (New Zealand) and Penang (Malaya).

Organizations in 21 countries were affiliated to the International Badminton federation in 1951, of which Sir George Thomas remained president. (H. A. E. S.)

BAHAMA ISLANDS. British colony, an archipelago of 21 inhabited and about 680 uninhabited islands off the coast of Florida. Area: 4,403 sq.mi. Pop.: (1943 census) 68,846; (1949 est.) 78,275. Language: English. Religion: Christian. Capital: Nassau, on New Providence island. Administration: governor; executive council; legislative council, 9 unofficial nominated members; house of assembly, 29 elected members. Governor, Major General R. A. R. Neville.

History. Butlin's vacation village at West End, Grand Bahamas, remained closed throughout 1951. No decision was reached as to its future, but negotiations with a group of American financiers continued. Doubts were expressed as to the agricultural prospects of the Colonial Development corporation's large-scale project started in 1950. However, as a result of successful negotiations in 1950 some 4,000 agricultural workers were employed in the United States, and thanks to this and the building boom there was practically no unemployment on New Providence.

In an attempt to broaden the basis of the economy an Industries Encouragement act was passed offering substantial attractions to companies established under it: any such company was permitted to bring in plant and equipment free of duty; neither plant nor industry would be subject to taxation other than the existing real property tax for the first ten years; all duty paid on raw materials would be refunded on the exportation of the finished product; and there would be complete freedom to bring key workers. Several applications for registration under the act were quickly received.

Construction of guided missile stations in the Bahamas long range proving ground proceeded satisfactorily.

Education. Schools (1950): government and aided 124 (attendance 13,356), denominational 46 (3,591), private 7 (334). Higher education was provided at five schools in Nassau and there was a technical school and a teachers' training college at Oakes Field.

Finance and Trade. Currency: pound sterling; United States dollars also generally accepted. Budget (1950 actual): revenue £1,579,748; expenditure £1,658,741. Foreign trade (1950): imports £6,150,200; exports £904,671. Principal exports: lumber, tomatoes and crawfish. The tourist trade remained the basis of the economy: tourists (1950-51 winter season) 37,500 (18,800 in 1948-49 and 20,800 in 1949-50). Although the colony had been primarily a winter resort, it had successful summer seasons in 1950 and 1951. (J. A. Hu.)

BAHREIN: *see* ARABIA.

BAKERY PRODUCTS: *see* BREAD AND BAKERY PRODUCTS.

BALANCE OF PAYMENTS. The year 1950 was characterized by a closer approach to equilibrium in international payments. Although the dollar value of world trade remained broadly unchanged, the surpluses and deficits in current accounts were greatly reduced. One of the most important factors was the reduction in exports and increase in imports of the United States. The outbreak of the Korean war in 1950 had led to a rise of prices and to a sharp deterioration

TABLE I. EXPORTS OF GOODS AND SERVICES OF THE UNITED STATES AND MEANS OF FINANCING
($ million)

	1950	1951		
		1st Qtr.	2nd Qtr.	3rd Qtr.*
Exports of goods and services	14,425	4,375	5,283	5,076
Means of Financing				
Imports of goods and services	12,128	3,915	3,938	3,580
Addition to (—) or liquidation of (+) foreign gold and dollar assets	—3,645	—855	—150	+269
U.S. government grants and other unilateral transfers (net)	4,120	1,035	1,279	1,102
Remittances (net)	481	112	96	94
Long-term and short-term loans (government and private net)	1,480	308	367	29
Dollar disbursement (net) by International Monetary Fund and International Bank	17	6	—1	23
Errors and omissions	—156	—146	—237	—21

* Provisional.
SOURCE: *Survey of Current Business*, June, Sept. and Dec., 1951 (U.S. Department of Commerce).

in the terms of trade of all the industrial countries. Thus while the foreign trade of Europe and that of the United States expanded in 1951, severe balance of payments difficulties were recreated in many European countries. A first sign of this change was a return to a high export surplus of goods and services in the United States in the second and third quarters of 1951, a considerable shift from the pattern from the end of 1949 to March 1951. The most important part of the increase was due to larger purchases by Europe and there was also an increase in the purchases of Latin America because of an improved foreign exchange position there.

In the first half of 1951 the overseas sterling area still earned a surplus in its transaction with the United States, many of the countries benefiting from increased raw material prices, but in the second half of the year the position of both the overseas sterling area and of the sterling area as a whole—that is, including the United Kingdom—deteriorated. Purchases in the United States increased; there was a decline in U.S. purchases of wool, rubber and tin, and increased dollar payments against sterling to third countries, with the disappearance of U.S. government aid to the United Kingdom, suggested that in the second half of 1951 the sterling area might even be found to have had a deficit with the United States. This trend was reflected in the heavy loss of gold and dollars by the sterling area in the second half of 1951; losses in the third and fourth quarters were $638 million and $940 million as compared with gains of $360 million and $54 million in the first two quarters. In October alone they amounted to a further $320 million and at Dec. 31 the reserves of the sterling area were $2,335 million as against $3,300 million at the end of 1950. The chronic deficit of the United Kingdom became aggravated by a deficit of the overseas sterling area countries which earlier in the year still earned a surplus; consequently the whole sterling area was at the end of the year in deficit all round the world.

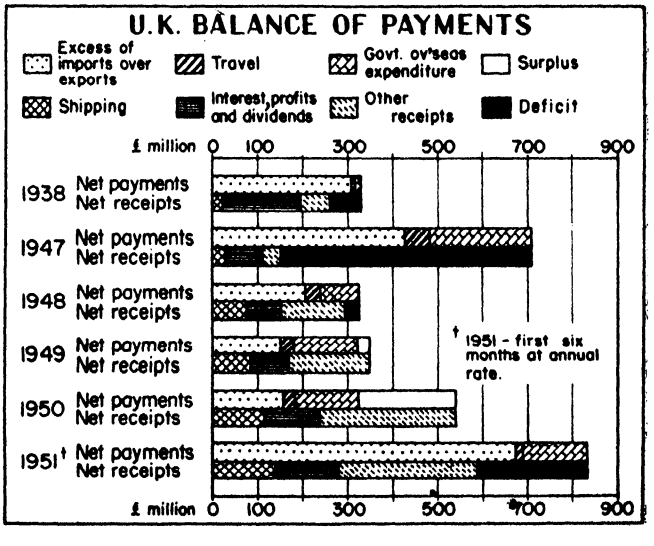
United Kingdom Current Account. The United Kingdom's deficit with the dollar area was not, towards the end of the year, counterbalanced by a surplus with the rest of the world as had been the case in, for example, 1949. This deficit was coupled with a serious deterioration of the balance with the world at large; it was estimated that the deficit with all countries for the year were of the order of £500 million. The deterioration in the current balance occurred almost entirely in the visible balance. The excess of imports (valued c.i.f.) over exports (valued f.o.b.) for the year was £1,208 million as against £352 million in 1950. This was due partly to a 13% deterioration in the terms of trade and partly to a 15% increase in the volume of imports with only a 3% increase in the volume of exports.

Invisible items showed no improvement comparable to that experienced during 1950. Indeed a deterioration was expected to have taken place in the second half of 1951, because of the loss of the Persian oil, the replacement of which was estimated to cost $300 million.

United Kingdom Balances: Distribution by Areas. The striking fact is that in the first half of 1951 the United Kingdom was in deficit both with the dollar area and with the Organization for European Economic Co-operation area as well as with the rest of the world; it was also in deficit with the sterling area on visible trade but earned a much reduced surplus when visible and invisible trade were considered together. The deficit with the dollar area increased to £109 million in the first half of 1951 as compared with a deficit of £56 million and £51 million in the first and second halves of 1950 respectively.

In relation with the rest of the sterling area the United Kingdom showed a surplus of £46 million in the first half of 1951. In the same period the overseas sterling area earned a substantial surplus in its dealings with the dollar area and contributed this surplus, amounting to £148 million, to the common pool. The overseas sterling area also continued to sell gold to the United Kingdom, amounting to £41 million in the first half of 1951. It also earned £121 million from third countries. The sum of these three items was well in excess of the U.K. surplus; they were increased by net borrowing of sterling area countries from the United Kingdom, leading to an increase of £368 million in the sterling balances of the overseas sterling area in the first half of the year, bringing these balances to £600 million higher than at the end of World War II. The sterling balances held outside the overseas sterling area also increased by about £57 million in the first half of 1951 and the total sterling liabilities to all countries stood at £4,168 million at the end of June 1951, as against £3,743 million at the end of 1950.

In the first half of 1951 the United Kingdom had a deficit of £26 million with the O.E.E.C. area as compared with a surplus of £53 million and £69 million in the first and second halves of 1950. Between the first half of 1950 and 1951 the United Kingdom imported from the O.E.E.C. area over 50% more by value but sold only about 20% more British goods to western Europe. As the overseas sterling area also made heavy purchases in the European countries, the United Kingdom position in the European Payments union changed from that of a creditor to that of a debtor, a process which



was even more aggravated in the second half of the year; the United Kingdom was then losing gold in part-payment of its debt to the union—it paid $204 million in gold to the union in the second half of 1951. This development was the main reason for the substantial cuts in private purchases of foodstuffs and other goods from O.E.E.C. countries announced in November.

European Payments Union. The union had been badly shaken by the wide swings in the balance of payments of member countries which began after the Korean war. As an example of the forces operating, the unequal progress in the rearmament drive in the various member countries appeared in 1951 to have diverted orders from the United Kingdom and France to Belgium, Italy and Western Germany. Consequently the position of the latter countries within the union was strengthened; indeed Belgium was asked to keep its surplus under stricter control and agreed to a reduction in gold payments on its surplus. The United Kingdom and France were at the end of the year virtually the only debtors of the union. The initial reserve of the union declined from $350 million to $210 million.

TABLE II. UNITED KINGDOM BALANCE OF PAYMENTS, 1946 TO 1951
(£ million)

	1947	1948	1949	1950 Jan.-June	1950 July-Dec.	1951 Jan.-June (prov.)
A. CURRENT ACCOUNT						
Debits						
1. Imports (f.o.b.)	1,560	1,790	1,973	1,165	1,217	1,643
2. Shipping	165	174	190	96	103	125
3. Interest, profits and dividends	94	102	104	58	56	65
4. Travel	76	66	73	32	49	39
5. Migrants' funds, legacies, private gifts (net)	46	44	26	5	1	5
6. Government transactions (net)	230	87	142	70	70	71
7. Total debits	2,171	2,263	2,508	1,426	1,496	1,948
Credits						
8. Exports and re-exports (f.o.b.)	1,135	1,584	1,822	1,040	1,183	1,305
9. Shipping	198	250	273	149	165	195
10. Interest, profits, dividends	171	179	189	104	133	135
11. Travel	21	33	44	28	30	31
12. Other (net)	88	188	201	147	164	160
13. Total credits	1,613	2,234	2,529	1,468	1,675	1,826
14. *Balance of current transactions* (credit, +; debit, —)	*—558*	*—29*	*+21*	*+42*	*+179*	*—122*
of which:						
(*a*) visible trade	—425	—206	—151	—125	—34	—338
(*b*) invisible	—133	+177	+172	+167	+213	+216
B. INVESTMENT AND FINANCING ACCOUNT						
1. Grants, etc. (to U.K., —)	—30	—138	—154	—111	—28	—30
2. Overseas investment, borrowing, etc. (investment by U.K., +)	—141	—11	+368	+25	—23	+109
3. Sterling liabilities, etc. (increase, —)	—235	+174	—190	—134	—84	—404
4. Gold and dollar reserves (increase, +)	—152	—54	—3	+262	+314	+203
5. *Total, investment and financing*	—558	—29	+21	+42	+179	—122
of which net change in capital account (B2-4 above: investment, +; disinvestment, —)	—528	+109	+175	+153	+207	—92

SOURCE: *United Kingdom Balance of Payments, 1946 to 1950* and *United Kingdom Balance of Payments, 1948 to 1951* (H.M.S.O. London, 1950 and 1951). Reproduced by kind permission of the Controller, H.M. Stationery Office.

TABLE III. UNITED KINGDOM CURRENT ACCOUNT: DISTRIBUTION BY AREAS (£ million)

	1950 Jan.-June	1950 July-Dec.	1951 Jan.-June*
Dollar area			
Visibles	—70	—43	—111
Invisibles	+14	—8	+2
Sterling area			
Visibles	+10	+28	—84
Invisibles	+73	+107	+130
O.E.E.C. area			
Visibles	+14	+8	—69
Invisibles	+39	+61	+43
Others			
Visibles	—79	—27	—74
Invisibles	+45	+54	+45

* Provisional.

The liberalization of European trade and the European Payments union were the only truly effective measures taken towards a freer movement of goods and services. At the same time, however, customs conferences were being held on a wider basis, representing countries, including the United States, responsible for four-fifths of the world trade. These conferences, the sixth of which was opened in Geneva in Sept. 1951 were organized within the framework of the General Agreement on Tariffs and Trade (G.A.T.T.) and had led to an immense number (about 60,000) of small tariff concessions. The time had not come by 1951 for a more general reduction of tariffs or for freer convertibility of currencies.

Future Prospects. The immediate outlook of the balance of payments position of the world after the end of 1951 was expected to be influenced in the first instance by some reversion in price trends and a consequent improvement in the terms of trade of the industrial countries. However, as the rearmament drive gathered speed, the pressure on resources would increase. Thus, unless output increased or inflationary forces were otherwise controlled, imports would tend to increase and exports to decline, thereby aggravating the balance of payments position of such countries as the United Kingdom, France and others in western Europe. The dollar shortage of western Europe, including that of the United Kingdom, was expected to continue. Western Europe could not hope to expand substantially its exports to the dollar area, while still needing supplies from that area. Also the forces of speculation were expected to work against certain European currencies. The manner in which the expected dollar deficits of western Europe would be financed was uncertain. In the United States fiscal year of 1951-52 there was at the disposal of the administration $8,000 million for foreign aid, of which about $6,000 million was available for aid to European countries. Slightly more than $1,000 million was authorized for economic aid and there was a further possibility of transferring up to $500 million from military to economic aid and of spending perhaps another $300 million in the form of armament orders in Europe. In distributing these funds the emphasis was no longer on European recovery, which was regarded as having been completed, but on mutual aid for common defence. (L. Rs.)

BALFOUR, SIR JOHN, British diplomat (b. London, May 26, 1894), was educated at Eton college and at New college, Oxford. He entered the Foreign service in 1919 and served in Budapest, Sofia and Belgrade. He was minister in Lisbon (1941-43), Moscow (1943-45), and Washington (1945-48) and ambassador to the Argentine republic from 1948 to 1951. In March 1951 he went to Madrid as the first British ambassador to Spain since 1946, when envoys were recalled in compliance with the United Nations recommendation. He was created a K.C.M.G. in 1947.

BALLET: *see* DANCE.

BANK FOR INTERNATIONAL SETTLEMENTS. The bank's business continued to expand at a rapid pace in the year covered by the report to March 31, 1951, the increase in the balance sheet total of Swiss (gold) Fr. 270·7 million to 1,025·5 million being even greater than that recorded in the previous year. The movement slowed down in the later months of 1951, however, the net rise in the six months to Sept. 30 being limited to Swiss (gold) Fr. 30·1 million. The higher figures were the result of the increased use of the bank by European central banks—its principal customers—for short-term credit and deposit operations and for transactions in gold and foreign exchange. No decisions having been taken during the year to resolve the German debt problem, the section of the balance sheet relating to the execution of the Hague agreement of 1930 on German World War I reparations showed no change.

BANK FOR INTERNATIONAL SETTLEMENTS

	(Million Swiss gold francs, pre-1936 value) March 31, 1951	March 31, 1950
Assets		
Gold in coins and bars	363·8	267·6
Cash and sight funds	75·0	44·3
Bills, acceptances, investments	517·0	373·0
Miscellaneous assets	1·4	1·6
Own Hague investments in Germany	68·3	68·3
	1,025·5	754·8
Liabilities		
Short-term and sight deposits (gold)	178·6	96·8
Short-term and sight deposits (currencies)	582·4	399·8
Miscellaneous provisions	119·6	113·3
Reserves (legal and general)	19·9	19·9
Paid-up capital	125·0	125·0
	1,025·5	754·8
Execution of Hague Convention		
Claims on German banks and other assets	297·2	297·2
Deposits of creditors and other liabilities	297·2	297·2

The development of the banking side of its business coupled with its work as agent for the European Payments union brought about a further substantial expansion in the turnover of the bank. Net profit in the year to March 31, 1951, at Swiss (gold) Fr. 6·1 million was, however, only slightly higher than in the preceding year. The bulk of it was placed to reserve but a portion was utilized for resuming the dividend service at a rate of 12·53 Swiss (gold) francs per share.

In the review of the world economic situation included in its annual report, the bank urged the commercial countries to abolish exchange restrictions, to relax import restrictions, to adopt restrictive credit policies and abandon cheap money practices. It argued that controls used during World War II could not be successfully applied in time of peace, even if it was an armed peace. (C. H. G. T.)

BANKING. The dislocation of the world prices structure, stemming in the first place from the violent movements in the main commodity markets after the opening of the war in Korea, dominated the banking scene in Great Britain, the Commonwealth, Europe and the middle east throughout 1951. In countries primarily concerned with the production of commodities, inflationary processes set in motion by the steep rise in the prices of raw materials in the second half of 1950 developed rapidly in the early months of 1951, bringing in their wake a spectacular expansion in the volume of bank money. In countries mainly devoted to the production of finished goods, the inflationary movement, making itself felt in the first instance through increases in the prices of imports, took longer to develop its full proportions. In these countries the distortion of the banking structure was of a fairly moderate order in the first part of the year but became more serious later.

In almost all countries there was a tendency towards greater stability in the banking system in the last few months of the year. This was due in part to the interruption of the rise in world commodity prices after the change in United States stockpiling policy in March. It was also attributable to the intensification of governmental measures to contain inflationary pressures. This second development was of special importance to the banks because the tendency, first generally evident in 1950, for greater reliance to be placed on the traditional instruments of monetary control—bank rate and quantitative control of credit through central bank action—in the fight against inflation became more marked in 1951. In many countries the practice, followed under the "cheap money" technique, of allowing unrestricted creation of bank credit, provided such credit was ostensibly intended to satisfy demands for investment finance that were in accordance with the national interest, was substantially modified. Thus steps were taken to supplement these so-called "selective" credit controls by overall controls, operated mainly by limiting the quantity of liquid resources available to the banking system for sustaining credit structures. At the same time, wider use was made in many countries of the bank rate mechanism for influencing the trend of interest rates.

Great Britain. The impact on the banking structure of the rise in the prices of imported goods was cushioned during a large part of the year by the emergence of a substantial deficit in the country's external payments. The fact that imports were running far ahead of exports meant that the flow of sterling to the government, on account of payments by the public for goods brought in from abroad, greatly exceeded the amount of sterling the government was required to transfer to the public in respect of the conversion of the foreign exchange proceeds of exports. The surplus accruing to the government from this source enabled it to deal with the tendency for budget receipts to fall short of outgoings and still retain considerable sums for reducing its indebtedness to the banking system. The effect of this net flow of money from the public to the government was to apply a downward pressure on bank deposits and bring about a considerable net reduction in bank holdings of assets directly or indirectly concerned with lending to the government—call money, bills discounted and Treasury deposit receipts. Thus, despite a substantial amount of credit creation by the banks to meet the enlarged demand for loans from the public to cover the increased cost of carrying stocks after the rise in prices, it was possible for British banks to avoid any extensive net addition to the quantity of bank money of the kind seen in many other countries. At the end of October the net deposits (*i.e.*, published deposits after deduction of the duplicating item "balances in course of collection") of the London clearing banks, which together accounted for some 95% of all commercial bank resources in Great Britain, were actually slightly lower than a year before.

ELEVEN LONDON CLEARING BANKS

(£ million)	Oct. 1949	Oct. 1950	Oct. 1951
Deposits	6,050	6,204	6,204
Net deposits	5,868	6,006	5,981
Cash	499	509	514
Call money	556	557	579
Bill holdings	1,162	1,414	1,340
Treasury deposit receipts	744	496	177
Investments	1,517	1,505	1,555
Advances	1,466	1,598	1,897
Acceptances, etc.	261	346	481

In reducing its indebtedness to the banking system, the main emphasis was placed by the government on the

repayment of Treasury deposit receipts. There was, however, a reversal during the year of the steady increase in the banks' holdings of Treasury bills in progress during the preceding years. And this tendency was accentuated just before the close of the year when the government converted a substantial portion of the Treasury bill issue into short-term bonds. This was an attempt to discourage bank lending by curtailing the supply of liquid assets available to the banking system.

In accordance with official wishes, the banks made a general increase in rates of interest for almost all forms of business during the year. In the middle of the year rates for commercial bill transactions on home and overseas account were raised together with charges for loans and overdrafts. After the change in official monetary policy in November, rates governing all short-term financing were substantially increased and it was indicated that loan and overdraft facilities would be more difficult to obtain and more expensive.

Commonwealth. The year proved just as troublesome for Australian bankers as its predecessors. There was less worry on account of domestic banking affairs, the previous controversy over the best form of control for the banking system being brought to an end by the passage through parliament of a government measure repealing the Bank Nationalization act of 1947 and restoring control of the Commonwealth bank to a board of ten members. But the banking system was subjected to tremendous stresses by the violent movements in the volume of money, caused by the sharp fluctuations in the prices of commodity exports and the swings in the country's external balance of payments. Through the early months of the year, bank deposits rose steeply, the total for the trading banks moving up to the record level of £A 1,300 million in April, as compared with £A 1,000 million a year before, This expansion was due in part to the creation of credit by the banking system to meet the enlarged demands for loans stimulated by the rise in export and other prices. It was also due to the considerable accumulation of money in the hands of Australians which resulted from the fact that spendings abroad were falling far short of receipts from overseas countries. Later in the year the relapse in the prices of important Australian commodities, assisted by a swing in the external payments from a position of surplus to deficit, exerted a downward pressure on the volume of money. At the end of August, the trading banks deposits at £A 1,200 million were only some £A 200 million higher on the year. At that time about half the additional deposits were represented on the assets side of bank balance-sheets by larger advances, the balance mainly by an increase in the banks' frozen balances with the Commonwealth bank. The official drive to counter inflation resulted in the banks' being required, in the second half of the year, further to tighten restrictions on lending. Two of the largest trading banks—the Union Bank of Australia and the Bank of Australasia—merged to become the second largest Australian bank and the largest New Zealand bank under the title Australia and New Zealand bank. External developments also led to a steep expansion in the volume of bank money in New Zealand in the early part of the year but steadier conditions were established later as a result of the relapse in the price of wool and the intensification of official anti-inflation controls.

In Canada, the government took steps early in the year to counter inflationary stresses generated by the rise in the world prices level. The banks were requested to restrict the total quantity of bank credit. They were also asked to allocate supplies of credit, within the limits set by quantitative restrictions, in accordance with a list of priorities drawn up by the government. At the end of September, the deposits of the chartered banks were slightly lower than a year earlier. The total of advances to the public at $2,900 million was some $650 million higher but only $50 million above the March figure.

In India, the increase in the money supply in the early part of 1951 was slower than in many other countries concerned mainly with primary production. But the government embarked upon a dearer money programme with an increase in bank rate shortly before the end of the year, because the expansion in bank loans was considered excessive. In Pakistan, the government continued its efforts to develop an efficient banking system. The rise in world prices caused some distortion of banking figures but it was relatively modest. In Ceylon, the newly established central bank presented its first report showing that, despite the gross distortion of the prices structure caused by the post-Korea boom in the country's principal exports, the new organization was functioning satisfactorily and enjoying the full co-operation of the commercial banks.

The expansion in the volume of bank money in the Union of South Africa was reversed in the second half of 1951. This was partly due to the decline in the prices of important exports like wool and partly the result of the heavy drawings that had to be made on the cash reserves of business concerns to pay for the increased volume of imports after the relaxation of import restrictions. The same factors were responsible for the sharp contraction in the Reserve bank's holdings of gold and foreign exchange from March 1951 onwards.

Europe. Inflationary pressures and official efforts to contain them resulted in considerable stresses being imposed on banks in nearly all European countries. French bankers were among the worst sufferers, official measures to halt the wages-prices spiral being largely ineffective for a great part of the year. By the autumn the increase in the volume of bank credit compared with a year before was about 25%. The movement moderated somewhat later, partly owing to the exodus of capital from the country stimulated by fears of devaluation of the franc and partly owing to the official decision to make more use of monetary controls, including increases in the bank rate, to contend with the economic crisis. In Belgium, indications that the restrictive credit measures imposed in 1950 were causing an unduly sharp contraction in business activity resulted in the bank rate being reduced in the first half of 1951. Later in the year, the banking system was required to make extensive changes in procedures for financing trade with other European countries in connection with the official drive to solve Belgium's European Payments union crisis. In Germany, the severe credit restrictions imposed towards the end of 1950 to deal with the external payments crisis were largely maintained through 1951, because the emergence of a surplus in external payments caused a further sharp expansion in the supply of bank money. The central bank law was changed to give the Federal government more effective control of monetary policy. Arrangements were also made for a reorganization of the commercial banking system. In Sweden, the government made an attempt to combine credit restriction with the continuance of the cheap money policy by developing plans to bring all interest rates within the control of the central bank.

Middle East. The measures establishing the National Bank of Egypt as the country's central bank became effective early in the year. In Israel, the external payments crisis persisted throughout 1951 and government measures to deal with this and the extensive capital development programme were the main concern of the banking system. In Persia the financial crisis which developed from the oil dispute with Great Britain produced considerable distortion of the banking structure. (C. H. G. T.)

United States. The most important development during 1951 was the return to a more flexible monetary policy, freed from the limitation of supporting prices of government securities and keeping interest rates from rising. In March, the federal reserve system permitted long-term government bonds to sell below par, and in December substantial support was withdrawn from the short-term market. With the market free to reflect the balance between supply of and demand for funds, interest rates rose substantially. The prime commercial loan rate rose from 1¾% in January to 2½% in May and to 3% by December. The yield on long-term government taxable bonds increased from 2·39% in January to 2·74% as the year closed, while the yield on Aaa corporate bonds rose from 2·66% to 3·03%.

Another notable feature was the voluntary credit restraint programme. This was an effective and co-operative effort of the federal reserve system and all major groups of lending institutions to curtail the use of credit for speculative purposes, to divert funds from non-essential uses and to limit over-all credit expansion while at the same time assuring adequate funds for the defence effort.

On March 9 the board of governors of the federal reserve system addressed a request to all financing institutions in the United States to follow it. Under the leadership of the national voluntary credit restraint committee headed by federal reserve board governor Oliver S. Powell, numerous regional and group committees were established. Commercial banks, life insurance companies, property insurance companies, investment banking firms, savings and loan associations and mutual savings banks joined in the programme. Six bulletins were issued by the national committee, setting forth general principles to guide participants in meeting demands for inventory loans, business capital expenditure financing, state and local government borrowing, certain types of real estate credit, borrowing by foreigners and borrowing on unlisted securities.

New peaks were reached by the end of the year in total loans and investments of all commercial banks, at $133,400 million; in total loans, $58,300 million; in total commercial and industrial loans, about $26,600 million; and in holdings of state and local government and other securities, $13,200 million. Commercial bank holdings of government securities declined slightly during the year to $61,900 million.

Total loans and investments of all commercial banks rose $6,700 million during the year, somewhat more than in the preceding year. The expanding volume of defence production, changing consumer and business expectations as to inflation, and the impact of credit restraint and material shortages, however, altered the pattern of credit expansion in several ways. The increase in commercial and industrial loans at all commercial banks during 1951 was about $4,700 million, almost the same as in the year before. Total loans of all commercial banks rose about $6,000 million or 12% in 1951, as compared with a jump of $9,200 million or 21% the year before.

On June 30, 1951, national banks, which numbered almost 5,000, held $86,589 million of total deposits. State banks, which numbered about 9,200, had total deposits of $64,900 million.

Little change was shown in the gold stock over the year as a whole. The decline in the gold stock which had been under way since the fall of 1949 was brought to an end in May. During the third quarter, net gold imports made their reappearance, reflecting a sharp increase in the surplus of exports.

The year saw the first yearly increase in money in circulation since the rapid wartime growth which ended in 1946. After an increase of $1,400 million during the year, money in circulation stood at the record height of $29,403 million on Dec. 26. During 1951 as a whole the gross federal debt increased by about $2,800 million to $259,500 million on Dec. 31, 1951.

New state and municipal financing in 1951 was about $3,200 million, less than the record of $3,700 million set in 1950 but more than in any other year. In spite of material shortages and tax resistance by voters, at the end of the year an extremely large volume of state and local bonds was under consideration. (J. K. L.)

Mutual Savings Banks. Combined assets of the mutual savings banks of the United States were $22,892,025,460 on July 1, 1951, a gain of $598,936,265 or 2·69% for the year. Deposits were $20,399,573,434, a gain of $460,260,489 or 2·31% for the year. On July 1, 1950, assets of these banks were $22,293,089,195, deposits $19,939,312,945, the respective increases during the year ended on July 1, 1950, being $1,180,947,148 or 5·59% and $991,292,834 or 5·23%. On July 1, 1951, the combined surplus of the banks was $2,323,270,025 or 11·39% of deposits, as compared with $2,209,947,477 or 11·08% of deposits for 1950. On July 1, 1951, there were 19,408,115 accounts. For the year ended July 1, 1951, dividends credited to mutual savings accounts averaged 2·05%.

The major changes in asset distribution from July 1, 1950, to July 1, 1951, were similar to those of earlier years, that is, a decrease in amount and per cent of U.S. government securities and an increase in real estate mortgage loans, in large part insured by the Federal Housing administration and the Veterans administration under federal statutory provision. The combined assets of all mutual savings banks on July 1, 1951, were invested as follows: U.S. government securities 44·65%, other securities 10·92%, real estate mortgage loans 38·94%, and other assets 5·49%.

The federal income tax-exempt status of mutual savings banks was removed by congress during the year. Net income after expenses and dividends and after specified allowances for reserves was made subject to the corporation tax beginning with fiscal years after Jan. 1, 1952. (*See* also BANK FOR INTERNATIONAL SETTLEMENTS; BANK OF ENGLAND; BANK OF FRANCE; BUSINESS REVIEW; EXPORT-IMPORT BANK OF WASHINGTON; FEDERAL RESERVE SYSTEM; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND.) (HE. BR.)

BANK OF ENGLAND. As central bank of the United Kingdom, the Bank of England took an active part in formulating and implementing the new monetary policy introduced in Nov. 1951 by the Conservative government. Aimed at making wider use of the traditional instruments of credit control to counter inflationary pressures, the first objective of the new policy was to restore flexibility to the short-term money market; the bank's rate for re-discounting bills (the bank rate) was raised from 2% to 2½% but to minimize the effect on the cost of servicing the government's short-term debt, a special rate of 2% was fixed for loans against Treasury bills, a departure from the orthodox practice of charging ½% above the bank rate for such accommodation. The supply of credit was restricted from November and the money market was forced in the last two months of the year to obtain assistance from the bank on bank rate terms for the first time in 13 years.

The emergence of a substantial deficit of receipts against expenditures on external account raised important policy issues and imposed increased stresses on the exchange control machinery the bank operated for the government. A number of European and Asian countries were brought within the scope of the sterling transferable account system, and in December exchange regulations were modified to permit the regrouping of the London foreign exchange

BANK OF ENGLAND RETURNS

	Oct. 26, 1949 (£ million)	Oct. 25, 1950 (£ million)	Oct. 31, 1951 (£ million)
Issue Department			
Notes in circulation	1,259	1,273	1,352
Fiduciary issue	1,300	1,350	1,400
Banking Department			
Public deposits	17	13	14
Treasury special account	63	266	7
Bankers' deposits	298	315	304
Other deposits	107	89	93
Government securities	403	556	332
Other securities	27	67	55
Reserve of notes and coin	47	80	50

market. The rise in prices and wages caused by inflationary pressures in Britain resulted in an expansion in the public's basic currency requirements. To accommodate this the bank raised the total supply of notes by making a net increase of £50 million in the fiduciary issue in the year to Oct. 31. The bank's annual report covering the year to Feb. 28, 1951, contained surveys of currency trends and information concerning the use made of sterling transferability facilities.

(C. H. G. T.)

BANK OF FRANCE. The grave deterioration in the French economic situation, both internally and externally, made 1951 a harassing year for the Bank of France. Signs that the impressive improvement in the balance of payments and the internal financial situation which began in 1950 was coming to an end persuaded the bank early in the year to discontinue the practice of relaxing exchange and credit restrictions. But no attempt was made during this period to withdraw any of the concessions granted in the previous year. In the second half of 1951, however, it became evident that France was heading for another serious economic crisis and from August onwards the bank devoted its main attention to measures to counter the effects of growing inflationary pressures. During Oct.-Nov. 1951 the re-discount rate (bank rate) was twice raised to bring it from 2½% to 4%. Restrictions governing the provision of credit by private banks were intensified. Other measures included the suspension of forward dealings in foreign currencies and the curtailment of the amount of certain foreign currencies that private banks could hold abroad.

BANK OF FRANCE

	Sept. 29, 1949 (Fr. million)	Sept. 28, 1950 (Fr. million)	Sept. 27, 1951 (Fr. million)
Assets			
Gold	65,200	182,875	191,447
Private discounts, loans	442,400	415,837	695,159
Advances to state	715,200	717,042	776,942
Liabilities			
Notes	1,210,600	1,467,425	1,779,360
Government deposits	200	94	60
Other deposits	138,800	156,931	168,272

The emergence of a substantial deficit in the country's external payments and the tendency for French capital to move abroad brought a substantial fall in the bank's holding of foreign currencies from April onwards. It also resulted in a substantial repayment of the loans granted by the bank to the exchange stabilization fund in 1950. The bank's gold holding was, however, largely maintained at the end-1950 level.

The rapid rise in internal prices and wage levels gave rise to a steady increase in the demand for currency and the note issue expanded by about 20% in the year to Oct. 31 despite the extensive purchasing of gold for currency stimulated by devaluation fears. The steep rise in the bank's private discounts and advances was the result of the private banks' inability to meet the demands made on them. (C. H. G. T.)

BAPTIST CHURCH. Political conditions in China in 1951 caused the withdrawal of missionaries with consequent new responsibilities for the native church. Sixty years' accumulation of property was handed over by the British Baptist Missionary society to a responsible body in north China. In other mission fields progress was reported: the Southern Baptist convention of U.S.A. celebrated 100 years of missionary work in Nigeria and reported 325 missionaries in Latin America and 100 in Japan.

Statistical reports (not including Russian-dominated lands) indicated 15,412,967 Baptist church members in 1951. America reported the largest groups; the American (Northern) Baptist convention, 1,561,073 members; the Southern Baptist convention, 7,079,889 members; with 4,428,719 Negro Baptists in two conventions.

Baptists in Europe showed a marked recovery from the effects of World War II. At their biennial convention in Dortmund (September), German Baptists reported 100,149 church members, an increase of 18,000 since World War II. Reconstruction of the seminary in Hamburg was almost completed and plans accepted for a new publication house in Kassel. December saw the dedication in Hamburg of the newly built First Baptist church, in commemoration of Johannes G. Oncken, "Father of Continental Baptists." The Baptists of Denmark reported a 25% increase in youth organizations over the past 10 years, with an average of one new church a year. The newly formed European Baptist federation held its first full council meeting in Hamburg and planned the first conference to be held in Copenhagen in 1952.

The outstanding event of 1951 was the Commonwealth and Empire Baptist congress, held in London, with exhibitions and congress-weeks elsewhere in Britain in connection with the Festival of Britain. Strong delegations attended from Canada, Australia, New Zealand, South Africa and Jamaica.

Notable elections during 1951 were: K. S. Latourette (Yale), to the presidency of the American Baptist convention; Duke K. McCall to the presidency of the Louisville Theological seminary; Porter Routh to the position of executive secretary of the Southern Baptist convention and Ernest A. Payne to the position of general secretary of the Baptist Union of Great Britain and Ireland. (F. T. L.)

BARBADOS. British colony, the most easterly of the Caribbean islands. Area: 166 sq.mi. Pop.: (1946 census) 192,841; (Dec. 1950 est.) 211,682. Language: English. Religion: Christian (*c.* 70% Anglican). Capital and chief port, Bridgetown (pop. 1948, 13,345). Administration: governor; executive council, 2 *ex-officio* members and nominated members; executive committee (which introduces all money votes and initiates all government measures), members of the executive council, 1 member of the legislative council and 4 from the House of Assembly; legislative council, not more than 15 appointed members; House of Assembly, 24 elected members. Governor, Sir Alfred Savage.

History. Heavy rainfall in the early months of the year—the normal dry season in Barbados—caused much disappointment to visitors. Thanks to very quick-drying soil the rain did not materially affect the harvesting of the largest sugar crop the island had had. An act to encourage the establishment and development of new industries, the Pioneer Industries (Encouragement) act, came into operation in 1951. It granted important measures of relief from customs duties and income tax to anyone establishing a factory for a new industry. Another act, which it was hoped might lead to even larger sugar crops than that of 1951, dealt with the control of underground water supplies. A third provided for increased levies on sugar and fancy molasses for the industry's labour welfare fund. The first elections under full adult franchise were held at the end of the year. It was doubtful, however, if the political campaign seriously distracted the attention of Barbadians from the exploits of the West Indian cricket team in Australia under the captaincy of a Barbadian,

John Goddard. The award to him of the O.B.E. gave great pleasure.

Education. Pupils in elementary schools (1950), 30,080; in secondary, 2,838. Expenditure: $1,906,328.

Finance and Trade. Currency: British Caribbean dollar ($4·80 = £1). Budget (1951-52 est.): revenue $10,576,000; expenditure $10,425,000, excl. development. Foreign trade (1950): imports $38,726,132; exports (incl. re-exports) $27,643,000. Principal exports: sugar, fancy molasses, rum. Sugar crop (1951), 187,663 tons.

(P. H.-M.)

BARLEY: *see* GRAIN CROPS.

BARRY, SIR GERALD REID, British journalist (b. London, Nov. 20, 1899), was educated at Marlborough college and Corpus Christi college, Cambridge, and served in World War I in the Royal Flying Corps and the Royal Air Force. In 1924 he became editor of the London *Saturday Review* but resigned in 1930 following disagreements with the proprietors about editorial policy; within a few weeks of his resignation, however, he obtained sufficient financial backing from Samuel Courtauld (the textile industrialist and art connoisseur) and others to found the *Week-end Review* which he edited until 1934. From 1936 to 1947 he was managing editor of the *News Chronicle*; in an "open letter" to the government, in a 1945 issue of this newspaper, he suggested a nation-wide celebration of the centenary of the Great Exhibition of 1851. The outcome was the Festival of Britain 1951 (*q.v.*), of which Barry was appointed director general in March 1948. He also served on various government and press committees: in 1931 he was co-founder of PEP (Political and Economic Planning), a research and study organization. He was chairman of the press sub-committee, United Kingdom Body for Mass Communications, U.N.E.S.C.O. In the 1951 Birthday Honours, Barry was knighted. He was editor of the two issues of *The Week-end Calendar* (1932, 1934) and *This England* (1934).

BASEBALL. During 1951, Ford C. Frick was elected commissioner of baseball, succeeding Albert B. Chandler. The famous "Yankee Clipper," Joe DiMaggio, a most brilliant player, announced that he was retiring from the game. Two important player deals occurred during the year. Chicago White Sox secured from Cleveland Orestes Minoso, an outfielder-third baseman with amazing speed, who finished the year as the American league's second-highest batter and its leading base stealer. The New York Giants brought up 19-year-old Willie Mays from their Minneapolis farm. He became the regular centre fielder and his outstanding defensive play, 20 home runs and ·274 batting average, contributed heavily to the pennant-winning cause. Mays was voted the National league "rookie of the year."

In the National league only one no-hit game was pitched, that by Cliff Chambers, then with Pittsburgh, over Boston on May 6. In the other circuit three such games were pitched. Allie Reynolds did it twice, once against Cleveland, and again on Sept. 28 against Boston, and Bobby Feller tossed the other against Detroit.

Major League Races. In the National league championship the Brooklyn Dodgers got off to an early lead, which, by mid-August, had become a 13-game advantage over the remainder of the field. The New York Giants, on the other hand, fared badly as the season got under way, suffering an 11-game losing streak. But as the season drew to a close the New York club was victorious in 38 of its final 45 games. This brought the two teams to the finish of the campaign in a dead heat and as a result it was necessary to play a two-out-of-three play-off series.

The Giants won the first game, 3-1. In the second the Dodgers routed the home club, 10-0, the winning pitcher being rookie Clem Labine. In the eighth inning of the third game the Dodgers scored three times and led 4-1 when the Giants batted in the last inning. They had scored a run and had two men on base with only one out when Bobby Thomson, Giant third baseman, hit one of Ralph Branca's pitches into the left field stands to make the Giants National league champions for the first time since 1937.

Meanwhile the American league race was over. The Yankees clinched the flag with two days remaining on the schedule.

Individual Performances. Stan (The Man) Musial of St. Louis, led the National league in batting for the fifth time in his career with ·355. American league batting honours went to Ferris Fain of the Philadelphia Athletics with a ·344 average. Home run honours again went to Ralph Kiner of Pittsburgh, whose 1951 total was 42. In the American league the leading home-run producer was Philadelphia outfielder Gus Zernial who blasted out 33 round-trippers.

All Star Game. The National league defeated the American league, 8-3, before 52,075 in Detroit's Briggs stadium.

World Series. The New York Yankees defeated the New York Giants by four games to two to bring them their 14th world championship since 1923 and their third consecutive win.

Attendance. Major league turnstile figures declined from 17,462,977 in 1950 to 16,103,822 in 1951. (F. C. FK.)

BASUTOLAND: *see* BRITISH SOUTH AFRICAN PROTECTORATES.

BAUDOUIN I (BAUDOUIN-ALBERT-CHARLES-LEOPOLD-AXEL-MARIE-GUSTAVE), King of the Belgians (b. Stuyvenberg castle, Brussels, Sept. 7, 1930). For his earlier career see *Britannica Book of the Year 1951.* As prince royal he acted as head of the state from Aug. 1950, when his father, King Leopold III, delegated to him the exercise of the royal prerogatives, until Leopold's abdication on July 16, 1951. He took the oath as King Baudouin I before both houses of parliament and the officers of state on July 17. In his accession speech he spoke of his father's having ended his reign by a self-denying gesture that had evoked the admiration of the nation. A civil list of Fr. 36 million (£257,143) was granted by parliament and Leopold was allowed to retain the courtesy title of King Leopold. King Baudouin celebrated his 21st birthday on holiday in the Austrian Tyrol. In Feb. 1951 he had visited Sweden for the 90th birthday of his grandfather, Prince Carl, and in April he went to Zermatt, Switzerland, for a short holiday. He went to Sweden again for the funeral, on Nov. 1, of Prince Carl.

BECHUANALAND: *see* BRITISH SOUTH AFRICAN PROTECTORATES.

BEDSER, ALEC VICTOR, England and Surrey professional cricketer (b. Reading, Berkshire, July 4, 1918), with his twin brother, Eric Arthur, excelled at games at Monument Hill school, Woking, and the Woking cricket club. Both were natural players and were given every encouragement by their parents. In 1938 they became members of the Surrey staff at the Oval. In the following year they each played twice for the first team. In World War II they served in the Royal Air Force. They left the services in May 1946, and Alec Bedser immediately established himself in county cricket as a medium-fast bowler. In that year he played in his first test for England. In the first two tests of 1946 against India he took 11 wickets in each game. Before the end of July he had taken his 100th wicket in his first county season. He ended the season with an average of 20·13 for 128 wickets. He toured Australia and New Zealand with W. R. Hammond's side in 1946-47 and played in all five tests against Australia.

Alec Bedser later played in tests in England against South Africa (1947), Australia (1948), New Zealand (1949), West Indians (1950) and South Africa (1951). He toured South Africa with F. G. Mann's side in the winter of 1948. In the English seasons since 1946 his record was: 1947, 24·428 for 130 wickets; 1948, 22·88 for 115 wickets; 1949, 21·30 for 110 wickets; 1950, 22·92 for 122 wickets; and 1951, 15·56 for 130 wickets. He again toured Australia and New Zealand with F. R. Brown's side in 1950-51. By the end of the 1951 season he had taken 152 wickets in test matches.

BEEKEEPING. The winter and spring before the apicultural season of 1951 were most discouraging and until quite late in the spring there was much anxiety among British beekeepers. Incessant rain and low temperatures had caused much hive dampness. Spring examinations revealed mouldy combs often packed with unusable pollen: bees therefore had to pull down and rebuild considerable areas in their brood chambers. Spring dwindling, acarine disease and common dysentery destroyed much valuable bee life. Losses of colonies were very high, variously estimated at as much as 50%. It was not until the middle of May that bees really got going, just when the spring feeding allowance of sugar was down to the last ounce. When the weather changed apiarists were pleased to see their colonies full of activity. It seemed that bees were never so busy before. Rapid development of brood nests and ideal weather put them right for the clover and lime period, but few beekeepers were solaced by any surplus from fruit blossoms or hawthorn. Nevertheless much surplus was finally harvested from many fewer colonies than in the previous year. Some beekeepers in the districts more favourable to bee-forage claimed 1951 as a bumper year, but the general conclusion was that honey-takes were only moderately good.

Honey quality left little cause for complaint. Good samples of light and medium honey were common; only in a few places did honey dew depreciate the yield. The large numbers of shallow combs and sections suitable for exhibition gratified show competitors. The nuisance of swarming was not so marked as usual. The period from June to August was especially kind to those who reared queens, and there was a high percentage of matings. It was noticed, however, that hedge sparrows had again developed their taste for eating light-coloured queens. Those who relied on returns from the heather were again disappointed, and weather conditions resulted in general failure on the moors.

Natural stores in brood chambers, supplemented by the sugar allowance, made it possible to pack down for winter with confidence. Educational work was not neglected and in September the 14th International Congress of Beekeepers was held at Leamington, Warwickshire, followed by a similar conference at Aberdeen. (W. H. R.)

BEER: *see* BREWING AND BEER.

BELGIAN COLONIAL EMPIRE. The Belgian colonial empire consists of the colony of the Congo in central Africa and the adjacent trust territories of Ruanda and Urundi administered with Congo. Total area: about 925,094 sq.mi. Total pop. (1951 est.): 14,929,200. Areas, populations, capital towns, status and governors of the separate territories are given in the table.

History. In 1951 the forces in the Belgian Congo amounted to 10,000 native troops. One unit was stationed at Kamina, the new Belgian military base in the Lualaba province, where small Belgian forces were directing the construction of barracks, munition and petrol dumps, and an airfield. In 1952 Belgian airborne troops and commandos by turns were expected to be established there.

Exports from the Belgian Congo and from the trust territories Ruanda and Urundi during the first nine months of 1951 amounted to Fr.C. 14,205·2 million against Fr.C. 9,190·3 million during the corresponding period in 1950. Some 46% of the exports went to Belgium, whereas the homeland provided 40% of the imports of the colony.

The white population amounted to 59,157 including 44,028 Belgians, 1,009 Americans, 1,752 British, 1,849 Greeks, 1,754 Italians and 3,290 Portuguese.

For the fulfilment of the 10-year plan for the development of natural resources $160 million were invested in 1951, through a loan by E.C.A. and the floating of a loan of Fr.Sw. 60 million, the latter being used for the payment of Swiss electrical equipment. The government published a similar 10-year plan for Ruanda and Urundi.

An agreement was signed with Great Britain, in April, for the construction of a deep-water berth at Dar-es-Salaam where the Belgian Congo already enjoyed special port facilities. At the end of the year a transport crisis caused by accumulation of goods developed at key points of traffic in the Congo. The licence system for imports and exports had to be revised to give priority to essential goods. (M. Ss.)

Principal Products. (Belgian Congo and Ruanda and Urundi; 1950, metric tons if not otherwise stated): copper, metal 193,917; tin, metal 14,792; cobalt 5,070; cotton 47,000; coffee 31,400; gum copal (exports) 12,476; gold ('000 fine ounces) 339; silver ('000 fine ounces) 4,469; (1949, metric tons if not otherwise stated) manganese ore 12,247; tungsten 169; cadmium 25; zinc, concentrates 109,263; coal 152,370; palm oil (exports) 121,766; palm kernels (exports) 80,034; maize 17,271; timber (exports) 71,313; diamonds (carats) 9,884,000.

Foreign Trade. (Belgian Congo and Ruanda and Urundi; Congolese francs million, 1950; 1949 in brackets): imports 9,559 (10,320), exports 13,595 (11,171).

Transport and Communications. (Belgian Congo and Ruanda and Urundi). Roads (1949): 111,971 km. Railways (1949): 4,756 km. Waterways (1948): 25,412 km., including 12,284 km. for barges of 40 gross tons. Licensed motor vehicles (Belgian Congo only, Dec. 1950): cars 11,500, commercial 12,000.

Finance. (Million Congolese francs) *Belgian Congo.* Budget: (1950 est.) revenue 4,032·2, expenditure 4,008·9; (1951 est.) revenue 5,125·5, expenditure 4,959·1. *Ruanda and Urundi.* Budget: (1950 est.) revenue 276·6, expenditure 325·2; (1951 est.) revenue 321·3, expenditure 363·9. Monetary unit: *Congolese franc*, nominally an independent currency, actually at par with the Belgian franc and in Sept. 1949 equally devalued by 12·34% to the U.S. dollar.

BELGIUM. Kingdom in western Europe bounded S.W. by France, N. by the Netherlands and E. by Germany and Luxembourg. Area: (incl. some German frontier localities annexed on April 15, 1949): 11,782·5 sq.mi. Pop.: (1947 census) 8,512,195; (1950 est.) 8,639,000. Language (1930): Flemish (Dutch) 42·92%, French 37·56%, German 0·85%, Flemish and French 12·92%, German and French 0·83%. Religion: mainly Roman Catholic. Chief towns (pop., 1948 est.; first figure including suburbs, second figure *commune* only): Brussels (cap., 1,296,687; 185,112); Antwerp (chief port, 794,280; 266,636); Liège (573,176; 156,664); Charleroi (445,229; 26,262); Ghent (442,792; 166,797); Namur (215,069; 31,637); Bruges (200,850; 52,984). Ruler, King Baudouin I (*q.v.*); prime minister, Joseph Pholien.

History. A long period of constitutional dispute ended in Belgium when, on July 17, 1951, Prince Baudouin took the oath in parliament and became the fifth king of the Belgians. After King Leopold's return to the country, on July 22, 1950, disorders had occurred and the king was persuaded to

BELGIAN COLONIAL EMPIRE

Country	*Area* (sq.mi.)	*Population* (1951 est.)	*Capital*	*Status*	*Governor*
Belgian Congo	904,974	11,132,000 (incl. 59,157 Europeans)	Léopoldville	Colony	Eugène Jungers, governor general
Ruanda	20,120	3,796,700 (incl. 2,805 Europeans)	Nianza	Sultanates, Trust territories	
Urundi			Kitega		

transfer his royal powers to the heir of the throne who, on Aug. 11, 1950, took the oath and became the prince royal, pending his accession to the throne on Sept. 7, 1951, when he would be 21. However, in June, King Leopold suggested to the prime minister and to the presidents of the Christian Social, Socialist and Liberal parties to advance the accession to the throne because, in his opinion, calm and unity were sufficiently restored. On July 16, in the throne room of the royal palace in Brussels, King Leopold signed the abdication act.

Political. Pholien tendered the government's resignation after the accession ceremony, but King Baudouin asked him to remain in office. The government based on the Christian Social party retained a majority of 4 in the House of Representatives and of 7 in the Senate. The government party itself was an amalgamation of Roman Catholic peasants, workers, middle classes, industrialists and landowners. Changes in the government had been forecast, owing to controversies on economic and labour policy, but King Baudouin's decision put an end to the speculations, and Pholien always declared that an adverse vote in parliament alone should force him to reconstruct his cabinet or to resign. For months, contrary influences within his own party were brought to bear upon the prime minister. The House of Representatives reassembled on Nov. 6 to question the government. At the end of the debate a vote of confidence was passed but Pholien felt compelled to enter into negotiations for the appointment of a minister for co-ordination of economic policy. The prospect of a political crisis resulting in the dissolution of parliament and of new elections which might destroy its present small majority kept the Christian Social government in the saddle.



Ex-King Leopold, his mother Queen Elisabeth and his son King Baudouin (left to right), passing a statue of King Albert (1875-1934) which was unveiled in Brussels on Oct. 21, 1951.

Economic and Financial. The Korean war and rearmament in western Europe caused appreciable changes. The index of industrial production (1936-38=100) stood at 148·6 in Nov. 1951 compared with 122 in Jan. 1950. The metallurgical industry was prosperous, but in the textile industry the index fell from 151 in Nov. 1950 to 122 in Nov. 1951. In May ended the period of increased imports, mainly of raw materials, whereas exports reached in October the record figure of B.Fr. 12,474 million. The monthly average of exports in 1949 was B.Fr. 6,649 million. The increase of the cost of living since Sept. 1949 was estimated at 9% compared with 30% in France and 23% in the Netherlands. In the European Payments union, Belgium became the biggest creditor nation. At the end of September there was a credit overdraft of more than $80 million, and in October the government introduced a series of measures to check speculative imports of capital from countries of the E.P.U. Imports of goods from the dollar area were restricted to promote purchases in the E.P.U. area. On the other hand exports to E.P.U. countries were discouraged by blocking 5% of the proceeds.

International. Co-operation between the Netherlands and the Belgo-Luxembourg Economic union continued, but the formal beginning of the Benelux Economic union was delayed because of the Netherlands balance of trade deficit. At the end of the year the three governments were examining the draft of a convention introducing economic union with some temporary restrictions. In March the Belgian delegates initialled the provisional convention on the Schuman plan for pooling the coal and steel resources of western Europe. Provisions were included in the convention to avert any closing down of Belgian coal mines during the first five years, but misgivings remained. Moreover the question was raised whether the submission to a supranational authority, not responsible to the Belgian parliament, was in accordance with the constitution.

Defence. In March parliament passed a bill extending military service from one to two years. The strength of the Belgian forces increased from 72,000 in 1950 to 110,000 in 1951. In 1952 the figure would be 130,000 and in 1954 the strength would amount to 163,000.

The construction began of 26 British camps in the area between Lier, Herentals and Turnhout for the supply of British forces in Germany. In January, the prince royal signed a decree placing the Belgian fighting forces at the disposal of the North Atlantic Treaty organization. The decree established a precedent because, by virtue of the constitution, the head of state is the commander in chief of the Belgian forces. At the time of the Atlantic council meeting in Rome (November) the question of a European army came to the forefront. The Belgian government considered such an army desirable provided it increased the strength of Atlantic defence, encouraged European unity and integrated western Germany into a western defence community; but many objections were raised as to the powers of the higher authority governing the European army and the amalgamation of Belgian and other troops at the risk of separating Walloon and Flemish soldiers to the detriment of Belgian unity.

(M. Ss.)

Education. Schools (Dec. 31, 1949): elementary, infant 4,050, pupils 289,791; primary 8,714, pupils 768,283; primary, adult 370, pupils 5,863; secondary, state, lower grade 97, pupils 43,772; secondary, state, higher grade 157, pupils 46,729; Catholic 463, pupils 66,633. Teachers' colleges (Dec. 31, 1949): infant 39, students 1,582; elementary 81, students 8,814; secondary 38, students 1,304. Universities (1949-50) 4, students 16,425.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): wheat 596 (547); barley 247 (260); oats 587 (503); rye 258 (238); potatoes 2,047 (2,309); sugar, raw value 349 (445); linseed 16 (12); rapeseed 4 (3). Livestock ('000 head, Jan. 1951): cattle 2,020; sheep

116; pigs 1,234; horses 247; goats 55; poultry 16,500. Dairy production (1949; 1950 in brackets): butter ('000 metric tons) 66 (73); milk (million litres) 2,970 (3,452). Meat production ('000 metric tons, 1949; 1950 in brackets): total 288 (318). Fisheries: total catch ('000 metric tons, 1948; 1949 in brackets) 70·9 (68·3).

Industry. Industrial establishments (Jan. 1948): 248,128; persons employed 1,000,010. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 27,300 (14,895); manufactured gas (million cu. m.) 1,446 (829); electricity (million kwh.) 8,484 (4,653). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): pig iron 3,696 (2,378); steel ingots and castings 3,768 (2,472); copper smelter 137 (72); lead 62 (31); zinc 177 (99); tin 10·4; aluminium 1·9. Manufactured goods ('000 metric tons, 1950; 1951, six months, in brackets): cement 3,552 (2,110); woven cotton fabrics 74 (45); cotton yarn 98 (55); wool yarn 40 (20); rayon filament yarn 9·8 (6·2); paper and cardboard 301·2 (171·0).

Foreign Trade. (Belgo-Luxembourg Economic union, million francs, 1950: 1951, six months, in brackets): imports 97,500 (65,604); exports 82,572 (64,177). Main sources of imports (1950): U.S. 16%; France 11%; Netherlands 10%; U.K. 8%. Main destinations of exports: Netherlands 22%; France 9%; U.K. 8%; U.S. 8%. Main imports: machinery and vehicles 14%; raw wool and cotton 13%; grains 6%; coal, petroleum and products 6%. Main exports: iron, steel and manufactures 19%; thread and fabrics 15%; non-ferrous metals and manufactures 11%; machinery and vehicles 9%.

Transport and Communications. Roads (1949): 6,648 mi. Licensed motor vehicles (Dec. 1950): cars 273,599; commercial 144,566. Railways (1950): 3,128 mi.; passenger-mi. 4,377 million; goods, ton-mi. 3,393 million. Shipping (merchant vessels of 100 gross tons and over, July 1950): 222; total tonnage 481,656. Navigable waterways 969 mi. Air transport (1950): passenger mi. 146 million; cargo, ton-mi. 5,257,000. Telephones (Dec. 1949): subscribers 471,705. Wireless receiving sets (1949): 1,374,400.

Finance and Banking. (Million francs) budget: (1951 est.) revenue 73,400, expenditure 68,300; (1952 est.) balanced at 70,500. National debt (Aug. 1950; Aug. 1951 in brackets): 248,735 (246,970). Currency circulation (July 1950; July 1951 in brackets): 92,200 (94,600). Gold and foreign exchange (million U.S. $, Aug. 1950; Aug. 1951 in brackets): 794 (935). Bank deposits (June 1950; June 1951 in brackets): 63,600 (64,700). Monetary unit: Belgian *franc*, with an exchange rate (Aug. 1951) of B.Fr. 140 to the pound and B.Fr. 50·37 to the U.S. dollar.

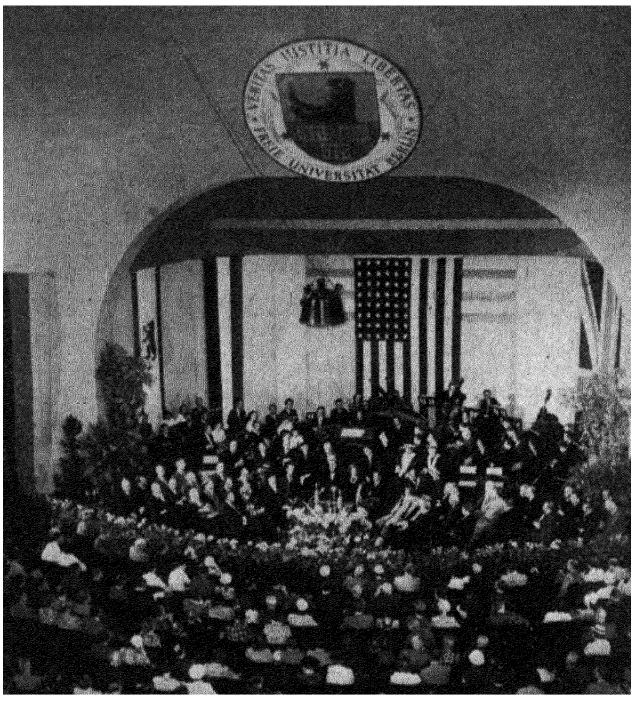
See J. K. Miller, *Belgian Foreign Policy Between Two Wars 1919-1940* (New York, 1951).

BENELUX: *see* BELGIUM; NETHERLANDS; LUXEMBOURG.

BEQUESTS: *see* DONATIONS AND BEQUESTS.

BERLIN. Capital of the German Reich from 1871 to 1945, Berlin was still by 1951 the largest city of Germany. Area: 343·6 sq.mi. Pop.: (1939 census) 4,321,500; (1946 census) 3,179,200, or 24·4% less. From June 6, 1945, to June 24, 1948, Berlin was administered by an inter-Allied government authority (in Russian, Kommandatura) consisting of the commandants of the four sectors of Berlin. After June 24, 1948, when the Soviet commandant proclaimed the dissolution of the Kommandatura, Berlin was in fact divided into two opposing administrations. By Dec. 31, 1951, the three western sectors (pop., *c.* 2,500,000) were under the authority of the three following Allied commandants: Great Britain, Major General C. F. C. Coleman; United States, Brig. General Lemuel Mathewson; France, General Pierre Carolet. In the Soviet sector (pop., *c.* 900,000) the civil administrator was Serghey S. Dienghin with A. F. Susin as deputy. There were also two rival German city governments and two lord mayors. Professor Ernst Reuter was *Oberbürgermeister* appointed by a city assembly elected by the population of the three western sectors; Fritz Ebert was provisional *Oberbürgermeister* of the Soviet sector appointed by a meeting summoned by the Sozialistische (Communist) Einheitspartei.

History. By the end of 1951 West Berlin was still not included as the 12th Land in the federal republic, but it now had 19 non-voting deputies in the Bonn parliament, instead of 8. The extra 11, chosen according to party strength, were: 4 Socialists, 4 Free Democrats and 3 Christian Democrats. Ernst Reuter was re-elected lord mayor, by 77 out of 125 votes, on Jan. 17, even though his party, the Socialist, did not have the absolute majority.



The scene in the Titania Palast theatre in the western sector of Berlin on Aug. 7, 1951, when Paul G. Hoffman, president of the Ford foundation, announced a grant of $1,309,500 to the West Berlin free university.

Attempts by Soviet and Eastern German authorities to "needle" West Berlin, particularly to upset its normal trade communications with the west, continued. Interferences with interzonal waterways traffic was settled on May 4, and the holding up of mail to and from Western Germany on Sept. 6. The sudden introduction of an excessive *Autobahn* tax for Western German and West Berlin transport using the special international highway between Berlin and Helmstedt (British zone) lasted three weeks (Sept. 7-22), when the tax was considerably reduced.

In February Soviet authorities took over West Staaken, a small village on the outskirts of the British sector. Though technically belonging to the Soviet zone since 1945, it had been included in the administration of Berlin-Spandau. Eastern German police seized in October the hamlet of Steinstücken, just a mile beyond Zehlendorf and administratively under that suburb. When the U.S. commandant protested, the Soviet authorities ordered their police to withdraw.

West Berlin's main problem was still economic. At the end of November the number of unemployed was 265,000 and more than 25% of these were between the ages of 14 and 30 years, thus constituting a great social problem. Industrial production, as compared with that at the end of the blockade (May 1949), had almost trebled by the summer of 1951, but the production index still lagged far behind that of Western Germany. It was still only 50% of that for 1936, whereas for Western Germany it was 35% above. West Berlin was well equipped to meet the demands for electrical goods of all sorts, precision and optical instruments, pharmaceutical products, etc. About 75% of the 1951 exports went to European countries and the rest overseas. Investments for creating employment amounted to DM. 706·9 million in 1949-50, and to DM. 953 million in 1950-51. DM. 166·9 million and DM. 273 million respectively were from foreign sources. Budget deficits under the

abnormal conditions prevailing were the rule. The federal republic promised at the end of October an additional DM. 550 million monthly from the *Notopfer Berlin* funds to help to tide over these difficulties.

On Sept. 28 Lord Mayor Reuter outlined a seven-point programme of the Berlin Senate which included: political incorporation of West Berlin in the federal republic, greater financial credits for industry, building schemes, security of unhindered traffic to and from the city, and other matters.

In addition to the usual unemployed, the escape to the western sectors of the city of about 3,000 refugees monthly from the Soviet zone was a serious strain on resources. Though only about 25% of these were accepted as genuine political victims, nevertheless they had to be fed and housed until transferred to Western Germany.

Despite its difficulties, West Berlin had done much to clean and improve its general appearance. Great improvements were noticeable in the streets and the parks, and many international exhibitions were organized, particularly the September Festival of Music and Drama which rivalled many of those of prewar days. An exhibition of a different sort was that of German industry (Oct. 6-21).

An outstanding U.S. gift, on Aug. 6, was that of $1,309,500 from the Ford foundation to the Free University of Berlin for building an auditorium and a student's mensa. (By 1951 this university had 2,000 students.)

East Berlin moved very slowly, with little of importance to record. In fact, one local humorist suggested that it only came to public attention once a year—with the holding of the gigantic Communist rally. The 1951 Youth Festival brought together about 1,500,000 members of the Free German Youth (Freie Deutsche Jugend). Most of them were from Communist-controlled areas, but only about 11,500 F.D.J. crossed from the western zones of Germany. Unlike the 1950 festival, which was intended to demonstrate the strength of the movement among the youth, this year's festival was taken up with a programme of sport and entertainment. But propaganda was not forgotten. The festival, however, was not a great success. It lasted too long (Aug. 5-19), and despite the efforts of the Volkspolizei thousands of the F.D.J crossed over into West Berlin where they were welcomed by the people and carried back home views of the free world which could not have been pleasing to the Communist authorities.

The East Berlin city council did little to improve the drab, shabby appearance of most of the city under its administration. The only exception was its principal street, Unter den Linden. Here, the Soviet embassy (completed after two years' work) stood out as a modern but much overdone structure. And the former Lustgarten, renamed Marx-Engels square, was more than ever like a miniature Red square. In political, economic and cultural policies, East Berlin followed unquestioningly the line laid down by the Eastern German Communist government. As the split in the city continued, it was surprising that in so many services which they shared in common (for example, transport) conditions were so near normal. (J. E. Wi.)

BERMUDA. British colony, *c.* 300 small islands 580 mi. east of Cape Hatteras, North Carolina. Area: 21 sq.mi. Pop. (1950 census): 37,254. Language: English. Religion: Christian. Chief towns: Hamilton (cap., *c.* 3,500); St. George (*c.* 1,300). Administration: governor; executive council, 4 official and 3 unofficial members; legislative council, 3 official and 6 unofficial members; House of Assembly, 36 elected members. Governor, Lieut. General Sir Alexander Hood.

History. The Royal Naval dockyard, as expected, closed on March 31, 1951, although Bermuda remained the base of the American and West Indian squadron. No definite plan materialized for the solution of the problems caused by the closing of the dockyard. A commission which investigated the growth of population and illegitimacy recommended that steps be taken at once to restrict population growth. The House of Assembly decided not to appoint another select committee to consider extension of the franchise. Plans for developing a commercial tuna fishing industry centred on Bermuda were discussed at the Bermuda Oceanic Fisheries conference.

Education. Schools (1949): aided 27 (attendance 5,701); attendance at private schools, 1,251.

Finance and Trade. Currency: Bermuda pound (at par with sterling). Budget (1950): revenue £2,009,463; expenditure £1,969,022. Foreign trade (1950): imports £8,208,376; exports £962,646. Principal exports were cut flowers. The economy of the colony rested on the tourist trade. Tourists: (1950) 71,260 (incl. 61,654 from the United States); (first eight months of 1951) 73,000. (J. A. Hu.)

BETTING AND GAMBLING. In April 1951 the Royal Commission on Betting, Lotteries and Gaming presented its report, *Betting, Lotteries and Gaming, 1949-51* (Cmd. 8190, H.M.S.O., London, 1951). The commission had been appointed in April 1949, under the chairmanship of H. U. Willink, to "inquire into the existing law and practice relating to lotteries, betting and gaming, with particular reference to the developments which have taken place since the report of the Royal Commission on Lotteries and Betting in 1933, and to report what changes, if any, are desirable and practical." The commission held 25 meetings for hearing oral evidence and 17 meetings for discussion, and heard evidence from 141 witnesses. The cost of the inquiry was £11,695.

The law and public opinion had previously been confused on the subject of betting, lotteries and gaming. The unanimous report of the royal commission recommended that the law be clarified, and in giving its reasons for this proposal, reviewed with clarity and fairness the evidence upon which an informed public opinion must be based. The commissioners made no attempt to appease the strongly held views of the pro-, or anti-gamblers. They heard all sides and from the evidence they reached an independent, sensible and well-argued conclusion.

The laws relating to gambling were diverse, often illogical, and always difficult to enforce. For in the past legislation had always been piecemeal and often negative. Acts still in force in 1951 dated from 1541 when Henry VIII tried to protect his subjects against the distractions from archery. In the intervening years there arose a maze of legislation embodied, mainly, in the Betting act, 1853, the Street Betting act, 1906, the Ready Money Football Betting act, 1920, the Race Course Betting act, 1928, and the Betting and Lotteries act, 1934. The commission proposed that all these laws should be consolidated into a single statute and, in any event, that all statutes, other than the Race Course Betting act and the Betting and Lotteries act, should be repealed.

The commission stated as a principle that: "It is the concern of the state that gambling, like other indulgences such as the drinking of alcoholic liquor, should be kept within reasonable bounds, but this does not imply that there is anything inherently wrong in it." And in support of the commission's suggestion that the state should control gambling as it did drinking, while making no attempt at prohibition, its proposal that betting shops for off-the-course cash bets should be allowed under licence and strict police control, seemed to be a moderate encouragement to gambling rather than a deterrent. But this proposal was favoured by every witness with practical experience of the enforcement of present laws, only the bookmakers' associations and the churches' committee, in unusual alliance, being opposed to it.

It was a logical development of the argument for state control as against prohibition, and the only way to avoid the uncontrollable evils of street betting. The commission recommended a scheme similar to that concerning the licensing of public houses in Great Britain, with safeguards against loitering and excessive gambling similar to those against excessive drinking.

The commission's other proposals were less controversial: (1) that all bookmakers should be registered and required to renew a "certificate of eligibility" every year, and only such bookmakers should be allowed to conduct betting either on credit (as the law permitted in 1951) or in the proposed betting shops; (2) that it should be an offence for any bookmaker to bet with a person "apparently under 18 years of age"; and (3) that it should be an offence for anyone under 18 to enter a betting office. There would be heavy penalties, including cancellation of the licence, for any breach of the betting laws.

On football pools the commission proposed that any one prize "must not exceed a specified amount." It did not specify a particular sum, but said, "We think that the limit should not be higher than £20,000, but that it would not be reasonable to make it less than £10,000." The commission would prohibit abbreviated permutations, because this "is a convenient method of staking relatively large sums by persons who take little interest in the result of individual matches." And any commission, expenses or other amount (taxation) charged by the promoter against the gross stakes must be charged against the total stakes in each pool in the proportion which the total stakes in that pool bear to the gross stakes. The total amount paid to winners in any pool must be equal to the total stakes in that pool, less any amount deducted in accordance with the preceding recommendation, and they may not be supplemented from any other source.

These recommendations appeared to aim at preventing the very large prizes as a means of attracting those persons who might not normally gamble. The commission based its proposals for controlling football pools on three points: (1) that it is desirable that the fullest possible information should be available to the public, in view of the large sums involved and the widespread interest; (2) that there are special opportunities for fraud by the promoter; and (3) that the promoter can offer special inducements to gain wide publicity and to encourage people to gamble. The commission stated that "it is clearly a most unhealthy feature in the conduct of this form of betting that some of its promoters find it necessary to resort to practices about which they are reluctant to submit detailed information to a Royal Commission, even when an assurance has been given that no detailed information submitted by individual promoters would be made public."

The commission made proposals about amusement arcades, dog racing, lotteries and competitions, and totalizator betting. It was, however, on the publication of information relating to gambling that the commission's proposals were of importance and on this subject it endeavoured to give precise figures for the expenditure of money and labour on gambling. It found that the net expenditure on gambling was approximately £70 million a year, a figure far less than that given by the churches' committee. "Figures of the total stakes in all forms of gambling must give a wholly misleading picture of the importance of expenditure on gambling as a whole." In a comparison with the amounts spent on tobacco, or drink or entertainment the total amount spent on gambling was about 8% of the total personal expenditure. The commission stated that the total number of persons employed full-time or working on their own appeared to be 47,000 and the number of part-time employees about 30,000. The number of whole-time employees was, therefore, less than ·5% of the total number of employed persons. The commission, working from the national income statistics, calculated that, in recent years, gambling had absorbed about ·5% of the total annual flow of national resources and that the figure for personal expenditure could not be higher than 1% of the total personal expenditure.

The only official statistics for Great Britain are given in the table.

PUBLIC EXPENDITURE ON THE PRINCIPAL FORMS OF BETTING IN GREAT BRITAIN, 1949-51.

	(£ million)		
	1949	1950	1951
Totalizator at racecourses . .	£25·8*	£25·5*	£25·5*
Totalizator at dog tracks . .	£85·6‡	£70·4‡	£66·6‡
Pools (all forms) . . .	£64†	£52·3†	£54†

SOURCES: * Race Course Betting Control board. † Customs and Excise Annual report. ‡ Home Office.

(H. C. LN.)

United States. During 1951 the *New York Times* asked its correspondents all over the world to describe the gambling picture as each found it in his quarter—facts and arguments for and against legalized betting, for and against state operation of betting establishments, for and against the states' drawing revenue from gambling, for the police viewpoint as well as the gamblers', for the churchmen's stand, the legislators' and the view from the bench.

The Senate Crime Investigating committee in the United States devoted many months of 1950-51 to the gambling problem, and had prepared its report in 1951. Headed by Senator Estes Kefauver of Tennessee, the committee estimated that illegal gambling in the U.S. totalled $20,000 million annually. It recommended legislation to ban interstate transmission of racing information and other sporting odds and results, and also proposed that the Bureau of Internal Revenue should compel gamblers to keep detailed records of winnings and losses, and forbid them to deduct losses and business expenses from their income taxes. However, the Federal Communications commission would not undertake to police such dissemination of information, and some legislators maintained that to cut off racing news service, for example, constituted an abridgment of the freedom of the press. There was some support for the legalization of gambling, but prosecutors opposed such legislation, their opinion being that it might reduce corruption at the police and ward politician level, but that it would force a rise in corruption at higher levels.

The legislation resulting from the investigation in the U.S. required gamblers, on or before Nov. 30, 1951, to register with their district collector of internal revenue, to pay a *pro rata* tax of $50 a year, and thereafter to collect and remit as tax 10% of their gross receipts. On Dec. 4, the Bureau of Internal Revenue announced that 7,706 individuals in the U.S. had registered as gamblers. This figure might be compared with an estimated 15,000 bookmakers in New York city alone.

At the end of the year, U.S. gamblers were "lying low." Their opinion seemed to be that the country was momentarily intoxicated with reform emotionalism, but would get over it, and that it would survive it as it had survived other anti-gambling crusades. The sale of "scratch sheets" diminished by 40% to 90% in most large cities. The arrest of bookmakers decreased by more than 80%.

In the drive against gambling, racing received the greatest attention because at least some betting on horse races was legal in a majority of the states. Racing men, however, contended that as much or more money was betted on baseball, basketball, football and elections. A Gallup poll showed that 57% of the population of the U.S. gambled, however mildly, and that their preference in gambling (in order) was bingo or raffles, cards, punchboards, sporting contests, slot machines, horse racing, sweepstakes, elections and the numbers game. (M. BER.)

BEVAN, ANEURIN, British politician (b. Tredegar, Monmouthshire, Nov. 15, 1897), was educated at Serhowy elementary school. The son of a miner, he started work as a collier's help at 13, was chairman of a miner's lodge before he was 19 and in 1921 led unemployed miners seeking help from the poor law authorities. After studying at the Central Labour college, London, he threw himself into local politics, first as a member of the Tredegar Urban District council and, in 1928, as a county councillor. He was elected to the House of Commons for Ebbw Vale, Monmouthshire, in 1929. Throughout World War II he was a bitter and unrestrained critic of Winston Churchill's coalition government. But he was equally outspoken within his own party and in 1939 had been expelled, along with Sir Stafford Cripps, for taking part in the popular front movement; he was re-admitted, however, later in the year. He was editor of *Tribune*, an independent Socialist weekly, from 1940 until he became minister of health in 1945. Elected to the Labour party executive in 1944, he headed the poll in the elections to the executive every year from 1946.

As minister of health in Clement Attlee's government of 1945 Bevan was responsible for setting up the national health service as well as having charge of the housing programme. He became minister of labour in Jan. 1951, but in April resigned from the government, along with Harold Wilson, president of the Board of Trade, because he disagreed with the scale of rearmament budgeting and with the apportionment of the burdens of expenditure among the different social classes; he said, however, that he and his supporters in the House of Commons would do nothing to contribute to the defeat of the Labour government. In the general election of Oct. 25, 1951, Bevan was again returned for Ebbw Vale, with a slightly increased majority. (R. JA.)

BHUTAN. Indian-protected state on the borders of Tibet. Area: *c.* 18,000 sq.mi. Pop. (1947 est.): 300,000, chiefly Bothias. Language: dialect of Tibetan. Religion: mainly Buddhist. Capital, Punakha. Ruler, Maharaja Jigme Wangchuk.

Despite the approach of Chinese troops to the northeastern frontier—they reached Tsona Dzong in August—the year 1951 was uneventful. Implementing promises made at the time of signing the Indo-Bhutan treaty of 1949, the Indian parliament on Aug. 8 passed a bill ceding to Bhutan a strip of territory (32·81 sq.mi.) known as Dewanagiri, hitherto included in Assam. The cession had been approved by the Assam legislature on March 27. Bhutan's original claim was for a much larger area but eventually the two parties agreed on the tract selected. This gesture helped to cement the cordial relations existing between the protectorate and India. (E. HD.)

BILLIARDS AND SNOOKER. The world's professional billiards championship was revived (last winner: Walter Lindrum, Australia, 1934) and was won by Clark McConachy, New Zealand, who beat John Barrie, England, by 9,294 points to 6,691. The British empire amateur billiards championship was changed in name to the world's amateur championship and the ninth contest took place in London, Robert Marshall, Australia (holder, 1938) winning again, with Frank Edwards, England, second. Frank Edwards triumphed for the third time running in the English amateur billiards championship, by beating Joe Tregoning by 5,015 to 3,791.

The world's professional snooker championship was won by Fred Davis who beat Walter Donaldson by 58 frames to 39. Fred Davis also won the United Kingdom professional billiards championship, by a win over Kingsley Kennerley, 8,120 to 6,011. The amateur snooker championship was won by 17-year-old Rex Williams who beat Percy Bendon, a former holder, by 6 frames to 1. Williams turned professional. The women's amateur billiards and snooker titles went to Helen Futo and Pat Holden respectively. There were no contests in the women's professional events. (R. HO.)

United States. In Chicago, 63-year-old Willie Hoppe won, with six consecutive victories, his tenth world three-cushion championship since 1936 and his seventh in succession. Hoppe's opposition consisted of Joe Chamaco of Mexico City, Art Rubin of Brooklyn and Joe Procita of Los Angeles, who finished in that order in the 1951 national championship. Willie Mosconi of Haverford, Pennsylvania, retained his world pocket-billiard title, also with six straight wins. Mosconi defeated George Chenier, the Canadian champion, and Joe Canton, the new national title-holder, in his last two contests. The fourth competitor was Irving Crane, the 1950 national champion. (P. BR.)

BIOCHEMISTRY. *Amino Acid Sequence in Insulin.* The mechanism by which proteins exert their biological action received much attention during 1951. One of the primary goals in this field had been to learn more of the structure of proteins. Work in previous years had revealed a great deal of the amino acid composition of proteins and of the size and shape of these large molecules. However, two important problems remaining unsolved were: (1) the sequence of the different amino acids in the peptide chain and (2) the manner in which the peptide chain is folded and held together to give a specific configuration.

A very notable advance in this field was the publication of the amino acid sequence in the B chain of the protein hormone insulin by F. Sanger and H. Tuppy. Insulin was chosen for this work because it seemed a relatively simple polypeptide to analyse when compared with other proteins. The results indicated that crystalline insulin was a large molecule composed of six to eight identical sub-units each having a molecular weight of about 6,000. These sub-units were found to consist of two different polypeptide chains (A and B) linked together by two disulphide bonds (-S-S-). These disulphide bonds were broken by gentle oxidation. The two chains were separated from each other by virtue of the fact that chain A is acidic, containing no basic amino acids, while chain B, on the other hand, contains many basic amino acids. Chain B, a polypeptide of 30 amino acids residues, contains only 15 different amino acids. For a structure containing this number of amino acids it can be computed that at least 5×10^{27} isomeric sequences can exist.

Sanger and Tuppy identified every bond in the natural occurring polypeptide. Chain B was partially hydrolyzed by a variety of procedures to yield mixtures of di-, tri-, tetra- and even larger peptides. This was done by the use of acid or alkali at room temperature and by a number of proteolytic enzymes including pepsin, chymotrypsin and trysin. These peptides were separated from each other by such newly developed analytical techniques as filter-paper chromatography, ion-exchange chromatography, adsorption analysis and ionophoresis. The actual structure of the individual peptides was then determined by means of the reagent 2,4-dinitrofluorobenzene which reacts with the free amino groups to form a stable derivative. The composition of each peptide could thus be determined. Since the different hydrolytic procedures break different bonds in the polypeptide, the identification of all the individual peptide structures made it possible to derive the sequence of the amino acids in the B chain. Using Sanger's notation and the standard abbreviations for the amino acids the complete amino acid sequence in the B chain of insulin is: phe.val.asp.glu.his.leu.cys.gly.ser.his.leu.val.glu.ala.leu.tyr.leu.val.cys.gly.arg.gly.gly.phe.phe.tyr.thr.pro.lys.ala.

Protein Structure. An important contribution to the theory of protein structure was made by L. Pauling and R. B. Corey. Data from X-ray diffraction analysis was used as a basis to suggest spatial arrangements in which the polypeptide chains in various proteins are organized. According to these workers the α-keratin type of protein structure which is found in fibrous proteins such as unstretched hair, horn and contracted myosin (a protein component of muscle) can be pictured in the following manner. The peptide chain exists in the form of a helix. This structure is held in place by hydrogen bonds which are formed between all the carbonyl groups of the peptide bonds and the NH groups of the peptide bonds three residues away along the chain. This hydrogen bonding extends across nearly a complete turn of the helix and determines the actual configuration of the structure. Pauling calculated that there are 3·7 amino acids per turn of the helix and that the distance between the side chains of adjacent amino acids is 1·72 Å. The organization of the polypeptide chains in stretched hair, silk and muscle proteins, or the β-keratin structure, is stated to consist of almost linear chains of the polypeptides in which the hydrogen bonding, instead of being between amino acids in the same chain, is between adjacent chains. In this extended structure the distance between the side chains of adjacent amino acids in the polypeptide is 3·32 Å.

Carbohydrate and Fat Metabolism. Investigations in 1951 clearly identified the " active " two-carbon (C_2) intermediate which is formed during carbohydrate and fat metabolism. It had been found previously that pyruvate, acetate and the oxidation products of fatty acids are converted to common C_2 fragment which participated in such reactions as the formation of citrate or of acetoacetate. This active C_2 compound is apparently a derivative of coenzyme A. This coenzyme was discovered by F. Lipmann as an essential factor for enzymic acetylation reactions.

The mechanism by which acetate is condensed with oxalacetate to form citrate was not known until 1951. Since at least 50% of the energy in fatty acids is released when acetate is oxidized via the citric acid cycle, the details of the initial condensing step in this cycle were of considerable interest. It was demonstrated that both coenzyme A and adenosine triphosphate (ATP) were necessary to condense acetate and oxalacetate. The energy of the phosphate bonds of adenosine triphosphate is used to activate coenzyme A so that it can react with acetate to form acetylCoA. AcetylCoA in the presence of another enzyme can spontaneously condense with the 4 carbon acid oxaloacetate to form the 6 carbon acid, citrate. AcetylCoA thus seems to be the metabolically active form of the C_2 fragment.

Nucleic Acids. Some progress was made in understanding the biological significance and the chemistry of the nucleic acids which occur in all cells. Desoxyribonucleic acid (DNA) was found to be intimately concerned with self-replicating structures such as nuclear genes, viruses and with certain substances known as " transforming principles." The transforming principles cause hereditary changes in micro-organisms when added to the growth medium.

With the advent of refined analytical techniques, it was shown that the DNA concentration in a cell is directly proportional to the number of chromosomes; *i.e.*, a sperm cell has only half the amount of DNA as the majority of body cells containing diploid nuclei. In different tissues of the same species the DNA appears to have the same composition. However, in different, but even closely related, species the DNA composition is different. From these and other facts it appeared that DNA might be " the hereditary code-script of living material." (L. M. K.)

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BIOLOGY: *see* BACTERIOLOGY; BIOCHEMISTRY; BOTANY; ENDOCRINOLOGY; GENETICS; MARINE BIOLOGY; ORNITHOLOGY; PALAEONTOLOGY; PHYSIOLOGY; ZOOLOGY.

BIRDS: *see* ORNITHOLOGY.

BIRTH STATISTICS: *see* VITAL STATISTICS.

BISMARCK ARCHIPELAGO: *see* TRUST TERRITORIES.

BLOOD, DISEASES OF THE. ACTH (corticotropin, derived from the anterior pituitary) and cortisone (an adrenal cortical extract, Compound E) had left their imprint on many phases of medicine since their introduction first into experimental and then clinical use. Although the fundamental mechanisms by which these hormones act upon diverse bodily tissues remained obscure at the close of 1951 in the case of the blood-forming tissues and the blood cells, numerous " yardsticks " permitted evaluation of their activity. Thus, ACTH causes a simultaneous increase in the productivity of the cells of the bone marrow, *i.e.*, the red cells, the polymorphonuclear white cells and the platelets, and a decrease in the productivity or even a destruction of the lymphocytes. This might point to a reciprocal or antagonistic relationship between these two types of cell tissues. A curious effect is on the blood eosinophile which, under the influence of sufficient hormone therapy, disappears completely from the blood. This also occurs under conditions of extreme stress. As pointed out by Hans Selye, various types of stress (excitement, infections, physical injuries of various types) induce a simultaneous rise in the total number of white cells and in the polymorphonuclear cells, a drop in the lymphocytes, and a complete disappearance of the eosinophiles.

The deterrent or inhibitory effect of ACTH on the lymphocytes is associated with an effect on the production of antibodies which become materially reduced. Antibodies, which are usually helpful in fighting disease, are produced by the body in response to infections and at times by other mechanisms. Sometimes antibodies are produced in excess or are actually harmful. One type of abnormal and harmful antibody response occurs with the development of anti-red cell antibody. This development results in injury to the red cell and thus in haemolytic anaemia. The possibility was conceived that ACTH might diminish antibody production and thus stop the haemolytic disease. This actually ensued, with the result that the treatment of one type of haemolytic anaemia, *i.e.* the acquired form, was actually revolutionized. Whereas previously, surgical removal of the spleen (splenectomy) and transfusions were the only modes of therapy available, by 1951 almost all cases showed either a partial or complete response to ACTH or cortisone. This occurs if the acquired haemolytic anaemia is either of unknown cause (idiopathic) or due to some fundamental disease such as leukaemia. The abnormal antibody in the blood becomes greatly reduced and this is followed by a simultaneous decrease in the destruction of red cells and an increase in their production. The use of these hormones is without value in the hereditary types of haemolytic anaemia, in which the fundamental fault lies in the red cell structure and not in an abnormal antibody mechanism.

The effect of ACTH in reducing the activity of lymphoid tissue was used in the treatment of certain types of leukaemia, particularly of the acute lymphocytic variety. Unfortunately,

although the immediate results were often striking, they were temporary. A cure for leukaemia had not been forthcoming by the close of 1951, although the fact that even temporary states of improvement might occur in the acute forms was remarkable in itself, and suggested that the problem might not be as hopeless as it seemed. The main hope in leukaemia would seem to be in determining the causative factors, rather than in a hit-or-miss attempt to find a cure.

Since ACTH is to some extent a marrow-stimulating agent, it was tried in conditions in which marrow activity is depressed, as in aplastic anaemia. It was also used in thrombocytopenic purpura, a bleeding disorder in which the platelets in the blood are reduced. Some cases of both these conditions showed a favourable response to this form of therapy, but the results were inconstant and only occasional cases were benefited.

Certain diseases are apparently caused by the development of an immune reaction so out of proportion to what is needed that it does more harm than good. Thus, an immune reaction against a certain germ which invades the body is beneficial, but when there is overshooting, harm may ensue. This is seen in a certain type of bleeding condition known as Henoch-Schönlein purpura, in which the excessive immunologic build-up appears to result in injury to small blood vessels throughout the body, and thus to bleeding into the skin, the joints, the bowel and other tissues. In another form of purpura (black and blue spots, little blood spots or petechiae), called idiopathic thrombocytopenic purpura, the disorder may also be initiated as a reaction of immunity. There, the blood platelets are destroyed by some sort of mechanism which attacks the person's own platelets. This is the mechanism behind the disorder of acquired haemolytic anaemia; there the person acquires an immunity against his own red cells, which are then destroyed by the antibody produced by the tissues. In other unusual conditions known as periarteritis nodosa and disseminated lupus, a hyperimmune state seems to have been set up with the result that connective tissue throughout the whole body becomes involved. The relationship of these various phenomena of immunity to allergic states and to the steroid hormones mentioned is not quite clear. However, the administration of ACTH and cortisone in these various conditions was often beneficial. (*See* also HEART DISEASES.) (W. DK.)

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BOLIVIA. Land-locked republic in central South America and one of the highest inhabited areas of the world. Area: 416,040 sq.mi. Pop.: (1900 census) 1,816,271; (mid-1949 est.) 3,990,000. Estimated racial distribution: Indian 52%; *mestizo* 28%; white 13%; Negro 0·2%; unspecified 6·8%. Language: Spanish, but the Indians speak Quechua and Aymará. Religion: predominantly Roman Catholic. The legal capital is Sucre (pop., 1946 est., 32,000); the actual seat of government is La Paz (pop., 1946 est., 301,000). Other chief towns (pop., 1946 est.): Cochabamba (80,000); Oruro (50,000); Potosí (40,000). Presidents of the republic in 1951: Mamerto Urriolagoitia and (from May 16) General Hugo Ballivián.

History. Despite the fact that a presidential election was held in May, Bolivian politics continued during 1951 to be among the most unstable in the western hemisphere. On Feb. 16 outgoing President Urriolagoitia reorganized his cabinet in the hope that a new coalition administration would ensure order at least for the duration of the presidential campaign. Six candidates presented themselves for the presidency: chief among them were Gabriel Gonzálvez, the administration's candidate, and Víctor Paz Estenssoro, leader of the opposition Nationalist Revolutionary movement (M.N.R.), which had conducted a bloody despotism in 1943-46. Though a legal contestant for the presidency, Paz Estenssoro was forced to conduct his campaign from his Argentine exile. When he unsuccessfully attempted to return to Bolivia on April 14, widespread rioting occurred, during the course of which La Paz police, on April 15, killed one and arrested 81 demonstrators.

The presidential election, held on May 6, served only to heighten political and constitutional tension. According to the country's constitution, a presidential candidate must receive a majority of the popular ballots to be elected, and none of the six candidates polled the required number of votes. Paz Estenssoro, with 45% of the popular vote, received more votes than any other presidential aspirant. The constitution provides that, in the event that no candidate polls a majority of the ballots, congress should choose the new president from among the three candidates with the largest numbers of votes. However, outgoing President Urriolagoitia and his advisers were reluctant to comply with this stipulation for fear that it would deliver the government to Paz Estenssoro and the M.N.R.

Rather than risk a resumption of M.N.R. rule, Urriolagoitia resigned from the presidency on May 16, entrusting the administration to an army junta under the leadership of General Hugo Ballivián. General Ballivián, a 49-year-old Chaco war hero, formed a ten-man military cabinet composed of three generals and seven colonels, and offered assurances that the presidency would be delivered " as soon as possible to him who, by the constitution, has the right to it." The Ballivián régime then proceeded to declare a state of siege, promise that a new presidential election would be held, and arrest a number of opposition leaders. Permission for a group of opposition exiles to return to Bolivia was granted by the Ballivián government on Aug. 24 and on Sept. 3 the administration frustrated a plot to overthrow it. (G. I. B.)

Education. Schools, (1944): rural 1,513, pupils 110,000; elementary 1,740, pupils 144,056; secondary 55, pupils 17,496. There were also several teachers' training colleges and universities at Cochabamba, La Paz, Oruro, Potosi and Sucre.

Agriculture. Maize, barley, wheat, rice and potatoes. Livestock (1948 est.): cattle 3,499,000, sheep 4,195,000, goats 1,910,000, pigs 1,465,000. Principal forest products, rubber and cinchona bark.

Mineral Production. (1950): Tin 31,213 long tons; copper 5,185 short tons; lead 34,396 short tons; zinc 21,572 short tons; silver 6,566,766 fine ounces; antimony 9,679 short tons; crude petroleum about 620,000 bbl.

Foreign Trade. Exports in 1950 were U.S. $99 million; imports $41·9 million. Leading customers: U.S. (52%) and U.K. (41%). Leading suppliers U.S. (47%), Argentina, Peru and U.K. Tin accounted for about two-thirds of the exports by value, followed by silver and lead.

Transport and Communications. Railways (1950): 1,608 mi. Roads (1949): 15,420 mi., including 4,008 mi. improved. Motor vehicles (1950): cars 3,727, lorries 8,391, buses 467. Radio receiving sets (1950) about 75,000.

Finance. (Million bolivianos) Budget (1951 est.): revenue 3,058·8, expenditure 4,725·1. Revenue estimates were based on a tin price of $1·20 per pound and production of 35,000 tons. Public debt (Dec. 31, 1949): 8,272·9, including foreign debt 5,829·3. Currency circulation (Aug. 31, 1951): 3,783. Gold reserve U.S. $22,800,000. Monetary unit: boliviano with an official exchange rate (Nov. 1951) of U.S. cents 1·65 and a kerb rate of U.S. cents 0·48. (J. W. MW.)

BONAIRE: *see* NETHERLANDS OVERSEAS TERRITORIES.

BOOK COLLECTING AND BOOK SALES. In 1951, the sale of Sir Leicester Harmsworth's remarkable library reached the 28th portion. His world-famous collection of Americana reached sections I to M. The more important books in that field maintained the high level of 1950.

An interesting sale held in London in March was the remaining portion of the Bridgewater library which included a presentation copy of John Donne's *Pseudo-Martyr*, 1610,

containing a letter from the author presenting the copy to Lord Ellesmere, the founder of the library; this sold for £450 and two works by John Florio, *Second Frutes*, 1591 (a Shakespeare source book), and *A Worlde of Wordes*, 1598, both presentation copies to Lord Ellesmere, sold for £400 and £360 respectively. Molière's *Oeuvres*, 1666, the first collected edition, and two volumes containing first editions of some of Racine's plays both sold for £280. A similar library, but on a much smaller scale, was the Shipdham church library, which was also sold in London during March. A small batch of Americana fetched high prices equalling those realized at the Harmsworth sales. A copy of Milton's *Areopagitica*, 1644, fetched £235 while Erasmus's *Libellus De Conscribendis Epistolis*, printed at Cambridge by the first printer there, John Siberch, in 1521, sold for £460.

The general run of coloured plate books and of coloured flower and bird books showed, if anything, a slight tendency to fall in price, but this could not be said of anything exceptional. A remarkably fine copy of Audubon's *Birds of America*, 1827-38, 4 vols., which was considered to contain the finest ornithological plates ever issued, sold for the record price of £7,000 (in 1945 a copy fetched £3,700). Another famous colour plate book was Edward Orme's *British Field Sports*, 1807-8. This contained 20 superb coloured engravings after Samuel Howitt and had always been considered the most sought-after coloured sporting book. Some copies were issued in ten original parts and these were of extreme rarity. It was not surprising therefore that there was some excitement when a magnificent copy of the part issue in the original wrappers appeared in a London auction in November. It sold for £2,800 and it could safely be said that if the same copy had been sold a few years earlier it would have realized a much higher price. The only other copy in wrappers to be sold at auction fetched £2,600 in 1927. Sporting books on the whole were out of fashion, however, and another copy of the Orme, bound in contemporary morocco, sold for only £500. Apart from coloured plate books, prices of nearly all sorts of books in the London sale rooms rose. This was noticeable in sets of books in fine state and bound in leather, of early printed works and in English books of the late 17th and early 18th centuries—even in theology. Two famous first editions in English literature were Keats's *Poems*, 1817, in original boards, £780, and Burns's *Poems*, Kilmarnock, 1786, in morocco, £750. The works of W. B. Yeats also rose in price and it seemed possible that at last the prophecies of his entry into the first edition market at prices approaching those of other important authors of his time were to be fulfilled.

In New York, the most notable sale was that of Lucius Wilmerding's Continental books. Many fine manuscripts, books and magnificent bindings were included in the sale and most of the prices were greatly in excess of those which Wilmerding had given for them at auction sales in London and New York, mostly in the 1930s. The highest price, $21,000, was given for the family diary of Montaigne with notes also in the hand of his father, daughter and other members of his family. It was purchased by the French government. (In 1935 it sold for £780 in London.) $10,600 was given for the *edito princeps* of Richard de Bury's *Philobiblon*, 1473, one of the most famous books about books, and it is worth recording that de Bury said that " no dearness of price ought to hinder a man from the buying of books." A group of five bindings executed for Marcus Fugger were noteworthy and the 18th century and modern French bindings were mostly of lavish design but exquisite taste. A selection of these books had been sent from New York to be exhibited in Geneva, Paris and London before the sale and this undoubtedly roused much interest.

There were few sales of importance of literary manuscripts or autograph letters during the year apart from the holograph manuscript of Rider Haggard's *Allan Quatermain* (£330) and a remarkable letter of Oliver Goldsmith's concerned with his comedy *She Stoops to Conquer* (£500).

The purchase of the Shuckburgh copy of the famous Gutenberg Bible, 2 vols., by a New York firm of booksellers was a notable achievement. This copy had been lost sight of for about 100 years. Moreover, as £22,000 had been paid in 1947 for the Dyson Perrins copy of the first volume only, there was much speculation about the price paid for the Shuckburgh copy, but this was not disclosed.

In December the E. H. Litchfield library was sold in New York. It contained first editions of most of the famous books collected between World War I and World War II, and it was not surprising to find that the owner had acquired many of the hundred famous books in English literature on the Grolier club list. There were some attractive 16th and 17th century first editions of English literature, noteworthy among which were Holinshed's *Chronicles*, 1577 ($2,400); the first authorized version of the Bible, 1611 ($2,200); Burton's *Anatomy of Melancholy*, 1621 ($1,700); Donne's *Poems*, 1633 ($800); Herbert's *The Temple*, 1633 ($950); Herrick's *Hesperides*, 1648 ($900); Lovelace's *Lucasta*, 1649 ($1,100); Milton's *Paradise Lost*, 1667 ($2,300). A surprising price and the highest in the sale was $3,400 for Raspe's *Baron Munchausen*, 1786.

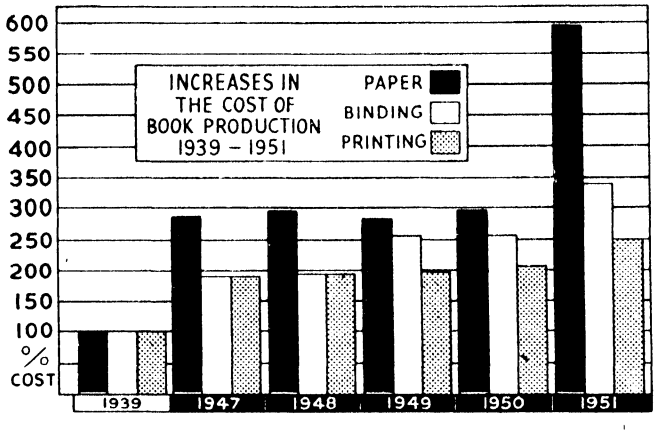
Two books of major importance were published during the year. Michael Sadleir's *XIX Century Fiction*, a catalogue of his magnificent library, was one of the finest bibliographical catalogues ever issued; it would obviously take its place among works that are accepted as being essential tools in the field. The second volume of Sir Walter Greg's *Bibliography of the English Printed Drama of the Restoration*, was by its research and documentation one of the great bibliographical works of the century.

No account of book collecting in 1951 can be given without a brief acknowledgment to the Festival of Britain exhibition of books organized by the National Book league at the Victoria and Albert museum from May to September. This effort deserved the highest praise both for its mounting and for the glory of its exhibits. These included some of the finest and rarest books and manuscripts in the country and visitors were able to see a superb copy of the Wycliffe Bible (*c.* 1430); the wonderful 10th-century manuscript of the Winchester school, the benedictional of St. Aethelwold; the first book printed in English, Caxton's *Historyes of Troye* (Bruges 1475); the first quarto *Hamlet*; and a first folio Shakespeare. Fine as was this exhibition it was perhaps equalled by that opened in Paris in November by T. S. Eliot entitled " Le Livre Anglais." Here English public and private owners and antiquarian booksellers loaned the innumerable treasures which enriched this magnificent collection. It was confined more rigidly to English literature than the Festival exhibition.

The third conference of the International League of Antiquarian Booksellers was held in Brussels. The German association was elected to membership and the number of countries in the league was thereby increased to 12. In England, the Antiquarian Booksellers' association began the first of a series of annual lectures on aspects of book collecting and book selling. The lecturer was Michael Sadleir. (C. D. M.)

BOOK PUBLISHING. During 1951 book publishers in Great Britain produced 18,066 titles, of which 4,938 were reprints and new editions. This total figure, the highest recorded, showed an increase of nearly 1,000 over the 1950 total of 17,072 titles. An increase in output of titles is not viewed by the book trade itself as a reassuring sign unless

it is accompanied by a proportionate increase in the total sale of books, nor were publishers altogether reassured by the steadily mounting turnover figures, since progress here might reflect only the increased prices of books made necessary by rising costs. Lord Justice Birkett, writing as president of the National Book league in a preface to a symposium of book trade experts (*Books Are Essential*, London, Oct. 1951), warned readers against the assumption so easily made, that the book trade's record statistics regarding turnover and output of titles necessarily signified prosperity. " It naturally comes as a shock," he wrote, " to be told that behind all this splendid and imposing front there are said to be problems and difficulties which endanger not only the prosperity, but the stability and even the existence of the book trade as we know it."



The principal reasons for the publishers' concern was the shrinkage in their supplies of raw materials, especially of paper, (due partly to the Anglo-American rearmament programmes) and the rocketing costs of paper, printing and every item of overheads. The publisher's most critical problem, stated the Publishers' association's annual report in April 1951, was the widening disparity between the replacement costs and the original costs of his stock. By economizing in weight of paper, in size of type and in binding, publishers had until 1951 succeeded in holding the production costs of a straightforward book, for example a novel of ordinary length, at little more than double the 1939 figure. In this they had been assisted by the larger editions which an expanding market at home and overseas made possible and consequently the retail prices of books had risen far less than was justified by costs, many books being still only one and a half times their prewar prices. In 1951, however, it became clear that publishers could no longer continue to absorb the large further increases in costs that now overtook them. Moreover, the cost of paper, already, at the beginning of the year, five times its prewar figure, later soared by progressive leaps to the point where the advantage of " the long run," which in modern times had always been the book publisher's basic source of profit, was considerably reduced.

To this generally difficult situation, however, there were two ameliorating factors. One was that books, though dearer, had increased in price proportionately less than any other commodity. The other was that the book-buying public bought the books it favoured in quite unprecedented numbers. The amount of trade done by publishers in 1950 had reached the unprecedented figure of £37,158,652 (the prewar average annual total was approximately £10 million). During the first six months of 1951 publishers' total sales amounted to over £18 million, an increase by nearly £1·5 million on the turnover of the corresponding period of 1950. Since book trade business had invariably been greater in the second half of the year than in the first, there was little doubt that the 1951 total would surpass the 1950 record. An analysis of publishers' output made by the *Bookseller* showed the average price of books published during the first six months of 1951 to be 12*s.* 9*d.* In the preceding six months, July-Dec. 1950, the average price was 12*s.* 3*d.* These statistical averages were based on titles only; many of the books most in demand cost much less than 12*s.* 9*d.* each. (E. Se.)

United States. During 1951, the number of new books and new editions published in the United States continued to increase, and the total of 11,255 titles was near the record of 11,328 titles published in 1940. There were 233 more titles published in 1951 than in 1950, an increase of 2%. Of the total, imports represented 13%, about the same as the 1950 proportion. Fiction, which was 19% of the year's output, showed a net increase of 228 titles over the previous year. Other categories showing large net increases were philology, domestic economy and medicine and hygiene. Largest net decreases were in technical and military books, fine arts, music and general literature. Pocket books issued in 1951 totalled 972, compared with 940 titles in 1950.

The best-seller list for fiction in 1951 was headed by *From Here to Eternity* by James Jones. A first novel dealing with army life before Pearl Harbour, it sold 240,000 copies. It was closely followed in sales by *The Caine Mutiny*, by Herman Wouk, a story of the navy in World War II. Third to tenth on the list, in that order, were *Moses*, by Sholem Asch; *The Cardinal*, by Henry Morton Robinson; *A Woman Called Fancy*, by Frank Yerby; *The Cruel Sea*, by Nicholas Monsarrat; *Melville Goodwin, U.S.A.*, by John P. Marquand; *Return to Paradise*, by James A. Michener; *The Foundling*, by Francis Cardinal Spellman; and *The Wanderer*, by Mika Waltari. Although two authors, Yerby and Waltari, were represented by other works on the 1950 list, *The Cardinal*, a novel with a religious theme, was the only carry-over.

First on the list of non-fiction best sellers for the year, based on trade sales alone, was *Look Younger, Live Longer*, by Gayelord Hauser. *Betty Crocker's Picture Cook Book* was second.

On July 12, 1951, the Federal Trade commission issued a complaint against the book-club policies of a number of publishers. It was alleged that bookstores did not receive privileges available to the book clubs, giving the clubs an unfair competitive advantage which tended to create a monopoly. Hearings on the complaints began in Oct. 1951. (X.)

BORNEO: *see* British Borneo; Indonesia.

BOTANICAL GARDENS. After the great influx of seeds from the Himalayas in recent years, 1951 was a year of consolidation in most botanical gardens and many of the collected plants flowered for the first time, particularly those in the genus *Primula*.

A new house was built at the Royal Botanical garden at Kew for West Australian plants and was ready for planting. J. Souster took over the control of the temperate house following the death of C. P. Raffill who had been in charge of it for many years. B. L. Burtt left the staff at Kew and took up an appointment in the Edinburgh Botanic garden.

At the Cambridge Botanic garden J. S. L. Gilmour took up his appointment as director. New ground was added to the garden and a start was made with the planting. The Cory bequest also enabled the Cambridge Botanic garden to add a number of rare and notable books to its library.

At the Royal Botanic garden at Edinburgh, a new aquatic house was built. Much replanting was also done in the rhododendron copse, while the old " rootery " was demolished and new peat walls built in its place. J. Macqueen Cowan and

H. Davidian, of the Edinburgh Botanic garden, completed their revision of the large Thomsonii series of the genus *Rhododendron* and this was published in the *Rhododendron Year Book* of the Royal Horticultural society.

At the Royal Horticultural society's gardens at Wisley, Surrey, H. R. Fletcher took up his appointment as director. Dr. Fletcher was formerly at the Edinburgh Botanic garden. The society suffered severe losses in the deaths of G. Fox Wilson, their entomologist, and F. C. Brown, the trials officer, early in the year. V. W. Fowler was appointed as entomologist and J. B. Paton as trials recorder. Many notable plants flowered in the gardens during the year and a number of these were shown in a very large group of plants for a woodland garden staged from the gardens at the Chelsea Flower show. The overhaul of the rock garden at Wisley was continued and this part was a notable feature of the garden in 1951. The long and wet spring suited well the new plantings of rhododendrons and lilies on Battleston hill and these flowered exceptionally well. The new collection of fruit varieties was planted above the model fruit garden. On the scientific side, work continued on the selection and crossing of antirrhinum stocks resistant to rust. In the cytology department, examinations of the genera *Camellia*, *Viburnum*, *Lonicera*, *Narcissus*, *Nerine* and *Buddleia* were made. The first colchicine-induced tetraploid in rhododendron was also produced at Wisley in *Rhododendron Wardii*.

(P. M. S.)

United States. Probably the most important incident that happened during 1951 as far as the arboretums and botanical gardens of the United States were concerned was the founding of the Saratoga Experimental gardens at Saratoga, California. The establishment of such an institution had been a life-long ambition of Ray D. Hartman, one of the leading horticulturists on the Pacific coast and owner of one of the oldest nurseries in western North America, the Leonard Coates nurseries of San Jose, California, who initiated the work resulting in this new arboretum. The site chosen had an elevation of 450 ft. at the base of the Santa Cruz mountains. Maunsell Van Rensselaer, formerly director of the Santa Barbara Botanic garden for 16 years, was chosen as the director, and the garden was officially opened Jan. 1, 1951. For the next few years, emphasis would be placed on the selection and propagation of the best available strains of shade trees and native shrubs. Experimental studies would be carried on in methods and techniques of propagation of superior plant stock on a large scale. (*See* also HORTICULTURE.)

(D. W.)

BOTANY. In accordance with the general historical theme of the Edinburgh meeting of the British Association, the presidential address to the botany section, by Professor W. Brown, was entitled " Mycology over a century." He reviewed nearly every aspect of this branch of botany during a period which started with the final abandonment of the theory of spontaneous generation and ended with the recent discovery of antibiotics and of the dependence of fungi and bacteria on bios types of substance, and with remarkable recent work on fungal genetics. The historical theme was further emphasized in a symposium of papers on the history of cultivated plants: Sir John Milne Home, " The introduction of conifers and their influence on forestry "; J. M. S. Potter, " The history of the apple "; W. B. Turrill, " The history of cultivated and wild olives "; G. D. H. Bell, " The history of cereals "; and J. G. Hawkes, " The history of the potato."

The International Association of Plant Taxonomists issued the first two numbers of its new periodical *Taxon* (Utrecht). The Association pour l'Etude Taxonomique de la Flore de l'Afrique tropicale (A.E.T.F.A.T.), founded in 1950 at a well-attended meeting at Kew, held its first congress in Brussels, sponsored by the Université Libre de Bruxelles, under the presidency of Professor L. Hauman. This meeting, attended by over 30 American, Belgian, British, French, German, Italian, Portuguese and Swiss botanists took the form of a symposium of papers covering almost the whole of tropical Africa and Madagascar. These papers were to be published. The first volume of a large-scale project, the *Flora Malesiana*, contained an encyclopaedic account of all known collectors in the Malaysian region, compiled by Mrs. Van Steenis.

A. J. Eames criticized some of the concepts of the so-called " new morphology " and attacked H. J. Lam's classification of the angiosperms into *Stachyosporae* and *Phyllosporae*. P. E. Weatherby, in studying the water relations of the cotton plant, investigated the effect of environmental conditions throughout the season on the water deficits of cotton plants measured as relative turgidity of the leaf tissues. This proved to be independent of the age of the plant and to be controlled by environmental conditions alone. Water deficits at sunrise showed that deficits developed during the day were not entirely made good during the night. W. G. Ball and H. E. Street found that excised tomato roots grown in White's medium showed marked improvement on addition of copper and molybdenum. K. Bhagrat and K. Hill found a complete cytochrome system in various flowering plants, associated with cytochrome oxides and succinic hydrogenase, acting as a respiratory mechanism identical with that characteristic of animals. D. C. Spanner and O. V. S. Heath described modifications to the resistance porometer in order to correct the error due to the flow through the leaf being augmented by





Koenigia islandica (above) and Diapensia lapponica (below). These two wild plants were discovered in Skye and in Inverness-shire respectively in 1951.

water vapour, which is removed again by a drying agent before the air passes through the standard capillary, and the error due to the leaf temperature being different from the capillary temperature. G. E. Blackman and G. E. Wren studied differential effects of light intensity on assimilation and growth rate and, as a result of their work, redefined a " shade " plant as one in which a reduction of the light intensity caused a rapid rise in the leaf-area ratio from an initial low value in full daylight, and a " sun " plant as one in which the converse definition held. G. E. Blackman and G. L. Wilson showed that, in ten species studied, the net assimilation rate during the season of active growth was linearly related to the logarithm of the light intensity but that late in the autumn the relationship no longer held. C. L. Mer studied the auxin theory of growth regulation in the mesocotyl of *Avena sativa* and concluded that the auxin itself was not the primary reactant in the perception process and that the growth of the mesocotyl was probably controlled by the coleoptilar node and plumular growing point, rather than by auxin diffusing downward from the tip of the coleoptile. F. R. Whatley made enzyme extracts from green leaves containing an isocitric dehydrogenase resembling that obtained from animals and seeds. D. Doxey and A. Rhodes found that the growth rate of cress was unaffected by hexachlorocyclohexane but growth was significantly reduced in wheat. The effect on mitosis in rye resembled that of colchicine and other mitotic poisons inhibiting spindle action.

P. N. Mehra and Naima Chopra described the stelar anatomy of *Stenochlaena palustris*. The stem was dictyostelic and showed five or six central meristeles in transverse section. G. E. Fogg found that heterocysts in *Anabaena cylindrica* were not the seat of salt accumulation and that resemblance to vacuolation in other plants was only superficial. He suggested that a possible advantage of heterocysts might be that their formation resulted in the release of material that might be used to maintain adjacent cells. L. B. Moore recorded oögamy in five southern species of *Holopteris*. In each of these the gametangia and asexual sporangia occur in similar sori but on separate plants. Plurilocular antheridia and unilocular oögonia occur within the same sorus. In *H. congesta* Miss Moore observed fertilization in cultures.

K. B. Vallance and D. A. Coult found that oxygen contained in the vesicles of *Fucus vesiculosum* might be markedly increased by photosynthesis but that the carbon dioxide content appeared to bear no relationship to metabolic activity. They suggested that vesicle formation might be conditioned by the intensity of photosynthetic activity.

H. M. Canter and J. W. G. Lund studied the interrelation of populations of plankton organisms (diatoms and a blue-green alga) and their chytrid parasites in Windermere and Esthwaite Water and found that the infection might delay the time of maximum algal number or decrease the size of the maximum.

J. E. Lousley edited a report on the 1950 conference of the Botanical Society of the British Isles consisting of a symposium of studies on the distribution of British plants and the best ways of recording these on maps. C. D. Pigott recorded the presence of *Scutellaria hastifolia* in Norfolk.

F. J. Seaver published a comprehensive work on the North American cup fungi containing a systematic account of the *Geoglossaceae*, *Helotiaceae* and *Cenangiaceae* with keys to the tribes, genera and species. A posthumous work by A. H. R. Buller described the sexual process in the rust fungi, including much of his own experimental work. He gave an account of the history and function of the pycnidia and the methods by which the sexual process was initiated. A. F. Parker-Rhodes discussed certain aspects of dissemination of anemophilous basidiomycetes on Skokholm island and defined the mean radius of dissemination, the mean breeding sample and the circumscription ratio. He explained how, on certain assumptions regarding action of air currents, these quantities could be evaluated by numerical integration. G. C. Ainsworth and K. Sampson gave a general account of the British smut fungi with chapters on biology, cytology and genetics and a discussion of the economic importance of the group.

D. E. Coombe and F. White studied the plant communities on calcareous soils in arctic Norway. P. H. Davis investigated cliff vegetation in the eastern Mediterranean and outlined the plant communities. He concluded that saxatilism was an advanced and specialized character favoured by natural selection and that the development of a saxatile habit in species not normally saxatile occurred at the edge of a species' range and/or under adverse conditions. Species of vertical and overhanging rock were considered to have had the longest saxatile history. J. N. Jennings and J. M. Lambert described alluvial stratigraphy and vegetational succession in the region of the Bure valley (Norfolk) broads. (*See* also HORTICULTURE.)

(A. W. E.)

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BOWLS. In 1951, 2,212 clubs were affiliated to the England Bowling association. There were 51,000 entries from 34 counties for the national championships held at Paddington B.C., Aug. 20-28: A. Pikesley (St. Albans, Hertfordshire) won the singles; South Oxford (R. F. Duke and P. C. Harvey), the pairs; North Oxford, the triples; and Oxford City and County the rinks.

The international tournament for the *News of the World* trophy, played at Swansea, Glamorgan, on July 4-6, was won by Ireland. The England-New Zealand test match at Bellingham, Kent, was stopped by rain after four ends.

The National Welsh B.A. singles was won by A. E. Evans (Abergavenny), the pairs by E. H. Jones and L. C. Williams (Penarth) and the rinks by Cardiff (Ivor Davis, J. Budd, T. King and F. L. Cottle). The Scottish B.A. singles was won by N. Campbell (Stirling Spittalmyre), the pairs by Ayr Wattfield (A. Young and R. Morton) and the rinks by Twechar. The Irish B.A. singles was won by J. Anderson (Coleraine B.C.), the pairs by Coleraine B.C. (J. Anderson and R. Fulton) and the rinks by Forth River B.C. Mrs. Burdon (Kent) won the English Women's B.A. championship.

Northumberland won the Middleton cup, beating Middlesex in the final by 7 shots (128-121). The London and Southern Counties B.A. gold badge was won by A. T. Durrant (Bellingham) and the Lonsdale tournament by H. G. Soar (Lensbury).

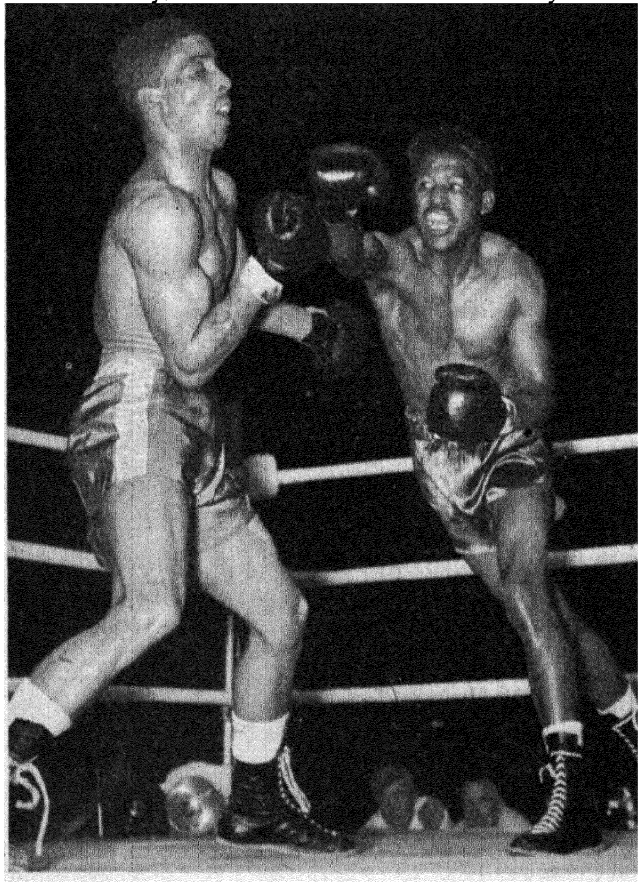
(J. W. FR.)

BOXING. The sport cannot be said to have progressed during 1951. Throughout the world the " box fighter " rather than the complete scientific craftsman was in the ascendant, and it was a veteran of 20 years' professional fighting, Joe Walcott, who became world heavyweight champion by knocking out Ezzard Charles, another coloured U.S. boxer, in the seventh round in New York. It was Walcott's fifth bid for the championship.

The need for an international authority to control and regulate world championships became more than ever apparent, and the British and European control boards made strenuous efforts to advance this long overdue reform. During the year the British Boxing Board of Control refused to sanction the introduction of the American " no foul " rule.

Randolph Turpin, the 23-year-old coloured British boxer, provided the fistic sensation of the year when, in London, he outpointed Ray Robinson, America, to win the world middleweight championship. Two months later, however, Robinson regained his title in a return bout in New York when Turpin was adjudged " unfit to continue " in the tenth round. The British heavyweight champion, Jack Gardner, won the European championship by outpointing Joe Weidin, Austria, in March, but subsequently lost this title to Hein Ten Hoff, Germany. On his showing so far it was doubtful if Gardner possessed the qualities needed in a world champion. Two other heavyweights whose progress was watched with interest were Johnny Williams, Rugby, and Ray Wilding, Cheshire.

Don Cockell, London, who shared with Turpin the distinction of being the most improved boxer of 1951, won the European light heavyweight title by beating Albert Yvel, France, and later successfully defended his British crown by beating Albert Finch; but in December he was beaten by Jimmy Slade (U.S.). In the welterweight division, Eddie Thomas, Wales, experienced variegated fortunes. He won the empire title from Pat Patrick in Johannesburg, and then won and lost the European championship. After beating Michele Palermo, Italy, he was defeated by Charles Humez, France. Finally, he forfeited his British title to Wally Thom



Randolph Turpin (left) in his fight with " Sugar " Ray Robinson for the world middleweight title at Earls Court, London, July 10, 1951. (This photograph was awarded 1st prize in the Sports category of the " British Press Pictures of the Year " competition; see pages 450-51).

Liverpool, when beaten on points in a London fight in October.

The British lightweight title changed hands when Billy Thompson, the holder, was beaten in the first round by Tommy McGovan. Ronnie Clayton, Blackpool, successfully defended his native flyweight title against the veteran Al Phillips, Aldgate, but lost his empire title to Roy Ankarah, the coloured boxer from the Gold Coast, who made up for lack of style by non-stop aggression and was apparently indifferent to punishment. Peter Keenan, Glasgow, won the bantamweight title when he defeated Danny O'Sullivan and later he added further to his reputation by outpointing the Spaniard Luis Romero, to win the European title. The vacant British flyweight title was won by Terry Allen, London, when he outpointed the Scot, Vic Herman. In the amateur field one of the most significant events was the abolition of the " silent count." The standard of skill shown in the Amateur Boxing association championships was well below that of former years. (W. B. Dy.)

United States. Ray Robinson surrendered his world welterweight title when he knocked out Jake La Motta in 13 rounds in Chicago in February, to win the world middleweight title. This abdication produced an elimination series which ended with Kid Gavilan, Cuba, being recognized in the United States as world welterweight champion. His claim was disputed by European boxing authorities, who recognized Charles Humez, French boxer, as world champion.

James Carter, New York City, knocked out Ike Williams, Philadelphia, in 14 rounds of a bout in New York, on May 25, to become world lightweight champion.

Joey Maxim, Cleveland, Ohio (light-heavyweight), Sandy Saddler, New York (featherweight), Vic Toweel, South Africa (bantamweight), and Dado Marino, Honolulu (flyweight), all retained their world titles.

The eclipse of Joe Louis came in October. The 37-year-old former world heavyweight champion, fighting a comeback campaign for another chance at the title he once held, was knocked out in eight spectacular rounds by Rocky Marciano, young Brockton, Massachusetts, heavyweight. (J. P. D.)

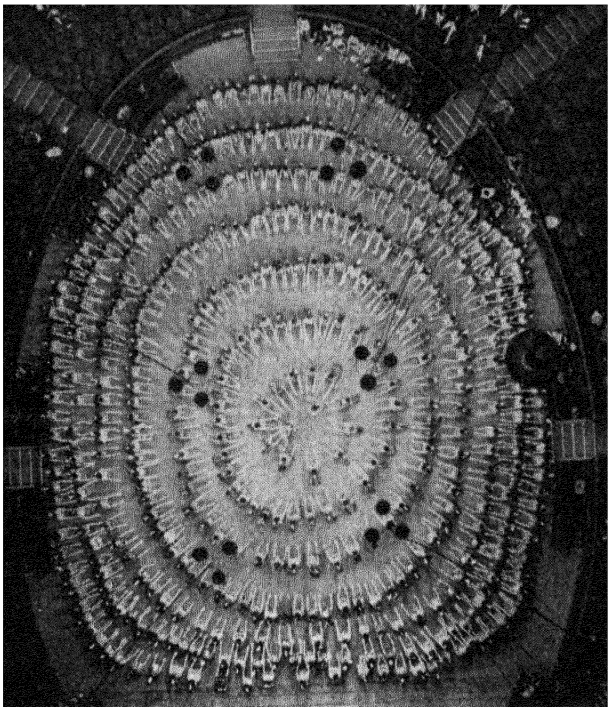
See Moss Deyong, *Everybody Boo* (London, 1951); J. Solomons, *Jack Solomons Tells All* (London, 1951); Bruce Woodcock, *Two Fists and a Fortune* (London, 1951).

BOY SCOUTS. In 1951, scouting in Great Britain showed no diminution either in its attraction for boys or in the quality of its services, and showed even greater technical efficiency. During the year scouts took part in Festival of Britain activities throughout the country. In London the pageant play " Boy Scout " was performed for one week at the Royal Albert hall with its customary success, and a special Exhibition of Exploration was held throughout the summer in R.R.S. " Discovery," Captain R. F. Scott's old ship moored off the Victoria embankment. During the latter part of August, scouts gave special displays daily at the South Bank exhibition. The London scouts organized an international patrol camp during August at Gilwell Park as their contribution to the Festival of Britain, and here patrols from 38 nations came to camp.

Scouts have always tried to pay their own way, and during Easter week every scout in the movement was busy for the third year in succession with " Bob-a-Job " Week, during which each scout tried to earn money for the movement in Great Britain.

The big event of the year for scouts the world over was the Seventh World jamboree, which was held near Bad Ischl, Austria; over 15,000 scouts from 43 nations came to camp for ten days, including 3,000 scouts from Great Britain.

During 1951, the total number of scouts of all ranks in Great Britain was 429,231, and there were 43,343 adult



A view from the roof of the Albert hall, London, during the rehearsal of the musical pageant "Boy Scout," June 1951.

leaders. Among scout groups, 45% were "open" and 55% sponsored (45% by religious bodies, 9% by educational institutions and 1% by hospitals). Over 1,300 scouts received their royal certificate as King's scouts during the year.

(RLN.)

United States. In 1951 about 750 U.S. scouts attended the world jamboree in Bad Ischl, Austria. At a national training conference of professional leaders held at East Lansing, Michigan, Sept. 5-12, a three-year programme was adopted with the slogan, "Forward on Liberty's Team." Civic activities included a "Get Out the Vote" campaign in November. Membership on July 31, 1951, was 2,745,576 men and boys organized in about 76,000 units. The world scout membership was 4,416,306 in 46 countries (1949 census).

BRAZIL. Largest of the Latin American republics, the United States of Brazil has a common frontier with all South American countries except Ecuador and Chile. Area: 3,286,170 sq.mi. (48·3% of the whole of South America). Pop.: (1940 census) 41,236,315; (mid-1950 est.) 52,124,000. The nationality of the population as shown by the 1940 census was: Brazilian-born 39,822,487, naturalized 122,735, foreign 1,283,833, nationality unknown 7,260. Among the foreign-born residents there were *c.* 354,300 Portuguese, 285,000 Italians, 147,900 Spaniards, 141,600 Japanese, 71,000 Germans, 41,000 Poles and 245,000 citizens of other countries. Among the Brazilian-born population, about half was of European stock; the remainder included 8,744,400 mulattoes (21%), 6,035,700 Negroes (14·6%), 5,500,000 Indians and *mestizos* (13%), and 250,000 Asiatics. Language: Portuguese. Religion: predominantly Roman Catholic (94·4%), with over one million Protestants of various denominations and 110,750 Jews. Capital, coterminous with the federal district: Rio de Janeiro (pop., 1949 est., 2,091,394). Other chief towns (pop., 1940 census): São Paulo (1,253,943); Recife (327,753); Salvador or Bahia (293,278); Pôrto Alegre (262,694); Belo Horizonte (179,770); Belém (166,662); Santos (159,648). Presidents of the republic in 1951: General Eurico Gaspar Dutra and (from Jan. 31) Getulio Dornellas Vargas.

History. The Brazilians gave special attention to economic problems and projects during 1951. On Jan. 31 the newly-elected president, Getulio Vargas, assumed office and announced the names of the new government, which, in accordance with his declared intention of securing national unity, included men of talent chosen from various political parties. Vargas addressed the crowds from the steps of Congress. He warned them not to expect miracles; but he promised equality of opportunity, education and social justice, and assured the workers (to whom he owed his electoral victory) that they would receive a fair share in the results of their labour. He condemned speculators and said that profiteering would not be tolerated. The inauguration of the president was followed by scenes of popular rejoicing.

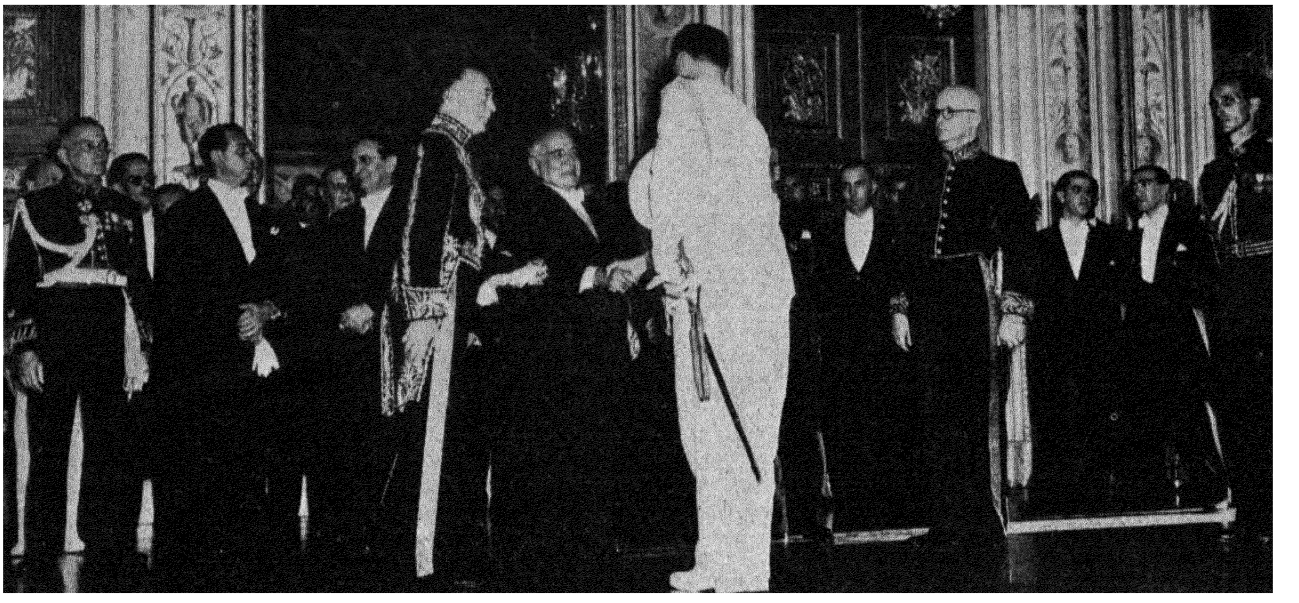
The important post of minister of finance was given to a highly respected business man, Horacio Lafer, who issued a report on Brazil's financial situation in March. Lafer announced that the new government had inherited a deficit equal to about £131 million, and that paper money in circulation had nearly doubled in the past two years. He stated that he would combat inflation by means of drastic economies and by diverting investment from "luxury" real estate to such essentials as electric power and industry. In their endeavour to improve the country's economy, the government prohibited the importing of goods by barter (this facility had been greatly abused); reduced the expenditure on the SALTE plan* (an ambitious but inadequately co-ordinated five-year development programme drawn up under the previous régime); tried to halt the exodus of workers from the rural districts by promising them better living conditions; and attempted to obtain increased supplies of scarce raw materials from abroad for local industrial requirements. According to official estimates, the cost of living in Rio de Janeiro rose by 18·4% during the first half of the year, but the people felt that an energetic drive to halt inflation was at last being made.

Throughout 1951 the United States continued to show interest in proposals for accelerating the exploitation of Brazil's natural resources, and a joint Brazil-U.S. Economic Development commission was formally inaugurated at Rio de Janeiro in July. The purpose of this commission was to supervise technical and economic co-operation between the two countries under President Truman's Point Four programme. It was stated that projects approved by the commission would be financed by the International Bank for Reconstruction and Development, the Export-Import bank and Brazilian financial agencies. Distribution—including all forms of transport and facilities such as ports, warehouses and marketing systems—was considered to be the commission's first problem, as the full exploitation of valuable resources such as iron ore and manganese was hampered by the inaccessibility of the districts in which they exist. Although the world's supply of rubber originated in the Amazon basin, Brazilian industry was gravely affected in 1951 by a shortage of raw rubber and schemes for the laying out of modern plantations in the north were therefore discussed.

Coffee and cotton were again the principal exports, and although the United States fixed a ceiling price for coffee and the world price of cotton slumped in the course of the year, the sale of these two products enabled Brazil to attain a satisfactory balance of trade.

Early in the year a serious drought afflicted five north-eastern states of the republic. Crowds of thirsty refugees marched through dry deserts caused by six months' lack of rain and entered the towns pleading for food, lodgings and work. Epidemics broke out, cattle died from hunger and thirst, and harvests were dried up by the sun. This tragic

* The word SALTE was coined from the initial letters of the words *Saude* (health), *alimentacão*, *transporte* and *energia*.



Getulio Vargas receiving the congratulations of the diplomatic corps after his inauguration as president of Brazil, Jan. 31, 1951. He is receiving a British naval attaché introduced by Sir Neville Butler, British ambassador, standing on the president's right.

occurrence reminded the people of Rio de Janeiro and São Paulo of the desperate need for remedying the primitive conditions which still prevailed in vast areas of the interior of their country.

In July a law was passed making racial discrimination a penal offence. Under this new law a refusal by hotels, restaurants and schools to admit coloured people became punishable by imprisonment or fine.

No serious social disturbances took place during 1951, though several Communist plots were denounced in various districts and some Communists were arrested. The employees of the Brazilian airlines went on strike in December and the government was obliged to intervene. (G. P.)

Education. Schools (1948): primary 66,641, pupils 4,745,914; secondary 1,344, pupils 297,508; technical 3,970, pupils 216,954. Institutions of higher education 339, pupils 28,440. Universties: state 8; Catholic 2. Illiteracy (1947): approximately 57%.

Agriculture. Main crops ('000 metric tons, 1949-50; 1950-51 in brackets): coffee 1,158 (1,170); cacao beans 132 (133); sugar, raw value 1,732 (1,730); tobacco 116 (123); cotton, ginned 299 (325); cassava 13,150; maize 6,162; rice, paddy 2,980 (2,995); wheat 438 (519); cottonseed 590 (831); linseed 23 (33); oranges 1,246 (1,003); grapes 226; bananas 2,958; groundnuts 100 (160); nuts (1950; 1951 in brackets) 22·0 (32·3). Livestock ('000 head, Dec. 1948): horses 6,928; cattle 50,178; sheep 13,804; pigs (Dec. 1949) 23,881; asses 1,536; mules 3,097; goats 8,309.

Industry. Industrial establishments (1947 est.) 85,000. Persons employed in manufacturing industries (1947) 1,500,000. Fuel and power: coal ('000 metric tons, 1950; 1951, six months, in brackets) 1,956 (951); consumption of gas in Rio de Janeiro and São Paulo (million cu. m.) 210 (110); consumption of electricity in Rio de Janeiro and São Paulo (million kwh.) 2,856 (1,426); crude oil ('000 metric tons) 38·4 (42·5). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): iron ore, exports 890 (490); pig iron 704 (350); crude steel 788 (400); rubber 20·3 (first quarter 1951) 7·0; gold (fine ounces) 131,700. Manufactured goods: cotton piece goods, exports ('000 quintals, 1949; 1950 in brackets) 40·0 (13·5); cement ('000 metric tons, 1950; 1951, six months, in brackets) 1,308 (651).

Foreign Trade. (Million cruzeiros, 1950; 1951, six months, in brackets): imports 20,313 (15,926); exports 24,913 (15,300). Main sources of imports (1950): U.S. 34%; U.K. 12%; Argentina 10%; Belgium-Luxembourg 6%. Main destinations of exports: U.S. 55%; U.K. 8%; Argentina 6%; France 5%. Main imports (1950): machinery and vehicles 42%; petroleum and products 12%; wheat and flour 10%; iron, steel and manufactures 5%. Main exports: coffee beans 64%; raw cotton 8%; cacao beans 6%.

Transport and Communications. Roads (1949): 64,294 mi. Motor vehicles licensed (Dec. 1950): cars 205,000, commercial 204,000. Railways (1950): 22,360 mi.; passengers carried 309 million; freight carried 34 million tons. Shipping (merchant vessels of 100 gross tons and over, July 1950): 338; gross tonnage 701,278. Air transport (1948): mi. flown 33 million; passenger-mi. 419 million; cargo net ton-mi. 40 million; mail ton-mi. 758,000. Telephone subscribers (1949): 484,300. Wireless licences (1950): 1,600,000.

Finance and Banking. (Million cruzeiros) Budget: (1950-51 actual) revenue 20,550; expenditure, 22,868; (1951-52 est.) surplus 26. Currency circulation (July 1950; July 1951 in brackets): 21,680 (27,050). Gold and foreign exchange (million U.S. dollars, July 1950; July 1951 in brackets): 609 (592). Bank deposits (Dec. 1949; Dec. 1950 in brackets): 32,020 (44,820). Monetary unit: *cruzeiro*, with an exchange rate of Cr.$ 52·4 to the pound sterling and Cr.$ 18·72 to the U.S. dollar.

BREAD AND BAKERY PRODUCTS.

The quality of bread and bakery products is influenced by many factors but the extraction rate is one of the most important. Before World War II, the miller made, from 100 parts of wheat, some 72 parts of flour, the remainder being coarse offal used for animal feeding. Such flour was designated 72% extraction flour and was, of course, white. During the war, owing to the submarine menace and other factors, the extraction rate was raised to 85% and even higher, which meant that the flour was darker and, from the baker's point of view, was far from ideal. In 1950, the extraction rate was reduced to approximately 80%, but in 1951 there was no further reduction. The controversy as to the nutritive value of short and long extraction flour continued.

The problem that greatly exercised the minds of millers and bakers during 1951 was the desirability of the chemical treatment of flour and, especially, of the use of nitrogen trichloride. Why is flour treated at all? All wheat does not yield flour ideal for the making of bold, well-aerated bread, but it is logical to use all wheats available and to take all possible steps to make the flour as suitable as possible for making bread. Also, it is well known that the baking quality of flour, that is, its ability to make satisfactory and pleasingly bold bread, improves as the flour is stored and aged. Obviously, oxidation has to take place, and the practice in 1951 was to secure this necessary oxidation immediately by such chemical treatment as, for example, the addition to flour of 1 part in 100,000 of potassium bromate. A particularly effective treatment was the use of a trace of nitrogen trichloride. But it was found that, if dogs consumed very large

quantities of bread made from flour so treated, running fits might be induced. The actual toxic substance responsible for this unfortunate state of affairs was identified, by the brilliant work of the Research Association of British Flour Millers, as methionine sulphoximine, which, although it did not affect human beings, raised the whole question of the treatment of food by traces of chemicals. Some pronouncement seemed likely to be made but, whatever the decision might be, it was felt that there was a need for the proper use of certain chemicals in foodstuffs. The use of nitrogen trichloride did not seem likely to be continued after 1951.

Improvement in wheat varieties continued and advances in milling technique occurred on the lines indicated in 1950, especially in connection with pneumatic conveying, which led to increased cleanliness and freedom from insect pests. A new instrument for assessing flour colour accurately attracted considerable attention. Work continued during 1951 towards improving the attractiveness of bread, delaying staleness and, particularly, combining science and art in the bakery. (*See* also WHEAT.) (D. W. K.-J.)

BREWING AND BEER. In 1951 the price of beer was raised without any increase in the beer duty for the first time in a hundred years. The rise, of a penny a pint on average, was general but not universal and occurred during April, May and June. Certain beers were being retailed at the end of the year at a price no higher than at the beginning. The increase was forced upon the brewing industry by rising production and distribution costs and was later wholly absorbed if not more than offset by increased outgoings. The price of malting barley of the 1951 crop, for example, reached £10 a quarter compared with an average of £7 in 1950. Hops rose in price from £21 to £26 2*s.* 6*d.* a hundredweight. Costs of fuel, transport, wages and of repairs and redecoration of licensed houses also rose sharply. In the House of Commons in November, the financial secretary to the Treasury gave the following figures for profits after taxation: 1938-39, £17 million; 1949-50, £15 million. The £15 million represented less than ½*d.* a pint profit and even so was in no sense a true net profit. A large proportion of the reserves needed for the future improvement and replacement of licensed houses had to come out of this amount. The brewing industry's check on profit-making had enabled the chancellor of the exchequer to keep the beer duty at an optimum level. The duty for the previous three years had amounted to 8½*d.* a pint on average, more than two-thirds of the price to the consumer. During the year ended March 31, 1951, it yielded £249,125,000. During the financial year 1951-52 it was expected to yield £237 million.

During the year there was considerable evidence that the decline in beer-drinking was levelling off. Some economists held the view that changing social habits had brought about and would continue to bring about a decline in beer consumption. Relative to population, there had been a fairly steady fall in output during the previous 50 years: 1900, 34,048,977 bulk barrels; 1910, 29,379,311; 1920, 35,047,947; 1930, 25,061,956; 1940, 25,366,782 and 1950, 26,513,997. Consumption per head fell from 28·8 gal. in 1914 to 19·3 in 1950. Many brewers, however, considered that the effect of the high beer duty in driving up the price was underrated as a cause of this decline.

Difficulties facing export brewers did not decrease during 1951. Nevertheless there was an overall increase in exports—from 347,000 standard barrels in 1949 and 348,000 in 1950 to 423,000 (est.) in 1951. Exports to Commonwealth countries increased from 151,000 standard barrels in 1948 and 168,000 in 1950 to 210,000 in 1951.

There was a marked tendency for bottled beer to become more popular. Consumption had gone up by about 4% of the total during the previous two years. In 1949, it was about 30% of the total; in 1951, it was about 34%. For 10 or 12 years, brewers had been unable to install the bottling machinery and to obtain the materials necessary to meet the existing demand for bottled beer. They were now able to make some progress in this respect. The shortage of spare cash to enable a customer to stand his friends a round of drinks in a licensed house, and other causes, meant that people more often took their beer home in bottle.

The government's decision to repeal the clauses of the last licensing act dealing with state management of licensed houses in new towns was hailed with relief by the residents there. The consensus of opinion was that the inns of England, under brewer-ownership, had been preserved, restored and improved with a care and on a scale unprecedented in their history. Under brewer-ownership the inn had been transformed from the sordid drinking shop of the early industrial era into a real social centre where any man could go, taking his wife with him. The system had preserved the customer's freedom of choice of beer and had been a strong safeguard against the monopoly by enabling the smaller brewing firm to compete locally on level terms with the larger organizations. Exaggerated statements about the effect of the "tie" of licensed houses to brewers were disposed of by the Census of Production report, which showed that more beer was purchased from brewing firms by independent buyers than by buyers under the firms' control. (X.)

United States. Beer and ale sales in the United States for the fiscal year ended June 30, 1951, totalled 83,246,162 bbl. (of 31 U.S. gallons each; U.S. gal.=231 cu.in.; British imperial gal.=277·274 cu.in.), the fourth highest amount on record for a fiscal year. The largest sales for a fiscal year were 86,992,795 bbl. in 1948. A National Production authority order reducing the use of cans by brewers was believed to have had a restrictive effect on sales. In the calendar year 1950, beer in cans represented 25% of all packaged beer sold. An increase of $1 a barrel in the federal excise tax on beer, bringing the new rate to $9 a barrel, became effective on Nov. 1, 1951. In addition, state taxes averaged more than $2 a barrel, and in some cases local taxes were also applied.

Beer purchases for army personnel overseas in the first nine months of 1951 amounted to $10,958,354. Beer was purchased out of non-appropriated funds for sale through servicemen's and officers' clubs and post exchanges (equivalent to N.A.A.F.I.). From Oct. 25, 1950, beer was shipped free to overseas commands by the military sea transport service of the department of defence. Before that, the army exchange service had paid normal freight charges.

The industry's pay roll totalled $332,931,000 in 1950, covering 81,155 employees. The average number of production workers was 58,054. Purchases of agricultural products were estimated at nearly $300 million for the year, mainly for malt, corn products, rice and hops.

Federal excise taxes, at $8 a barrel, and special taxes on malt beverages for the fiscal year 1951 totalled $669,470,889, bringing the cumulative total since relegalization (April 7, 1933) to $8,172,163,097. State and local taxes and licence fees in the fiscal year 1951 were estimated at $215 million, raising the cumulative figure for that revenue to about $2,730 million. (*See* also HOPS.) (E. V. LH.)

BRIDGES. The continuing shortage of steel throughout the world gave reinforced concrete an added attraction as a material for bridge construction but the majority of reinforced concrete bridges built were of the relatively new material, pre-stressed concrete.

In Great Britain, the Neath bypass viaducts in 1951 reached an advanced stage of construction. Of the smaller bridges no less than 11 were of pre-stressed concrete, one at Shrewsbury having a span of 150 ft. The most interesting was the footbridge running from the concert hall terrace to Waterloo bridge gate in the South Bank exhibition, London. This bridge, of four spans, was 284 ft. in length. The cross-section was in the form of a T-beam 11 ft. 10½ in. in total width, with a shallow rib 4 ft. wide and 1 ft. 10 in. thick, the deck being 3 in. thick at its cantilevered edges and only 9½ in. thick where it joined the rib. The supporting columns tapered from 3 ft. 9 in. by 2 ft. 3 in. at the top to 1 ft. 9 in. by 1 ft. 6 in. at the base. To allow the deck to take up its shortening freely under pre-stressing, alternate columns were given temporary hinges at top and bottom.

An aluminium alloy heel trunnion bridge, span 70 ft., width 37 ft., was under construction for Aberdeen harbour. The moving leaves, built entirely of light alloy, folded into the fixed shore structure when in the raised position.

Australia. Construction started on a bridge across the Clyde river, 177 mi. south of Sydney. It consisted of five fixed steel truss spans, each 120 ft. in length, one opening truss span of the vertical lift type, 90 ft. long, and four approach spans of steel plate girders, a total length of 1,008 ft. The lift gave a clearance of 75 ft. above high water level.

A new bridge was under construction on the Pacific highway at Swansea. It had an overall length of 570 ft., comprising twelve 40-ft. rolled-steel joist spans with concrete deck and an electrically operated double-leaf bascule opening span with a steel open-grid deck.

The Hunter river, at Hexham, was crossed by a bridge having six steel truss spans, including a vertical lift span, each 120 ft. long, and thirteen 40-ft. long spans of rolled-steel joists.

A combined road and rail bridge over the Burdekin river was under construction. The total length was 3,580 ft. made up of ten 250-ft. steel truss spans with eight 45-ft. and three 60-ft. spans at each end.

Belgium. A great deal of bridge work was carried out in Belgium. Of the six bridges built across the Albert canal, four were Vierendeel trusses with spans from 66·5 m. to 90 m. In every case the main longitudinal members were riveted but the posts were shop-welded and site-riveted. The other two were a riveted girder bridge, length 101·6 m., of uniform depth resting on three supports, and a reinforced concrete tied arch, span 49 m.

Two considerable bridges were built across the Meuse; one was a slender three-span continuous riveted girder of varying depth and overall length 152·2 m., the other was a three-span tied arch bridge in reinforced concrete with the lower longitudinal members pre-stressed, each span being 46·5 m. long with a rise of 9·2 m.

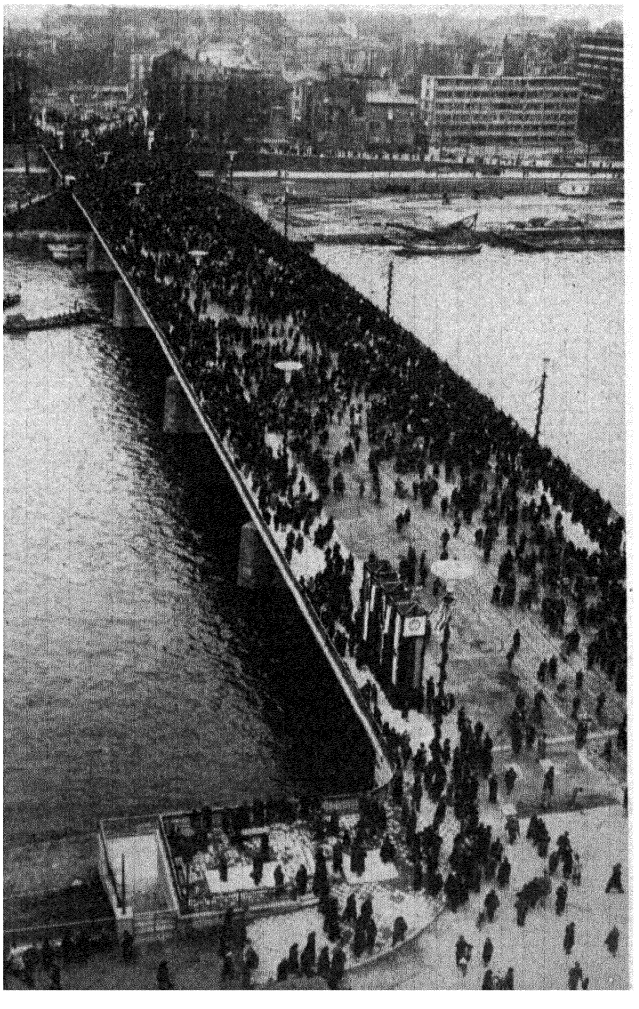
The Brussels-Ostend motor road was carried across the Lys river on an elegant three-span continuous reinforced-concrete bridge, 105·7 m. overall length and varying depth, 1·03 m. at the centre and 3·62 m. at the piers. Construction was also started on two large pre-stressed concrete girder bridges.

France. Many bridges had been built or reconstructed in France since 1945. Among those put into service during 1951 were two, at Evreux and Bourg, of pre-stressed concrete. Of the seven other railway bridges completed or in course of construction during the year, all but one were of reinforced concrete and four were pre-stressed.

Germany. Two important bridges were opened to traffic during the year, the new suspension bridge at Cologne-Mülheim and the girder bridge at Düsseldorf-Neuss. The former was 485 m. long, the distance between the 47 m. high pylons being 315 m., while the dip of the cables was 35 m. The width of the bridge was 27·2 m., the 17·2 m. roadway carrying two tram tracks. The Düsseldorf bridge, 412 m. long in three spans was the largest all-welded box-girder bridge in Europe. The cross-section, 3 m. deep at the centre of the bridge and 7 m. at the supports, consisted of two boxes connected by means of particularly stiff diaphragms. The roadway of this bridge weighed only one-tenth that of the old bridge it replaced.

Iraq. The Baghdad railway and road bridge across the Tigris was completed. The total length, including viaducts, was 7,190 ft., the main bridge over the river consisting of a number of through-riveted steel spans 1,509 ft. long. The menace of inundation and the low bearing capacity of the subsoil made the lightest form of construction desirable; both road and railway viaducts were therefore built of steel bents with stringers. The superstructure of the river spans consisted of three cantilever and anchor arm spans with four suspended spans. All main trusses, railway stringers, cross-girders and deck systems were constructed of high-tensile steel, top laterals, portals and subsidiary details being in mild steel. The suspended spans were fabricated normally, but the cantilever and anchor span trusses were pre-stressed during erection to eliminate the secondary bending effects of dead load and maximum non-reversible live-load stresses.

Netherlands. An all-welded steel bascule bridge was built at Rotterdam, span 14 m., width 12 m. It had a new type of operating machinery resting on the counterweight, which was pivoted in the heel ends of the main girders.



The 300-yd.-long "peace bridge" over the River Main at Frankfurt seen after its opening early in 1951.

Norway. Among the highway bridges completed was the Vormsund bridge, 7·5 m. wide and 266 m. long. It had 14 spans of pre-stressed concrete beams. The Egerøy bridge, also of pre-stressed concrete, was 260 m. long over nine spans. The bridge at Flekkefjord, 40·5 m. long, had two equal side-spans of reinforced concrete. The middle span, 12·5 m., had a timber deck resting on steel girders and rolled in on top of the side span to allow a ship to pass. Two larger bridges, a steel arch across the Firth of Karmsund and a suspension bridge across the Topdalsfjord were being designed.

Portugal. Good progress was made with the Vila Franca bridge over the Tagus, which was ordered on March 26, 1949, and completed in Dec. 1951. The total length, including viaducts, was 1,224 m., five steel arches spanning the 520-m.-wide river. A reinforced concrete bridge of span 115 m. was constructed over the River Sousa.

Switzerland. The Tannwald bridge at Olten replaced a 95-year-old iron three-span arch bridge. The old abutments and piers were used and a new continuous girder bridge combined with a reinforced concrete deck slab was built over them. The three-span steel structure was completely welded. The upper flange of each girder carried a longitudinal serrated plate to which transverse plates were welded to take up the shear from the deck slab. To reduce the tensile stresses in the slab it was pre-stressed by lowering the intermediate supports by 10 cm. two months after pouring.

A beautiful reinforced concrete arch bridge carrying the Bulle-Boltigen road, 8·4 m. wide overall, at a height of 59 m. across the River Javroz was completed early in the year. The total length of the bridge was 169 m., made up of three approach spans on one side of the river and four on the other, the arch having a span of 86·6 m. and a rise of 25·3 m. Each of the two arch ribs had a depth of 1·30 m. at the crown and 2·15 m. at the springings. (J. F. B.)

United States. The Delaware Memorial bridge over the Delaware river near Wilmington, Delaware, completed in 1951, was the world's sixth longest suspension bridge, with a main span of 2,150 ft.

The Chesapeake Bay bridge, just north of Annapolis, Maryland, constructed in 1950-52 at a cost of $42,600,000, was 21,286 ft. long, including a 1,600-ft. suspension span, a 780-ft. through cantilever truss and a long series of deck cantilever trusses. The George P. Coleman Memorial bridge over the York river at Yorktown, Virginia, constructed in 1950-52 at a cost of $8 million was featured by two 500-ft. swing spans in tandem to provide, in combination, a channel of 450-ft. horizontal clearance.

Construction was started in 1951 on the $21 million Tampa Bay bridge in Florida, and on the $6 million highway bridge across Bay St. Louis on the Gulf coast of Mississippi.

The $12 million Penrose avenue bridge across the lower Schuylkill river in south Philadelphia, completed in 1951, had a 680-ft. main span of arched cantilever type.

A large concrete bridge with arch spans of 230, 319 and 230 ft. was built in 1951 to carry the Colorado freeway across the Arroyo Seco at Pasadena, California.

A $2,600,000 bridge was constructed in 1950-51 between Squantum and Long Island in Boston harbour. The 250-ft. centre span was assembled on two barges about four miles away, towed to position and then lowered into place with the ebb tide.

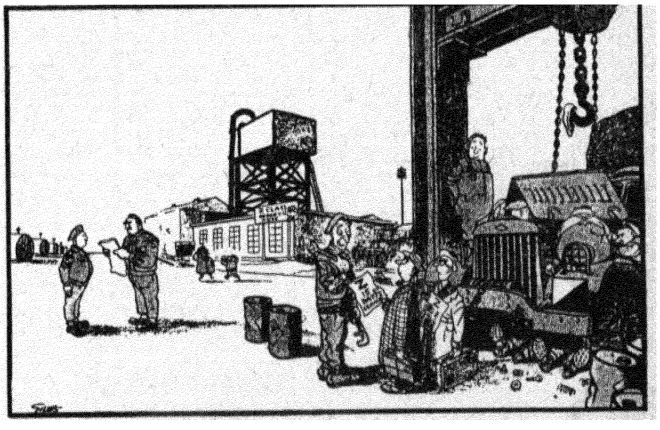
A pedestrian bridge over the Harlem river in New York city, erected in 1951, had a plate-girder lift span of 312 ft. New U.S. records for plate girder spans were set by two bridges (1951) on the New Jersey turnpike crossing the Passaic river and the Hackensack river, respectively, with girder spans of 375 ft.

The second pre-stressed concrete bridge to be completed in the U.S., the Walnut Lane bridge in Philadelphia, Pennsylvania, was completed early in 1951. The concrete deck was carried on thirteen 160-ft. main span precast girders and fourteen 74-ft. precast girders on the side spans. California's first pre-stressed concrete bridge was a 110-ft. span pedestrian crossing over the Arroyo Seco, in Los Angeles.

Construction was begun in 1951 on a new four-track vertical lift bridge for the New York Central railroad to span the Harlem river in New York city. The estimated cost was $10 million, and completion was scheduled for 1954. A bridge 3,050 ft. long, made up of 25 deck plate-girder spans 122 ft. long, was built over dry land near Whitney, Texas, to carry the Missouri-Kansas-Texas railroad across a future lake to be formed by the Whitney dam and reservoir.

Brazil. A combined railway and highway bridge over the São Francisco river between Propriá and Colegio, built in 1951-52 by the National Railway Department of Brazil, had a total length of 4,500 ft. The estimated cost was $6,150,000. Thirty-three concrete piers carried ten steel girders of the Wichert type, each continuous over three spans of 120, 164 and 120 ft. and four simple girder spans of 110 ft. (D. B. S.)

BRITISH ARMY. For the army 1951 was a year of strengthening of the reserves in order that a fully effective field force of completed units, familiar with the most up-to-date arms and supplied with all necessary services, should be ready, on the outbreak of war, to go into action with the



A cartoon entitled "If I were you I'd go and call the R.S.M. a rude name—he'll give you fifteen days inside and probably a disabled soldier's pension" by Giles, in the "Daily Express" (London) on Feb. 1, 1951.

The Z reserve formed a pool of between 2 million and 3 million trained soldiers. In February, in view of the existing circumstances, it was announced that during the spring, summer and autumn 200,000 Z reservists would be called up for 15 days' training with the units and in the services where they would be required to serve in war. Men were not chosen on considerations of age, length of service or date of discharge, but according to their individual qualifications and their ability to meet the more pressing special needs of the army. The call up was successful beyond all expectations and the vast majority of the Z reservists quickly showed themselves willing, efficient soldiers capable of adapting themselves to new military techniques and equipment. In 1952, 250,000 Z reservists were to be called up for 15 days' training.

The active army continued to expand slowly in numbers and to make more rapid progress in equipment. The Territorial army began in earnest the expansion which, it was estimated, would give it by 1954 a strength of between 400,000 and 500,000. This would be the regular influx from the active army each month of about 10,000 national servicemen, who, having completed their two years' full-time

training, were passing on to serve their three-and-a-half years' part-time obligation in the T.A. After a delay due to the extension of the full-time term to two years, the flow reached full volume in April. The volunteer element in the T.A. was 73,000 at the end of the year.

The strength of the active army was maintained at over 400,000 officers and men, half of them regulars and half national servicemen. Recruiting for the regulars was disappointing. It continued at a figure sufficient to supply the normal wastage from a force of 200,000 to 250,000, but did not raise it appreciably towards the 500,000 that was required to justify even a thought of abandoning compulsory service. In mid-1950 the monthly recruitment was only about 3,500. Substantial pay increases were granted in September of that year and the immediate response carried the monthly rate to 7,000; but the improvement was not maintained throughout 1951. In order to apply a new stimulus a new form of engagement was introduced in Nov. 1951. Late in the year recruits began to be accepted for three years' full-time service followed by four years in the reserve. By December the commands were reporting good results. Three years' service meant that a youth liable to national service call-up would do full-time duty for one year more (if he chose, beginning his service at 17½ instead of waiting to be conscripted at 18¼) and in return would gain the immediate advantage of the new pay rates (7*s*. a day as a private against 4*s*.); the national serviceman had to complete 18 months of his two years before he advanced from the old rate to the new. In addition, the three-year regular was not required to put in three-and-a-half years in the T.A. His four years' reserve liability might be more onerous in times of military difficulty falling short of war but was unlikely in normal times to go beyond a formality.

Overseas the army garrisons were increased. By the winter the British Army of the Rhine had been given two new divisions, the 11th Armoured constituted in Germany from elements sent out from the United Kingdom, and the 6th Armoured, formed in the U.K. and transferred to Europe after taking part in the large-scale autumn manoeuvres at home. These, added to the 2nd Infantry and the 7th Armoured already in Germany, raised the B.A.O.R. to its promised strength. Answering the darkening threats in Egypt, the 16th Parachute brigade was despatched in June from Aldershot to Cyprus, whence it was flown, four months later, to the Suez canal. In the canal zone it served side by side with the concentrated 1st Infantry division, previously scattered over the middle east. In the far east a Commonwealth division continued to serve in the United Nations army. Commanded by a British officer, Major General A. J. K. Cassels, it comprised the 28th brigade (King's Own Scottish Borderers, King's Own Shropshire Light infantry and 1st Australian regiment), the 29th brigade (Welch regiment, Royal Norfolks, Leicesters and the 5th Dragoon Guards) and the 25th Canadian brigade. The divisional troops included Royal New Zealand artillery. At the end of the year the Gloucestershire regiment, who had won world-fame by their repulse of prolonged, repeated attacks by immensely more numerous Communist forces in Korea, returned to England to receive an enthusiastic welcome. In the 18 months to Dec. 31, British army casualties in Korea were: 400 killed or died of wounds, 1,317 wounded, 201 missing and 916 prisoners of war. (*See* also ARMIES OF THE WORLD; MUNITIONS OF WAR.) (H. W. LE. P.)

BRITISH BORNEO. Colonies of North Borneo (incl. island of Labuan) and Sarawak, and the protected state of Brunei. Areas: North Borneo, 29,387 sq.mi.; Sarawak *c*. 50,000 sq.mi.; Brunei 2,226 sq.mi. Pop.: North Borneo (1949 est.) 345,000, incl. 66,000 Chinese: Sarawak (1947 census) 546,385, incl. 691 Europeans and 145,158 Chinese; Brunei (1947 census) 40,657. Language: various, Malay serving as a *lingua franca*. Religion: Moslem and pagan. *Administration*. North Borneo: governor; executive council, 3 *ex-officio* and 6 nominated members; legislative council, 3 *ex-officio* and 19 nominated members. Sarawak: governor; supreme council; Council *Negri* (legislature). Brunei: sultan-in-council; general administration, other than matters affecting the Moslem religion, is conducted by the British resident. Governors: North Borneo, Sir Ralph Hone; Sarawak, A. F. Abell (also high commissioner for Brunei).



Infantry and armour in action in Oct. 1951 during exercise "Surprise Packet," the largest army manoeuvres ever held in Britain.

History. In Sarawak in February the secessionists agreed to abandon their activities in the face of the Communist threat to Asia, and Clement Attlee, the British prime minister, renewed assurances of the British government's policy of helping the people towards self-government. There were no disturbances in 1951. On May 31, the new sultan of Brunei, Omar Ali Said-Uddin, was crowned with full ceremony and much rejoicing. Both in Sarawak and North Borneo the soaring prices for raw materials ensured another prosperous year. Indeed, Sarawak proposed to carry out the whole of its £4,500,000 development plan from its oil revenues, and in North Borneo the favourable balance of trade, which had risen from £500,000 in 1949 to £5 million in 1950, continued to improve. A North Borneo development plan was to cost over £5 million, some of which was to be paid for under the Colombo plan (*q.v.*). Its progress was, however, much hampered by shortage of materials and labour; the problems concerning the encouragement of immigration had not been solved, though several hundred people had been brought in from the Cocos and Keeling islands. A contingent of Dyaks from North Borneo continued to do valuable service in Malaya in helping the troops to track down bandits in the jungle.

Education. Primary school attendance 1950, secondary attendance in brackets: North Borneo 19,140 (484); Sarawak 41,000 (8); Brunei 4,496.

Finance and Foreign Trade. Currency: Malayan dollar ($=2*s.* 4*d.*).

	North Borneo	Sarawak	Brunei
Budget (1951 est.):	(in millions of dollars)		
Revenue	17·3*	20·1	26·1
Expenditure	11·2*	19·1	10·9
Imports (1950)	46	52·5†	20·5
Exports (1950)	92	50†	60·3

* Excl. development: revenue $11·4 million; expenditure $18·1 million. † 1949.

Principal production figures (1950): North Borneo, rubber (23,900 tons); rice (25,000 tons); copra (32,337 tons); Sarawak, crude oil (56,601 tons), refined petroleum (1,854,615 tons), rubber (55,765 tons), timber (36,607 tons in 1949); Brunei, crude oil (4,051,009 tons), rubber (2,496 tons). (K. G. B.)

BRITISH COUNCIL. At the end of 1951 the British Council was represented in 36 foreign countries; in Australia, New Zealand, India, Pakistan and Ceylon; and in 18 British colonies. The council supplied material and services to the United States, Canada, South Africa and other countries in which it was not directly represented. In the United Kingdom it provided services for people from overseas through 20 offices and centres and 5 student residences. During the year it started work in Siam and withdrew from Aden and Ethiopia.

Funds voted by parliament for the financial year 1951-52, after allowing for estimated receipts of £380,400, totalled £2,730,100, made up of £1,862,000 for work in foreign countries, £345,000 for work in the self-governing countries of the Commonwealth, £443,000 for work in the colonies and £80,100 for services for colonial students.

The council continued to act as the principal agent of the British government in the operation of cultural conventions between Great Britain and other countries. Its chairman, Sir Ronald Adam, was elected a vice-chairman of the executive board of U.N.E.S.C.O. and the council was represented on the cultural committees of the Brussels treaty powers and of the Council of Europe.

For the year 1951-52 the council awarded 195 scholarships for study in the United Kingdom to graduates from overseas, including the first of such scholarships for Japanese, and through the council, 15 overseas countries awarded 60 scholarships to British students.

The annual report of the council, issued in September, recorded that during the year to March 31, it arranged the studies in the United Kingdom of 3,396 people from overseas; sent 130 British experts on 209 lecture tours in 54 countries; arranged 44 university interchange visits in the Commonwealth scheme and 28 in the foreign scheme, 81 tours of books, fine arts and other exhibitions and 22 theatre and music tours, including those of Old Vic companies in four European countries, the Shakespeare Memorial Theatre company in Germany, the Sadler's Wells ballet in Canada and the Hallé orchestra in Portugal. The council sent 2,486 prints of educational and documentary films to 64 countries and sponsored the recording of the first two volumes of an anthology of English church music. Exchanges of scientific and learned journals between the United Kingdom and other countries reached a total of 3,349. Services to colonial and other students from overseas included meeting 2,261 on arrival, accommodating 355 in council residences and finding other accommodation for 2,365, social and cultural activities in council centres for 6,441 and vacation and weekend courses and short study visits for 7,996. (R. F. AM.)

BRITISH EAST AFRICA: *see* KENYA; SOMALILAND, BRITISH; TANGANYIKA; UGANDA; ZANZIBAR.

BRITISH EMPIRE: *see* COMMONWEALTH OF NATIONS.

BRITISH GUIANA. British colony on the northeast of the continent of South America between Venezuela, Brazil and Surinam. Area: *c.* 83,000 sq.mi. Pop.: (1946 census) 369,678, excl. *c.* 6,000 Amerindians in remote districts; (1950 est.) 425,156. Language: English; various East Indian languages also spoken. Religion: 60% Christian, various denominations; non-Christians mainly Hindu or Moslem. Principal towns (pop., 1950 est.): Georgetown (cap., 84,794); New Amsterdam (11,812). Administration: governor; executive council, 3 *ex-officio* and 5 unofficial members; legislative council, 3 *ex-officio*, 7 nominated unofficial and 14 elected members. Governor, Sir Charles Woolley.

History. The year 1951 was one of progress in several respects and confidence in the colony's future was reflected in the successful floating of a £2 million loan in London. A mission from the Colonial Development corporation spent three months investigating the possibility of developing the rice industry, which in any case was stimulated by an arbitration award on the prices to be paid for rice by other British Caribbean colonies. Sugar production was maintained and the bauxite industry completed large capital works. Legislation to assist the starting of new industries by relief from import duties and income tax came into effect. Evidence of further social progress was found in the opening of the new Queen's college which provided secondary education for 500 boys and in the inauguration of the portable water supply scheme for Georgetown.

A commission on constitutional development headed by Sir John Waddington recommended the introduction of full adult suffrage. Other proposals, which were accepted in principle by the secretary of state for the colonies, provided for a court of policy (formerly executive council) consisting of the governor, 3 *ex-officio*, 5 or possibly 6 ministers from house of assembly, and a minister without portfolio from state council; a house of assembly consisting of 3 *ex-officio*, 24 elected members and a speaker; and a state council of 6 nominated members, drawn equally from the three counties, and 3 appointed on the recommendation of the majority and the minority in the house of assembly.

Education. Pupils in elementary schools (1950), 74,153; expenditure on elementary education $2,125,128.

Finance and Trade. Currency: British Caribbean dollar ($4·80=£1). Budget (1951 est.): revenue $24,311,822; expenditure $24,224,018 excl. colonial development funds. Foreign trade (1950): imports $55,057,592; exports, incl. re-exports, $50,254,942. Principal exports: sugar, bauxite, rum, rice, diamonds, timber, balata.[a] Production: Sugar crop (1951) 205,688 tons; bauxite (1950) 1,583,417 tons. (P. H.-M.)

BRITISH HONDURAS. British colony in central America bounded by Mexico and Guatemala. Area: 8,867 sq.mi. Pop.: (1946 census) 59,220; (1950 est.) 67,000. Language: English; Spanish and Indian dialects. Religion: mainly Roman Catholic. Chief towns (pop., 1946): Belize (cap., 21,886), Stann Creek (3,414). Administration: governor; executive council, 3 *ex-officio* and not more than 5 unofficial members; legislative council, 2 *ex-officio* and 10 unofficial members. Governor, Sir Ronald Garvey.

History. The development programme continued to make considerable strides. In April, the first export of 12,000 stems of bananas was made to the United States and Canada, from the plantation established by the Colonial Development corporation in the Stann Creek district. In October, 8,300 stems were shipped to the United Kingdom. Progress was made with the ramie fibre project in the western district. Exports of timber, citrus fruit and chicle all increased substantially. These developments were materially helped by the continuing effects of devaluation of the British Honduras dollar in Dec. 1949, though protests against that measure continued to form part of the platform of the People's United party throughout 1951.

Grants under the Colonial Development and Welfare acts continued on an increasing scale, and special attention was paid to the construction of feeder roads to open up new territory for smallholders. Progress was made on the road from Roaring Creek to Middlesex which was to give land communication between north and south.

A major political issue discussed was whether the colony should join in any federation of the British Caribbean colonies such as that recommended in the report of the standing closer association committee which had been published in March, 1950. The People's United party conducted a strong campaign against federation.

Education. Schools: 92 primary and 5 secondary schools (65 controlled by the Jesuit mission). Attendance: primary schools, 13,526; secondary, 672.

Finance and Trade. Currency: British Honduras dollar ($4 = £1). Budget (1951 est.): revenue $4,712,699; expenditure $4,612,699. Foreign trade (1950): imports $8,076,417; exports $4,594,936. Principal exports: timber, coconuts, chicle and grapefruit. (P. H.-M.)

BRITISH LEGION: *see* EX-SERVICEMEN'S ORGANIZATIONS.

BRITISH SOMALILAND. Protectorate in east Africa bounded N. by the Gulf of Aden and French Somaliland, W. and S. by Ethiopia and E. by Italian Somaliland. Area: *c.* 68,000 sq.mi. Pop.: (1937 est.) 344,700; (1951 est.) 500,000; Somali nomads of ancient Hamitic stock with infusion of Arab blood. Language: includes many Arabic words: script is a variant of Arabic. Religion: Moslem. Capital, Berbera. Administration by a governor. Governor, Sir Gerald Reece.

History. The partial famine, due to drought, in 1950 was not repeated in 1951, when the rains were good and extensive measures taken against locusts were effective; the protectorate was assured of adequate food and grazing. The initial opposition of the people to the setting up of local authorities and district councils in the tribal areas disappeared and the native authority system was successfully established. Of even greater importance was the arrival of an irrigation expert in October to carry out a survey for large-scale irrigation. On the coast of the Red sea hopeful experiments were started in growing dates.

Education. Primary school attendance (1950) 2,000; intermediate 300.

Finance and Trade. Currency: Indian rupee and East African shilling; (from April 1951) East African shilling (20*s.* = £1). Budget: (1951 est.) revenue £1,200,000 (incl. £616,000 grant-in-aid); expenditure £1,200,000. Foreign trade: imports (1950) £1,200,000; exports £732,000. Principal exports: hides, skins, gums, livestock and ghee. Livestock: camels 2 million, sheep and goats 10 million and cattle 400,000. (K. G. B.)

BRITISH SOUTH AFRICAN PROTECTORATES. Basutoland, Bechuanaland protectorate and the protectorate of Swaziland, generally referred to as the High Commission Territories in South Africa.

	Area (sq.mi.)	Population (1946 census)	Capital
Basutoland . .	11,716	556,390	Maseru
Bechuanaland .	*c.* 275,000	294,020	Mafeking
Swaziland . .	6,704	184,473	Mbabane

Administration: high commissioner (who is also high commissioner for the United Kingdom in the Union of South Africa) responsible to the secretary of state for commonwealth relations; resident commissioners. High commissioners (1951) Sir Evelyn Baring and (from Oct. 2) Sir John Le Rougetel. Resident commissioners: (Basutoland) E. P. Arrowsmith; (Bechuanaland) E. B. Beetham; (Swaziland) D. L. Morgan.

History. Patrick Gordon Walker, secretary of state for commonwealth relations, visited the territories in Feb. 1951. He met chiefs and other notables and addressed representative gatherings.

Basutoland. The report (Cmd. 8209) was published of the special commissioner, G. I. Jones, who inquired into the increase in " medicine " murders. He found that the primary cause was the Basuto belief in the medicinal efficacy of human flesh. The revival of this belief was attributed to changes in chieftainship which had adversely affected the status and security of men in authority. The report recommended *inter alia* closer association of the Basuto people with the work of government and reforms in the system of native administration. These proposals were accepted by the secretary of state. After an inquiry into the working of native courts, steps were taken to improve their procedure and to record native law and custom.

The national council resolved to raise funds by a special levy for the further education of Basuto threatened with exclusion from institutions in the Union of South Africa.

Ma' Ntsebo, the regent, accompanied by advisers, paid her first visit to London from Oct. 11 to Nov. 11. She saw Gordon Walker and Lord Ismay who succeeded him and sought a declaration that Basutoland would never be handed over to the Union of South Africa without the consent of the Basuto; but neither minister was prepared to go beyond earlier assurances of prior consultation.

Bechuanaland. The Bamangwato tribe was disturbed by the effects of the banishment of its two leading figures, Tshekedi Khama (*q.v.*) and Seretse Khama, following the latter's marriage to a white woman. Tshekedi's desire to return led to debates, in June, in both houses of parliament at Westminster, and to the despatch from Britain of three observers to report on the attitude of the tribe to Tshekedi's return. The observers found that there was an overwhelming majority opposed to return but the Conservative government announced on Dec. 6 that it was their intention to allow Tshekedi to return ultimately to live as a private person in the reserve. It was later stated that he would be permitted, in the first place, to enter the reserve for short periods to look after his private affairs and that these periods should gradually be lengthened.

The Colonial Development corporation initiated a large-scale project to raise cattle and to slaughter them for export at a central abattoir at Lobatsi, and extensive ranches were leased.

Swaziland. Legislation provided a firmer legal basis for the system of indirect rule in native administration on the lines already adopted in other British dependencies. The paramount chief and his council were recognized as the native authority with power to run a series of native courts.



Tribesmen of the Bamangwato at a kgotla (tribal gathering) at Serowe, Feb. 1, 1951, when they were addressed by Patrick Gordon-Walker, secretary of state for commonwealth relations.

A national treasury, financed from local revenue, was established under the general control of the native authority. These laws marked a new stage in local self-government reached after years of consultation with the tribal leaders.

The African demand for primary and secondary education continued to grow. An increasing number of children were enrolled and new buildings erected, including a new European school. Plans for further development were under consideration. Extensions of medical facilities cost £71,000. A leper survey, involving the examination of 31,000 persons, was conducted with satisfactory results. (J. LN.)

Education. Schools, with the numbers attending in brackets, were in 1950:

	Primary	Secondary and post-primary	European
Basutoland	899 (88,236)	10 (1,012)	6 (116)
Bechuanaland	152 (16,346)	1 (34)	9 (224)
Swaziland	194 (13,588)	13* (670)	7 (568)

* Incl. 4 schools for coloured (mixed race) community.

A small private university from which students took external degrees of the University of South Africa was maintained by the Roman Catholic mission at Roma, Basutoland.

Finance and Trade. Currency: South African pound (£SA1 = £1 sterling).

	Budget est., 1951-52*		Foreign trade, 1950†	
	Revenue	Expenditure	Imports	Exports
Basutoland	£938,921	£977,624	£2,555,614	£2,588,120
Bechuanaland	505,293	559,120	1,487,147	1,626,014
Swaziland	529,120	518,588	1,090,793	2,144,851

* Excl. Colonial Development fund expenditure estimated at: Basutoland £107,397; Bechuanaland £155,239; and Swaziland £144,797. Deficits met from accumulated surpluses.

† Excl. earnings of labourers remitted from neighbouring territories for which no estimate available; the total was believed to be considerable.

Principal exports: (Basutoland) livestock, grain, wool, hides and skins; (Bechuanaland) beans, dairy produce, livestock, hides and skins, gold; (Swaziland) livestock, tobacco, asbestos (32,667 short tons in 1950), gold, groundnuts, tung oil.

BRITISH WEST AFRICA: *see* GAMBIA; GOLD COAST; NIGERIA; SIERRA LEONE.

BRITISH WEST INDIES. Under this heading are treated matters of common concern to the island colonies of Jamaica, the Leeward Islands, the four Windward Island colonies (Grenada, St. Vincent, St. Lucia and Dominica), Trinidad and Tobago, and Barbados, and the mainland colonies of British Guiana and British Honduras. Total area 106,172 sq.mi.; population *c.* 3,025,000. (*See* also articles on the individual colonies and CARIBBEAN COMMISSION.)

Politically, 1951 was of much interest. In the four Windward colonies and in Barbados elections were held under new constitutions which, among other innovations, provided for full adult suffrage. Similar constitutions were due to come into operation in the Leeward Islands, though the necessary legislation to enable elections to be held had not been completed by the end of the year. Wide changes, including the introduction of full adult suffrage, were recommended by the report of a committee on the constitution of British Guiana. In most instances, where elections were held under extended franchises, the trend was towards the return of candidates without previous experience in such bodies.

The possibility of the establishment of a federal government for all the colonies, as recommended by the Standing Closer Association committee set up in 1947, continued to be widely canvassed. The Jamaican legislature set up a committee to study the question and there were other developments which seemed to point in the general direction of federation. The Development and Welfare Organization in the West Indies (comptroller, Sir George Seel) with its headquarters in Barbados, continued to advise on long-term programmes of social reform.

The first meeting of the regional economic committee was held in Barbados in May, and it was decided to set up a West Indian Trade Commissioner's office in Britain. The paper money of a unified currency for the eastern group of colonies (excl. Jamaica and British Honduras) based on the West Indian dollar (sterling equivalent, 4*s.* 2*d.*) came into circulation, to the great convenience of the tourist and the general benefit of commerce. Coinage in the new denominations was not expected to be available for about two years. West Indian delegations visited Britain and Canada to discuss economic and commercial problems.

The disastrous hurricane of Aug. 17 in Jamaica (*q.v.*) brought instant expressions of sympathy and practical help from every other British colony in the Caribbean; and the essential unity of the area was again demonstrated at the end of the year when West Indians of all classes from every colony followed the broadcasts that told of the progress of their cricket team on its tour in Australia. (P. H.-M.)

BROADCASTING. The total radio audience in Europe continued to grow at approximately the rate established over the 1946-50 period, when there was an increase of about 40% in European set ownership. The situation varied considerably, however, in different areas. In such countries as Finland, Norway and Greece the number of radio-owning families went up because of increased domestic production, or increased imports, of sets. In Great Britain, Denmark and Sweden, where 90% or more of homes had radio sets, the situation remained stable. In the U.S.S.R. and eastern European countries there was a great increase in listening, though largely confined to domestic services on medium wave or through wired wireless. International broadcasting increased throughout Europe. Of the major contestants, only the B.B.C. European service was reduced.

Great Britain. 1951 proved a stormy year for British broadcasting. The report of the Beveridge committee,

published in January, recommended that the B.B.C. should remain responsible for all British broadcasting, including television. It was proposed (1) that the government, not the B.B.C., appoint broadcasting commissions for Scotland, Wales and Northern Ireland; (2) that there be greater decentralization of the external services and of television; (3) that the government reserve the power to license public authorities or others to run local stations on V.H.F.; (4) that the corporation set up a public representation service; (5) that the activities of the B.B.C. be reviewed every five years by a government committee; (6) that the existing licence fee system continue, the B.B.C. receiving 100% of the net revenue; and (7) that there should be no introduction of advertising. Three members of the committee thought, however, that a public service could have a limited advertisement period without sacrificing its standards. One member argued against the continuance of the B.B.C. monopoly; in addition to a public service financed by licence fee, he wished to see national and local programmes financed by advertising.

In a white paper, published in July, the government proposed that the charter and licence be renewed subject to a number of modifications, notably that regional broadcasting councils be formed, their members drawn from county and urban councils, with responsibility for the appointment of local staff; and that the B.B.C. should receive only 85% of the net licence revenue for the next three years. No decision was reached, however, before the general election in October. The Conservative government therefore announced that the existing charter (due to expire at the end of 1951) should be renewed for six months to allow time for reconsideration. In the meantime the B.B.C. would receive only 85% of net licence revenue.

The external services of the B.B.C. were reduced as a result of a cut in the Treasury grant in April. The cuts fell mainly on the services to countries outside Europe, and the general overseas service was reduced by three hours daily. The external services maintained broadcasts, however, for 85 hr. a day in a total of 45 languages.

Severe interference with the reception of the British domestic services resulted from the Copenhagen plan of 1950, reallotting medium wavelengths. Steps were taken to assist listeners in the areas most seriously affected by erecting a number of low-power transmitters, several of which were in service by the end of 1951. A plan for a nation-wide service on very high frequencies was submitted by the B.B.C. to the General Post Office. Improvement in the reception of the Light programme was effected when the power of the long-wave transmitter (1,500 m.) at Droitwich was increased to 400 kw. Third programme coverage was improved by the opening, in April, of a new high-power transmitter at Daventry on a wavelength of 464 m., with a total output power of 200 kw. In order to conform to the Copenhagen plan, however, the actual power used was limited to 150 kw.

The Festival of Britain played a large part in B.B.C. programmes. The Home service presented a special series of plays and symphony concerts as a contribution to Festival year. Outside broadcasts gave extensive coverage to the festival and (with C.B.C.) to the royal tour of Canada. The Reith lectures, on "Power and the State," were given by Lord Radcliffe of Werneth. Bertrand Russell gave six weekly talks on "Living in an Atomic Age." In the Light programme the highlight was the "Festival of Variety" on May 6. The Third programme devoted an entire week, in April, to material originally written, published or performed in 1851. Sixty different operas were broadcast in the Third programme during the year, including first performances of Igor Stravinsky's *The Rake's Progress* in Venice and of Benjamin Britten's *Billy Budd* at Covent Garden Opera house.

Commonwealth. In Australia, government economies caused a reduction of nearly £150,000 in the annual budget of the Australian Broadcasting commission, but the position was restored by a measure introduced into the federal parliament, in November, to raise the licence fee from £1 to £2. During the year the A.B.C. opened two more stations bringing the total to 54. The purchase, by the London *Daily Mirror*, of a network of Australian commercial stations caused widespread reaction and led the federal government to consider amending the Broadcasting act to make it impossible for any commercial licensee to transfer a licence to an oversea interest. Responsibility for external services (Radio Australia) was transferred from the Department of Information to the A.B.C.

The Royal Commission on National Development in the Arts, Letters and Sciences completed its study of broadcasting in Canada, and endorsed the existing radio system operated by the Canadian Broadcasting commission. It recommended that the income of the system, totalling about $8 million a year from licence fees and some commercial revenue, be supplemented from public funds by about $14 million a year, or roughly one dollar a head of population. It also recommended that the C.B.C. should have control over television in Canada. By December, the recommendations of the royal commission had not been implemented, though a parliamentary committee on broadcasting had been named.

In South Africa, Springbok Radio, a commercial programme to supplement the existing non-commercial services in English and Afrikaans, was established in Johannesburg and Capetown. Radio Pakistan opened its new broadcasting house in Karachi on July 16. It included 14 studios and the latest frequency modulated transmitters.

Important broadcasting schemes were launched in the British colonies. In Nigeria building began on three main stations, at Lagos (20 kw.), Kaduna (7½ kw.) and Enuga (7½ kw.) which would give short-wave coverage in four languages to the whole of Nigeria. The Lagos station began broadcasting at the end of the year. In Cyprus, work progressed on the building of a 10-kw. medium-wave station at Nicosia to provide a domestic service for the island in Greek, Turkish and English. In Tanganyika, a low-power medium-wave station was set up by the Tanganyika government as a pilot scheme for broadcasting to Africans. Shortage of receiving sets remained a serious problem. There were 800 community listening sets installed in Malaya, which greatly increased the rural audience. In Northern Rhodesia the "Saucepan Special," an all-dry battery set priced at £5 15*s*., sold during the year at a rate of about 1,000 sets a month.

By the end of the year there were broadcasting services in 24 of the British dependent territories. In 14 of these broadcasting was operated by government, in 7 by a commercial company and in 3 by both. In Singapore the British Far Eastern Broadcasting service opened, in May, a high-power short-wave relay transmitter to improve the B.B.C. service to the far east, southeast Asia and south Asia.

Europe. A significant step was the proposed admission of the German federal republic to the European Broadcasting union. At an E.B.U. meeting in September it was announced that the Arbeitsgemeinschaft der Oeffentlich Rechtlichen Rundfunkanstalten (representing the radio organization of Western Germany) would be admitted as an active member as soon as the federal republic became a member of the International Telecommunications union.

The Italia prize, offered every other year for outstanding radio programmes, was divided between Great Britain and France, each being awarded 9,000 Swiss francs. The winning entry from the B.B.C. was *The Face of Violence*, a play by J. Bronowski with music by Antony Hopkins, produced by

Douglas Cleverdon. *Une Larme du Diable*, by Théophile Gautier, produced by René Clair, was the successful French entry.

The U.S.S.R. and other Cominform countries greatly increased their output of external broadcasting to Italy, Germany, France, Spain and Great Britain during the year. In order to improve the penetration of its broadcasts in western Europe, Moscow took over a number of the domestic transmitters in Hungary, Poland and Czechoslovakia.

Radio Free Europe, operating from Munich with U.S. backing, opened a medium-wave transmission to Czechoslovakia on May 1. On June 1 it began a short-wave transmission to Albania, and on Oct. 6 a short-wave transmission to Hungary. The station broadcast for 12 hr. a day to Czechoslovakia and Hungary, and for 8 hr. a day to the other satellite countries of eastern Europe, to which programmes began in 1950. The station was employing a staff of nearly 1,000 by the end of 1951. (G. WR.)

United States. The Voice of America, operated by the U.S. Department of State, expanded its broadcasts and strengthened its transmissions during 1951. In response to a call by President Harry S. Truman for a great "campaign of truth," the VOA inaugurated programmes in 21 additional languages, directed principally to the far east and to minority groups within the U.S.S.R. The broadcast output was increased from 32 to 50 hr. daily in a total of 46 languages. Construction was begun on a world-girdling network of transmitting facilities designed to reach new audiences and increase penetration of Soviet jamming.

Receiving sets in use in the U.S. during 1951 were estimated at about 104 million, as compared with 90 million in 1950. *Broadcasting-Telecasting Magazine* calculated that the number of radio-equipped homes in the U.S. was about 42,427,000.

Stations. The year 1951 was one of steady but unspectacular growth in the broadcasting field. There was a net gain of 87 amplitude modulation (A.M.) stations during the year. In frequency modulation (F.M.), however, which had never really "caught on" with the public despite the early enthusiasm of broadcasters, the number of stations showed another decline in 1951.

Figures published in *Broadcasting-Telecasting Magazine* showed that 3,161 broadcasting stations—A.M., F.M. and television—were in operation or had been authorized by the end of Dec. 1951. This figure represented a net gain of 57 over the 3,104 reported at the end of 1950. The number of stations actually on the air at the end of 1951, 3,083, was the largest in history. This included 2,295 A.M. stations, as against 2,231 a year earlier, and 648 F.M. stations, as compared with 676 at the end of 1950. The number of television stations in operation increased from 107 to 108.

Transit Radio. One of the major developments in F.M. was facing a Supreme court test at the close of the year. The Supreme court agreed in October to hear an appeal from a District of Columbia court's decision, in a case brought by a group opposed to what they called "forced listening," which held that transit radio "commercials and announcements" were unconstitutional in that they "deprive objecting passengers of liberty without due process of law." The Supreme court, which was expected to hear the case early in 1952, also agreed to consider whether transit radio music and non-commercial announcements, such as weather reports and other public service features, were legal or illegal.

Programmes. The year was marked by much experimenting with new programmes, as broadcasters sought to develop shows that would better meet or offset television competition. A. C. Nielsen Co. estimates indicated that, among early autumn programmes, comedy variety radio shows—which had been tied with general drama for first place in 1950—had dropped to fifth place in 1951. News interest remained at a high level because of the Korean war and general world conditions.

Broadcasting Revenue and Expenses. According to official figures compiled and released by the Federal Communications commission, gross revenues of the A.M. networks and stations registered a 7·1% gain, reaching $443,057,845 in 1950. This compared with $413,784,633 in 1949, which represented a 1·67% increase over 1948. Total broadcast expenditure for 1950 was $372,314,353, or 4·1% higher than the 1949 figure of $357,521,718. Total broadcast income (before federal taxes) for these stations amounted to $70,743,262 in 1950, as compared with $56,262,915 in 1949. Revenues from the sale of network time totalled $131,530,216, as compared with $134,898,325 in 1949; time sales to national and regional advertisers amounted to $118,823,880 ($108,314,507 in 1949); and time sales to local advertisers totalled $203,210,834 ($182,144,301 in 1949). These totals included commissions paid to agencies, etc., which broadcasters regard as an expense of sale.

Manufacture. The Radio-Television Manufacturers association, which represented more than 80% of the industry, in a preliminary estimate in December placed 1951 production as follows: home radio receivers, 6·7 million; automobile radios, 4·5 million; portable radios, 1·3 million.

Legislation. Senator William Benton stirred up a controversy which reverberated throughout the broadcasting industry by introducing a bill to create a national citizens advisory board on radio and television. The proposed board would review and report on the operation of radio and television in terms of the public interest. The plan was attacked by broadcasters, and some government officials, as raising dangers of censorship; by others it was defended as a wise and legal step to improve radio and television as mediums for enlightening, educating and improving the public. It had not been acted upon finally when congress adjourned, but remained available for action when the second session was convened in Jan. 1952. (*See* also RADIO, SCIENTIFIC DEVELOPMENTS IN; TELEVISION.)

(R. W. CR.; S. TF.)

BRUNEI: *see* BRITISH BORNEO.

BRUSSELS TREATY ORGANIZATION: *see* WESTERN UNION.

BUDGET, NATIONAL. Rearmament cast its shadow over the budgetary situation of most countries in Europe, the Commonwealth and the middle east, although actual surplus military spending was not unduly heavy during 1951 compared with the wartime increase in military expenditure. Rearmament was everywhere slow in gathering momentum. In many countries an effort was made to maintain a balanced budget or at any rate to control the deficit. In none of the countries concerned was the amount spent during 1951 large enough hopelessly to compromise budgetary positions. Nevertheless, there could be no doubt that the rearmament factor changed postwar budgetary trends.

Until 1950 postwar deficits were being gradually eliminated or reduced in practically all countries and, without rearmament, normal conditions might have been achieved. It was true that some countries had to struggle with deficits due to specific causes. The deficits in France and Italy remained perennial, though their amount was easily covered by normal borrowing. Israel had to struggle with problems arising from large scale immigration and the need for a newly established state to organize itself. Countries such as Spain, Greece and Turkey, which maintained relatively large armed forces, had to pay the price in the form of high expenditure which was not easily covered by revenue. Yet progress was made in most countries towards budgetary equilibrium.

TABLE I. UNITED KINGDOM BUDGETS, 1949-50 TO 1951-52
(in £ million)

	1949-50	1950-51	1951-52 est.
Revenue			
Income tax	1,438·4	1,404·4	1,624·8
Surtax	114·7	121·1	128·0
Estate, etc., duties	189·6	185·3	180·0
Stamps	51·5	54·5	55·0
Profits tax	260·8	258·4	312·7
Excess profits tax	36·2	9·4	
Other	0·6	0·6	0·5
Special contributions	19·6	4·9	1·5
Customs and excise	1,519·7	1,630·0	1,651·0
Motor vehicle duties	55·8	61·4	62·0
Broadcast recovery licences	12·6	13·0	13·6
Total tax revenue	3,699·5	3,742·8	4,029·0
Miscellaneous	77·7	81·0	105·0
Sundry loans	20·2	26·9	27·0
Post Office, net receipts	—	1·0	5·4
Surplus stores	79·1	45·4	20·0
Surplus, trading services	47·5	80·9	50·0
Non-tax revenue	224·6	235·1	207·4
Total ordinary revenue	3,924·0	3,977·8	4,236·4
Expenditure			
Interest	472·2	477·8	515·0
Other consolidated fund	47·6	47·5	49·0
Navy, army, ordnance and air	740·7	777·4	1,273·8
Civil, roads and revenue departments	2,096·1	1,935·2	2,339·2
Sinking funds	18·7	19·4	20·0
Total	3,375·3	3,257·3	4,196·9
Surplus	548·7	720·5	39·5

Unfortunately, with very few exceptions, countries endeavoured to balance their budgets not so much by economies as by increases of their revenue. They tended to consolidate their budgetary positions at the highest postwar levels.

A result of rearmament was partly to restore the wartime spendthrift spirit. It aggravated the task of countries that had been unable to reach equilibrium. In addition to the actual outlay on increased military expenditure, the will to achieve economies suffered by the urgent need to spend untold millions.

Rearmament also affected the budgetary position through its effect on prices. On the one hand, the rising cost of living resulted in a demand for higher salaries by civil servants and increased the amount of expenditure, including that on rearmament itself. On the other hand there was an increase of revenue: there was a new nominal increase in national earnings and taxable capacity; certain indirect taxes rose automatically with the rise in prices; because of its inflated purchasing power, the public could well afford to pay higher prices; the proceeds of direct taxation also rose as a result of the increase of incomes.

In one respect, all treasuries benefited by the rise in prices in 1951. It reduced the relative burden of their public debt, the service of which came to represent a smaller percentage of their budgets. At the same time, those countries with a deficit had to resort to new borrowing and to pay higher interest rates.

The countries whose budgetary situations benefited greatly by rearmament were those producing essential raw materials. There was a spectacular rise in their national incomes and, even though a rise in revenue lagged far behind this upward movement, the finance ministers concerned had no reason to complain.

The cost of rearmament was partly compensated for by cuts in expenditure on public works. The extent to which other expenditure items were reduced was usually moderate. Governments shirked unpopular cuts in expenditure: in particular a reduction in social expenditure was considered to be politically impossible. In some instances the amounts spent on the welfare state were actually increased. For instance, in the United Kingdom a substantial amount was added to old age pensions; at the same time, it must be added, steps were taken to halt the rise in the cost of the national health service.

Revenues during the financial year 1950-51 or 1951 exceeded estimates in almost every country. Owing to this, some countries engaged in rearmament were able to close the year with an actual revenue surplus. Among these countries were the United Kingdom, Belgium, Norway, Denmark, New Zealand, Australia, Pakistan, South Africa and others. But in France, Italy, the Netherlands, Spain, Turkey, Egypt and elsewhere the year was closed with a deficit.

Military expenditure by the United Kingdom was increased, apart from rearmament, by the cost of the Korean war and the disturbances in Malaya and the threatening troubles in the middle east. France had to continue to carry the heavy burden of the war in Indochina.

The budgets for 1951-52 or for 1952 in most countries foreshadowed increases in military expenditure which were partly balanced by the anticipation of further increases in the proceeds of existing taxation and partly by the adoption of new taxes.

In Great Britain there was an increase of income tax and of the tax on distributed profits. Hugh Gaitskell, chancellor of the exchequer, in face of strong left-wing opposition, sought to reduce the cost of the national health service by imposing a charge on certain services. A limit of £400 million had been established for the cost of the national health service and £410 million for the cost of food subsidies. With the aid of these reductions and other measures it was possible to produce a small surplus in spite of the increased military expenditure. Following on the change of government the new chancellor of the exchequer, R. A. Butler, adopted a policy of budgetary disinflation. With the aid of a campaign for the reduction of government expenditure he hoped to achieve a substantial revenue surplus, which would tend to counteract the factors making for inflation.

Canada showed a big budgetary surplus, amounting to $500 million for the first five months of the fiscal year 1951-52. This was some 15 times larger than the amount expected for the whole fiscal year. The surplus was due in part to larger taxation receipts, but also to inability to spend the whole amount earmarked for rearmament.

India continued to struggle with its perennial budgetary deficit. During the 3½ years of its independence its Treasury cash balance became reduced from Rs. 3,760 million left behind by the British administration (enough to cover a whole year's expenditure) to Rs. 910 million. By the end of the fiscal year 1951-52 this was expected to fall to Rs. 120 million. Although an economy drive was initiated in 1950, almost all expenditure items showed an increase. The total estimated expenditure for 1951-52 increased by Rs. 1,290 million. This was partly balanced by additional taxation.

Pakistan showed a much more satisfactory picture. In spite of increased expenditure and loss of revenue through tax concessions, the budget showed a surplus of Rs. 207·4 million compared with Rs. 289·6 million in 1950-51. Part of the surplus was allocated to a special fund to finance the establishment of arms-manufacturing industries. The satisfactory position was largely the result of the rise in the prices of Pakistan's staple raw material exports.

In Australia the government adopted a policy of disinflation through budgetary surpluses. Owing to the increasing yield of taxation it would have been possible to balance the budget without additional taxation, in spite of the increase of expenditure from £A 784 million to £A 927 million. In spite of this the government adopted new taxes to a total of

£A 160 million. This was expected to raise revenue in 1951-52 to £A 1,091 million, of which £A 957 million would constitute taxation revenue.

New Zealand was able to grant rebates to a large number of taxpayers in spite of the increase of expenditure to £NZ 208 million, an increase which was largely due to defence costs. Both Australia and New Zealand benefited to a considerable extent by the high price of wool and other staple products.

The Union of South Africa increased its defence expenditure for 1951-52 by £SA 13·4 million. Further £SA 7·9 million were allocated for pensioners' bonuses. A deficit of some £SA 8 million resulting from these measures was converted into a small surplus through additional taxation.

Among the European countries the budget of France for 1951 showed an expected deficit of Fr. 600,000 million. Without U.S. aid it would have been Fr. 700,000 million. Revenue was estimated at Fr. 2,104,000 million.

The Italian budget showed an increase of revenue from L. 1,227,000 million in 1950-51 to L .1,455,000 million in 1951-52. Expenditure increased to a much larger degree, from L. 1,397,000 million to L. 1,824,000 million. Even so the relative importance of the deficit was much lower than in earlier postwar years. In 1947-48 it amounted to as much as 50% of the total expenditure.

The Netherlands succeeded in reducing its deficit through the increase of revenue from Fl. 3,942 million in 1950 to Fl. 3,992 million in 1951 and the reduction of the expenditure from Fl. 4,487 million to Fl. 4,312 million.

Among the Scandinavian countries Denmark succeeded in balancing the budget for 1951-52 at nearly Kr. 200 million below the previous year. Sweden continued to show a budgetary surplus for 1951-52 in spite of the increase of expenditure from Kr. 4,838 million to Kr. 5,367 million. Revenue increased to a more pronounced extent, from Kr. 4,998 million to Kr. 5,709 million. Likewise Norway budgeted for a surplus of Kr. 475 million for 1951-52 in spite of the increase of military expenditure from Kr. 400 million to Kr. 500 million.

Spain's budget for 1952-53 showed a deficit of P. 269 million. Defence expenditure represented 32·8% of the total expenditure of P. 22,477 million. Switzerland showed an appreciable revenue surplus for 1951, revenue being S.Fr. 1,901 million and expenditure S.Fr. 1,577 million.

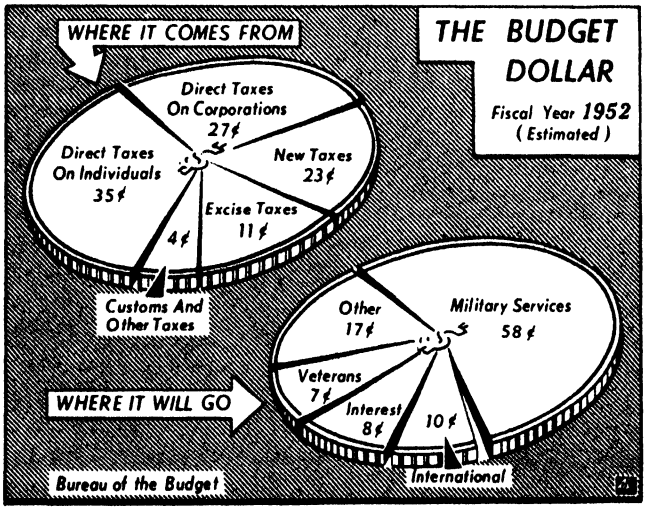
(P. EG.)

United States. The U.S. budget submitted to congress by President Harry S. Truman on Jan. 21, 1952, recommended expenditures of $85,444 million for the fiscal year ending June 30, 1953, an increase of about $14,500 million over fiscal 1952. On the basis of existing tax laws, it was expected that revenues in fiscal 1953 would total $70,998 million as compared with an estimated $62,680 million in fiscal 1952. On these estimates there would be a deficit of $14,446 million as against an estimated deficit of $8,201 million for 1952.

The president noted that " . . . partly as a result of inadequate revenue legislation last year, we were now confronted with the impracticability of financing government expenditures currently out of taxes for the next year or so." However, he suggested that, " at the very least," additional revenue be raised to the amount (about $5,000 million) by which legislation in 1951 fell short of his recommendations.

The 1953 budget, the president stressed, was dominated by " major national security programmes," military services, international security and foreign relations, the development of atomic energy, the promotion of defence production and economic stabilization, civil defence and merchant marine activities. The expenditures earmarked for such programmes formed 76% of the total budget.

The bulk of the projected increase in the 1953 budget was for the purpose of strengthening and expanding the armed forces. Comprising 60% of the budget total, an outlay for military services of more than $51,000 million was recommended. The largest increase provided in the military services budget was for aircraft procurement, which would be expanded from $5,800 million to $11,000 million.



The United States budget for 1951-52 showing the sources of revenue and items of expenditure represented as parts of the dollar.

The other increase of large magnitude in the 1953 budget was for foreign policy and international programmes, consisting mainly of military and economic and technical assistance to friendly nations in Europe, the middle east and Asia. Total expenditures in this category were projected at $10,800 million, substantially above estimated outlays of $7,200 million in fiscal 1952. The increase was attributed by the president to " a sharp acceleration in deliveries of military equipment to our allies overseas."

The government's programmes to conserve and develop natural resources were estimated to require expenditures of

TABLE II. U.S. BUDGETS, FISCAL YEARS 1951-53
(in $ million)

	Actual 1951	Estimate 1952	Estimate 1953
Receipts			
Direct taxes, individual	24,095	30,064	33,005
Direct taxes, corporation	14,388	22,900	27,800
Excise	8,693	9,046	9,744
Employment taxes	3,940	4,857	5,000
Customs	624	575	575
Miscellaneous	1,629	1,598	1,613
Deduct:			
Old-age and survivors' insurance appropriation fund	3,120	3,850	4,030
Refunds (excl. interest)	2,107	2,510	2,709
Total	48,143	62,680	70,998
Expenditure			
Military services	20,462	39,753	51,163
Veterans' services and benefits	5,339	5,165	4,197
International security and foreign relations	4,727	7,196	10,845
Social security; welfare; health	2,380	2,679	2,662
Housing; community development	602	881	678
Education and general research	115	238	624
Agriculture	650	1,408	1,478
Natural resources	2,051	3,082	3,237
Transportation; communication	1,685	2,153	1,643
Finance, commerce, and industry	176	751	833
Labour	228	240	246
General government	1,209	1,353	1,484
Interest	5,714	5,955	6,256
Reserve for contingencies	—	25	100
Adjustment	—705	—	—
Total	44,633	70,881	85,444
Deficit	—	8,201	14,446
Surplus	3,510	—	—

Detail will not necessarily add to totals because of rounding.

$3,237 million, as compared with $3,082 million in fiscal 1952. Outlays for atomic energy comprised more than one-half of these totals. At a seminar for newsmen just prior to release of the budget, President Truman announced that authorization later would be requested for a $5,000 million to $6,000 million expansion of atomic energy facilities over a period of about five years.

Under the category of education and general research it was recommended that expenditures be increased from $238 million to $624 million. By far the largest part of the increase was attributable to proposed grants of $290 million to the states for the operation and maintenance of elementary and secondary schools. Other legislation proposed by the president called for $35 million to help to provide schools in communities overburdened because of federal activities and $30 million to give financial aid to "capable young people who otherwise would not attend a college or university."

Expenditures for social security, welfare and health were estimated at $2,662 million, slightly less than in the previous year. The largest decrease among the budgetary programmes was projected for services and benefits to veterans; outlays for 1953 were estimated at $4,200 million or about $1,000 million less than in 1952.

The federal government's two largest sources of revenue, income taxes on individuals and income and excess profits taxes on corporations, were expected under existing law to provide revenues of more than $60,000 million in fiscal year 1953, comprising more than four-fifths of the estimated total of budget receipts. (*See* also TAXATION; WEALTH AND INCOME, DISTRIBUTION OF.) (C. F. Sz.)

BUENOS AIRES. Capital of the republic of Argentina, the largest city in the southern hemisphere and of Latin America, and the largest Spanish-speaking city in the world. Area (federal district): 71 sq.mi. Pop. (1947 census): 3,000,371.

Prosperity was matched with scarcity. Never before did industrialists and landowners have so much money to spend; never before had the poorer classes experienced such difficulty in obtaining normal supplies of certain commodities (meat and milk, for example) which in the past had been taken for granted in this land of plenty. A spectacular gesture against the rising cost of living was the inauguration by President Perón's wife of a chain of grocery stores which, subsidized by the Eva Perón foundation, charged lower prices than the ordinary shops.

Many political demonstrations occurred in the city during this electoral year. In August a Peronista rally of about 100,000 children and their parents took place in and around Luna park. Thousands of toys were given to the children, while motor vans distributed fruit and cakes. An abortive *coup d'état* at the end of September was primarily a Buenos Aires movement. The outbreak originated in the nearby military barracks at Campo de Mayo and the adjacent air base of El Palomar. Aircraft flew over the centre of the capital dropping revolutionary pamphlets, and loyal workers constructed barricades to prevent rebel troops from entering the city. The rebels, however, were overcome before leaving Campo de Mayo, and within a few hours General Perón appeared on the balcony of the Casa Rosada to announce the failure of the insurrection.

Early in November, Señora Perón entered a public hospital in the working-class suburb of Avellaneda to undergo an operation.

At the presidential elections on Nov. 11, the female vote was decisive in the capital. The men of Buenos Aires gave only 373,000 votes for Perón, 413,000 for his Radical opponent; but 457,000 women voted for Perón and only 206,000 for the Radical, Ricardo Balbín. (G. P.)

BUILDING AND CONSTRUCTION INDUSTRY. Against a background of increased wage rates and materials costs, the building industry sought during 1951 to adjust itself to the changes brought about by rearmament. Normal civil building was replaced by building for defence purposes to the extent of about 10% and it was forecast that this proportion would be considerably increased during the 3-year defence programme. Work was seriously hampered by shortage of steel and it was frequently stated that this was the biggest obstacle to building production. The housing programme remained unaltered at 200,000 houses a year, until the promise to raise the number to 300,000 became one of the principal planks in the Conservative platform at the general election. It was ultimately concluded that the target could be raised only gradually and there were many who felt that increased production of houses could be obtained only at the expense of other building.

Labour relations remained good although there were occasional calls for nationalization from the trades union leaders. Wage increases amounting, in all, to 3*d.* per hr. (bringing their rate to 3*s.* 3*d.* per hr. in London) were negotiated for skilled craftsmen and incentives payment schemes were extended, so that most workers were able to earn weekly wages substantially greater than the standard rate. It was often stated that the operation of these schemes was resulting in very considerable increases in production on housing sites. Nevertheless, recruitment of apprentices to the industry remained inadequate, particularly in plastering and, to a less extent, in bricklaying. Employers' organizations gave further evidence of their concern for recruitment and training by establishing schemes of awards and by active encouragement of their members to indenture apprentices to the skilled crafts and to make formal provision for the training of administrative and technical staff.

There were signs of progress in the development of new methods of construction, particularly for schools, and in the use of pre-stressed concrete. This last development, owing much to the scarcity of steel, was clearly an outstanding contribution to constructional technique although much remained to be learned of its behaviour in the region of ultimate load. Mechanization on building sites attracted the attention of many contractors and considerable savings of cost were attributed to a new type of crane which first made its appearance in London late in 1950. Experiments in the design and construction of low-cost housing were promoted by various interests but, in general, building costs continued to rise. A comparison between Great Britain and Sweden in this respect did not, however, favour Sweden and in the United States the position seemed no better.

In these circumstances, there was every reason to welcome the first international Building Research congress which met in London in September and achieved notable success. A distinguished group of research workers and other specialists in building studies read papers in five sections of the congress, each section being devoted to some well-defined aspect of the design or construction of buildings. The reluctance of the industry to take advantage of the results of research was stressed at several of the discussions, the evidence from western Europe and from the U.S. differing little from that from Great Britain so far as established methods of small-scale building were concerned. Several reasons were advanced for this reluctance to innovate: the craft organization of the industry, its low level of technical competence and the peculiar advantages of established methods of construction. Since building contractors in general were not conspicuous amongst the speakers in the congress discussions it seemed doubtful if any rapid increase in the rate of absorption of results of research was to be

expected. It was notable, however, that in the less complex, larger-scale work, described in Great Britain as civil engineering, as distinct from building, development continued satisfactorily. The opening of a new structures research laboratory by the Cement and Concrete association drew attention to the scope of the work undertaken at their research establishment and promised further extensions of the use of concrete in the structural field.

There were signs that attention was being paid to the recommendations of the working party's and productivity team's reports of 1950. The national organizations of architects and building contractors issued a joint statement on the need for adequate planning in advance of contracts, and a committee was appointed to assist with the revision of the model byelaws, now 15 years old. Some controversy broke out during the late summer about the operation of an organization of building contractors whose principal object was to limit the effects of competitive tendering. Although unrestricted competition in this field had long been regarded as undesirable, few were prepared to declare themselves in favour of systematized control. (D. A. G. R.)

United States. Despite federal restrictions and threats of material shortages, total expenditure for new construction in the United States amounted to $30,000 million during the first 11 months of 1951, an increase of 7·8% over the comparable period of the previous year. Rising construction costs, however, served to inflate the dollar value figure. Thus the amount of construction work begun in 1951 was about the same as in 1950.

Construction costs continued to increase during 1951, but at a declining rate as the year progressed. In the early months the Department of Commerce composite index was 12% higher than for the first quarter of 1950. For the next four months, however, there was virtually no change in the index, which stood at approximately 237 (1939=100), and by August construction costs were only 5·4% above the comparable month of the previous year. During the first half of 1951 further governmental limitations and restrictions on the construction of non-essential facilities were involved, and on Aug. 3 a new basic order was announced, under which the construction of all types of buildings, structures or projects requiring the use of more than specified quantities of controlled materials could be undertaken (or continued if already begun) only if the private contractor received federal authorization and a related allotment of materials.

Building and construction activity in 1951 provided employment for more than 2,500,000 workers on the average per month—a record in the history of the industry. The record number of 2,791,000 workers employed was reached during August. The index of union hourly wage rates stood at 189·0 (1939=100) at mid-year, an increase of 7% over a 12-month period.

The number of domestic dwelling units put under construction amounted to 1,022,600 units in the first 11 months of the year. The single-family house was by far the most popular type of new dwelling, accounting for more than eight out of every ten new units started. As from Dec. 7, 1951, local housing authorities throughout the nation had 585 publicly subsidized permanent low-rent dwelling projects comprising 100,252 new housing units under construction, of which 68,760 had been started after the first of the year. These dwellings were to be occupied by families whose income was not sufficient to allow them to rent or purchase adequate homes.

The office of the economic stabilization director recommended a sharp reduction in housing construction for 1952 to somewhere between 450,000 to 500,000 family units as an anti-inflationary device. The Defence Production administration maintained that there were adequate materials for 700,000 dwelling units, while the Housing and Home Finance agency estimated the national need to be in the vicinity of 900,000 dwellings. For the first three months of 1952, however, the Defence Production administration authorized a sufficient amount of steel, copper and aluminium to permit a home construction rate of 850,000 a year. (*See* ARCHITECTURE; HOUSING.) (CH. RA.)

BULGANIN, NIKOLAY ALEKSANDROVICH, Soviet politician and army officer (b. Nizhny Novgorod [now Gorky], 1895), joined the Communist party in 1917 and in 1918 was a member of the Extraordinary Commission for Repression of the Counter-revolution (*Cheka*). From 1922 he held executive posts in the electrical industry. During 1931-37 he was secretary of the Moscow city committee of the party, " mayor " of the Soviet capital. In 1938 he became head of the state bank and chairman of the council of people's commissars of the Russian S.F.S.R. and deputy chairman of the council of people's commissars of the U.S.S.R. In 1939 he was elected a member of the central committee of the party, but he was appointed a substitute member of the politburo only in 1946 and a full member in 1949. He put on military uniform first in Oct. 1941 as political commissar to General G. K. Zhukov's army group, whose task was to defend Moscow. From July 1944 he was representative to the Polish Committee of National Liberation and on Dec. 22, 1944, as a full general, he succeeded Marshal K. E. Voroshilov as deputy commissar of the Soviet armed forces. In this capacity Bulganin's prestige rose considerably: on March 19, 1946, he was appointed a deputy chairman of the council of ministers and on March 3, 1947, as a marshal of the Soviet Union, he succeeded Joseph Stalin as minister of the armed forces. On March 24, 1949, he was relieved of the latter duties, but remained a deputy premier and, it was believed, became the chief inspector of the Soviet satellite armies.

BULGARIA. People's republic in the eastern part of the Balkan peninsula, bounded N. by Rumania, W. by Yugoslavia, S. by Greece and E. by Turkey and the Black sea. Area (incl. southern Dobruja): 42,796 sq.mi. Pop.: (1946 census) 7,022,206, (mid-1950 est.) 7,300,000. Language (1947 est.): Bulgarian 88%, Turkish 9·8%. Religion (1947 est.): Greek Orthodox 84%, Moslem 11·5% (of whom one-sixth Pomaks, or Moslem Bulgars, remainder Turks), Roman Catholic 0·9%, Gregorian Armenian 0·4%, Jewish 0·3%, Protestant 0·2%. Chief towns (pop., 1947 est.): Sofia (cap., 434,888); Plovdiv (125,440); Varna (77,792); Russe (53,420). Chairman of the presidium of the National Assembly, General Gheorghi Damianov; prime minister, Vlko Chervenkov.

History. In contrast with the more northerly and economically more developed people's democracies, Bulgaria did not revise its five-year plan. It was probable that the existing targets were quite as ambitious as so backward a country could hope to achieve. In so far as scarce raw materials and machinery were allocated for the whole eastern European region by the supreme planners in Moscow, it might be expected that Bulgarian industrial projects had the lowest priority of all. The argument so much emphasized by Yugoslav propaganda, that Bulgaria was being treated as an agrarian colony of the Soviet imperialists, had some basis in fact. Bulgarian spokesmen, however, continued to stress their state's industrial progress. Premier Chervenkov, in a speech on Sept. 8, 1951, on the eve of the 7th anniversary of " liberation," boasted that Bulgaria produced all forms of agricultural machinery except tractors and combines, and such electrical equipment as motors, automatic telephone exchanges and wireless sets. A nitrogenous fertilizer plant with a yearly capacity of 70,000 tons would soon be in

operation. Meanwhile great progress, he claimed, was being made with the electrification of the country. On Sept. 26 it was announced that the Ministry of Industry had been divided into two: a Ministry of Heavy Industry under Anton Yugov and a Ministry of Light Industry under Atanazi Dimitrov. Labour conditions were tightened up at the end of 1950. A law for the protection of state property included very severe penalties, and was so phrased as to enable the most sinister interpretation to be placed on acts of negligence. A decree forbade workers to change their job, and forbade any factory to employ new workers, unless the workers had official permits from the cadres department of their local authority (people's committee). The wages system was further remodelled on the Soviet system of progressive piece-rates. By August it was officially claimed that it was stimulating output considerably.

Bulgaria remained far ahead of the other people's democracies in its progress towards collectivization of agriculture. By June collective farms included more than half the peasant population of the country and nearly half its arable land. In the main grain-producing areas—the Dobruja and the plains on the south bank of the Danube—a large majority of all peasant holdings were included in collective farms. The average collective farm included 220 peasant families and possessed 845 hectares of land. The methods by which these results were obtained caused a good deal of administrative confusion and controversy within the Communist party ranks. Already on Feb. 7 a decree introduced the brigade system, by which peasants worked in groups of 40 to 60 under a foreman and were paid according to their output. On April 7 Chervenkov complained of abuses committed in the countryside by party members and of a "distortion of the party line." On June 3 a special political administration, controlled directly by the Communist party, was set up in the Ministry of Agriculture, and political departments of party members were attached to machine-tractor stations and state farms. These departments were copied from the Soviet experience of 1933-34. The decree which set them up stated: "The organs of the party and the state can no longer confine themselves to giving instructions and financial and material aid: they must take into their own hands the direction of co-operatives, state farms and machine tractor stations." On June 23 the minister of agriculture, Titko Chernokolev, was dismissed and replaced by Nikola Stoilov. On Sept. 22 there were official complaints that the "statute" of the collective farms was being violated. In particular land had been used for other purposes than those laid down in official directives and members had been given excessive advances on their pay.

The pace of collectivization in Bulgaria was comparable to that in the Soviet Union in 1929-33. The fact that it was far more difficult for independent observers to visit the Bulgarian countryside than it had been then to visit the Soviet countryside made it impossible to compare the results. There were some indications of slaughter of animals by peasants and some reports of minor armed clashes between peasants and police. Bulgarian peasants from the western provinces fled to Yugoslavia and told of an atmosphere of terror in the Bulgarian villages. There was plenty of evidence from official Bulgarian sources that the harvest was going badly, and it was a reasonable interpretation that this was at least partly due to refusal by peasants in some areas to cultivate crops from which they knew that they would gain nothing. The reasons for the dismissal of Chernokolev and the reorganization of the ministry were not clear. But it seemed likely that the minister had been considered by Chervenkov and his Soviet masters too indulgent to the peasants. In general ever since 1947 the trend of government policy had been to increase the pressure on the peasants. Though there might be occasional short retreats the trend was not likely to change.

By a ministerial reshuffle of Dec. 29, 1950, Ivan Mihailov became a deputy premier, and Gheorghi Veselinov was appointed minister of the interior in place of Russi Hristozov, who became minister of food and supplies. In June 1951 the minister of local economy and public works, Petr Kamenov, was relieved of his duties. On July 17 was published a report by the State Control commission on its survey of government departments and nationalized enterprises. It found that administrative personnel was much in excess of the numbers laid down by law, that public funds were extravagantly spent and that the Ministry of Finance was not exercising effective control over other departments' expenditure.

The hate campaign against Yugoslavia continued throughout the year and there were a number of spy trials.

The progress of Bulgarian culture was indicated by the increased diffusion of Soviet literature. In 1948, 328 works by Soviet authors had been published in Bulgarian translation in 2 million copies. In 1950, 681 were published in 5·8 million. In the same year 1,500,000 copies of books were imported into Bulgaria from the Soviet Union. (*See* also EASTERN EUROPEAN ECONOMIC PLANNING.) (H. S.-W.)

Education. Schools (1949-50): kindergarten, including part-time schools 1,403, pupils 57,487, teachers 2,124; primary 6,112, pupils 755,628, teachers 18,801; elementary 2,960, pupils 308,160, teachers 12,636; secondary 218, pupils 112,633, teachers 4,624; technical 101, pupils 26,800, teachers 943. Universities and institutions of higher education (1947-48) 9, students 49,800, professors and lecturers 1,283. Illiteracy (1946) 23%.

Agriculture. Main crops ('000 metric tons, 1947; 1948 in brackets): wheat 912 (1,503); rye 95; barley 131 (249); oats 77 (105); maize 783 (890); sugar, raw value (1949; 1950 in brackets) 55 (46); tobacco 48 (20). Livestock ('000 head): cattle (1950) 2,140; horses and mules (1948) 449; sheep and goats (1948) 8,995; pigs (1950) 1,500; poultry (1947) 10,329. Wool production, greasy basis ('000 metric tons, 1950: 1951 in brackets) 12·2 (12·7). Wine production (1949): 426,000 hl.

Industry. Fuel and power: coal and lignite ('000 metric tons, 1947; 1948 in brackets) 4,111 (3,933); electricity (million kwh, 1948; 1949 in brackets) 533 (551). Index of industrial production (on basis of 1938 = 100, 1949; 1950 in brackets): 227 (280).

Foreign Trade. (Million leva, 1948): imports 35,119; exports 34,114. Main sources of imports (1949): U.S.S.R. 64%; other eastern European countries 26%. Main destinations of exports: U.S.S.R. 48%; other eastern European countries 34%. Main imports: metals, machinery and textiles. Main exports: tobacco, wines and spirits.

Transport and Communications. Roads (1945): 13,870 mi. Licensed motor vehicles (Dec. 1950): cars 6,000; commercial 5,000. Railways (1949): 1,996 mi. Telephones (1948): 54,347. Radio receiving sets (1949): 205,000.

Finance and Banking. Budget (million leva): (1950 est.) balanced at 211,866; (1951 est.) revenue 271,794, expenditure 267,922. National debt (March 31, 1947) 68,896. Monetary unit: *lev* (pl. *leva*) with an exchange rate (Nov. 1951) of L. 810 to the pound and L. 290 to the U.S. dollar.

See G. Dimitrov, *Selected Speeches and Articles* (London, 1951).

BURMA. Independent federal republic lying on the eastern side of the Bay of Bengal, with Pakistan and India on the northwest, Tibet on the north and China, Indochina and Thailand (Siam) on the east. The republic comprises Burma proper, the Shan state, the Kachin state, the Chin special division and, when it is constituted, the Karen state. Area: 261,749 sq.mi. Pop.: (1941 census) 16,823,798; (1949 est.) 18,300,000. Racially, the peoples of Burma are Mongoloid. About 90% are Buddhist by religion, and about 70% use the Burmese language. Largest indigenous minorities (1931): Karens 1,367,673, of whom 218,790 were Christians; Shans 1,057,406; Chin-Kachin group *c.* 750,000. Largest immigrant minorities: Indian (1931) 1,017,825 divided equally between Moslems and Hindus; Chinese (1941) *c.* 380,000. Chief towns: Rangoon, capital and main port (pop. 1941, 501,291); Mandalay (pop. 1941, 163,537); Moulmein (pop. 1931, 65,506); Bassein (pop. 1941, *c.* 50,000) and Akyab

(pop. 1931, 38,094). President of the republic, Sao Shwe Thaik; prime minister, Thakin Nu.

History. The country continued throughout 1951 to be troubled by the operations of various types of rebels, notably the Burma Communist party, the Communist party (Burma) and the Karen National Defence organization, all of whom maintained their resistance against the forces of law and order. The year was a disappointing one for the government with regard to military operations, for no real success was gained. The government forces held the principal towns and, more precariously, the principal lines of communication; but none of these was completely secure; thus the Rangoon-Mandalay railway line, though at times open to traffic, was frequently disrupted by sabotage. On Sept. 14 rebels raided Mergui and killed the deputy commissioner, and even Rangoon was more than once troubled by the cutting of the pipe line bringing its water supply from the hills of the Pegu Yoma. Away from the towns and principal communications, moreover, the government's hold on the country was tenuous in the extreme, and over wide areas law and order did not exist. In general, there was a distinct tendency for the Communist rebels to move northwards and northeast, and in the view of some observers their intention was to consolidate themselves in an extensive area on the Chinese frontier where they would be more accessible to any aid that might be forthcoming from Communist China. There was also a tendency for increasing co-operation between different types of rebel, and both the Burma Communist party and the Karens seemed to have reached a stage when they had come to dislike the government more than they disliked one another. Some hope of reconciling the Karens to the lawful régime was aroused by the government's proposal to set up a Karen state, comprising the Salween district and so much of adjacent areas as were predominantly Karen in population, with a wide measure of local self-government similar to the local autonomy enjoyed by the Shan and Kachin states; but at the end of the year it was not apparent that this measure was sufficiently far-reaching to satisfy the Karens.

A further element of disorder was the presence in the Shan state of Kengtung, in the east of Burma, of a force of Chinese Nationalist troops. These, consisting mainly of Kuomintang forces which had fled into Burma early in 1950 before the advance of the Chinese Communists into Yunnan, had held out in Kengtung despite all efforts of the Burmese government to dislodge or capture them; and in July 1951 they attempted an invasion of Yunnan. This incursion was repelled and the Kuomintang force thereafter maintained itself in the Shan states, living on the countryside and presenting a possible cause of discord between Burma and China.

The general conditions of disorder affected the European population in some cases. On Feb. 27 two Europeans engaged in the tin-mining industry in the Tavoy district were murdered by rebels; in April the manager of a rubber estate was kidnapped; and in November another rubber planter was kidnapped and held to ransom. Disorder necessarily affected the country's finances; and the budget for 1951-52, introduced on Aug. 30, provided for expenditure of Rs. 919·3 million and revenue of Rs. 745·5 million, so giving a deficit of Rs. 173·8 million. The deficit was due to heavy expenditure on defence forces and police.

Despite the widespread disorders, the first general elections since Burma attained independence in 1948 were held during the year. The elections took place in three stages, the first in June in 67 constituencies in the least-disturbed parts of the country, the second in 36 constituencies in August and the remainder in some 90 constituencies in November. Unfortunately the charges of malpractice brought by defeated candidates were so numerous that the final results were still unknown at the end of the year; but it was evident that the Anti-Fascist People's Freedom league (A.F.P.F.L.)—the main support of the government—was in general successful. According to the press, in 43 constituencies in the first electoral group, the league won 26 seats. The principal opposition party, the Burma Workers' and Peasants' party, which had hived off from the Socialist party—the chief component of the A.F.P.F.L.—in Dec. 1950, was avowedly Marxist in attitude, sympathetic to the Soviet Union and seeking to align Burma with the Communist states as against the democracies; but it professed a policy of constitutional opposition. It made little appeal to the electorate, however, and gained only three seats in the first series of elections. Attempts were made to form a united opposition under the leadership of Ba Maw, the wartime dictator of Burma during the Japanese occupation, but these efforts came to little.

Rice production was well maintained during the year, and exports totalled over 1,300,000 tons, as compared with 1,800,000 in 1950; but even so the total compared poorly with the prewar average export of over 3 million tons. In other fields of economic activity, measures to facilitate production took the form of proposals for joint ownership between the Burmese government and the European concerns dominating the petroleum and mining industries. An agreement was reached with the Burmah Oil company whereby the government, aided by a loan of £2½ million from the British Treasury, were to become owners of one-third of the stock of the concern; and a similar plan was in hand for joint ownership of the Burma corporation's silver and lead mining concern at Bawdwin-Namtu in the Shan states. The close association of the government with these concerns was expected to reconcile Burmese opinion to the continued participation of Europeans in the country's economic life.

Burma also benefited from E.C.A. aid. Under an economic co-operation agreement, the United States made available a sum of $1·5 million to reconstruct and modernize the ports of Akyab, Bassein, Moulmein, Mergui and Tavoy, and a further $1 million was provided for the improvement of the port of Rangoon.

Dr. Gordon Seagrave, a well-known U.S. medical missionary, was in January convicted of aiding the rebel forces and sentenced to six years' imprisonment; on appeal the High court reduced the sentence to the 51 days that Dr. Seagrave had already been detained; and on a further appeal the Supreme court quashed the conviction. (B. R. P.)

Education. Schools (1948): primary 4,795, pupils 431,684, teachers 11,315; post-primary 142, pupils 11,648, teachers 722. Teachers' training college 1, with over 200 trainees. Universities (1950) 2, students 3,350 (including 780 women).

Agriculture. Main crops ('000 metric tons, 1950-51): rice 4,080; groundnuts 147; cottonseed 11; sesame seed 40·1; cotton, ginned, 6; dry beans 50. Livestock ('000 head, Jan. 1950): cattle 4,488; sheep 21; goats 172; pigs 402; buffaloes 721. Fisheries: total catch estimated at 500,000 tons annually.

Industry. Factories (1947) 473; persons employed 46,480. Raw materials ('000 metric tons, 1950; 1951, six months in brackets): tin concentrates 1,709 (853); natural rubber 15·8 (6·6); lead (1948) 7·5; silver (fine oz., 1948) 480,000; timber, teak (1948-49 rafting season) 68,938 logs.

Foreign Trade. (Million rupees, 1950; 1951, six months, in brackets): imports 432 (296); exports 661 (492). Main sources of imports (Jan.-June 1950): India 39·6%; U.K. 31·4%; China 4·1%; Persia 4·1%. Main destinations of exports: Ceylon 30·5%; Japan 17·3%; India 11%; Indonesia 10·5%. Main imports (1948-49): textiles 36%; food products 13%; machinery appliances and vehicles 11%. Main exports: rice 82%; metals and ores 3%.

Transport and Communications. Roads (1949) 12,472 mi. Licensed motor vehicles (Dec. 1950): cars 5,100; commercial 24,000. Railways (1950) 1,777 mi.; passenger-mi. 80 million; net freight ton-mi. 93 million.

Finance and Banking. Budget ('000 rupees, 1951-52 est.): ordinary revenue 583,772, ordinary expenditure 542,457; capital revenue 161,801, capital expenditure 376,789. Monetary unit: *rupee* with an exchange rate of Rs. 13·33 to the pound and Rs. 4·762 to the U.S. dollar.

BUSINESS REVIEW. Business in 1951 was under the influence of the Korean war and of the rearmament started by it. The United States, followed by other United Nations countries, decided to rearm and the immediate effect was a violent rise in the price of most of the important raw materials. This was well under way at the beginning of 1951 and reached a climax during its first quarter, being evident, for example in the price of cotton, linseed, tin and wool. The less important fibres, such as jute, manila, hemp, sisal and flax, followed a very similar course. Other commodities, such as copper, continued strong, though stocks in 1951 were rather larger than they had been in 1950.

The extremely high prices in the first quarter were almost certainly, in part, the result of panic buying and its ensuing reaction. This reaction was aggravated in June by the suggestion made by J. A. Malik that negotiations for a Korean truce should be started. The boom in raw material prices had been caused in part by U.S. buying for the stockpile, and this proved capable of exerting a steadying effect. In August, for example, the U.S. authorities announced that they would rather draw tin from the stockpile than pay fancy prices, and this announcement immediately caused prices to decline. Viewed in retrospect, the curve of commodity prices took the shape of a pronounced hump, without any clear indication that prices were likely to drop below the pre-Korean level. The panic buying on the raw material markets was imitated by the retail buyers of many countries. Here, too, the excess of goods piled up in the early months of 1951 led to a reaction later on.

There was a natural time-lag between the movements of raw material prices and the prices of the corresponding finished articles. In Britain, for instance, suits made from the dearest sorts of wool (those of the first quarter of 1951) did not appear in the shops until November. On the whole, therefore, the trend of retail prices was upward throughout the year. This trend was accentuated when the preparation for, or the actual start of, rearmament diverted labour and raw materials from civilian production. This rise in prices was often erroneously referred to as inflation; in fact, it simply registered scarcities. But there was a genuine inflationary movement in Australia, where the wool cheque provided a large volume of money, while it proved impossible to import a corresponding amount of goods. In terms of business these price movements translated themselves into rather feverish activity early in 1951, followed by slackening later in the year.

In many countries, the effort of rearmament was exerted by economies already severely strained. The new capital outlay was too great to be met by current production, in such countries as Great Britain and Western Germany; in some countries, such as the United States, although no such "inflationary gap" existed, the budget was unbalanced. In either case, a pressure was generated which tended to raise prices and, to this extent, to stimulate business.

But although rearmament was the most powerful single factor in the business situation, it was not the only one. It was superimposed on the long-term trend to recovery from World War II — a trend powerfully supported by Marshall aid which, though diminishing, still played a large part in the economies of France and Western Germany. Military aid also played its part. The long-term development was reflected, for instance, in a large increase in steel production in every country of Western Europe except Great Britain, where production was already running almost at full capacity. Further evidence could be found in the growing tonnage of ships under construction, particularly in Western Germany and in Japan, and in the increasing turnover in world trade, with which, of course, the ship-building programmes were closely connected.

The situation was complicated by the danger that, in view of the strain on many national economies, a slump might be induced, if not by an excess of finished supplies, then from a deficiency of raw materials. Business might slow down simply because a lack of raw materials made profitable working impossible. There were, in fact, indications that the shortage of coal was bringing this about in Western Germany. Even in the United States, the shortage of steel hampered the erection of factories during the second half of 1951; but on the whole this difficulty did not cause any major trouble.

A controlling part in the world's business fluctuation continued to be played by the U.S., where the development set a pattern for most of the industrial countries. At the beginning of 1951 the buying boom, which had been initiated by the war in Korea, was still in full swing. During January the sales of department stores were 31% higher than a year earlier. The fear of scarcities, which had been at work earlier, was reinforced by the fear of higher prices — an apprehension shared by the administration. Accordingly, a number of price controls were imposed early in 1951. These measures had a steadying effect, which was strengthened by the fact that some unemployed resources were brought into use. Some of the business done was still of the nature of panic buying, but this was diminishing, and by the end of the first quarter of 1951 the volume of retail sales began to fall. However, this probably meant no more than that retail buying was levelling down to the actual rate of consumption. The result (since producers could not immediately throttle down their output) was a certain amount of overstocking. This, in turn, reacted on the production of consumer goods, which, by May, showed a decline. The beginning of armistice conversations in Korea in July accentuated the general satiety of consumers.

Conditions in the retail trade must be considered against the background of business in capital goods, which was increasingly affected by rearmament. At the beginning of 1951, armament orders were coming in slowly, but during the second quarter orders worth $10,000 million (£3,600 million) were placed. This was nearly as much as was sanctioned during the whole of 1950. In other directions, output of capital goods (houses, for instance) was deliberately curtailed. But industry followed a vigorous policy of re-equipment, and not for armament work alone. An increase of 40% over the 1950 expenditure on plant and equipment was forecast, and seemed likely to be fulfilled during 1951. On the whole, the decline in the absorption of consumer goods was balanced by the increase in the output of capital goods. Moreover, there appeared to be a great latent demand for consumption goods, ready to make itself felt if prices fell.

After the United States, western Europe was the most important economic region. The difference between victorious and defeated states, still significant in 1950, had lost much of its importance in 1951. It was obliterated partly by the passing of time, partly by U.S. aid—which was applied in accordance with economic need and not with political resentments—and partly by the working of the European Payments union, which, though subjected to heavy strains (notably in Belgium), permitted a much larger exchange of goods in western Europe than would have been possible without it.

A boom resulting from scarcities is liable to end when consumers' resources become strained. In the U.S., consumers eventually reduced their buying from choice: in western Europe, because they had to. This applied to the so-called buyers' strike in Great Britain, and the same cause was at work in poorer countries like Western Germany and Italy. Both countries shared the liberal economies of the United States, and, to this extent, were predisposed to abrupt changes in business sentiment. In Western Germany,

signs of over-stocking appeared early in 1951; the strength of the preceding rush to buy can be gauged from the fact that applications for import licences for coffee totalled 60 times the normal amount. This over-buying resulted in a certain stagnation. Easter trade brought little help and by the middle of the year it became necessary to lower the prices of textiles, leather and other goods. Drastic steps were thought necessary to clear stocks, and at the summer sales some goods were almost given away. These measures did succeed in clearing stocks, though probably in some instances at a loss. Nevertheless, a certain amount of short time was being worked, and many retailers were driven to "rationalization"—the typical precursor of a depression.

In the capital goods industries business declined. This was true of building as well as of machinery. In some sections, however, demand remained high. Machine-tool makers were booked up for eight months and textile machinery makers for five or six months. The difficulties were due to the shortage of raw materials. By the beginning of 1950 there was a lack of non-ferrous metals, tar derivatives and cellulose. A little later, shortages of ferrous metals (particularly of rolled steel) were experienced, and black and grey markets began to grow. But the root of the problem lay in the shortage of coal, which Germany attributed to the exports ordered by the Ruhr authority. The shortage of coal meant not only a deficiency of power but also of raw material for the chemical industry.

In Italy, the economic basis was rather similar to that existing in Germany: both countries relied largely on industry and both were dependent on imports of raw materials. The buying rush for consumer goods soon died down in Italy, and the shortage of raw materials confronted industry. The coal crisis, however, was less acute than in Germany, for the reservoirs were full and there was an abundance of hydro-electric power. Industrial output increased and in June 1951 was 14% higher than a year earlier. More iron and steel were produced, and Italy reached fourth place among the ship-building nations. In both countries, reconstruction, helped by U.S. aid, contributed to improved business conditions.

Among producers of raw materials the price curve took a form similar to that assumed in the highly industrialized countries, but for different reasons. Prices in the producer countries rose because the individual producers of raw materials could bid heavily for consumer goods. This inflationary trend was aggravated because exports of raw materials were not entirely paid for by imports of goods, but either by imports of gold or by allowing the customer countries to owe money. The outflow of goods, coupled with a stable or increased volume of currency, naturally had an inflationary effect. In the producer countries prices rose, generally from excess of currency; in the consumer countries they rose from shortage of raw materials.

The inflationary development could be seen very clearly in Malaya. During the first half of 1951 the average price of rubber was about 125% above the figure for the same period in 1950, and similar conditions existed for tin. The result was a violent currency inflation, the volume of the note issue being nearly doubled. There was a boom, but its foundations were extremely vulnerable.

A less extreme position existed in Australia—a large consumer of raw materials (and of the finished goods resulting from them) as well as a producer. After a busy Christmas season, retail sales continued to be high, partly from a desire to hoard and partly from the impact of the summer holiday season. The resulting upward trend in prices was strengthened by a shortage of goods. This, in turn, had two causes: a shortage of raw materials, such as coal, steel and leather, and the relatively low output of labour. A further reinforcement came from the grant of higher basic wages. This inflationary factor was enhanced by the enormous size of the annual wool cheque. These rather feverish conditions lasted several months longer than in the United States. One striking effect of the boom could be seen in the high and rising rates of domestic refrigerator production. To some extent, the boom was controlled by the government's dearer credit policy, and hence the reaction in early autumn was milder than it would otherwise have been. The break in the price of wool at the autumn auctions was soon followed by a partial recovery, and business remained healthy.

Conditions in Sweden—another highly industrialized producer of raw materials—followed a similar course to that noted in Australia. Large exports, at high prices, of timber, a raw material of world-wide importance, turned the terms of trade in favour of Sweden, but this improvement did not suffice to provide the country with all the raw materials it needed. Early in 1951, difficulties were experienced in buying all the coal and coke needed, as well as certain kinds of iron and steel and textiles. Later, difficulties were found in acquiring some of the alloys used in steel-making and there were shortages in steel sheets, wire rods and coal. Poland is normally Sweden's chief supplier of coal, and the shortage of Polish coal indicated that the Soviet group of states was suffering from the same problems as the rest of the world.

Conditions in the great raw-material producing countries in South America illustrated the way in which political factors affected business. In Brazil, where the government fostered industrial expansion, developments resembled those in Australia. Cotton markets were firm at the beginning of 1951, reached a peak in March and had declined by about 42% at the end of June. The market in coffee, though its statistical position was healthier than that for cotton, also showed a progressive weakening. But these deflationary tendencies were partially compensated for by industrial developments. In spite of the importance of the rubber-growing industry in Brazil, the consumption of rubber exceeded production, and the iron and steel industry continued to expand. In February, a consignment of Brazilian pig-iron was sent to the United States—a small, but symptomatic, transaction.

In Argentina, though the economic basis closely resembled that of Brazil, differences were brought about by a different governmental policy. The major fluctuation in the prices of raw materials followed the same curve in Argentina as elsewhere, but the tight control over the economy, dictated by political principles, had a special effect. For instance, the desire to maintain a high average standard of living brought about a reduction in meat exports. The export trade was hampered, and the country's economy weakened.

Among the minor states of South America, the general long-term trend towards higher industrialization and output combined with stimulus provided by the demand for raw materials. This could be noted in countries such as Chile, Venezuela and Colombia. The development of prices, on the other hand, was different in different countries, presenting a typically inflationary picture in Chile and one of stability in Venezuela.

In Japan, where the after-effects of war were still strong, the economy was particularly sensitive to the violent fluctuations in prices connected with the Korean war. During the first half of 1951 a boom, culminating about March, was started by the placing of armament orders connected with this campaign; but production costs were high—ultimately a reflection of the country's impoverished state—and some important orders for cotton textiles were cancelled on the ground of costs. The silk trade, too, failed to recover its markets in the U.S. and Great Britain. The heavy increase

in the note circulation was another indication of indigence—this time on the part of the government. Meanwhile, the long-term trend towards recovery, coupled with industrialization, continued, and there were great increases in the output of pig iron, crude steel and cotton yarn and fabrics. By and large, the progress towards recovery was more important than the fluctuations in prices.

Towards the end of 1951, signs that a slump might be starting began to dwindle. In the U.S., inventories continued to grow, but so did savings. In such a situation consumer buying was bound to start again sooner or later. A position like that in 1949, when a U.S. depression began to spread eastwards, did not seem likely to recur. Moreover, although the U.S. balance of payments again became more favourable (which meant that dollars became scarcer), the absolute volume of purchases grew. In autumn, the prices of a number of raw materials, such as wool, cotton and tin, began to rise again. The rise in the price of Australian wool was caused by U.S. (as well as French) buying, and that of cotton by the withholding of stocks by U.S. growers, a process made possible by the administration's price-supporting policy. The general outlook pointed towards rising prices, scarcities and lively business, but there was no reason for expecting that the national experiences would be uniform. (*See* also BANKING; EMPLOYMENT; INTERNATIONAL TRADE; NATIONALIZATION; PRICES; STOCKS AND SHARES; TARIFFS; TAXATION.) (W. H. JN.)

BUTLER, RICHARD AUSTEN, British politician (b. Attock Serai, northern India, Dec. 9, 1902), was educated at Marlborough college and Pembroke college, Cambridge. From 1929 he represented Saffron Walden, Essex, in the House of Commons. In 1931 he became parliamentary secretary to the secretary of state for India and Burma (Sir Samuel Hoare) and in 1932 went to India as a member of the franchise committee; as under secretary of state at the India office he was responsible for much of the work on the Government of India act, 1935. He was parliamentary secretary to the Ministry of Labour from 1937 to 1938 and afterwards under secretary of state at the Foreign Office.

In July 1941 he obtained his first full ministerial appointment when he became president of the Board of Education. He set out on a reconstruction of Great Britain's education system, and in July 1943 issued his white paper on education. After its publication, he and his junior minister, James Chuter Ede, travelled all over Great Britain examining reactions to the proposals. In Aug. 1944, the Education act was passed giving effect to the changes. In the caretaker government, June-July 1945, Butler served as minister of labour. When the Conservative government went out of office after the 1945 election, Butler became chairman of its advisory committee on policy and political education and also of its research department. He played a leading part in drawing up party statements on policy including "The Right Road for Britain" and "This is the Road." He was chairman of the industrial policy committee which produced the "Industrial Charter." In Winston Churchill's government of 1951 he became chancellor of the exchequer.

BYELORUSSIA. A republic formed on Jan. 1, 1918, and incorporated in the Union of Soviet Socialist Republics on Dec. 30, 1922. It is bounded N. by Latvia, E. by Russia, S. by the Ukraine and W. by Poland and Lithuania. Area: (before Sept. 17, 1939) 49,022 sq.mi.; (after the treaty of Aug. 16, 1945, delimiting a new Soviet-Polish frontier) 80,154 sq.mi. Pop.: (Jan. 1939 census) 5,567,976; (Nov. 1939 est.) 8,810,000, including 5,912,500 (67·2%) Byelorussians, 1,408,160 Poles, 737,240 Jews and 454,600 Russians; (March 1950 est.) 9,300,000. Religion (Nov. 1939 est.): Greek Orthodox 71%, Roman Catholic 20%, Jewish 8%. Chief towns (1939 census): Minsk (cap., 238,772); Vitebsk (167,424); Gomel (144,169). Chairman of the presidium of the Supreme Soviet of the Byelorussian Soviet Socialist Republic, Vasily Ivanovich Kozlov; chairman of the council of ministers, Aleksey Efimovich Kleshchev.

History. At the election of Feb. 25 to the Supreme Soviet of the Byelorussian S.S.R. 4,796,080 (99·99%) out of a possible 4,796,349 electors cast their votes: only 3,812 electors (0·08%) voted against the Communist and non-party bloc. Leading name among the Byelorussian candidates was that of Nikolay Semenovich Patolichev, a Russian, former member of the Orgburo, sent from Moscow to succeed Nikolay Ivanovich Gusarov as first secretary of the Byelorussian Communist party.

Speaking in Moscow on March 9 Kleshchev, the prime minister, claimed that industry in the republic had fulfilled the postwar five-year plan and had exceeded it in certain fields. In 1950 the volume of industrial output reached the index number 562 (1945=100), considerably surpassing the 1940 volume of industrial production. The output of metal-working industries was double that of 1940 owing particularly to the establishment of such new branches of industry as the Minsk automobile plant and the Minsk, Vitebsk and Gomel machine-tool plants. Extraction of peat, which furnished three-quarters of the republic's fuel, substantially increased.

According to M. V. Zimyanin, a Byelorussian deputy to the Soviet of the Union, by 1951 some 436,000 dwellings had been built for collective farmers and people were no longer compelled to make their homes in dugouts as they had been up to 1950. During the postwar five-year plan the construction was begun of 4 million sq.m. of urban housing accommodation. Zimyanin gave no indication how much had been completed, but in Minsk and other principal Byelorussian towns there was a good deal of house-building and restoration. In *Izvestia* on June 14 Evgheny Kriger described Minsk, visited after a seven years' interval, as unrecognizable: there were new squares and 200 new streets. In the same paper on Sept. 18, Konstantin Naumovich Dlugoshevsky, chairman of the executive committee of the Minsk city council, complained that the construction of new houses was too slow and uneconomical. During 1946-50 state organizations and enterprises had built 460,000 sq.m. of floor living-space in Minsk, comprising 350 brick dwellings of 20 flats or under; 80 more of these houses were being built. To end such wasteful dispersion of manpower and building materials Dlugoshevsky called for the construction of larger apartment-blocks. During 1951 the city council completed two such houses, one of 124 flats and another with 115, after 18 months' work; a third house of 106 flats was under construction.

Kondrat Krapiva, a playwright, addressing in April a meeting of Byelorussian writers at Minsk on the importance of Stalin's linguistic theory for Byelorussian literature, said that it was their duty to remove from their language all artificial barriers by which bourgeois nationalists tried to separate the Byelorussian from the Russian.

Education. Schools (1950): elementary and secondary 11,789, pupils 1·5 million; technical 110; institutions of higher education 28, students 16,000.

Finance. Budget (1951 est.): balanced at Rb. 3,687 million.

(K. SM.)

CABINET MEMBERS. The following changes were made in C. R. Attlee's cabinet between Jan. 1, 1951, and the general election, Oct. 25, 1951.

Post	*Name*
Secretary of State for Foreign Affairs	*Herbert Stanley Morrison (from March 9)
Lord President of the Council and Leader of the House of Lords	†Viscount Addison (from March 9)

Post	*Name*
President of the Board of Trade	Sir Hartley William Shawcross (from April 24)
Lord Privy Seal	†Ernest Bevin (March 9-April 14)
	Richard Rapier Stokes (from April 27)
Minister of Labour and National Service	*Aneurin Bevan (Jan. 17-April 23)
	Alfred Robens (from April 24)

(The Minister of Health was no longer in the cabinet after the appointment of Hilary Adair Marquand on Jan. 17. The title of Minister of Town and Country Planning was changed to that of Minister of Local Government and Planning from Jan. 17).

The following is a list of cabinet members of Great Britain and the other members of the Commonwealth of Nations on Dec. 31, 1951.

Great Britain

Prime Minister, First Lord of the Treasury and Minister of Defence	*Winston Leonard Spencer Churchill
Secretary of State for Foreign Affairs	*Robert Anthony Eden
Lord President of the Council	*Lord Woolton
Lord Privy Seal	*The Marquess of Salisbury
Lord Chancellor	Lord Simonds
Secretary of State for the Home Department and Minister for Welsh Affairs	*Sir David Patrick Maxwell Fyfe
Chancellor of the Exchequer	*Richard Austen Butler
Secretary of State for Commonwealth Relations	General Lord Ismay
Secretary of State for the Colonies	Oliver Lyttelton
Secretary of State for Scotland	James Gray Stuart
Secretary of State for the Co-ordination of Transport, Fuel and Power	Lord Leathers
Minister of Health	Harry Frederick Comfort Crookshank
Minister of Labour and National Service	Sir Walter Turner Monckton
Minister of Housing and Local Government	Harold Macmillan
President of the Board of Trade	George Edward Peter Thorney-croft
Paymaster General	Lord Cherwell

Australia

Prime Minister	*Robert Gordon Menzies
Treasurer	Sir Arthur William Fadden
Vice President of the Executive Council and Minister for Defence Production	Eric John Harrison
Minister for Labour and National Service and Minister for Immigration	Harold Edward Holt
Minister for Commerce and Agriculture	John McEwen
Minister for External Affairs	*Richard Gardiner Casey
Minister for Defence	Philip Albert Martin McBride
Minister for Health	Sir Earle Christmas Grafton Page
Minister for Trade and Customs	Neil O'Sullivan
Minister for Shipping and Transport	George McLeay
Postmaster General and Minister for Civil Aviation	Hubert Lawrence Anthony
Minister for the Army	Josiah Francis
Attorney General	John Armstrong Spicer
Minister for National Development	William Henry Spooner
Minister for Repatriation	Walter Jackson Cooper
Minister for Supply	Howard Beale
Minister for the Interior and Minister for Works and Housing	Wilfred Selwyn Kent Hughes
Minister for Social Services	Athol Gordon Townley
Minister for Territories	Paul Meernaa Caedwalla Hasluck
Minister for the Navy and Minister for Air	William McMahon

Canada

Prime Minister and President of the Privy Council	*Louis Stephen St. Laurent
Minister of Trade and Commerce and Minister of Defence Production	Clarence Decatur Howe
Minister of Agriculture	James Garfield Gardiner
Minister of Public Works	Alphonse Fournier
Minister of National Defence	Brooke Claxton
Minister of Transport	Lionel Chevrier
Minister of National Health and Welfare	Paul Joseph James Martin
Minister of Finance	Douglas Charles Abbott
Minister of National Revenue	James Joseph McCann
Minister without Portfolio	Wishart McLea Robertson
Minister of Labour	Milton Fowler Gregg
Minister of Fisheries	Robert Wellington Mayhew
Secretary of State for External Affairs	Lester Bowles Pearson
Minister of Justice and Attorney General	Stuart Sinclair Garson
Minister of Resources and Development	Robert Henry Winters
Secretary of State of Canada	Frederick Gordon Bradley
Minister of Veterans' Affairs	Hugues Lapointe
Postmaster General	Gabriel Edouard Rinfret
Minister of Citizenship and Immigration	Walter Edward Harris
Minister of Mines and Technical Surveys	George Prudham

Ceylon

Prime Minister, Minister of Defence and External Affairs and Minister of Health and Local Government	*Don Stephen Senanayake
Minister of Home Affairs and Rural Development	Sir Oliver Goonetilleke
Minister of Transport and Works	Sir John Kotelawala
Minister of Finance	Junius Richard Jayewardene
Minister of Justice	Sir Lalita A. Rajapakse
Minister of Agriculture and Lands	Dudley Shelton Senanayake
Minister of Education	Edward Alexander Nugawela
Minister of Food and Co-operative Undertakings	Abeyratne Ratnayake
Minister of Posts and Telecommunications	Cathiravelu Sittampalam
Minister of State	A. E. Goonesinha
Minister of Industries, Industrial Research and Fisheries	Ganapathipillai Gangesar Ponnambalam
Minister of Commerce and Trade	Henry Woodward Amarasuriya
Minister of Labour and Social Services	M. D. Banda

India

Prime Minister and Minister for External Affairs	*Jawarhalal Nehru
Minister for Education	Maulana Abul Kalam Azad
Minister for Home Affairs and Law	K. N. Katju
Minister for Defence	Baldev Singh
Minister for Labour	Jagjivan Ram
Minister for Health and Communications	Rajkumari Amrit Kaur
Minister for Works, Production and Supply	Narhar Vishnu Gadgil
Minister for States, Transport and Railways	Narasimha Gopalaswami Ayyangar
Minister for Commerce and Industry	Harekrushna Mahtab
Minister for Food and Agriculture	Kanialal Maneklal Munshi
Minister for Natural Resources and Scientific Research	Sri Prakasa
Minister for Finance	Chintaman Dwarkanath Deshmukh
Minister in Charge of Planning	Guljarilal Nanda

New Zealand

Prime Minister and Minister of Finance	*Sidney George Holland
Minister of Agriculture and Marketing	Keith Jacka Holyoake
Minister of Labour, Employment, Mines and Immigration	William Sullivan
Attorney General and Minister of Justice, External Affairs and Island Territories	*Thomas Clifton Webb
Minister of Education, Broadcasting, and Scientific and Industrial Research	Ronald Macmillan Algie
Minister of Internal Affairs, Social Security, and Tourist and Health Resorts	William Alexander Bodkin
Minister of Customs, Associate Minister of Finance	Charles Moore Bowden

Post	*Name*
Postmaster General and Minister of Telegraphs	Walter James Broadfoot
Minister of Lands, Forests and Maori Affairs	Ernest Bowyer Corbett
Minister of Works, Housing, Hydro-Electricity, Transport and Railways and Marine	William Stanley Goosman
Minister of Defence, Rehabilitation, War Pensions and Civil Aviation	Thomas Lachlan Macdonald
Minister of Supply, Industries and Commerce and Price Control	Jack Thomas Watts
Minister without Portfolio and Minister for the Welfare of Women and Children	Mrs. Grace Hilda Ross
Minister of Health, Information and Publicity	John Ross Marshall
Minister without Portfolio	William Henry Fortune

Pakistan

Prime Minister and Minister for Defence	*Khwaja Nazimuddin
Minister for Industries	Sardar Abdur Nishtar
Minister for Commerce, Education and Economic Affairs	Fazlur Rahman
Minister for Finance	Mohammed Ali
Minister for Food, Agriculture and Law	Pirzada Abdus Sattar
Minister for Kashmir Affairs, Foreign Affairs and Commonwealth Relations	Mohammad Zafrullah Khan Mahmud Husain
Minister for the Interior, States and Frontier Regions	Mushtaq Ahmad Gurmani
Minister for Refugees and Rehabilitation, Information and Broadcasting	Ishtiaq Husain Qureshi
Minister for Minorities	Azizud-din Ahmad
Minister for Communications	Sardar Bahadur Khan
Minister for Health, Works and Labour	A. M. Malik

In the absence abroad, at the end of 1951, of Zafrullah Khan, Mahmud Husain relinquished his portfolios of defence, states and frontier regions to become acting minister of foreign affairs and Commonwealth relations.

South Africa

Prime Minister and Minister of External Affairs	*Daniel François Malan
Minister of Finance	Nicolaas Christian Havenga
Minister of Lands and Irrigation	Johannes Gerhardus Strydom
Minister of Justice	Charles R. Swart
Minister of Transport	Paul Oliver Sauer
Minister of Agriculture	S. P. le Roux
Minister of Economic Affairs	Erik Hendrik Louw
Minister of the Interior	Theophilus Ebenezer Dönges
Minister of Defence	François Christiaan Erasmus
Minister of Labour, Public Works and Forestry	Berend Jacobus Schoeman
Minister of Posts and Telegraphs	Jozua François Tom Naudé
Minister of Native Affairs	H. F. Verwoerd
Minister of Education, Arts and Sciences and Mines	Johannes Hendrikus Viljoen
Minister of Health and Social Welfare	Karl Bremer

Southern Rhodesia

Prime Minister and Minister of Defence	Sir Godfrey Martin Huggins
Minister of Finance, Posts and Telegraphs	Edgar Cuthbert Fremantle Whitehead
Minister of Internal Affairs and Justice	Julius MacDonald Greenfield
Minister of Mines, Transport and Education	George Arthur Davenport
Minister of Agriculture and Lands	John Moore Caldicott
Minister of Trade and Industrial Development	William Alexander Eustace Winterton
Minister of Native Affairs and Minister of Health	Patrick Bisset Fletcher

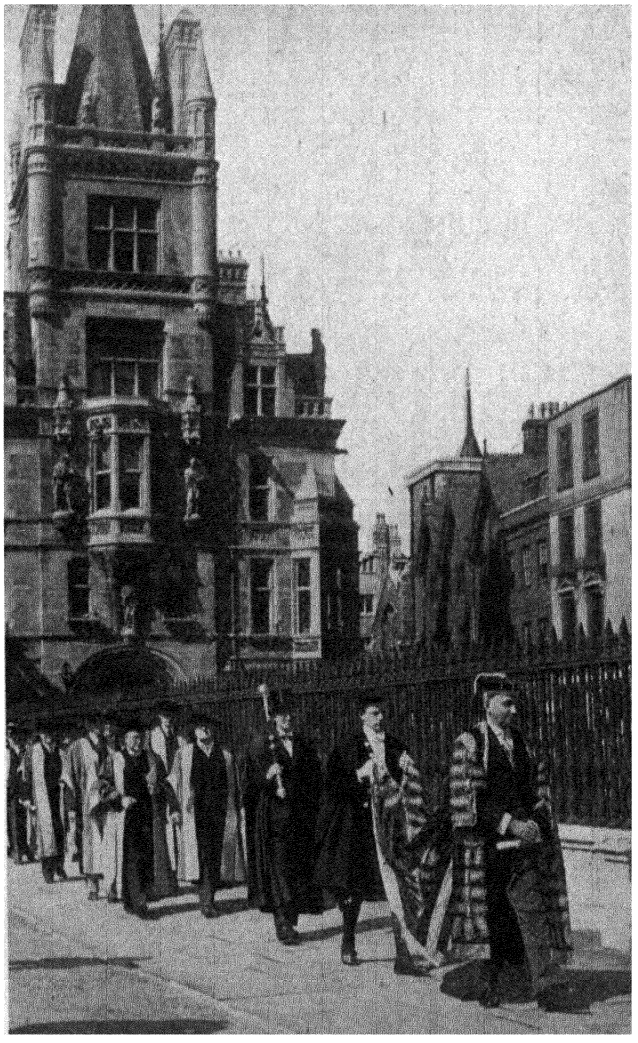
* *See* separate article. † *See* OBITUARIES. (*See* also GOVERNMENT DEPARTMENTS.)

CAMBODIA: *see* INDOCHINA.

CAMBRIDGE UNIVERSITY. During 1951 Cambridge had an unusual number of distinguished visitors. At the beginning of the Easter term the King and Queen, with Princess Margaret, visited King's college and attended a service of thanksgiving to commemorate the restoration of the college chapel to its ancient beauty. Early in July the Queen and other members of the royal family visited the Royal Agricultural show, last held in Cambridge in 1922, and to mark the opening of the show the honorary degree of doctor of law was conferred upon the Princess Royal. In August, during the celebrations of the Festival of Britain in Cambridge, the Duke and Duchess of Gloucester visited a magnificent exhibition of college and civic plate, in the Fitzwilliam museum.

In June the university welcomed Lord Tedder as its new chancellor, elected in the preceding November. He was formally installed in the senate house on June 7, and among those who received honorary degrees at his hands were General Omar Bradley, Dame Edith Evans, and Rose Macaulay.

At a time when private benefactions had inevitably to be infrequent the university was fortunate in receiving from the British Electrical and Allied Manufacturers' association a permanent endowment for the professorship of electrical engineering which had been established as a result of an offer made in 1944 by the Institute of Electrical Engineers



Marshal of the Royal Air Force Lord Tedder leading the procession from the south door towards the gate of the Senate House yard after his installation as chancellor, June 7, 1951.

to provide the stipend of a professor for a period of five years. Another notable benefaction was likely to come to the university from a public appeal launched in June for a fund to establish a professorship in commonwealth studies in memory of General Jan Smuts (d. 1950). In October, of the £150,000 for which this appeal was made some £137,000 had already been subscribed. In October a new professorship, the second chair of economics, came into being, and R. F. Kahn was appointed the first professor.

The year was not notable for new building, but it saw the beginning, at long last, of the block of chemical laboratories on the Lensfield site, and substantial progress was made with the new engineering laboratory. In October the Department of Human Ecology moved to its new quarters at Fenner's, which also housed the university health service. One of the first activities of the new department was a project of research into the development of medical care in East Anglia—a piece of work made possible by a generous benefaction from the Nuffield trustees. Other substantial grants came from the trustees of the Rockefeller foundation, for the promotion of important work in chemistry, physics, biochemistry and criminal science.

Professor Sir Lionel Whitby, master of Downing college, succeeded S. C. Roberts as vice chancellor on Oct. 1, and there were two changes of college headship—the retirement of G. M. Trevelyan from the mastership of Trinity and the appointment by the crown of Professor E. D. Adrian as his successor, and the retirement because of ill health of T. S. Hele from the mastership of Emmanuel and the election of Edward Welbourne in his place.

The number of students in residence during the academic year 1950-51 showed a small decrease. The total was 7,891: of these 7,182 were men and 709 women; 747 were registered research students. (*See* also UNIVERSITIES AND COLLEGES.)

See *Cambridge University Reporter*, vols. 81 and 82. (W. W. G.)

CAMEROONS: *see* FRENCH EQUATORIAL AFRICA; NIGERIA; TRUST TERRITORIES.

CANADA. Self-governing member of the Commonwealth of Nations, covering all North America north of the United States except Alaska. Canada is a federal union under the terms of the British North America act (1867).

Language (1941): English (49·7%), French (30·3%), German (4%), Ukrainian (2·6%), Scandinavian (2·1%), Dutch (1·9%), Yiddish (1·5%), Polish (1·5%), other (6·2%). Religion (1941): Roman Catholic 4,800,895, United Church of Canada 2,204,875; Church of England 1,751,188; Presbyterian 829,147; Baptist 483,592; Lutheran 401,153; Greek Catholic 185,657; Greek Orthodox 139,629; Jewish 168,367; other 542,152. Chief towns (pop., 1951 census; first figure, city proper; second figure, metropolitan area): Ottawa (cap., 198,773; 278,078); Montreal (1,002,703; 1,370,044); Toronto (1948 est., 695,302); Vancouver (340,272; 524,339); Winnipeg (233,617; 350,924); Quebec (161,439; 271,236); Edmonton (158,709; 172,112); Calgary (126,631; 136,719). Governor general, Viscount Alexander of Tunis; prime minister, Louis Stephen St. Laurent (*q.v.*).

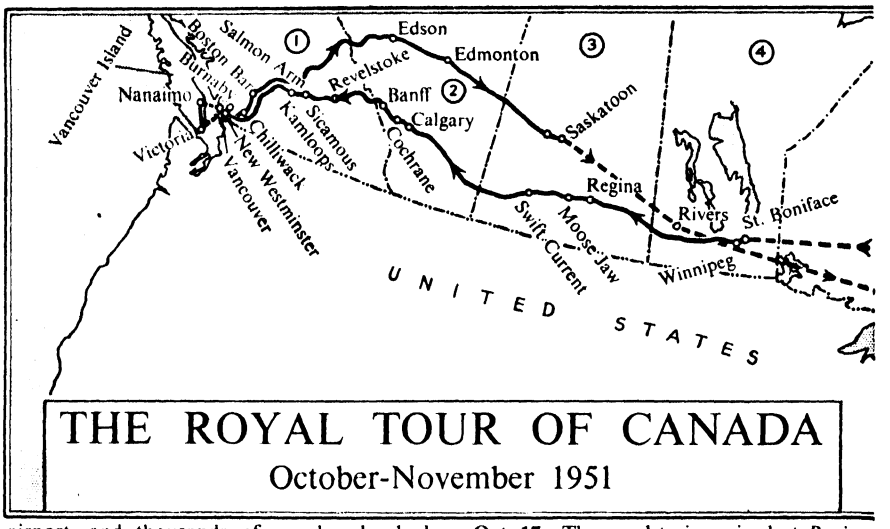
History. The year opened on a buoyant note, for although prices and the cost of living continued to rise and competing defence and civilian claims created a serious manpower problem, industrial expansion was at a high level and the nation's potential wealth continued to grow by leaps and bounds. Foreign capital flowed in for investment, and a large proportion of the funds which entered during Aug.-Sept. 1950 in expectation of a rise in the Canadian exchange rate remained. Exploration and development of the country's vast natural resources supported the view that before the end of the century Canada would be one of the richest nations in the world. The output of crude oil from Alberta created new records, and it was estimated that more than one-third of Canada's consumption of oil would soon be supplied from domestic sources, thus effecting a considerable saving on imports from the United States. Extension of hydro-electric power schemes and irrigation projects increased both industrial and agricultural production. A bumper wheat crop was for the second year in succession affected by bad weather.

During the year Canada's defence programme was expanded and accelerated, and a Department of Defence Production set up to act as a procurement agency and to allocate essential materials. In February the minister of national defence, Brooke Claxton, outlined in the House of Commons a three-year programme which would put into commission 100 ships for the navy, 40 regular and auxiliary squadrons for the air force and certain additions to the army, at a cost of $5,000 million over the period. Expenditure for 1951 would be about $1,600 million. The objectives were the defence of Canada and the North American continent from direct attack; carrying out of commitments to the North Atlantic Treaty organization (N.A.T.O.) and the United Nations; organization to build up the nation's strength in the event of total war. Claxton referred to the close correlation of Canada's defence measures with those of the United States. Canada's main contribution to N.A.T.O. would be an air

(*Continued on page 124.*

Province	Capital	Area (sq.mi.)	Population (1941 census)	Population (1951 census)	Premier	Ministry
Nova Scotia	Halifax	21,068	577,962	642,584	Angus L. Macdonald	Liberal
New Brunswick	Fredericton	27,985	457,401	515,697	John B. McNair	Liberal
Quebec	Quebec City	594,860	3,331,882	4,055,681	Maurice L. Duplessis	Union Nationale
Ontario	Toronto	412,582	3,787,655	4,597,542	Leslie M. Frost	Progressive Conservative
To these original provinces were added:						
Manitoba (1870)	Winnipeg	246,512	729,744	776,541	D. L. Campbell	Liberal
British Columbia (1871)	Victoria	366,255	817,861	1,165,210	Byron I. Johnson	Liberal-Progressive Conservative
Prince Edward Island (1873)	Charlottetown	2,184	95,047	98,429	J. Walter Jones	Liberal
Alberta (1905)	Edmonton	255,285	796,169	939,501	Ernest Charles Manning	Social Credit party
Saskatchewan (1905)	Regina	251,700	895,992	831,728	Thomas C. Douglas	Co-operative Commonwealth Federation
Newfoundland and Labrador (1949)	St. John's	152,734	321,819*	361,416	Joseph R. Smallwood	Liberal
There are also two territories:						
Northwest Territories (Franklin, Keewatin and Mackenzie)	—	1,304,903	12,028	16,004	—	—
Yukon	—	207,076	4,914	9,096	—	—
	Total	3,843,144†	11,506,655	14,009,429		

* 1945. † Including 228,307 sq.mi. of fresh water.



THE ROYAL TOUR OF CANADA

October-November 1951

OCT. 7. Princess Elizabeth and the Duke of Edinburgh left London airport in a B.O.A.C. stratocruiser at 11.30 P.M., G.M.T., (12.30 A.M., B.S.T., Oct. 8).

Oct. 8. The royal plane reached *Gander*, Newfoundland, at 9.50 A.M., G.M.T., thence proceeding to *Montreal*, where it touched down at Dorval airport at 12.50 P.M. The princess and the duke were met by Viscount Alexander of Tunis and L. S. St. Laurent and boarded the royal train for *Quebec*.

Oct. 9. The princess and the duke arrived at Wolfe's Cove, *Quebec*, in the morning. Welcomed by large crowds, they were personally greeted by Gaspard Fauteux, lieut. governor of Quebec, and his wife; they then drove to the parliament buildings where members of the legislative council and their wives were presented and to Laval university where they were received by Mgr. M. Roy, archbishop of Quebec and chancellor of the university. They signed the golden book and deans of faculties were then presented. The princess reviewed le régiment de la Chaudière, on the Citadel. She and the duke attended a state banquet in the evening at the Château Frontenac, followed by a concert, after which they boarded the royal train for *Ottawa*.

Oct. 10. In the morning they arrived in *Ottawa* and were greeted by Viscount Alexander, the prime minister and Mrs. St. Laurent and the mayor of Ottawa, Miss Charlotte Witton. After the princess had inspected a guard of honour and received officials and their wives, she and the duke drove to Lansdowne park, where they were greeted by 13,000 schoolchildren singing the anthem "O Canada," and later laid a wreath on the national war memorial. In the afternoon, after a visit to *Hull*, Quebec province, the princess presented Queen Mary's carpet to the National Gallery of Canada. At a state dinner at Government house, she replied in English and French to the governor general's toast.

Oct. 11. After a quiet day, with a trip on the Ottawa river and an evening party at Government house with square dancing, the royal couple boarded their train for *Toronto*.

Oct. 12. Having stopped for brief ceremonies of welcome at *Cornwall*, *Brockville*, *Kingston* (where they visited the royal military college), *Belleville* and *Trenton* (where they visited the R.C.A.F. station), they arrived at *Toronto* in the evening. They received a tremendous welcome and, after being greeted by Lieut. Col. R. Lawson, the lieut. governor of Ontario, attended a reception at the city hall where Princess Elizabeth was presented with pictures by Canadian artists.

Oct. 13. The princess reviewed a march-past of cadets, and afterwards recipients of the Victoria Cross were presented. At luncheon, the duke addressed an audience of 1,700 members of the Toronto Board of Trade and, in the afternoon, the princess and he saw a parade of 50,000 children at Riverdale park. After an official dinner at the Royal York hotel they boarded the train.

Oct. 14. They visited Niagara falls in the morning, the duke observing the falls through a pair of "dime" binoculars. In the afternoon they left in their train for *Windsor*, Ontario, having called briefly at *St. Catherines*, *Hamilton*, *Brantford*, *Woodstock*, *London* (where they signed the city register) and *Chatham*, Ontario.

Oct. 15. At *Windsor*, Ontario, thousands of Americans watched the royal couple from across the Detroit river. The princess addressed schoolchildren at Jackson park and, with the duke, visited the Ford motor works. They left for *Winnipeg* in an R.C.A.F. plane.

Oct. 16. The princess and the duke arrived at *Winnipeg*, Manitoba, having spent the night at *Kapuskasing*, Ontario, where they toured the town. A guard of honour met them at the airport, and thousands of people who had come from all over Manitoba greeted them. After a civic luncheon, their royal highnesses, during a tour of the city, visited districts flooded by the Red river in 1950. At a reception at the legislative chamber the princess thanked the premier of Manitoba for a cheque presented to her earlier in the day as a gift for charity. In the evening a local ballet company gave a performance.



Arriving at Dorval airport.



Driving the royal train.



Arriving at the Citadel, Quebec.

Oct. 17. The royal train arrived at *Regina*, Saskatchewan, the training h.q. of the Royal Canadian Mounted police. The princess replied, in the legislative building, to an address of welcome by T. C. Douglas, premier of Saskatchewan, and later their royal highnessess received gifts for themselves and their children. In the afternoon, they watched an entertainment in the Exhibition grounds, where displays by children included Ukrainian and Scottish dances; they visited the R.C.M.P. barracks. In the evening the royal train made brief stops at *Moose Jaw* and *Swift Current*, Saskatchewan.

Oct. 18. After arriving at *Calgary*, Alberta, in the morning, the princess and the duke visited an Indian village, where more than 1,000 Indians, headed by many chiefs, met them and presented them with a doeskin Indian costume for Princess Anne. Before a "chuck waggon" lunch of beef stew, grass salad and blueberry tart, the royal couple spoke to a group of crippled and injured scouts, cubs, guides and brownies, and in the afternoon watched a stampede.

Oct. 19. The train crossed the Rocky mountains (of which, because of snow, the princess and the duke had only a restricted view) on its way to *Vancouver*, British Columbia. Brief stops were made at *Cochrane*, *Banff* (where a 25-lb. lake trout was presented), *Revelstoke*, *Sicamous*, *Salmon Arm*, and *Kamloops*, where the princess reviewed veterans of the South African War.

Oct. 20. The train arrived at *Vancouver* in the morning and, during a day in which there was no elaborate ceremony, the princess and the duke watched a demonstration of American football at British Columbia university, and a folk-dancing display. In Queen Elizabeth park, the princess planted an oak tree from Windsor park, England, and later the duke paid an unofficial visit to H.M.C.S. "Discovery."

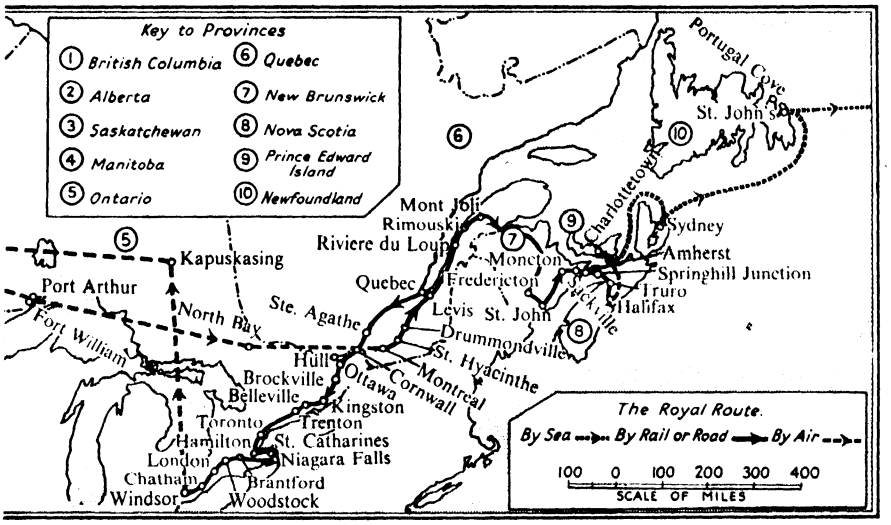
Oct. 21. After attending service at Christchurch cathedral, Vancouver, the princess and the duke sailed down Georgia strait in H.M.C.S. "Crusader" to *Victoria*, Vancouver island, where they arrived in the evening.

Oct. 22. They watched a demonstration by Indians of traditional dances in Thunderbird park, *Victoria*. At a luncheon given by the provincial government, the princess replied to a speech of welcome by Byron Johnson, premier of British Columbia, who had presented the princess and the duke with gifts.

Oct. 23. After travelling 8,000 mi. in a fortnight, their royal highnesses enjoyed a day of relaxation at *Victoria*.

Oct. 24-25. They spent a two-day holiday at *Eagle's Crest*, Vancouver island.

Oct. 26. The princess and the duke left



Vancouver island in H.M.C.S. " Crusader " from the port of *Nanaimo* in the morning. They boarded their train at *Vancouver* and left for *Edmonton*, Alberta, stopping for brief ceremonies of welcome at *Burnaby*, *New Westminister*, *Chilliwack*, *Boston Bar*, British Columbia, and *Edson*, Alberta. The princess drove the train for 14 mi.

Oct. 27. They arrived at *Edmonton*, Alberta, the northernmost point of their tour, where the princess inspected a guard of honour and, at the legislative buildings, was presented, by E. C. Manning, premier of Alberta, with a bearskin rug and gifts for her children. After visiting the oil refinery the princess and the duke attended a dinner given by the lieut. governor of Alberta and his wife and then watched a floodlit football match. The royal train left at midnight.

Oct. 28. The train arrived at *Saskatoon*, Saskatchewan. The princess and the duke attended a service at St. John's cathedral and at midday left by air for *Rivers*, Manitoba, arriving in the afternoon. After a ceremony of welcome they proceeded by air to *Port Arthur*, Ontario, via *Fort William*.

Oct. 29. They reached *Port Arthur* by air and there visited the world's largest grain elevator before returning by car to *Fort William* and attending a reception at the city hall auditorium. At midday, they flew to *North Bay*, Ontario, where, after being greeted by the mayor and officials and speaking to the Dionne quintuplets, they made a tour of the city and then proceeded by air to Montreal. They at once drove to the city and were welcomed by 250,000 people in Dominion square.

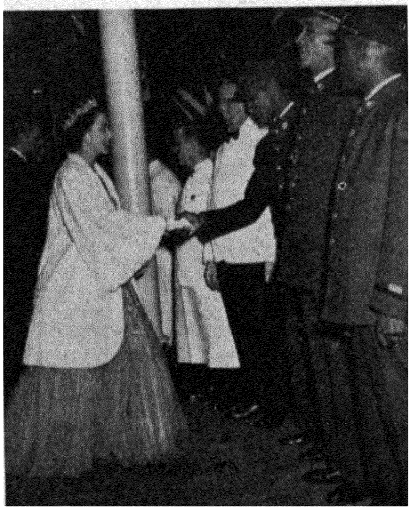
Oct. 30. In the morning the princess and the duke visited McGill university, *Montreal*, where they were greeted by students and received by the chancellor, Chief Justice O. S. Tyndale, and the principal, F. C. James. At the Molson stadium, the princess and the duke were welcomed by 12,000 English-speaking Montreal schoolchildren and, at the Stade Delorimier, by as many French-speaking children. After visiting the dock area of *Montreal* and inspecting the first Canadian destroyer escort under construction, the princess, in the afternoon, visited the French-speaking University of Montreal, where she was greeted by the chancellor, Mgr. P. E. Leger, archbishop of Montreal. Later, the princess and the duke attended a reception at the city hall and were presented with a worked map of the city. In the evening, a gala dinner was given by the mayor of Montreal.

Oct. 31. The princess and the duke flew to *Washington* where they were met by President Harry S. Truman and his wife and daughter. After a ceremonial drive to Blair house, their royal highnesses attended a reception given by Washington correspondents and, later, a dinner given by the president at Blair house.

Nov. 1. The princess and the duke drove to Mount Vernon and laid a wreath on George Washington's tomb and later laid a wreath on the tomb of the unknown soldier at Arlington cemetery. They gave a reception at the Canadian embassy to Commonwealth ambassadors and staffs and, later, attended a reception at the British embassy given by the ambassador, Sir Oliver Franks. In the evening, their royal highnesses gave a dinner at the Canadian embassy for President and Mrs. Truman.



With an Indian Chieftain at Calgary.



Saying good-bye to the train crew.

Nov. 2. The princess and the duke flew back to *Montreal* after a morning sight-seeing tour of *Washington* followed by a farewell visit to Blair house, where the princess presented President Truman with an 18th-century overmantle as a gift from King George VI.

Nov. 3-4. The princess and the duke spent a two-day holiday in the Laurentian Mountains in the vicinity of *Ste. Agathe*.

Nov. 5. In the evening they arrived by train at *Mont Joli*, province of Quebec, on the last lap of their tour, having stopped during the day at *St. Hyacinthe*, *Drummondville*, *Levis*, *Rivière du Loup* and *Rimouski* (where the princess was given a coloured vase made from the clay of Rimouski river).

Nov. 6. Having travelled through the night, the royal train arrived at *Fredericton*, New Brunswick, in the morning. After an informally friendly welcome, the royal couple visited the University of New Brunswick. At a reception at the legislative buildings, the premier of New Brunswick presented them with locally woven motoring rugs. After a luncheon given by the province they left by train for *Saint John*, New Brunswick, where a huge crowd broke through the station barrier and sang " O Canada." In the evening, the mayor gave a dinner on behalf of the city, after which the royal visitors left by train.

Nov. 7. The princess and the duke arrived at *Halifax*, Nova Scotia, having stopped briefly at *Moncton*, *Sackville*, *Amherst*, *Springhill Junction* and *Truro* on the way. They were greeted by J. A. D. McCurdy, lieut. governor of Nova Scotia, and attended a reception in the legislative building.

Nov. 8. The princess and the duke made a tour of the naval dockyard and later the duke replied to the toast at a luncheon given by the city of Halifax. They visited the naval museum and the naval training school and in the evening attended a dinner given by the provincial government at which the premier, A. L. MacDonald, presented gifts.

Nov. 9. After travelling through the night the princess and the duke arrived at *Charlottetown*, Prince Edward Island, and drove to the legislative buildings and met officials, after which the princess was presented with a pearl platinum fox cape (the island was the original home of fox furs) and a $1,000-cheque for charity by the premier, J. Walter Jones. Late at night, after a government dinner at the Charlottetown hotel, the royal couple left in H.M.C.S. " Ontario " for Cape Breton Island.

Nov. 10. In the morning they disembarked at *Sydney*, Cape Breton Island.

Nov. 11. They arrived by sea at *St. John's*, Newfoundland. In the morning, the princess laid a wreath on St. John's war memorial at an armistice-day parade and, in the evening, made a farewell broadcast to the people of Canada at government house through the golden microphone used by King George VI in 1939.

Nov. 12. The princess and the duke drove, in the morning, to *Portugal Cove*, where they were taken out to the liner " Empress of Scotland." Shortly after midday they sailed for England accompanied by Assistant Commissioner M. F. E. Anthony of the R.C.M.P. and four R.C.M.P. orderlies.

Nov. 17. The princess and the duke disembarked at Liverpool and travelled by train to London, where they were met by the queen, Princess Margaret and Prince Charles.

Nov. 19. Princess Elizabeth and the Duke of Edinburgh drove through the City to Guildhall where they were officially welcomed back by the lord mayor, Sir Leslie Boyce, and the prime minister, Winston Churchill.

Continued from page 121.)

division of 11 squadrons, one of which was already in the United Kingdom.

Further contributions to N.A.T.O. and the United Nations were an air training plan which included aircrew from Europe; an infantry brigade group for the integrated forces under General Dwight D. Eisenhower's command, to be stationed in Germany; an infantry brigade group provided for the Commonwealth division of the U.N. forces in Korea. Destroyers of the Royal Canadian navy and a transport squadron of the R.C.A.F. took part in the Korea campaign.

Canadian industry steadily expanded its defence production, especially in aircraft. The Orenda, first jet engine to be developed in Canada, was flown in the R.C.A.F. all-weather fighter CF100. In Montreal, F86A Sabre jet aircraft were produced in quantity and training planes of a new and advanced type were manufactured. A wide range of metals were declared "essential" under the provisions of the Essential Materials act.

To meet the heavy demands on manpower caused by the rearmament drive, the government launched an accelerated programme of selective immigration, and by directing essential materials into defence industries automatically diverted the flow of labour from civilian employment. A National Advisory Council on Manpower was set up. An Emergency Powers act authorizing the government to resume the authority for controls, gradually abolished after the war, was passed in March.

Canada signed the peace treaty with Japan on Sept. 8. Lester B. Pearson, secretary of state for external affairs, described it as both generous and realistic. Events of the past 20 years had shown that Canada could not isolate herself from wars or threats of war in the Pacific, for geographically Canada was a Pacific as well as an Atlantic power.

The budget proposals, introduced on April 10, were based on an assumption that the gross national production in 1951 would reach $20,000 million, an increase of about 12% over 1950. It was an anti-inflationary, "pay as you go" budget, with surcharges on the existing tax schedules but no fundamental alteration in the tax structure. Revenue for 1951-52 was estimated at $3,730 million, as compared with $3,105·3 million the previous year; expenditure at $3,700 million, as compared with $2,901·8 million, a high level for peacetime. Of this, $1,664 million was for defence.

There was a marked increase in Canada's external trade during the first eight months of 1951. During this period exports were valued at $2,494·7 million, compared with $1,965·5 million the previous year. Imports were $2,830·5 million, compared with $1,979·8 million. Trade with both the United Kingdom and the United States increased substantially. In sales to western nations there was a greater emphasis on strategic materials.

The 1946-50 Anglo-Canadian Wheat agreement, which terminated in 1950, gave rise to controversy in the Canadian House of Commons, the grain-growers claiming compensation for losses they believed they had sustained under the agreement. The $65 million offered by the Canadian government was considered inadequate. The United Kingdom agreed to purchase from Canada in the crop year beginning Aug. 1951 95 million bu. of wheat, and 350,000 tons of flour. These purchases were made within the framework of the International Wheat agreement. Additional quantities might be purchased outside the terms of the agreement on the free market.

A financial agreement was signed with the United Kingdom on June 29, by which the interest-free provision of the 1942 loan from Canada to Britain was continued to Jan. 1, 1954.

In July, a U.S. Congressional committee rejected proposals for the joint development of the St. Lawrence seaway by the Canadian and U.S. governments, as suggested in the agreement of 1941. The Canadian government therefore decided to proceed alone, and announced on Oct. 22 that it would introduce legislation authorizing work on the seaway and power project and the establishment of a federal government agency to administer the work. The government would also request the necessary co-operation from the U.S. government under the treaty on boundary waters.

On Oct. 8, Princess Elizabeth and the Duke of Edinburgh arrived in Montreal by air for a five-week tour of Canada. They visited all the provinces, and were shown the many and varied aspects of the Canadian community and environment. They were greeted everywhere by large and enthusiastic crowds, despite weather which was often adverse. Before the royal couple left Canada on Nov. 12, the princess in a farewell broadcast referred to the warmth of the welcome she had everywhere encountered and said that she had been made to feel that she truly belonged to Canada.

The report of the Royal Commission on the State of Letters, Arts and Science, headed by Vincent Massey, and the part the federal government should play in encouraging them was submitted to parliament on June 1. The creation of a council for the arts, letters, humanities and social sciences was recommended, together with a national museum policy and a national library.

An Old Age Security bill, granting pensions to all over 70 years of age who had resided in Canada for more than 20 years, was passed through the House of Commons in November.

A provincial election in April in Prince Edward Island returned the Liberal party to power. A greater degree of self-government was given to the administrative district of Yukon and also to the Northwest territories. On Nov. 22, Ontario returned to power the Progressive Conservative party. In October, at the opening of the parliamentary session at St. John's, Newfoundland, the lieutenant governor said that never in Newfoundland's history had there been such a high degree of prosperity nor had so high a living standard been enjoyed by the population. On Nov. 26 a provincial election was held in Newfoundland. (C. C.)

Education. Provincially controlled schools (1947-48): ordinary and technical day schools 31,393, pupils 2,091,929, teachers 77,240. Privately controlled schools (1947-48): ordinary day schools 783, pupils 98,103, teachers 5,741; business training day schools 255, pupils 23,023, teachers 1,078. Indian schools (1949-50): 403 (pupils 23,409) including residential 69 (pupils 9,316); day schools 334, pupils 14,093. Universities and colleges (1949): 198, students 116,176, professors and lecturers 10,430.

Agriculture and Fisheries. Main crops ('000 metric tons, 1950; 1951 est. in brackets): wheat 12,565 (15,830); barley 3,732 (5,465); oats 6,476 (7,665); rye 339 (502); maize 352; potatoes 2,641; sugar beets 933; tobacco 54·6 (66·6); soyabeans 90; linseed 115. Livestock ('000 head): cattle on farms (Dec. 1950) 8,292; sheep (Dec. 1950) 1,268; pigs on farms (June 1951) 5,875; horses on farms (June 1950) 1,683; poultry (Dec. 1950) 37,300. Dairy production ('000 metric tons, 1950; 1951, six months, in brackets): milk 7,455 (3,512); butter 118·8 (50·2); cheese 43·7 (14·3). Meat production ('000 metric tons, 1949; 1950 in brackets): total 882 (869), of which beef and veal 449 (415); pork 413 (437); mutton and lamb 20 (16). Agricultural labour force (June 1951): total 1,017,000, of which paid workers 114,000. Fisheries (total catch of sea-fish, 1950; 1951, six months, in brackets): landed weight ('000 metric tons) 604 (240); total value ($ million) 67·5 (24·8).

Industry. Industrial establishments (1947) 32,734; persons employed 1,131,750. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 15,360 (7,382); lignite 1,992 (849); coke 3,998 (1,988); natural and manufactured gas (million cu. m.) 2,782 (1,575); electricity (million kwh.) 50,904 (28,802); crude oil ('000 metric tons) 3,749 (2,569). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): iron ore, metal content 3,312 (1,306); pig iron 2,256 (1,328); steel ingots and castings 3,072 (1,655); copper, refined 217 (113); lead, refined 155 (78); zinc, refined 186 (97); nickel 112·1 (60·7); synthetic rubber 39·4 (28·7); gypsum, producers' shipments 3,730 (1,385); asbestos, producers' shipments 888·7 (511·5); lime, producers' shipments 1,142·2 (620·7); salt, producers' shipments, commercial 407·2 (207·2), for use in chemicals 465·7 (260·2); feldspar, producers' shipments 32·9 (18·5); gold ('000 fine ounces) 4,452 (2,188); silver ('000 fine ounces) 23,220 (11,086). Manufactured goods (1950; 1951,

six months, in brackets): wood pulp ('000 metric tons) 8,437 (4,598); newsprint ('000 metric tons) 5,363 (2,792); cement ('000 metric tons) 2,652 (1,313); motor vehicles (thousands): cars 285 (177), commercial 106 (71); cotton yarn ('000 metric tons) 96·0 (54·2); woven cotton fabrics (million m.) 291·6 (164·4); worsted yarn ('000 metric tons) 7·2 (3·9); sawn lumber (million bd.ft.) 6,018·4 (3,273·9). Manufactured food ('000 metric tons, 1950; 1951, six months, in brackets): wheat flour 1,872 (1,106); margarine 42·7 (24·9). Index of industrial production (1937 = 100, 1950; 1951, six months, in brackets): general 184 (200); mining 140 (154); manufacturing 191 (208).

Foreign Trade. Million Canadian dollars (1950; 1951, six months, in brackets): imports 3,180 (2,101); exports 3,156 (1,763). Main sources of imports (1950): U.S. 67%; U.K. 13%. Main destinations of domestic exports (1950): U.S. 65%; U.K. 15%. Main commodities imported (1950): machinery and vehicles 23%; petroleum and products 10%; iron, steel and manufactures 8%; coal, coke and products 6%; cotton and manufactures 5%. Main domestic exports (1950): newsprint 16%; wood and manufactures 13%; wheat 10%; wood pulp 7%; copper and manufactures 3%; nickel 3%. Index of volume of trade (1948 = 100, 1950): imports 109; exports 94.

Transport and Communications. Railways (1949): steam 42,979 mi., electric 719 mi.; passenger-mi. (1950) 2,804 million; goods, ton-mi. (1950) 50,125 million. Roads (1949) 556,266 mi. including surfaced 150,493 mi. Licensed motor vehicles (Dec. 1950): cars 1,730,000; commercial 550,000. Navigable waterways (1949): 1,890 mi. including canals 509 mi. Shipping (merchant vessels of 100 gross tons and over, including vessels for inland navigation, July 1950): 1,222; total tonnage 2,038,959. Air transport (1950): passenger-mi. 532·6 million; cargo ton-mi. 9,753,000. Telephones (1949): 2,230,597. Wireless licences (Sept. 1950): 2,177,000.

Finance and Banking. Budget (million Canadian dollars): (1950-51 est.) revenue 3,105, expenditure 2,902; (1951-52 est.) revenue 3,730, expenditure 3,700. Gross national debt (March 1949; March 1950 in brackets) 16,950 (16,751). Currency circulation (Aug. 1950; Aug. 1951 in brackets): 1,159 (1,262). Bank deposits (Aug. 1950; Aug. 1951 in brackets): 3,380 (3,457). Gold and U.S. dollar holdings (million U.S. $, Sept. 1950; Sept. 1951 in brackets): 1,790 (1,611). Monetary unit: Canadian *dollar*, with an exchange rate (Nov. 30, 1951) of C$ 2·90 to the pound and C$ 1·04 to the U.S. dollar. Between Sept. 19, 1949, and Sept. 30, 1950, at which date the Canadian dollar was freed, the official rate of exchange was C$ 3·08 to the pound and C$ 1·105 to the U.S. dollar.

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CANADIAN LITERATURE. The English-Canadian novel was meagrely represented in 1951. Hugh MacLennan's *Each Man's Son*, dealt with events in a Nova Scotia mining community and Morley Callaghan's *The Loved and the Lost*, about racial problems in Montreal, stated problems without suggesting answers. Better results came from two new novelists: the dramatist Robertson Davies' *Tempest-Tost* satirized Canadian small-town life with an alertly roving eye and the poet A. M. Klein's *The Second Scroll* described and analysed various spiritual values. Some attempts to deal with Canadian problems were to be found in W. G. Hardy's *The Unfulfilled*, George Glay's *Beggars Might Ride*, John Cornish's *The Provincials*, Hugh Garner's *Cabbage Town*, Lois Edwards' *My Heart in Hiding* and Louise Riley's *One Happy Moment*, but the attempts were disappointing. Both Gabrielle Roy's *Where Nests the Water Hen* and Kristine Kristofferson's *Tanya* had scenes laid in Manitoba, but whereas the latter was full of action, the former was almost without a plot. When it came to plain storytelling, veteran Will R. Bird's *So Much to Record*, dealing as usual with Nova Scotia, and Luella Creighton's *High Bright Buggy Wheels*, about an Ontario Mennonite settlement, were outstanding.

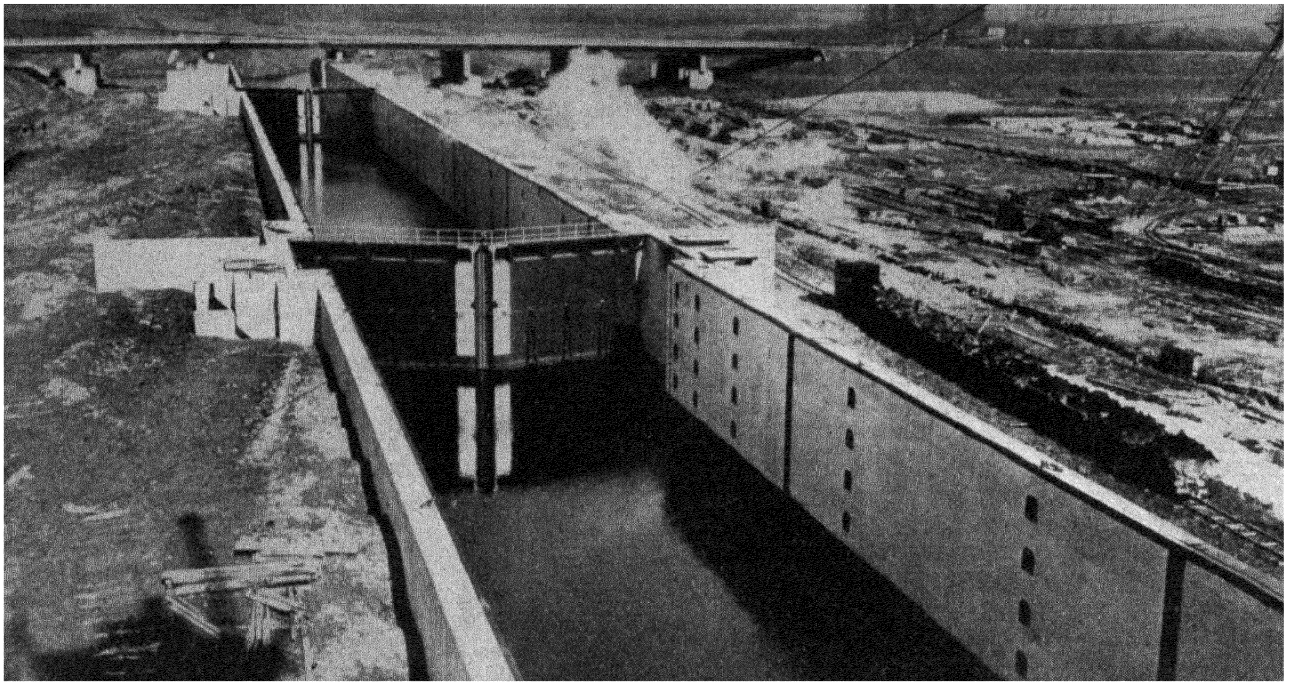
Other representatives of imaginative literature were also scarce. *The Mulgrave Road* by Charles Bruce, however, exhibited sharp insight into Nova Scotia's special qualities and *The Victorian House and other Poems* by Philip Child was an arresting study of human psychology.

The output of non-fiction in 1951 might be divided into examples of personal and handbook literature. Among the former, a few were simple autobiography, such as Billy Button's *I Married an Artist*, Kenneth M. Wells' *Up Medonte Way*, Barbara Ann Scott's *Skate with Me* and Oliver Philpot's *Stolen Journey;* and some were straightforward travel, such as Lyn Harrington's *Manitoba Roundabout*, Lilian Maxwell's *'Round New Brunswick Roads*, John and Marjorie Mackenzie's *Quebec in Your Car*, Blodwen Davies' *Quebec: Portrait of a Province*, Evelyn Earle's *Leeds the Lovely* and Jessie Lawson and Jean Sweet's *This Is New Brunswick*. The autobiographies were light in vein, and the travel was Canadian. There were, however, two outstanding works: Barbara Cormack's *Local Rag* was an autobiographical novel with its material projected through the files of a small prairie town weekly newspaper; and Judith Robinson's *As We Came By* was an acutely critical account of European travel. Works of humour included Harry Symon's *The Bored Meeting*, Jan Hilliard's *The Salt-Box* and John Robins' *Cottage Cheese.*

For the most part, the rest of the non-fiction published by Canadian writers consisted of handbooks. Some were of a high standard, including, L. L. Snyder's *Ontario Birds*, Daniel McGowan's *Tidewater to Timberline*, Roderick Haig-Brown's *Measure of the Year*, John Murray Gibbon's *Romance of the Canadian Canoe*, Josephine Phelan's *Ardent Exile* and E. K. Brown's *Rythm in the Novel.*

There was a pronounced drop in the production of non-fiction for boys and girls, which was not counterbalanced by more juvenile novels. However, a few of the latter were appealing. Olive Knox's *Little Giant* (Henry Kelsey) was the only historical story. Career themes were more popular and included Jack Hambleton's *Tom Walden, Cub Reporter*, Lyn Cook's *The Little Magic Fiddler* and Foster Hewitt's *Along Olympic Road.* But few Canadian writers in the juvenile field could surpass veteran Dickson Reynolds for thrill and dash and implicit moralizing, of which her *Angry River*, describing the Fraser river in flood, was a good example. (*See* also LITERARY PRIZES.) (C. CY.)

CANALS AND INLAND WATERWAYS. The third report of the British Transport commission was published in July 1951. It recorded that during 1950 the Docks and Inland Waterways executive had taken over—from the Railway executive—the Fossdyke navigation and the Witham navigation (Lincolnshire), the Stourbridge Extension canal (Worcestershire), and the Forth and Clyde and Union canals in Scotland. It was agreed to sell the reservoir and lido at Ruislip, Middlesex, to the local authority. The waterways administration associated themselves with the Railway executive and the Road Haulage executive in the establishment of joint organizations at a number of towns for dealing with enquiries about rates, services and other matters. Liaison was maintained with the National Coal board and the British Electricity authority. Work was advanced on a new lock at Newark, Nottinghamshire, to accommodate four standard Trent craft; the old lock could take only one such boat. Dredging was carried out on the Trent navigation to provide an improved channel to a general minimum depth of 5 ft. Work proceeded on a quay wall at Diglis basin, Worcester, to accommodate an increasing number of petroleum-carrying craft. It was also decided to improve the Severn channels to enable craft carrying 400 tons to navigate to Worcester, and to carry out works above Worcester to enable existing craft to load up to 150 tons. Generally, much dredging was done: in the midland district of the south-western division alone, 600,000 tons of silt was removed during 1950, against the former dredging output of 40,000 tons a year. Banks were protected by steel piling. Pontcysyllte aqueduct (River Dee, Denbighshire) was emptied and repaired. Flood prevention work was done on the Witham navigation at Lincoln. Total waterway traffic in 1950 was 11,802,000



The locks at ***Tiel, Netherlands, under construction on the Amsterdam-Rhine canal. The locks were the largest in Europe.***

tons, an increase of 4·2% over 1949. The executive carried 9% of the total in their own craft. There was a deficit of £93,795 on the carrying business but an amount of £144,141 accrued to the executive as toll payments in respect of that business. As from May 1950, the executive increased statutory charges by 16⅔% and also raised non-statutory charges where appropriate.

France. The new Jeu de Mail lock, with a reclaimed drop of 1·43 m., on the canal from Bourbourg to Dunkirk, was brought into use in place of the old lock destroyed in World War II. On a branch of the Neuffouse canal around St.-Omer, work on the Flandres lock, with a reclaimed drop of 3·97 m., was further advanced; it would replace the Haut-Pont and St.-Bertin locks and would accommodate barges, vessels up to 600 tons and lighters. A scheme was produced for a new deep-drop Fontinettes lock at Arques (Seine-Inférieure) to augment the existing lift, which could only take craft carrying 280 tons: the proposed new drop was 13·13 m. Progress was made with the new lock on a branch of the River Deule, at Dow; there would be two basins in tandem with a reclaimed drop of 2·82 m. Further consideration was given to the project for the Grand-Carré lock at Lille; this was to be constructed on a branch of the Deule canal and would allow the reclamation of existing locks at La Barre, Ste.-Hélène Wambrechies and Quesnoy-on-Deule. At the old Lens lock on the Lens canal reconstruction continued; this was designed to repair the effect of mining subsidence and, with a reclaimed drop of 7·7 m., to allow vessels of 600 tons to be docked.

Germany. Removal of wreckage from navigable rivers continued; shipping traffic operated normally. Progress was made in waterway extensions on the River Main near Würzburg and at Neckar near Heilbronn (Württemberg). A double lock to lower and raise ships on the River Mosel was completed. Extension work continued on the Dortmund-Ems canal. On the Kiel canal, slopes, locks and retaining sluices were renewed.

Netherlands. A new Amsterdam-Rhine canal was opened with the object of shortening the route between the lower Rhine towns and the port of Amsterdam. (A. H. J. B.)

Canada. During 1951 the federal government passed an act to establish the St. Lawrence Seaway authority and plans were made for the deepening of the Cornwall-Prescott section of the St. Lawrence-Great Lakes seaway from 14 ft. to 27 ft. Parliament voted $4,523,107 for the maintenance and operation of the canal services in 1951-52 and $2,013,409 for the continued dredging of the St. Lawrence river ship channel below Montreal. Record tonnages were worked through the three major lock groups of the St. Lawrence-Great Lakes system in the April-Oct. 1951 navigation season. The figures were: Sault Ste. Marie (Canadian-U.S.) 107,729,730 (1950 season, 93,280,527); Sault Ste. Marie (Canadian only) 2,285,699 (1,886,881); Welland 13,774,107 (12,400,905); St. Lawrence 8,692,183 (8,648,438). (C. Cy.)

United States. The Rivers and Harbours act of 1951 provided for $125,192,613 for the construction of 43 authorized projects in 29 states. An additional $61,287,000 was appropriated for the maintenance and operation of ports and inland waterways. The lower Mississippi river received a separate appropriation of $60·5 million.

The total net water-borne commerce of the United States was 820,582,362 short tons (prelim. est.) in the calendar year 1950. U.S. commerce on the Great Lakes totalled 169,879,433 tons, aggregating 111,687,340,000 ton-mi. Inland waterway commerce, excluding that on the Great Lakes, totalled 51,256,637,000 ton-mi. of this total, the Mississippi river system accounted for 33,597,816,000 ton-mi. (*See* also Docks and Harbours; Floods and Flood Control; Panama Canal; Suez Canal.) (G. Hb.)

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CANCER. The expansion in cancer research since the end of World War II continued during 1951. Increased attention was given to the biochemical mechanisms by which the chemical carcinogens—for example, substances such as

polynuclear hydrocarbons, azo dyestuffs and aromatic amines which are capable of causing cancer—effect the transformation of normal cells into cancer cells. Intensive study of the cancer-producing action of the " nitrogen mustards "—that is, the nitrogen analogues of mustard gas or " sulphur mustard "—supported the view that the carcinogenic activity of these substances was associated with chemical " alkylation " of hereditary determinants in the normal cell, leading to genetic modification. Other contributions to this rapidly developing subject included investigations of the action of these compounds upon nucleic acid, a suggestion that they might act by interference with gene-synthesis, and studies of the related activity of the same substances in producing gene mutation. Examination of other types of biological alkylating agent also disclosed carcinogenic potency in a number of " ethyleneimines " and " di-epoxides," some of which were suggested by their use in the cross-linking of textile fibres. An interesting conception emerged during the year, that carcinogens of this general class might operate by expediting chemical changes in protein which might equally occur " spontaneously " in the process of ageing.

Among specialized forms of the disease, the incidence and causation of cancer of the bladder in industry continued to be investigated. G. M. Bonser and D. B. Clayson related the carcinogenicity of the dyestuff intermediate β-naphthylamine with the excretion in the urine of a specific metabolite, and also found this substance to be carcinogenic on direct contact with the bladder mucous membrane. The greatly increased recorded incidence of cancer of the lung still presented a problem of the first magnitude. Sir Ernest Kennaway drew attention to the high proportion of lung cancer now found among autopsies on cases of cancer in hospitals in large towns. The association between the incidence of bronchial carcinoma and smoking was investigated by A. Bradford Hill and R. Doll, and led E. Kennaway and M. E. Daff to study the arsenic content of tobacco, as a possible etiological agent. This did not however provide any simple explanation, although it was considered that it might be involved jointly with other agents; *e.g.*, with atmospheric contaminants such as coal smoke, or the products of the internal combustion engine. Experiments were also started to assess the influence of radioactive material in the atmosphere. An important finding in relation to another type of cancer was reported by J. W. Cook and R. Schoental, namely, that prolonged administration to rats of alkaloids of the ragwort (*Senecio Jacobaea*) led to the appearance of liver tumours: this observation was of interest in its bearing on the high incidence of primary cancer of the liver among the Bantu in South Africa, and the suggestion that the indiscriminate medicinal use of *Senecio* plants by the South African Negroes might be a causal factor.

That certain animal tumours might be caused by viruses had long been known, as in the cases of the " milk factor " of Bittner, which can determine mammary cancer in mice, and the viruses recoverable from various chicken tumours. R. D. Passey, L. Dmochowski and W. T. Astbury succeeded in establishing a correlation between the biological activity of various tissues, and the content of these preparations in particles revealed by electron microscopy and believed to be the mammary cancer virus itself. The same workers completed an investigation of the resistance of cancer cells to freeze-drying. While earlier experiments along the same lines had been interpreted by W. E. Gye as indicating a causal virus, the latest experiments showed conclusively that Gye's interpretation was invalid.

Although the chemotherapy of cancer was still in a rudimentary stage, advances were recorded, as, for instance, in the use of triethylene-melamine (" TEM "), a compound originally devised by the Hoechst Farbwerke as a cross-linking agent for textiles, and certain dimesyloxyalkanes in the treatment of chronic myeloid leukaemia. Even so, it seemed increasingly probable that the use of such substances was but a phase, and that they would be rendered obsolete by developments from more fundamental investigations of the mechanisms of carcinogenesis; more real insight into this process was obtained than in almost any previous year, with great promise for the future. (*See* also SURGERY.) (A. HW.)

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CANNING INDUSTRY. The event of the year was the World Congress on Canning (Paris, Oct. 16-19) organized by the Comité International Permanent de la Conserve. Developments mentioned by British delegates included a rapid " flame peeling " process for fruits, tests on aluminium cans for fruits and vegetables and the use of electrolytic tinplate for canning vegetables. G. G. Knock (South Africa) said that 12 years earlier the total output of South Africa's canneries was 55 million lb., whereas it was now about five times that figure. W. Krehl, Yale Nutrition laboratory, U.S., said that more was known about the nutritional value of canned foods than about any other type of processed food. F. Jakobsen (Sweden) mentioned new types of modified phenolic lacquers used for deep drawn cans in the U.S. and in Scandinavia. Research in the United States was directed towards improving the canning process and towards methods of saving tin, for example, by wider use of thinly coated electrolytic tinplate. Dr. B. E. Proctor described to the National Canners Association of America the possibility of sterilizing canned foods by cathode rays, without any appreciable heating effect.

Statistics published during the year by the Ministry of Food showed that the United Kingdom production of canned vegetables increased from 300,800 long tons in 1949 to 322,000 tons in 1950, including 143,600 tons of processed dried peas and 93,400 tons of baked beans. Canned fruit fell from 89,100 tons to 75,100, including 35,200 tons of plums and 16,000 tons of apples. Canned soups fell from 71,200 tons to 60,300 and homogenized baby foods from 7,200 tons to 5,100.

The International Tin Study group reported that out of a world consumption of nearly 5,750,000 tons of tinplate in 1950, the American continent used 4,152,000 tons, Europe 1,026,000 tons, Asia 250,000 tons, Australasia 124,000 tons and Africa 96,000 tons. Despite a world production approaching 6 million tons in 1951 there was a shortage of tinplate in most countries.

The United Nations Food and Agriculture organization engaged technical experts to advise far eastern and Latin American countries on the development of their fisheries. The Colonial Development corporation erected a cannery for turtle soup on Grand Cayman island, British West Indies, to process 3,000 turtles a year. In Portugal, after several years with poor yields of fish, the sardine canning industry improved, having begun to revive in the middle of 1950. In Malaya, the pineapple canning industry produced

about a million cases against only 9,000 in 1946. There were also considerable developments in pineapple canning in Australia and South Africa. The demand for canned pineapples was such that new plantations in the eastern part of Cape Province changed the aspect of the countryside. South Africa's crop was valued at £1 million. (G. H. M. F.)

United States. Production in the United States of canned fruits, fruit juices, fruit and vegetable specialties, vegetables, milk, fish and meat in 1951 totalled about 640 million standard cases (preliminary estimate) as compared with 566·3 million standard cases in 1950. The 1951 total pack was estimated to be 13% more than that of 1950, canned fish being the only pack to show a decrease. In price canned food showed an increase of about 66% above pre-World War II levels as compared to an increase of 125% for all foods. Over the same period consumption of canned food increased by 55%.

Technological developments in the canning industry included extended use of "high temperature-short time" processing which utilizes the principles of agitation and aseptic filling, particularly in canning milk. (E. J. C.)

CANOEING. British championships in kayak slalom were held in 1951 on the River Usk at Whitsuntide, and a large entry found first rate water conditions. Scotland was again successful, for Mr. and Mrs. James McLean of the Tay Canoe club were the victors in the men's and the women's events respectively. The Scottish slalom was held on the Tay during May, and again J. McLean was the winner. In July, the world championships, held on the River Enns (Austria), were won by Fruhwirth (Austria).

The British paddling championships were held on the Thames near Marlow and there was a record entry in all classes. One member of the Royal Canoe club, G. C. Colyer, was awarded the Dexter trophy for the most meritorious performance by a newcomer to the championships. The results were: (i) kayak singles 10,000 m., G. C. Colyer (Royal Canoe club), 52 min. 41·8 sec.; 1,000 m., R. G. Prout (Canvey Island Canoe club), 4 min. 58·2 sec.; 500 m., W. Young (Canoe Camping club), 2 min. 49·4 sec. (ii) Kayak pairs. 10,000 m., R. G. and F. S. T. Prout (C.I.C.C.), 49 min. 45·6 sec.; 1,000 m., R. G. and F. S. T. Prout (C.I.C.C.), 4 min. 39·4 sec.; 500 m., R. G. and F. S. T. Prout (C.I.C.C.), 2 min. 19·4 sec. (iii) Kayak fours. 1,000 m., Canvey Island Canoe club, no time recorded. (iv) Canadian singles. 1,000 m., G. D. Marchand (R.C.C.), 6 min. 29 sec. (v) Kayak singles. 4 × 500 m. relay race, Richmond Canoe club, 9 min. 34·4 sec. (vi) Women's kayak singles. 500 m., J. Webb (Richmond Canoe club), 2 min. 55·8 sec. (vii) Women's kayak pairs. 500 m., J. Webb and A. Jenkin (Richmond Canoe club), 2 min. 46·4 sec.

The "Turn of the Tide" race for touring canoes (Richmond bridge to Greenwich and then back to the South Bank Festival site) was won by G. C. Colyer and G. Palmer of the Royal Canoe club. (J. W. D.)

CANTERBURY, ARCHBISHOP OF. GEOFFREY FRANCIS FISHER, 100th archbishop of Canterbury, primate of all England (b. Higham-on-the-Hill, Leicestershire, May 5, 1887), was ordained priest in 1913. He was enthroned as archbishop of Canterbury, in succession to William Temple (1881-1944), on April 19, 1945. (For an account of his earlier career see *Britannica Book of the Year 1951*.)

After his return from Australia and New Zealand on Jan. 22, 1951, the archbishop was given an enthusiastic public welcome at the Central hall, Westminster, London (Jan. 30). He received Queen Mary at the spring meeting of the Church assembly, when two memorial plaques were unveiled by her. In April he visited Sierra Leone to inaugurate the new province of West Africa and toured the interior of the country with the governor. He preached at St. Paul's cathedral, London, when the Festival of Britain was opened (May 3) and addressed a great meeting in Hyde park in connection with the Festival (July). He also closed the Festival at the Royal Festival hall, South Bank (Sept. 30). He addressed the Convocation of Canterbury on "Relations with other Christian Churches at Home and Abroad." He attended the 250th anniversary of the Society for the Propagation of the Gospel at St. Paul's (June 17), when the queen and Princess Margaret (*q.v.*) were present, and subsequently blessed the S.P.G. missionary ship "Centurion" at Lambeth bridge. On July 4 he preached at St. Paul's before the queen and the two princesses at the presentation of the American roll of honour by General Dwight Eisenhower (*q.v.*). He conducted prayers for the king's health at Lambeth palace in the presence of the queen and the royal family. He addressed the governing body of the Church in Wales and, in October, an election service at St. Paul's. (A. J. MACD.)

CAPE VERDE ISLANDS: *see* PORTUGUESE OVERSEAS TERRITORIES.

CARIBBEAN COMMISSION. An advisory body set up in 1946 by France, the Netherlands, Great Britain and the United States in succession to the Anglo-American Caribbean commission to encourage co-operation among the territories in this area and facilitate research. Two subsidiary bodies are the Caribbean Research council and the West Indian conference. The conference assembles every second year and provides a forum at which representatives of the peoples themselves can discuss social and economic matters. The commission maintains a secretariat at Port of Spain, Trinidad, and meets twice a year.

The commission's 12th meeting was held in Barbados in May 1951, and the 13th at St. Croix, Virgin Islands, in October. The commission continued publication, in English and French, of its *Monthly Information Bulletin* and of *Caribbean Economic Review*. New publications included the first issues of *Current Caribbean Bibliography* and *Caribbean Statistical Digest* and a study of current housing problems in the Caribbean.

In addition to various meetings of committees of the Research council, the commission arranged several technical conferences. These included one on rural co-operatives, Caribbean, sponsored jointly with the Food and Agriculture organization of the United Nations, and the first meeting of the Eastern Hurricane sub-commission of Regional Association IV of the World Meteorological organization. While continuing to co-operate on requests for technical assistance from national and international agencies, the commission itself found occasion to extend help directly to several territories. (P. H.-M.)

CAROLINE ISLANDS: *see* PACIFIC ISLANDS, U.S.; TRUST TERRITORIES.

CARTOGRAPHY. In the preparation of projections for small-scale maps, such as those used in atlases, the earth is generally assumed to be a sphere; but in order to obtain the best results with larger-scale maps it is necessary to take into account, as accurately as possible, the figure of the earth. To determine this, measurements of the highest possible order of accuracy are made of certain selected arcs of meridians of longitude and parallels of latitude. Soon after his appointment as H.M. astronomer at the Cape observatory in 1879, Sir David Gill began to advocate such a measurement of the 30th meridian from the coast of South Africa to the Mediterranean near Cairo. By 1951 the

triangulation for this arc had been done except for a very difficult stretch approximately from lat. 1°N. to lat. 10°N. in Uganda and the Anglo-Egyptian Sudan. The calculations for the section south of the equator were completed, and it was then available for use by the survey authorities of the various adjacent territories. It was likely to be at least ten years before the entire arc could be completed. It was not expected that it would be possible to carry triangulation across the southern Sudan, and the final link would have to be made by traversing.

Permanent headquarters for the Old World division of the World Land Use survey were established in London and offers of collaboration came from many parts of the world. Pilot surveys began in the Gold Coast, Nigeria, Ceylon, Singapore, Canada and Switzerland. It was found that a great deal of the work could be done from air photographs and a detailed map of a small part of Nyasaland was prepared by this means and sent for checking on the ground. Much information could also be obtained from standard topographical maps; and revenue surveys and other local government records were found to be of great value, particularly in certain countries of south and southeast Asia.

The Shoran triangulation net in Saskatchewan and Manitoba was successfully concluded. Final calculations showed that the fixing of a point did not err by more than 25 ft. over a distance of 1,100 mi., giving an accuracy to about 1 part in 60,000 for this radar method. Experiments were also conducted to discover its suitability for use in Australia.

The British Directorate of Colonial Surveys continued to expand and added contours to many of its preliminary plots, which had previously shown only plan detail, such as settlement, communications, vegetation, cultivation, etc. The help of private air survey firms was called in, so that the entire burden of photography no longer devolved on the R.A.F.

Reduction and generalization of the new 1:25,000 map of Belgium, publication of which began in 1950, was started, to provide a map on a scale of 1:50,000. The smaller scale was intended mainly for military use.

The first part of an atlas of the province of Lower Austria was published. It showed agricultural distributions in considerable detail, and also some industrial distributions and the morphology and natural regions of the province. It was intended that later parts should contain maps of climate, geology, population and other phenomena.

Plates 2 and 3 of the *Atlas of Distribution of Diseases* (American Geographical society, New York) were published, and showed the distribution in space and time of cholera and malaria.

In Britain a new atlas, *The Oxford Atlas* (Oxford University Press, 1951), was published and became the centre of a great deal of controversy. It was, eventually, fairly generally agreed that the design as a whole was good, but that a number of rather conspicuous minor errors would require correction in a later edition. The Ordnance survey 1:25,000 map was completed for England except for part of Northumberland and a few sheets in the Lake district. In Scotland and Wales, the lowlands and more thickly populated parts were covered. A map of *Ancient Britain* (Ordnance survey, 1951) showed the sites of major visible antiquities older than A.D. 1066.

(A. M. F.)

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CASEY, RICHARD GARDINER, Australian statesman (b. Brisbane, Aug. 29, 1890), was educated at Melbourne Church of England grammar school, at Melbourne university and at Trinity college, Cambridge. He served in Gallipoli and in France in World War I, receiving the D.S.O. and the M.C. From 1924-31 he was liaison officer between the Australian government and the Foreign Office. He was elected to the House of Representatives for Corio, Victoria, in 1931. He was assistant federal treasurer from 1933 until 1935 when he became treasurer. He remained in this post until 1939. He was minister for supply and development until Jan. 1940 when he became the first Australian minister to the United States. He was appointed by Winston Churchill as minister of state in the middle east with a seat in the war cabinet in 1942. He was made a companion of honour in 1944 and in the same year became governor of Bengal, the first governor in the British empire to be chosen from outside Great Britain. He retired from this office in 1946 and returned to Australia. He was elected to the House of Representatives in 1949 for La Trobe division, Victoria, and in Dec. 1949 became minister of supply and development until 1950 when he became minister of national development in R. G. Menzies' coalition government. On April 26, 1951, he succeeded P. C. Spender as minister for external affairs. On July 20 he left Australia for a tour of Asia, visiting Jakarta, Singapore, Saigon, Bangkok, Hong Kong, Manila, and also Japan and Korea, returning to Australia, Aug. 22. He left for Europe on Oct. 21 and visited Singapore, Rangoon, New Delhi, Karachi, Cairo and Rome before arriving in Paris for the United Nations general assembly. He arrived in London, Nov. 21, for discussions with British ministers. He addressed members of both houses of parliament at Westminster on Nov. 28 and later visited the United States and Canada. He returned to Australia on Dec. 19.

CATTLE: *see* LIVESTOCK.

CELLULOSE PRODUCTS: *see* PLASTICS INDUSTRY; RAYON AND SYNTHETIC FIBRES.

CENSUS: *see* VITAL STATISTICS.

CENTENARIES. The main centennial celebrations in Great Britain in 1951 commemorated the Great Exhibition of 1851. (*See* FESTIVAL OF BRITAIN 1951.)

Ceremonies were held in Worcester and in London to mark the 300th anniversary of the Battle of Worcester, when Oliver Cromwell defeated the last Royalist attack. On Sept. 3, 1951, Isaac Foot, president of the Cromwell association, unveiled a plaque at Worcester, and a service was held by Cromwell's statue at Westminster. Four days later, at Boscobel, near Wolverhampton, over 1,200 people gathered to celebrate the escape after the Battle of Worcester of Charles II who had hidden in an oak tree. The duchy of Lancaster was created a county palatine on March 6, 1351, when Edward III made Henry of Lancaster the first Duke of Lancaster. Higham Ferrers, Northamptonshire, celebrated in December the 700th anniversary of its grant of a borough charter.

Many London centenaries were noted during 1951. The Society of Antiquaries of London celebrated the 200th anniversary of the grant of its charter by George II. It was on May 24, 1851, that the Public Record office was opened on a small site in Chancery lane, London. Hay's wharf recorded in 1951 the 300th anniversary of its founding by Alexander Hay. The year 1951 was also the centenary of the first shoeblacks in London.

The Honourable Society of Cymmodorion was founded in Sept. 1751 for the promotion of the study, history, practice and development of literature, the arts and science in so far as they were of special interest to the Welsh people. In Dec. 1951 the society was granted a royal charter, which was presented by Princess Elizabeth.

An exhibition of paintings by J. M. W. Turner was opened at the Tate gallery, London, to record the centenary of his death. In 1651 *Leviathan*, by Thomas Hobbes, and, 100 years later, *Elegy in a Country Churchyard*, by Thomas Gray, were published.

In the field of education two British universities celebrated anniversaries of their foundation. In January the University of Glasgow celebrated its creation on Jan. 7, 1451, by a bull of Pope Nicholas V. The university was the fourth in seniority of British universities; Oxford, Cambridge and St. Andrews being founded before 1451. An impressive part of the celebrations was the carrying of lighted torches by a team of runners, from Bedrule, the birth-place of Bishop William Turnbull, the founder of the university, to Glasgow. In May, Manchester university celebrated the centenary of the founding of Owens college in 1851.

In the United States, celebrations were held to mark the bicentenary of Benjamin Franklin's founding of the University of Pennsylvania library. The University of San Marcos in Lima, Peru, and the University of Mexico both celebrated their fourth centenaries. Emperor Charles V signed the charter of the University of San Marcos on May 12, 1551, and that of the university of Mexico on Sept. 21, 1551, thus creating in the same year the first universities of South and central America.

The Duke of Gloucester attended the celebrations to mark the centenary of the founding of St. John's school, Leatherhead, which provided for the education of sons of the poorer clergy. Louth grammar school was founded in 1551; Scotch college, Victoria, Australia, was founded in 1851.

At Holy Island, or Lindisfarne, a special pilgrimage was made to commemorate the 1,300th anniversary of the death of St. Aidan, who founded his monastery there in 635.

In the press world the outstanding centenary of 1951 was that of Reuters, the British and Commonwealth news agency founded in London by Paul Julius Reuter. The *New York Times* was 100 years old on Sept. 18. Other newspaper centenaries included the *Wells Journal* and the *Cornish Telegraph*.

Paris (*q.v.*) celebrated its bimillenary in 1951. The actual year of the founding of Lutetia, from which Paris grew, could not be fixed with any certainty. Kristiansand, Norway, recorded its tercentenary and Zürich, Switzerland, celebrated the 600th anniversary of the city's joining of the Swiss confederation. In Greece, celebrations were held to mark the 1,900th anniversary of the arrival of St. Paul in Greece.

Other anniversaries recorded in 1951 included: the founding of the Bergen shipping line, 1851; the first standard-gauge railway in South America, 1851; the birth of Isabella of Castille, April 22, 1451; the beginning of the Canadian postal administration, 1851; the first British-American yacht races at Cowes, 1851; the founding of the Young Men's Christian association in the United States, 1851; the founding of the Geological Survey of India, 1851; the founding of the Marienkirche at Lübeck, 1251; and the birth of the Persian philosopher Avicenna in the Mohammedan year 370 (according to the Mohammedan hegira, part of A.D. 1951 coincided with the year 1370).

See H. B. Charlton, *Portrait of a University, 1851-1951* (Manchester, 1951); Sir Roderick Jones, *A Life in Reuters* (London, 1951).

CEREALS: *see* GRAIN CROPS; WHEAT.

CEYLON. Self-governing member of the Commonwealth of Nations, lying S.E. off the southern extremity of India. Area: 25,322 sq.mi. Pop.: (1946 census) 6,693,945; (mid-1950 est.) 7,500,000. Language: mainly Sinhalese (69%) and Tamil (21%). Religion: Buddhist (61%), Hindu (22%), Moslem (9%) and Christian, mainly Roman Catholic, (7%). Chief towns (pop., 1946 census): Colombo (cap., 362,000); Jaffna (63,000); Dehiwala-Mt. Lavinia (56,000); Kandy (52,000). Governor general, Lord Soulbury; prime minister, Don Stephen Senanayake.

History. The Port of Colombo Administration act, which came into force on Jan. 1, 1951, gave the Colombo Port commission a Ceylonese majority among the non-official members for the first time. The increase in the number of Ceylonese employed in commerce and industry engaged the government's attention. A. E. Goonesinha, minister in charge of what was termed "Ceylonization," told the House of Representatives that more Ceylonese should be employed in the higher posts on estates and in commercial firms and banking institutions. The planting industry was sympathetic but contended that many years of practical experience were required before proficiency in all branches of planting was reached. The criterion should be efficiency, not nationality. The percentage of Ceylonese superintendents to Europeans in the planting industry within the last 12 years had increased from 10% to 19%, and Ceylonese assistant superintendents to Europeans from 10% to 40%.

The budget presented on July 13 showed an estimated revenue for 1951-52 of Rs. 971 million and expenditure Rs. 1,244 million. Of this expenditure Rs. 910 million was to be provided from the consolidated fund and the balance, Rs. 330 million, from the loan fund. The budget was the largest in the history of Ceylon. The main items of revenue were estimated to be: customs Rs. 553 million; income tax, estate duty and excess profits tax Rs. 202 million; railways Rs. 65 million; excise and salt Rs. 46 million. The chief items of expenditure were estimated to be: food and co-operative undertakings Rs. 176 million; health and local government Rs. 131 million; education Rs. 140 million; agriculture and lands Rs. 79 million; labour and social services Rs. 24 million. The total expenditure on defence was estimated at Rs. 22 million, as against Rs. 9 million for 1950-51.

The budget provided for an increase in the profits tax from 20% to 25%, and for increases in income tax on incomes of over Rs. 20,000 a year, ranging from 22% to 24% in the Rs. 20,000 income group and from 66% to 76% at the other end of the scale. Increased family allowances were granted to the middle and lower income groups. The tax payable by resident companies was increased from 28% to 38%, and by non-resident companies from 24% to 36%. There was a reduction of import duties on certain consumer goods and on capital goods such as motor vehicles. A sliding scale for export duties on rubber and coconuts took effect from Sept. 10. Reliefs to industry, including exemption from taxation for the first three years on investment in government-sponsored corporations and the taxation only on profits exceeding 5% for the first three years on defined industrial undertakings, started after April 1, 1951. Exchange controls were relaxed from Sept. 19, and travel rations increased.

A trade agreement between Ceylon and Pakistan was signed in Karachi on Sept. 14, coming into force retrospectively from July 1, 1951. From Pakistan Ceylon was to receive foodstuffs, bone meal, manure, ash and sulphuric acid. Ceylon was to supply Pakistan mainly with copra and coconut oil. On June 9 the prime minister informed a deputation of Ceylonese rubber producers that Ceylon would continue to be a free market for all buyers. This emphasized Ceylon's decision not to cut off supplies of rubber to China, a decision which was recognized, despite certain criticisms, as in conformity with Ceylon's economic requirements. Radio Ceylon was supplied with radio equipment in return for facilities to broadcast "Voice of America" programmes as a result of an agreement concluded with the United States government on May 14.

Don Stephen Senanayake attended the Conference of Commonwealth Prime Ministers in London in January. In October he paid a courtesy visit to Australia and New Zealand, stopping for a few days at Rangoon, where he was the guest of the Burmese government, and in Singapore, where he was the guest of the commissioner general for southeast Asia, Malcolm Macdonald. On July 12 S.W.R.D. Bandaranaike, minister of health, resigned owing to a difference of opinion with the cabinet. The prime minister took over the health portfolio pending further arrangements. J. R. Jayewardene, minister of finance, led the Ceylon delegation at the Japanese peace treaty conference at San Francisco, and signed the treaty on behalf of Ceylon.

On his way to London, the Burmese ambassador designate to the United Kingdom, U Ka Si, leading a party of Burmese pilgrims to the Temple of the Sacred Tooth at Kandy, presented to the temple a golden casket valued at Rs. 150,000, and among other gifts by the pilgrims was a large quantity of teak for the construction of new buildings at the temple. (*See* also COLOMBO PLAN.) (E. HD.)

Education. Schools (1949): Sinhalese and Tamil government and assisted 5,610, pupils 1,010,184; central and English 631, pupils 237,678. Technical college (1949-50): students 1,969. Teachers' training colleges (1949): 20; students, primary 1,653, secondary 222, post graduate 68. University (1949-50): students 1,850.

Agriculture. Main crops ('000 metric tons): tea (1949; 1950 in brackets) 135·4 (138·9); rice, paddy (1948; 1949 in brackets) 310 (295); cassava (1948) 150; sweet potatoes and yams (1948) 52; millet (1948) 10. Copra exports ('000 metric tons, 1950; 1951 est.): 21 (20). Livestock ('000 head, Dec. 1949): cattle 1,249; sheep 57; pigs 104; buffaloes (Dec. 1948) 658; goats (May 1950) 370. Coconut oil exports ('000 metric tons, 1950; 1951 est. in brackets): 77 (112).

Industry. Fuel and power: manufactured gas ('000 cu. m., 1950; 1951, six months, in brackets) 9,000 (4,590); electricity (million kwh., 1950) 81. Raw materials (metric tons): rubber (1950; 1951, six months, in brackets) 115,302 (49,270); graphite (exports, 1949) 12,434; salt (1949) 28,775.

Foreign Trade. (Million rupees, 1950; 1951, six months, in brackets): imports 1,164 (773); exports 1,560 (1,028). Main sources of imports (1950): U.K. 20%; Burma 20%; India 16%; Australia 7%. Main destinations of domestic exports: U.K. 24%; U.S. 22%; Australia 8%; Canada 6%. Main imports: rice, cotton piece-goods and sugar. Main exports: tea, rubber and coconut oil.

Transport and Communications. Roads (1949): 6,535 mi. Licensed motor vehicles (Dec. 1950): cars 32,500; commercial 14,800. Railways (1949): 896 mi.; passengers (1949) 26·7 million; goods ('000 metric tons, 1949-50) 1,350. Air transport (1950): passenger-mi. 6,152,000; cargo, ton-mi. 73,000. Telephones (1949): 14,884. Wireless licences (1950): 28,000

Finance and Banking. (Million rupees) Budget: (1950-51 est.) revenue 794, expenditure 704; (1951-52 est.) revenue 896, expenditure 886. Gross national debt (Sept. 1949; Sept. 1950 in brackets): 549·1 (561·4). Currency circulation (Aug. 1950; Aug. 1951 in brackets): 274 (362). Bank deposits (July 1950; July 1951 in brackets): 458 (637). Monetary unit: *rupee*, with an exchange rate of Rs. 13·33 to the pound and Rs. 4·775 to the U.S. dollar.

CHAD: *see* FRENCH EQUATORIAL AFRICA.

CHAMBERS OF COMMERCE. The amount of draft legislation affecting industry and commerce laid before parliament in 1951 was less than during the immediately preceding years, and not so controversial, but the study of parliamentary bills remained a strong feature of chambers' work. As usual, a letter was sent to the chancellor of the exchequer early in the year, through the Association of British Chambers of Commerce, making recommendations which it was hoped he would take into account in framing his budget. Later, the Finance bill, which contained a number of contentious provisions, was the subject of representations. A draft bill drawn up to codify over 200 acts dealing with customs and excise matters received consideration. In this connection a committee was set up, under the chairmanship of Lord Kennet, to receive comments from representative organizations; the A.B.C.C. was represented on this committee.

Much consideration was given, both by the A.B.C.C. and its constituent chambers, to rating matters. The association studied the penal effects of the provisions of the 1940 Finance act relating to estate duty and private companies, and considerable thought was given to the problem of bringing the taxing code into line with current needs. The first Millard Tucker committee considered the problem of the taxation of trading profits and a second Millard Tucker committee reviewed the law governing the treatment, for taxation purposes, of superannuation funds and other pension arrangements. A Royal Commission on Taxation was charged to review the whole field of income tax and profits tax. The A.B.C.C. submitted reports to the second Millard Tucker committee and to the royal commission. It considered a draft income tax consolidation bill. Representations were made to the chancellor on the form of government accounts. Representations were also made on behalf of industry and commerce regarding postal services, with special reference to charges and service standards.

Transport matters received extensive attention. These included the question of the integration of publicly owned transport services, the formulation of winter transport policy having regard to current railway difficulties of staff shortages and inadequate capital development and the formulation of new charges schemes for both passenger and freight services. Representatives were nominated to serve on transport users' consultative committees set up under the Transport act of 1947. Matters relating to fuel and power were the subject of study and representations. The A.B.C.C. appointed a committee of experts to consider the urgent question of electricity supplies and its published memorandum *Shedding the Load* was acknowledged both by the government and the public as a constructive approach to a vital problem. The A.B.C.C. also engaged in negotiations on a national price structure for coal.

Discussions continued with the Board of Trade in advance of bilateral trade negotiations with foreign countries and the A.B.C.C. continued to play its part as a member of the Consultative Committee for Industry, a body meeting under the chairmanship of the secretary for overseas trade. The president of the A.B.C.C., A. H. S. Hinchliffe, and the secretary general undertook a goodwill visit to Canada and the United States at the invitation of the national chambers of commerce in those countries, and the chairman of the overseas committee of the A.B.C.C. attended, as an adviser to H.M. government representatives, a trade promotion conference held in Singapore under the auspices of the United Nations Economic Commission for Asia and the Far East. The association was represented by its president and a vice president at a meeting of the Anglo-Canadian Trade committee held in Toronto.

The three-year period allowed to local planning authorities to present their development plans expired on July 1 and most authorities found it necessary to apply to the minister for extensions. Local chambers were consulted on matters affecting the local interests of industry and commerce, generally with a happy result. Membership of the chambers of commerce affiliated to the A.B.C.C. totalled 62,432 on Jan. 1, 1951; this was a record. (A. R. K.)

International. In 1951 the International Chamber of Commerce held its 13th biennial congress at Lisbon attended by representatives of 27 countries and 36 international organizations. The central theme of the congress was a detailed survey of the rearmament problem in relation to economic development. The chamber urged the use of the rearmament programme as a means for strengthening economic co-operation, and stress was also laid on measures to forestall the distortions that production and trade for rearmament purposes would make in the normal trends of economic development.

The chamber continued to play an active part in the deliberations of the Economic and Social council of the United Nations and at the meetings of other international bodies such as the Inland Transport committee of the Economic Commission for Europe and the revision conferences of the Berne conventions relating to the carriage of goods and passengers by rail. It advocated practical measures for the liberalization of international trade and its recommendations were given close attention by the technical commissions of the United Nations Economic and Social council and the contracting parties to the General Agreement on Tariffs and Trade.

Measures recommended by the chamber included (i) the acceptance of the exporter's invoice as the basis for customs valuation under the Brussels convention; (ii) the standardization of banking and commercial practice by the adoption of uniform international codes dealing with such matters as commercial documentary credits and trade terms; (iii) the simplification of formalities and the reduction of national barriers in sea and air transport; and (iv) the encouragement of foreign investment through governmental guarantees by capital exporting countries. (C. G. FE.)

The following I.C.C. reports were published during the year: *Governmental Guarantees to Investors; Unilateral Relief from Double Taxation; International Postage Service; Profits Taxes and Depreciation of Money; International Transport of Perishable Foodstuffs; International Railway Transport; Uniform Customs and Practice for Commercial Documentary Credits; International Trade and Governmental Regulations; Distribution Censuses; Economic Co-operation in a Rearming World; Coordination of Transport; Better Protection of Industrial Property Rights; Standard Forms for the opening of Documentary Credits; International Commercial Arbitration and Freedom of Contract; Resolutions of the Lisbon Congress.*

CHANNEL ISLANDS. Britain's sole remaining possessions of the Duchy of Normandy, consisting of: Jersey, pop. 57,296 (1951 census); Guernsey, Alderney, Sark and Herm, pop. 45,474 (1951 census). Total area: 75 sq.mi. Part of the United Kingdom, but administered independently. Capitals: Jersey, St. Helier; Guernsey, St. Peter Port. Lieut. governor of Jersey, Lieut. General Sir Arthur Grasett; Lieut. governor of Guernsey and the lesser islands, Lieut. General Sir Philip Neame, V.C.

History. In spite of bad growing conditions at planting time Jersey's 1951 potato crop yielded 40,000 tons valued at £1½ million. Tomatoes suffered on both Jersey and Guernsey. The area set outdoors on Jersey was 25% less than in 1950. The yield of Guernsey's glasshouse-grown tomatoes was reduced by about 100,000 baskets of 12 lb. each from the 1950 crop of more than 7 million. The disposal of surplus milk was also a problem on Jersey, where £60,000 was lost in processing butter. Jersey revived its prewar attraction, the battle of flowers. This island also adopted a modified scheme of national insurance against much local opposition.

Guernsey was warned by the president of its Finance committee, the Rev. Sir John Leale, that the greatest measure of economy must be exercised if the island was not to run into grave financial difficulties. Consequently, such schemes as new schools, a bus terminus and an incinerator to serve the entire island were temporarily shelved. A scheme for national insurance similar to Jersey's was, however, adopted in spite of great opposition. Following three years of control of its affairs by Guernsey in a period of financial difficulty, Alderney declared in May that it had now "found its feet."

Guernsey was represented at the Festival of Britain by a team of seven first-grade island cows. Sark was the location of the film *Appointment with Venus.* To help the producers of the film an exception was made to the ancient local law forbidding motor traffic on the roads. Sark's budget showed receipts from local tax on liquor and tobacco of £9,000 and an estimated expense for the entire needs of the island for the coming year of £5,599.

See Basil C. de Guérin, *The Norman Isles* (revised ed., 1951); G. R. Balleine, *The Bailiwick of Jersey* (London, 1951).

(B. C. DE G.; H. N. M.)

CHEMISTRY. Free Radical Reactions. During 1951 considerable progress was made in the quantitative study of simple free radical reactions. The re-combination of methyl radicals was investigated by R. Gomer and G. B. Kistiakowsky (see *J. Chem. Physics*, 19:85, New York, 1951) by applying the rotating-sector technique to the decomposition of acetone and mercury dimethyl. They obtained a rate constant of $4{\cdot}5 \times 10^{13}$ sec.$^{-1}$cm.^{3}mole^{-1}, and an activation energy of 0±700 cal./mole. It had been shown previously (*see* A. F. Trotman-Dickenson and E. W. R. Steacie in *J. Chem. Physics*, 18 : 1097, New York, 1950) that increase of acetone pressure had little effect on the rate of methyl radical re-combination, so it could now be concluded that these radicals combine at almost every collision without the necessity of a third body to remove energy from the system. K. J. Ivin and E. W. R. Steacie (see *Proc. Roy. Soc.*, A208: 25, London, 1951) investigated the disproportionation and combination of ethyl radicals in the photolysis of mercury diethyl. They showed that the re-combination reaction has an activation energy which is probably less than 650 cal./mole, and that the energy of activation for the disproportionation (to give ethane and ethylene) exceeded that for re-combination by 800±200 cal./mole.

A. F. Trotman-Dickenson, E. W. R. Steacie *et al.* (see *J. Chem. Physics*, 19:169, 172, 329, New York, 1951) investigated the reactions of methyl radicals with paraffins, olefins, cyclic hydrocarbons and a number of other compounds. The activation energies of these reactions were determined on the assumption that methyl radical-methyl radical re-combination requires no activation energy, and were shown to be in the range 7-10 Kcal./mole. It was found that the activation energy for the abstraction of tertiary hydrogen atoms from paraffins was lower than that for secondary hydrogen atoms which, in turn, was lower than that for primary. The steric factor for all these hydrogen abstraction reactions was shown to be of the order 10^{-3} to 10^{-4}. The suggestion of normal steric factors (*i.e.*, greater than 10^{-2}) made by M. G. Evans and M. Szwarc (*Trans. Faraday Soc.*, 45:940, London, 1949) therefore held good in methyl radical re-combination, but did not appear to apply to reactions between methyl radicals and saturated molecules.

Spectroscopy. Recent advances in experimental techniques, particularly in the measurement of small amounts of radiation, led to rapid progress in the knowledge of molecular vibrational and rotational energy levels. Micro-wave spectra (of wavelengths of from a few millimetres to a few centimetres) were successfully used in the study of the rotational energy levels of some simple molecules (*e.g.*, carbon monoxide, phosphorus trichloride and nitrous oxide) and the great accuracy and resolving power of the method clearly demonstrated. The results were applied to the accurate estimation of dipole moments (*e.g.*, of arsenic trifluoride, nitrous oxide and 1:1:1 trifluoroethane; *see* R. G. Shulman, B. P. Dailey and C. H. Townes in *Physic. Rev.*, 78:145, New York, 1950) and to the determination of potential energy barriers hindering free rotation about single bonds. Thus a value of 2,600 cal./mole was put forward for the barrier restricting the rotation of the methyl group in acetaldehyde (by Baird, *see* E. B. Wilson, *Faraday Soc. Discussion on Spectroscopy and Molecular Structure*, 112, London, 1950), and this determination was free from some of the uncertainties frequently associated with the sizes of potential barriers obtained from third law thermodynamic data.

Micro-wave data have a high precision, but recent work on the rotation-vibration spectra of some simple polyatomic molecules (*e.g.*, nitrous oxide; *see* G. Herzberg and L. Herzberg in *J. Chem. Physics*, 18:1551, New York, 1950) had shown that infra-red measurements could be obtained with almost comparable accuracy. A very long absorbing path was used to investigate the spectrum of nitrous oxide above 8,500 cm.$^{-1}$ and to determine accurate molecular constants such as moments of inertia and internuclear distances.

Measurements of infra-red and Raman spectra of many simple molecules led to convincing assignments of their vibrational frequencies. For instance, G. Herzberg and C. Reid (see *Faraday Soc. Discussion on Spectroscopy and Molecular Structure*, 92, London, 1950) made a detailed study of the infra-red and Raman spectra of cyanic acid and made a vibrational analysis in accordance with their data. There was still disagreement, however, in the assignment of some spectroscopically simple molecules, and D. H. Rank, B. D. Saksena and E. R. Shull (*ibid.*, 187) showed that the vibration frequencies of neopentane were still not definitely settled.

The study of some of the more complex organic molecules including hydrocarbons, alkyl halides and alcohols was simplified by a technique introduced by J. K. Brown and N. Sheppard. They demonstrated for example that the careful crystallization of 2:3 dimethylbutane caused a considerable simplification in its spectrum (see *J. Chem. Physics*, 19:976, New York, 1951) and showed that this was because of the presence in the lattice of only one isomer having a centre of symmetry. In the liquid state a number of extra absorptions appeared because of the existence of a second rotational isomer; the presence of these bands formerly made the vibrational assignment of this and other molecules very difficult. The energy difference between rotational isomers was obtained from the variation with temperature of the relative intensity of two vibrational bands occurring in the liquid substance, one belonging to each of the rotational isomers. This technique was first employed by A. Langseth and H. J. Bernstein (see *J. Chem. Physics*, 8:410, New York, 1940), but it was only after 1948 that it was exploited, particularly by D. H. Rank, N. Sheppard and G. J. Szasz.

Applications of Radioactive Tracer Methods. Two applications of radioactive tracer methods were made to the estimation of very small concentrations of materials. The vapour pressure of a solid down to pressures of less than 0·001 mm. of mercury can be accurately measured by labelling it with a radioactive isotope of one of the constituent elements. A calibration must be made at a higher temperature where the vapour pressure is measureable by some alternative means. The method was developed by F. S. Dainton and H. M. Kimberley (see *Trans. Faraday Soc.*, 46:912, London, 1950) and applied to the determination of the vapour pressure of white phosphorus.

The second application permitted the measurement of the adsorption of surface-active agents at a solution-air interface. The radioactive isotope of sulphur ^{35}S emits a soft beta-radiation and by incorporating it in, for instance, di-n-octyl sodium sulphosuccinate the concentration of this surface-active agent at a solution-air interface could be obtained (*see* D. J. Selley, A. J. Weith, Jr., A. A. Argyle and J. K. Dixon in *Proc. Roy. Soc.*, A203:42, London, 1950). The method was used to follow the extent of adsorption under various conditions, and opened up the possibility of studying the kinetics of such adsorption processes.

Theoretical Chemistry. Considerable progress was made in the understanding of various types of chemical reactivity. The greatest advances continued to be in the field of aromatic and conjugated molecules where π-electrons confer properties which are by comparison readily amenable to computation. C. A. Coulson, H. C. Longuet-Higgins *et al.* discussed the reactivities of many organic molecules in a semi-quantitative fashion, and were particularly successful with polycyclic hydrocarbons containing no odd-membered unsaturated rings. M. J. S. Dewar's predictions concerning the reactivity of tropolone towards electrophilic substitution were shown to be correct. In general, the theories of chemical reactivity merely resulted in an understanding of data already produced by the experimental chemist, but valuable predictions of a semi-quantitative type were also made. (K. E. RL.)

Steroids. The most interesting event of the year was the total synthesis of the steroid molecule, reported almost simultaneously by R. B. Woodward at Harvard university and by Sir R. Robinson at Oxford. The Harvard group started their synthesis at ring C with 2-methyl-5-methoxybenzoquinone, laid the foundations for ring D by a Diels-Alder addition of butadiene, and then built up rings B and A. The real brilliance of the work lay in the building up of the steroid molecule asymmetric carbon by asymmetric carbon, the reactions employed being devised to yield the desired steric configuration. Confirmation of the correctness of these predictions was only obtained after the full tetracyclic system had been built up, when direct comparison with a molecule derived from a natural steroid first became possible (see *J. Am. Chem. Soc.*, 73:2403, 3547, New York, 1951). This intermediate was subsequently converted to cholesterol and to cortisone (*ibid.*, 73:3548, 4057, New York, 1951).

The approach of Sir R. Robinson and his collaborators, building up the molecule from ring A, led to the synthesis of epiandrosterone, from which most steroids may be derived (see *Chem. and Ind.*, 389, London, 1951).

Sir R. Robinson and C. A. Friedmann (see *Chem. and Ind.*, 777, London, 1951) reported progress in what might be developed into a satisfactory method for the commercial production of cortisone by total synthesis. Improvements were made in the partial syntheses of cortisone, and the search for suitable starting materials in plants and micro-organisms continued.

Auxins. A considerable body of opinion unfavourable to the structures proposed by F. Kögl and his collaborators for auxins *a* and *b* was developing (*e.g.*, *see* H. Linser in *Planta*, Berlin and Heidelberg, 1951). Efforts by Kögl to repeat the isolation of auxin *a* or auxin *b* had so far been unsuccessful. The simple cyclopentenyl analogue of auxin *b* was independently synthesized by Kögl and de Bruin (see *Rec. Trav. Chim.*, 69: 729, Amsterdam, 1950) and by E. R. H. Jones *et al.* (*J. Chem. Soc.*, 3634, London, 1950). The English workers pointed out certain important differences between the chemical properties of the synthetic compound and those reported for auxin *b* itself.

Vitamin A_2. The synthesis of this vitamin was accomplished (*see* E. R. H. Jones *et al.* in *Chem. and Ind.*, 49, London, 1951); its structure was thus clearly established as 3-dehydrovitamin A_1.

Sugars. The first *in vitro* total synthesis of the DL-pentoses was achieved by L. Hough and J. K. N. Jones (see *J. Chem. Soc.*, 1122, London, 1951). They obtained crystalline derivatives of DL-ribose, DL-lyxose, DL-xylose, and DL-arabinose by partition chromatography on a powdered cellulose column of a mixture produced by the condensation of dihydroxyacetone and glycolic aldehyde in alkaline solution. Hydrolysis of the DL-arabinose benzoylhydrazone yielded crystalline DL-arabinose: since DL-arabinose may be resolved via its menthylphenyl hydrazone (*see* C. Neuberg, *Ber. D. Chem. Ges.*, 1905), this constituted a total synthesis of D-arabinose and L-arabinose. This synthesis furthermore led to interesting speculations on the mechanism of the synthesis of sugars in the plant.

An attractive and novel reduction in the sugars field was reported by M. L. Wolfrom and H. B. Wood (*J. Am. Chem. Soc.*, 73:2933, New York, 1951). A sugar lactone was reduced by $NaBH_4$ in aqueous solution to the corresponding aldose. Generally speaking, $NaBH_4$, sodium borohydride, is a very useful, if expensive, reagent, especially in the sugars field; it is used in aqueous solution, reduces aldehydes and ketones to the corresponding alcohols and does not affect the carboxyl group or ethylenic linkages.

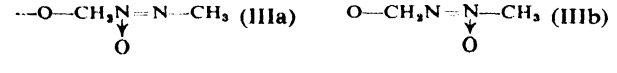
Natural Products. A notable feature of the recent results of organic research had been the increase in the number of "unnatural" products isolated from plants. Hiptagenic acid isolated from the bark of *Hiptage mandoblata* was shown to be β-nitropropionic acid. This was the first and, up to the end of 1951, the only aliphatic nitro compound to be found in nature (*see* C. L. Carter, W. J. McChesney in *Nature*, 164: 575, London, 1949). The isolation of an ester containing two acetylenic and two ethylenic bonds in conjugation (Matricaria ester) was followed by the isolation of an even more highly unsaturated ester, dehydromatricaria ester (I). (*See* N. A. Sörensen and K. Stavholt in *Acta Chem. Scand.*, 4: 1567, Copenhagen, 1950).

$$CH_3CH{=}CH{-}C{\equiv}C{-}C{\equiv}C{-}C{\equiv}C{-}CO_2CH_3 \quad (I)$$

As novel and as unexpected was the formulation by the same authors of a secondary component of *Matricaria inodora* flowers as the cumulene represented in diagram II. (*Acta Chem. Scand.*, 4: 1080, 1950).

$$CH_3{-}CH_2{-}CH_2{-}CH_2{-}CH_2{-}CH{=}C{=}C{=}CH{-}CO_2CH_3 \quad (II)$$

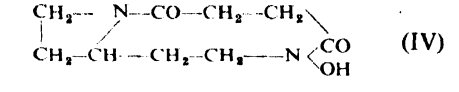
The other remarkable discovery was that of the structure of Macrozamin. This highly toxic compound, isolated from a Western Australian plant, was found to be a glycoside, the carbohydrate component of which is the disaccharide primeverose and the aglycone an entity $-C_2H_5O_2N_2$ apparently incapable of independent existence. This was eventually shown to be either IIIa or IIIb (*see* B. W. Langley, B. Lythgoe and N. V. Riggs in *J. Chem. Soc.*, 2309, London, 1951).



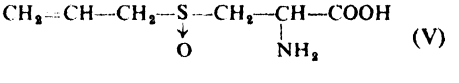
(IIIa) (IIIb)

The presence of nitrogen bound to nitrogen in a natural product again appeared to be most unnatural.

In the mould metabolite class, a worthy successor of penicillin and of chloromycetin as far as structure was concerned, was isolated by A. Stoll and his collaborators (see *Helv. Chim. Acta*, 36: 862, Basle, 1951). This compound, norcadamine, is an antibiotic and was assigned the structure shown in diagram IV. The azetidine ring and the hydroxylamide group were both newcomers in the natural products field.



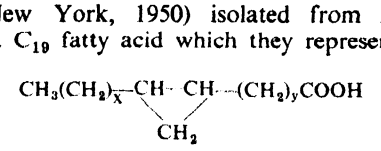
(IV)



(V)

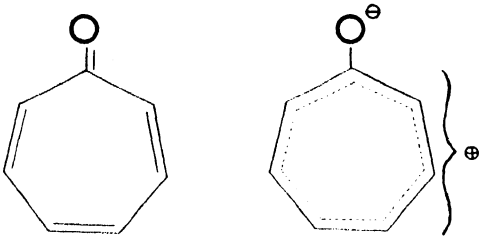
The resolution of synthetic alliin (V) into four optical isomers one of which proved to be identical with the natural product (*see* Stoll *et al.* in *Helv. Chim. Acta*, 36:481, Basle, 1951), marked the conclusion of work on the odoriferous principle of garlic (Allium) which was started in the mid-19th century. The first result of this work was the isolation of an evil-smelling sulphide of unknown structure, which was named allyl sulphide (*see* Wertheim, *Ann.*, 51:298, 1844): subsequent work revealed the structure of the allyl radical.

K. Hofmann and R. A. Lucas (see *J. Am. Chem. Soc.*, 72:4328, New York, 1950) isolated from *Lactobacillus arabinosus* a C_{19} fatty acid which they represented as:



The isolated cyclopropane ring is a remarkable feature.

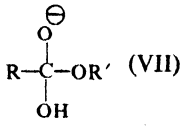
Tropone. A most interesting development in tropolone chemistry was the synthesis of tropone (*see* diagrams VIa and VIb below) reported simultaneously by H. J. Dauben and H. J. Ringold, and by F. L. Detert and W. von E. Doering (*J. Am. Chem. Soc.*, 73:876, New York, 1951). This compound was aromatic and showed but weak carbonyl reactions. Its high dipole moment and miscibility with water suggested that VIb represents its structure more closely than VIa; this was further supported by the fact that tropone formed a crystalline salt with hydrochloric acid.



(VIa) (VIb)

Synthetic Polyacetylenes. F. Bohlmann (see *Chem. Ber.*, 84: 785, Weinheim, Germany, 1951) and E. R. H. Jones and his collaborators (*Nature*, London, 1951) independently reported the synthesis of a number of dialkyl polyacetylenes. The most interesting of these compounds were dimethyl hexa-acetylene, $CH_3(C{\equiv}C)_6CH_3$, and bis(1-hydroxy-1-cyclohexyl)hexa-acetylene. Both these compounds had a molar extinction coefficient of the order of 500,000 in the 2,800-2,900Å region, by far the highest that had so far been recorded. The hexa-acetylenes were not however isolated in a pure state, for they decomposed fairly quickly at room temperature and on exposure to light. Tri-acetylene and higher polyacetylenes with a terminal—C≡CH could not be prepared; they appeared to be extremely unstable.

Reaction Mechanisms. Investigation of the detailed mechanism of well-known reactions continued with marked success, mainly because of the extensive use of labelled atoms (mass or radioactive isotopes). One example was the definite establishment of the existence of the intermediate represented in diagram VII in the alkaline hydrolysis of esters by the use of ^{18}O (*see* M. L. Bender in *J. Am. Chem. Soc.*, 73:1626, New York, 1951).



(VII)

Formic Acid. In an interesting article (in *Nature*, 167:325, London, 1951), P. Haas dispelled the last tendency that might be left of looking upon formic acid as containing the aldehyde function. The author expressed the hope that the constantly repeated mis-statement regarding the aldehyde character of formic acid might in time disappear from textbooks.

Paper Chromatography. Partial resolution of α-amino acids by paper chromatography was achieved (*see* M. Kotake *et al.* in *J. Am. Chem. Soc.*, 73:2973, New York, 1951).

The authors considered that the resolution was due at least in part to the asymmetric character of cellulose. (*See* also ATOMIC ENERGY; BIOCHEMISTRY.) (G. F. SM.)

See Sir Cyril Hinshellwood, *The Structure of Physical Chemistry* (Oxford, 1951).

CHESS. The outstanding event of 1951 was the world championship played at Moscow between Mikhail Botwinnik, the title holder, and David Bronstein. The match was drawn (12-12) and the holder retained the title.

A new series of zonal tournaments commenced immediately afterwards in Germany. Zonal A at Bad Pyrmont was won by S. Gligoric (Yugoslavia), by one point from W. Unzicker (Western Germany). A British master, H. Golombek, occupied fifth place (five players qualify for the interzonal). Zonal B was played at Marianske Lazne and was won by L. Pachman (Czechoslovakia) by one point from L. Szabo (Hungary).

In Great Britain, 1951 opened with an undistinguished Hastings tournament won by W. Unzicker from A. O'Kelly (Belgium) and N. Rossolimo (France). Of greater interest was the Staunton Centenary (Festival) tournament played at Cheltenham, Leamington and Birmingham. First prize was won by S. Gligoric with ten points, from V. Pirc, G. Stahlberg and P. Trifunovič. An English master, F. Alexander, shared fifth prize. The British championship, at Swansea, was won by E. Klein, 1950 runner-up, from the holder, R. J. Broadbent. H. Golombek and W. Ritson-Mony shared third place. After this, a match was played in London between Great Britain and Yugoslavia on ten boards and won by Yugoslavia by $12\frac{1}{2}$-$7\frac{1}{2}$. A small tournament at Paignton was won by H. Golombek.

In the United States, both the open championship and the U.S. championship were won by a young player, Larry Evans, who finished ahead of I. Kashdan in the former event and the famous F. Reshevsky in the latter. (G. As.)

See Edward Lasker, *Modern Chess Strategy* (rev. ed., London, 1951); I. König, *Chess from Morphy to Botwinnik* (London, 1951); Gerald Abrahams, *The Chess Mind* (London, 1951).

CHILD LABOUR: *see* YOUTH EMPLOYMENT.

CHILDREN'S BOOKS. During 1951, fairy stories, original and traditional, continued to cast their spell. Children delighted in the imaginative qualities of *The Faun and the Woodcutter's Daughter* by Barbara Leonie Picard and the Chinese tales in *The Peach Blossom Forest* by Robert Gittings and Jo Manton. They found fantasy and adventure ingeniously blended in *The Dark Sailor of Youghal* by Patricia Lynch, *The Valley of Song* by Elizabeth Goudge, *Prince Caspian* by C. S. Lewis and *The Flag from the Isles* by William Croft Dickinson. They appreciated the droll Finnish humour in *Comet in Moominland* by Tove Jansson, the finely perceptive imagery in *The Mousewife* by Rumer Godden and the animal characters in *Doctor Dolittle and the Green Canary* by Hugh Lofting, who died in 1947.

English history was re-created in several stories with good characterization and interesting detail, including *Jockin the Jester* by Ursula Moray Williams and *The Gauntlet* by Ronald Welch (both 14th century), *The Wool-Pack* by Cynthia Harnett (15th century) and *The Armourer's House* by Rosemary Sutcliff (16th century). *Knave-go-by* by C. Fox Smith, *The Lintowers* by Elisabeth Kyle and *The Young Inverey* by John Niven were vigorous adventure stories with a period setting.

Among several stimulating career stories, mining was depicted with accuracy and understanding against a background of mystery in *The Whinstone Drift* by Richard Armstrong, journalism in *The Monday Story* by James Leasor and teaching in *First Year Up* by D. W. Hackman.

Boys read about the wanderings of a poor lad and his cat in *The Cat Did It* by Brian Fairfax-Lucy, day-school life in *Barry's Exciting Year* by A. Stephen Tring and country pursuits in *Rough Water* by Roland Pertwee. They found humour in *Timpetill* by Manfred Michael and stark realism in *The Long Arctic Night* by Kurt Schmeltzer, both originally published in Switzerland. Adventure and suspense at sea was the theme of *Thunder in the Bay* by Adrian Seligman. Modern science provided thrills in *Sunday Adventure* by John Pudney.

Girls appreciated the building up of atmosphere in *The Dark Lantern* by Viola Bayley, the happy family relationships and Scottish background of *The House at Kilmartin* by Ann Bridge and the vicissitudes of an early Victorian theatrical touring company in *Family Playbill* by Pamela Brown. They enjoyed the sensitive study of a child artist in *Picture Come True* by Priscilla Warner and the activities of amateur detectives in *The Jennifer Jigsaw* by Shirley and John Newton Chance. Gardening formed a satisfying background to *The Dog-Leg Garden* by Dorothea Street and skating was featured in *White Boots* by Noel Streatfeild. *Four Rode Home* by Primrose Cumming and *Cargo of Horses* by Monica Edwards were outstanding among pony stories with human as well as equestrian interest.

Much thought and artistry went into children's picture books. Colour lithography was effectively used in Edward Ardizzone's *Tim and Charlotte*, Sergei Prokofiev's *The Story of Peter and the Wolf* and Clarke Hutton's *A Picture History of France*.

Informative books were popular and helped to satisfy curiosity on many subjects. Young children were attracted by the clear, colourful drawings and simple text of *How the First Men Lived* by Marie Neurath and J. A. Lauwerys. *Come out of Doors* by C. D. Dimsdale and *Pond Life* by Richard L. E. Ford were well-illustrated contributions to nature study. A revised edition of *The Animal's World* by Doris L. Mackinnon presented simple facts on zoology. *Flip* by Joan Wanklyn told the story of an otter. Children with a taste for travel books read *The Young Traveller in China* by C. E. Roberts and *Wall of Spears* by Mildred Cable and Francesca French. Interesting facts were assembled in *London Adventure*, a guide to London, by Margaret M. Pearson. Practical books on sports and hobbies included *The Junior Woodworker* by Charles H. Hayward, *Cooking is Exciting* by Lady Peacock and *Soccer for Boys* by F. N. S. Creek.



A drawing by Pauline Baynes, from "Prince Caspian" by C. S. Lewis (Geoffrey Bles, 1951).

Among biographical works were *Sir Walter Raleigh* by Hugh Ross Williamson, and Lord Mountevans' own story of his early career in *Happy Adventure*.

Fine poetry was represented by Eleanor Farjeon's selection of her best verse in *Silver-Sand and Snow* and drama by *Beauty and the Beast* by Nicholas Stuart Scott. Geoffrey Trease helped children to appreciate good books in his *Enjoying Books*.

Several classics appeared in attractive new editions, including *Lorna Doone*, illustrated by Lionel Edwards, and *Fairy Tales from the Arabian Nights*, illustrated by Joan Kiddell-Monroe. The Library association Carnegie medal was awarded to Elfrida Vipont for *The Lark on the Wing*. (D. D. C.)

United States. Children's picture books ranged from pastels to startling colours. The Caldecott winner, Leo Politi, reminisced in *Little Leo*, and W. Lipkind and N. Mordvinoff produced *Finders Keepers*. *Me and the Bears* by Robert Bright was appealing. Originality of plot, vigour of illustration and humour characterized *The Camel who took a Walk* by Jack Tworkov, *Polly's Oats* by Marc Simont and *Mr. T. W. Anthony Woo* by Marie H. Ets. Enjoyable stories to be read to the six to eight-year-old were *The Horse who had his Picture in the Paper* by Phyllis McGinley and the account of the New Year's mummer's parade in *Patrick and the Golden Slippers* by Katherine Milhous. This younger age also was introduced to space through *Ups and Downs* by Ethel S. Berkley and to movement in art in *What's in a Line?* by L. P. Kessler. Easy-to-read pioneer books included *Caroline and her Kettle named Maud* by Miriam E. Mason and *Broncho Charlie* by Henry V. Larom. Among nature books were Olive L. Earle's *Thunder Wings* (ruffed grouse) and R. M. McClung's *Stripe* (chipmunk).

Boys and girls of 10-12 enjoyed *The Wishing Pear* by Elizabeth Coatsworth (New Amsterdam, 1664) and the family story of *The Golden Root* by William O. Steele (Tennessee, post-Revolution). Biography and legend for this age was represented by *Andrew Jackson* by Geneviève S. Foster and *The Apple and the Arrow* (William Tell) by Mary and Conrad Buff. Humour characterized *Miss Pickerell Goes to Mars* by Ellen MacGregor and *Gertie, the Horse who Thought and Thought* by Margarite Glendinning. Stimulating to inquiring minds were *The Great Whales* by Herbert S. Zim and *Minn of the Mississippi* by H. C. Holling. Stories about children of different racial groups included *Tansy for Short* by Ruth L. Holberg (Norwegians), *The Quarry Adventure* by Lee Kingman (Finns), *Elder Brother* by Evelyn S. Lampman (Chinese) and *Carol's Side of the Street* by Lorraine Beim (Jews).

Books with an historical setting for older boys and girls ranged from prehistoric times in *Fire-Hunter* by Jim Kjelgaard, to biblical Persia in *Behold Your Queen!* by Gladys Malvern, to 14th-century England in *Three Golden Nobles* by Christine Price and to the American scene in *Unwilling Pirate* by West Lathrop (1720). There were several unusual animal stories for the mature reader, including one by a Russian-American, Nicholas Kalashnikoff, *The Defender* (a shepherd and his rams). Kenneth C. Randall wrote of hunting dogs in *Wild Hunter* while William M. Rush did an above-average story in *Wild Horses of Rainrock*. Boys kept abreast with some of the latest developments in science through *Rockets, Jets, Guided Missiles and Space Ships* by Fletcher Pratt and *Aircraft U.S.A.* by H. E. Huntington. Katherine B. Shippen's *Leif Eriksson* was a mature biography; so was *Of Courage Undaunted* by James H. Daugherty (Lewis and Clark), while younger teenagers read *America's Robert E. Lee* by H. S. Commager. (E. G.)

CHILD WELFARE. In 1951, administrative action consolidated previous legislation. The counties, to whom the child welfare services had been transferred as a result of the National Health Service act, 1948, achieved uniformity of control by appointing local medical officers of health as county assistants for the purpose of the personal health services, including the supervision of child welfare, school medical work, midwifery, health-visiting and the after care of the sick. An attempt was made to increase the number of dentists available to treat children, by the appointment of dentists to the staff of counties and county boroughs.

The effects of the National Health service were of increasing benefit to young children, for mothers realized that they no longer had to consider their purse before calling in medical attention. Before the passing of the act, national insurance only covered treatment for employed men and women. The health of the children of the country remained at a high level. The infantile mortality rate for England and Wales, which in 1939 had been 51, dropped to 34 in 1948, 32 in 1949 and 30 in 1950. The incidence of serious infectious disease was low although notification of measles and whooping cough was higher than in 1950. There were fewer cases of poliomyelitis and notifications under new legislation distinguished between paralytic and non-paralytic cases. Immunization against poliomyelitis was less effective than in 1950 but a low incidence of mortality from diphtheria showed the satisfactory effects of immunization.

Jurisdiction under the Guardians of Infants act was extended. It increased maintenance allowances to 30*s*. a week and extended them to full-time students between the ages of 16 and 21.

The Administration of Children's Homes regulations, which came into force on Sept. 1, were calculated to secure the material and spiritual welfare of children in Homes provided by local authorities or voluntary associations. The regulations stipulated a monthly visit by a member of the Children's committee of the local authority, adequate facilities for religious instruction, the appointment of a medical officer and suitable arrangements for dental treatment. They also required the immediate notification of the death of any child in a Home and reports of the outbreak of gastro-enteritis, or any other infectious disease.

The regulations authorized the secretary of state to give instructions concerning the number of children to be accommodated in a voluntary home and to prohibit the provision of certain types of clothing. He had also to satisfy himself as to the provision made for visits by parents and guardians.

The public became aware during 1951, however, that there were a number of children who were not being looked after satisfactorily by their own parents, and there were many who considered that the penalties awarded against parents who did not provide proper care and attention for their children, or were cruel to them, were not a sufficient deterrent. On the other hand, on the plea that many mothers carried out their duties inadequately because of ignorahce rather than wilful neglect, a Home was opened by the Salvation Army at Plymouth, where mothers, together with their children, were taught house management and the care of children. The object was to cure rather than to punish.

Paediatricians welcomed the late Sir Leonard Parsons' book *Modern Trends in Paediatrics* (London, 1951), and of special interest was the Dawson Williams trust lecture delivered by Professor Alan Moncrieff at the annual meeting of the British Medical association. In this lecture the child welfare services in England were reviewed and an indication given as to how they might be improved. (D. H. G.)

United States. Child welfare planning was advanced by federal, national, state and local organizations, several of which were created to carry out objectives of the Midcentury White House Conference on Children and Youth. On May 28 a new National Midcentury Committee for Children and Youth held its first meeting. Day care of children of working mothers received the attention of many organizations. Late in 1951 nearly 5 million mothers with children under 18 years of age were employed outside the home. The Child Welfare League of America, co-operating with other national and federal agencies, completed a nation-wide review of day care resources. Special studies of the need for this type

of child care were made in communities where defence industries sought large numbers of women workers. The Child Welfare league expanded its staff of day care consultants.

Aid to dependent children, with larger grants than in 1950, constituted the country's most effective single measure for prevention of family breakdown and severe neglect of children. In June 1951 there were 1,617,893 children whose 632,649 families thus were spared distress or complete disruption.

Increased narcotics addiction among youth in large cities received widespread attention from child welfare and law-enforcement authorities during 1951. Many organizations issued statements on the subject and participated in efforts to combat the illicit sale of narcotics and to develop services for treating young addicts.

International Services. " Health for Your Child and the World's Children " was the central theme for the observance of World Health day on April 7, 1951. A practical step towards realization of this goal was the development of a world-wide co-ordinated programme, one of the principal achievements of the fourth World Health assembly held in Geneva, May 7 to 25. Regardless of the sources of funds available, the integration of services in 1952 was to include activities of three of the specialized agencies of the United Nations, the U.N. International Children's Emergency fund (U.N.I.C.E.F.), the Programme of Technical Assistance for Economic Development and the World Health organization (W.H.O.). The W.H.O. fixed its effective working budget for 1952 at $7,700,000, in contrast with the $6,300,000 available in 1951.

The U.N.I.C.E.F. completed in 1951 its fifth year of operation and the first year under policies revised in accordance with a resolution adopted by the general assembly of the United Nations on Dec. 1, 1950, and a budget which was a small fraction of the amount spent annually during the first years of the fund's existence. Typical of the programme of the U.N.I.C.E.F. was its provision of supplies and equipment for a two-year maternal and child health project in Burma, begun in 1951, in collaboration with the W.H.O., which provided a team of 12 international experts to establish a pediatric department in the Rangoon General hospital; increase the diagnosis and treatment of syphilis in mothers and children; reorganize the children's ward of the Rangoon General hospital; and expand school health services.

International conferences in 1951 significant to the welfare of children included the International Catholic Child bureau, Madrid, April 26-30; the fourth World Health assembly, Geneva, May 7-25; the World Assembly of Youth, Ithaca, New York, Aug. 5-16; the second International Poliomyelitis conference, Copenhagen, Sept. 3-7; and the fifth World Congress of the International Society for the Welfare of Cripples, Stockholm, Sept. 9-14. (*See* also JUVENILE DELINQUENCY; YOUTH EMPLOYMENT.) (H. W. HK.)

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CHILE. Republic occupying the Pacific coast of South America for about 2,600 mi. and having an average width of only 110 mi. Chile is bounded on land N. by Peru and E. by Bolivia and Argentina. Area, 286,323 sq.mi. Pop.: (1940 census) 5,023,539, (mid-1951 est.) 5,877,000. The racial composition, largely of European origin, includes *mestizos* (15%) and Indians (4·2%). Language: Spanish. Roman Catholicism is the predominant religion. The capital is Santiago (pop., including suburbs, 1950 est., 1,200,754). Other chief towns (pop., 1946 est.): Valparaíso (198,068); Viña del Mar (98,156); Concepción (87,620); Antofagasta (47,326); Talca (44,859). President, Gabriel González Videla.



President Gabriel González Videla (right) with Trygve Lie, secretary general of the United Nations, at Viña Del Mar, Chile, Feb. 1951.

History. During 1951 Chile remained politically stable, continued its economic improvement and reaffirmed its democratic principles. The government was faced with strikes among employees in February and in the copper industry in June. A 6*c*. per lb. increase in the price of copper, to 30½*c*. per lb., as a result of trade negotiations with the United States made it possible to pay better wages in the copper industry. This increase was expected to produce an additional income of $77·5 million per year.

Early in the year at a meeting of the U.N. Economic and Social council held in Santiago, the Chilean delegate, Eduardo Cruz Coke, suggested that Latin American deposits in U.S. banks estimated at $800 million be used to guarantee loans to the governments of the Latin American republics in order to relieve the dollar shortage. At the same meeting another Chilean delegate, Francisco Labbe, praised the Point Four programme for the economic development of backward areas and recognized the fact that the United States was contributing 55% of the funds for this programme.

Eugene Black, president of the International Bank for Reconstruction and Development, visited Chile early in the year and agreed to make a complete study of Chilean industry and economy. Previously, President González Videla had attacked the bank publicly in a speech for its failure to assist in national economic development. Later the bank agreed to recommend a $10 million loan for the mechanization of the coal industry and another $2 million loan for power development. Another $10 million loan for irrigation in north central Chile was postponed.

In his message to congress in May, President González Videla expressed confidence in Chile's political and economic future. He announced that the steel mill at Huachipato, built at a cost of $87·5 million, was producing 236,000 tons of steel ingots yearly; a large ore smelter at Paipote would start operating shortly; and the nitrate industry would use a solar evaporation process for treating low-grade nitrate. This would increase the exploitable reserves and lower production costs. The only menace he saw to the nation's safety was from Communist infiltration.

Diplomatic relations were renewed with Venezuela, after a break of three years. Political parties started preparations

for the presidential election in Sept. 1952; Pedro Enrique Alfonso, former minister of the interior, won the Radical party nomination in the primary over Marcial Mora, formerly ambassador to the United States, and a five-party right wing coalition nominated Arturo Matte. (J. McA.)

Education. Schools (1948): state primary, pupils 518,446; private and municipal primary, pupils 149,802; secondary, pupils 70,622. Higher education: University of Chile, students 5,287; Catholic university of Santiago, students 1,528; University of Concepción.

Agriculture. Main crops (1950-51, '000 short tons): wheat 1,080; barley 97; oats 98; rice, paddy 44; potatoes 396; (1949-50) beans 69; chick peas 41. Production of wine (1950): 86,300,000 U.S. gallons. Livestock (1950, '000 head): cattle, 2,331; (1949) pigs 585, goats 636, sheep 6,345. Wool production averaged 17,000 short tons a year, timber production about 275 million bd.ft. a year and landings of fish (including shellfish) about 70,000 short tons.

Industry. Manufacturing establishments (1948): 5,585, employees 296,000. Mineral production (1950, '000 short tons): iron ore 3,255·3; nitrate of soda 1,779·3; copper 399·9; manganese 37·2; mercury (lb.) 23,886; silver (troy oz.) 740,832; gold (oz.) 185,538; crude oil 100,152 cu.m. (about 550,000 bbl.). Manufactured goods (1950, '000 short tons): pig iron 120·7; crude steel 61·7; cement 565·3; cotton fabrics 23·5 million m. Electricity (1950): 1,524 million kwh.

Foreign Trade. Exports in 1950 (excluding gold) amounted to U.S. $282 million and imports to U.S. $248 million. Chief exports: copper bars (50%), nitrate of soda (25%) and wool (3%). Chief imports: machinery and vehicles (28%), textile fibres and cloth (13%), iron and steel and manufactures (9%) and sugar and derivatives (9%). Chief customers: U.S. (52%), Argentina (6%), U.K. (5%), France (5%) and Egypt (5%). Chief suppliers: U.S. (48%), U.K. (12%), Peru (7%) and Argentina (5%).

Transport and Communications. Railways (1949): 5,434 mi. incl. 3,859 mi. owned by the government. Highways (1947): 1,785 mi. international, 3,815 mi. national and 26,300 mi. provincial roads. Motor vehicles (Dec. 31, 1950): cars 40,098, lorries 27,507, buses 4,164. Merchant marine (1950): 88 vessels (100 tons and over) aggregating 169,349 gross tons.

Finance and Banking. (Million pesos). Budget: (1950 actual) revenue 18,887, expenditure 20,637; (1951 est.) revenue 23,257, expenditure 23,259; (1952 est.) balanced at 27,832. Currency circulation (July 1951): 6,414. Deposit money (July 1951): 15,007. Gold reserve (July 1951): U.S.$ 45·2 million. Monetary unit: *peso* with an official exchange rate (Aug. 1951) of 3·125 U.S. cents and a free rate of 1·069 U.S. cents; £1=86·80 pesos (official). (J. W. Mw.)

CHINA. The most populated and second largest country of the world, China is a people's republic in Asia bounded N.E., N. and N.W. by the U.S.S.R., W. by Afghanistan, S.W. and S. by India and S. by Nepal, Bhutan, Burma and Indochina. The table below shows how the total area of 3,876,956 sq.mi. is composed, and the distribution of population (no complete census was ever taken):

	Area (sq.mi.)	Population
China proper (18 provinces)	1,444,626	409,137,000 (1936 est.)
Inner Mongolia (4 provinces)	326,285	5,143,000 (1936 est.)
Manchuria	503,127	43,234,000 (1940 census)
Western China (Sinkiang, Chinghai and Sikang)	1,118,323	6,524,000 (1936 est.)
Formosa (Taiwan) (*q.v.*)	13,857	5,872,000 (1940 census)
Kwantung (incl. Port Arthur)	1,444	1,750,000 (1938 est.)
Tibet (*q.v.*)	469,294	3,000,000 (1948 est.)
Totals	3,876,956	474,660,000

According to the official estimate of April 1950 the total population of China was 475 million. Language: Chinese, with a number of dialects, the most important being the Mandarin (or *Kuanhua*) which dominates nearly four-fifths of China proper. Religions: Confucianism, Taoism and Buddhism; about 10% of the population is Moslem; there are also Chinese Christians of various denominations. Chief towns (pop., 1948 est.): Peking (cap., 1,721,546); Shanghai (4,630,385); Tientsin (1,772,840); Canton (1,128,165); Nanking (1,113,972); Mukden (1,021,057); Chungking (985,673); Tsingtao (850,308); Harbin (760,000); Hankow (721,598); Sian (628,449); Dairen, under Soviet occupation (543,690).



The library of the workers' palace of culture which the people's government opened in Peking.

During the year China continued to have two governments: (1) the Communist, formed in Peking on Oct. 1, 1949, with Mao Tse-tung (*q.v.*) as president of the republic (chairman of the central people's government council) and Chou En-lai as prime minister (chairman of the state administrative council) and minister of foreign affairs; (2) the Nationalist, headed by Generalissimo Chiang Kai-shek, which in Dec. 1949 was moved from Chêngtu to Taipei, Formosa.

History. Any attempt to survey events in China in 1951 was hampered by the closeness of the "bamboo curtain," the fear among Chinese to speak to once intimate foreign friends and the overshadowing of everything by the war in Korea. It was impossible not to think that Korea had become a heavy tax on China's economy. Even before the North Koreans invaded South Korea, defence costs were 39% of the Chinese budget, and China no doubt ran up an enormous bill with the Soviet Union for armaments. Added to this there was the government determination to industrialize China so as to raise its standard of living, the plant for which must also be bought abroad. To combine this with the maintenance on a war footing of 7,000,000 regular troops and militia seemed almost impossible for a country like China, poor in metals and oil and predominantly agricultural.

In domestic affairs the Communists undoubtedly achieved much. Their political system seemed to have insured them against any relapse on the part of Red generals into the old warlordism. Beggars had been swept from the streets of big towns. Justice in Chinese courts was described as "rough and ready" but fair-minded. Trains were punctual and well-managed. On Sept. 16 the first section of the new Chungking-Chêngtu railway (about 100 mi.) was opened to traffic. On Oct. 17 Peking reported that all China's 22,600 km. (14,125 mi.) of railway were in perfect working order. It was also reported in June that the conservancy of the Huai river, begun by the Nationalists, was approaching completion: this would save millions of acres from annual flooding. Throughout the year increased production was reported from Peking in silk, tea, cotton, cereals and metallurgy. Some doubt was thrown on the cotton reports by an appeal by

Chou En-lai, the prime minister, to the farmers to drop their strike against the government prices which was endangering work in the mills. According to trustworthy reports, the new Communist currency had not penetrated to rural districts and farmers were holding up produce for barter. Cultural activities figured prominently. A research institute under Mei Lan-fang, the famous actor, was created to adapt old plays to " the changed ideas and life of new society "; as also theatrical and cinema schools to train young actors and produce new plays and films on similar principles. Cultural agreements were signed with Poland, Czechoslovakia and Eastern Germany. One interesting report was of renewed excavations southwest of Peking for " Peking Man " and the recovery of valuable fossils and domestic implements.

The darker side of life was the mass executions all over China following on a decree by Peking on Feb. 22 for drastic punishment of counter-revolutionaries. In Shanghai and Canton public trials (fully publicized by the Chinese press) were held before huge mobs howling for the victims' blood. But no city was exempt. By November, when Communist reports indicated that 1,200,000 victims had perished, the purge was slowed down, in view of protests that as many innocent people had died as the guilty. Throughout the year there was much evidence of mutinousness among peasants against the uneven working of land reform, taxation and confiscation of grain for townsfolk and army. But by the end of the year it was generally agreed that the dictatorship of the central people's government council had greatly strengthened its grip on all China. Reports that children were being taught to accuse, and did accuse, their parents of counter-revolution, appeared to be true.

Notable moves were made by Peking for closer relations with Asian powers. In January barter agreements were made with Pakistan to exchange coal for cotton; and with India for 37,000 bales of jute against 50,000 tons of rice. In April China offered India 1,000,000 tons of grain to meet the Bihar famine. Cultural missions were exchanged between India and China with effusive publicity on both sides. On March 8 Peking spontaneously assured Burma that it had no territorial designs on it, and Chou En-lai publicly repudiated the Chinese maps which show Burma as Chinese territory. In Europe China sent exhibits to the Leipzig and Prague industrial fairs and to an arts exhibition in Berlin, in June; and in July 300 Chinese delegates were sent to the World Festival of Youth and Students. China also entertained a deputation of nine trade unionists from the Britain and China Friendship association in May; and 42 " youth delegates " from Australia, Argentina, Ceylon, Chile, Cuba and South Africa in November.

The fate of Tibet was finally decided in May when Tibetan delegates to Peking were forced to sign an agreement by which control of Tibet's foreign affairs, finance and army passed to China, while Tibet was promised religious freedom, the management of domestic affairs and the retention of the lamas' rights and property. An important clause was that the Panchen Lama, whose faction, resident at Sining in northwest China since his predecessor fled to China in 1923, had eagerly espoused the Chinese cause, was to be restored to equal rights and dignity with the Dalai. As Lhasa had never recognized the present Panchen, now a boy of 14, the Chinese intention to play off one Holiness against the other was obvious. It was generally expected that the Dalai, who had retreated to Yatung in Dec. 1950, would withdraw into India. But India would only admit him as a private person, and in August he returned to Lhasa. By the latest information the Chinese were making roads, erecting wireless stations and planting garrisons along Tibet's southern border.

On March 6, L. H. Lamb replaced Sir John Hutchison in Peking to negotiate resumption of diplomatic intercourse, but Sino-British relations had shown no improvement. On Feb. 7 the British consul general and his staff at Tihwa, Sinkiang, were expelled for alleged espionage, with harshness and indignity. The British consulates in Chungking, Kunming, Hankow, Nanking, Tsingtao and Amoy were closed in May leaving only those at Shanghai, Canton and Tientsin. On April 30 and again on Sept. 1, Great Britain protested to Peking against the mistreatment of British subjects—especially the imprisonment of several without trial, all access to them being denied—but without effect. The pressure on foreign missionaries to withdraw from China, already



A parade of women in Shanghai in April 1951, protesting against the United States proposal to conclude a peace treaty with Japan. The banner reads " Oppose the American plan to re-arm Japan."



Leading members of the Chinese people's government at the 1951 May day parade in Peking. (Right to left), Chou En-lai, prime minister and foreign minister; Mao Tse-tung, president; Chu Teh, vice president and commander in chief; Liu Shao-chi, vice president and secretary general of the Communist party; Kuo Mo-jo, deputy prime minister and president of the Academy of Sciences; and Li Chi-sen, vice president. In Dec. 1951 Kuo Mo-jo was awarded an international Stalin prize.

widespread in 1950, became harsher and more direct in 1951. Many missionaries were arrested and subjected to hours of relentless questioning on charges of spying for the imperialists. Some were put in prison and their fate was unknown. All mission colleges, schools and hospitals were taken over by the government and acceptance of subscriptions from abroad was forbidden. Perhaps the most revealing fact was the decision in August of the China Inland mission, the largest, most deeply rooted mission in China except the Roman Catholic, to withdraw all its remaining members. In October the expulsion of Archbishop A. Riberi, apostolic delegate in China, on charges of espionage, indicated that Roman Catholics were being equally persecuted. In April, a conference of the Protestant churches called by the government, when the delegates were ordered to hunt out and denounce all Christians suspected of reaction, was one among many signs of the Communists' aim to use the churches as a political instrument.

In April Peking announced that for the first time for 73 years China had in 1950 a favourable trade balance. Emphasis was laid on the swing-over in business to the Soviet Union and its satellites, with which by 1951 three-quarters of all China's foreign trade was done. The stoppage of all U.S. exports to Hong Kong which could conceivably be used in war, and new restrictions imposed in Hong Kong (especially severe penalties for smuggling) and Singapore, naturally caused China to turn to the Soviet Union. China's sea trade with the outer world dropped to its lowest ebb since the "liberation," though there appeared to be a considerable land trade with Manchuria.

Shanghai as a seaport, once one of the greatest in the world, was practically dead. The British community, more than 10,000 before World War II, sank during the year to about 700. In Tientsin 33 British firms were still in existence, in Hankow about 100 British businessmen. Beginning on Dec. 28, 1950, the government seized all U.S. assets in China, including the power company and telephone company in Shanghai and froze all U.S. deposits in Chinese banks. On April 29 the government also seized the installation tanks, barges, lorries, etc., of the (British) Asiatic Petroleum company (A.P.C.) at Shanghai, in retaliation for Hong Kong's seizure of a former Japanese tanker which China claimed. As usual, however, with all foreign firms, the A.P.C. was forced to continue paying the wages of the whole Chinese staff. This injustice was heightened by new regulations in June making the head of every firm personally liable for claims of any kind against the firm. In October the Communists seized the Shanghai racecourse, formerly the chief centre of cricket, football, polo, tennis and bowls besides racing. On March 31, 1951, the *North China Daily News*, over a century old and for many years one of the three leading papers in Asia, ceased publication. It had been stopped publishing foreign news picked up from B.B.C. broadcasts, and the proprietors refused to be a vehicle for Communist hand-outs. The editor, R. T. Peyton-Griffin, who joined the newspaper as a reporter in 1916, died at his desk of heart attack on Dec. 23, 1950.

Speculation as to the exact relationships between China and the Soviet Union was rife during the year. The Peking press frequently extolled the help of Russian advisers in developing Chinese industry. Members of the government, however, in public speeches put the emphasis on what China had achieved by its own exertions. Thus, Chu Teh, the commander in chief, on the 24th anniversary of the founding of the Chinese Red army, devoted himself entirely to its accomplishments for "national independence and the people's democracy." And, on Oct. 23, Mao Tse-tung in an important speech on China's achievements clearly regarded "the solidarity and unity" between China and the Soviet Union as an alliance between equals. All the evidence was that the Communists' victories in China were won by their own efforts, which put them in an entirely different position from the satellite governments in Europe. China's association with Moscow seemed as close as it had ever been. But the general conclusion was that it was not a Soviet puppet. (O. M. G.)

Education. Four-fifths of the population was estimated as illiterate in 1937 and the position did not improve during World War II. In

1937 there were 229,911 elementary schools with 12,848,000 pupils, as against 2,794,000 pupils in 1911, but it was estimated that there were altogether 60 million school-age children. The Communist government claimed that in 1950 there were 400,000 elementary schools with 30 million pupils, 5,000 secondary schools with 1·5 million pupils and 227 institutions of higher education with 140,000 students.

Agriculture. In a country purely agricultural only 29% of the total area was arable land and only 20% was cultivated. Agriculture supported 70% of the population and contributed 80% of the national income. Small-scale farming predominated: by 1937 36% of farms were less than 1·5 ac. and 62% less than 4·3 ac. in extent. Only one-quarter of the arable area, however, was peasant-owned. Radical changes were said to have been achieved by the Communist land reform: according to the Peking government, about nine-tenths of all arable land had been handed over to peasants and farm labourers by the end of 1951. Rice was the main crop and the main food in the southern and central provinces, whereas in the north wheat, millet and kaoliang or sorghum predominated. Subsistence crops were more important than commercial and industrial products. There was little animal husbandry since land could ill be spared for it, and pasturage occupied no more than 1% of the arable land.

TABLE I. AGRICULTURAL PRODUCTION ('000 metric tons)
(22 provinces, China proper, and former Inner Mongolia)

	1931-37	1947	1948	1949*	1950*
Rice, paddy	50,065	46,507	46,524	37,500	42,850
Wheat	21,743	23,647	23,990	16,275	18,597
Barley	7,871	7,574	7,428	5,850	6,770
Maize	6,497	6,724	7,467	4,875	5,570
Oats	881	703	795	660	754

* Estimates based on percentages given by D. Nikolayev and I. Shcherbakov in their study "The Achievements of the Chinese People's Republic" (*Bolshevik*, Moscow, Sept. 1951).

China's needs in its two main crops were estimated annually at 52 million metric tons of rice and 25 million tons of wheat. Millet production in the 18 provinces of China proper amounted in 1936 to 6,437,000 metric tons and that of kaoliang to 7,271,000 tons. Manchuria produced in 1939 ('000 metric tons): kaoliang 5,092, soya beans 4,361, millet 3,888, maize 2,716, wheat 1,046, rice, paddy 767. Other crops in the 22 provinces were (1931-37 average; 1948 in brackets): sweet potatoes 18,525 (24,970), potatoes 1,907 (1,952), soya beans 6,093 (5,738), broad beans 3,018 (3,114), dry beans 2,723 (2,237), dry peas 3,190 (2,992). Sugar production amounted in 1948 to 360,000 metric tons in the 22 provinces and to 26,000 tons in Manchuria. The yearly average production of ginned cotton in 1931-37 was 680,000 metric tons; by 1948 it had decreased to 460,000 tons; in 1950, according to *Bolshevik* (loc. cit.) it was 630,000 tons and the 1951 production was claimed by the Peking Hsin Hua (New China) News agency to be the largest in China's history.

Livestock ('000 head, 22 provinces, Oct. 1947): cattle 18,200, pigs 59,510, sheep 10,450, goats 13,976, buffaloes 9,460, horses 2,033, asses 8,561, mules 1,905, poultry 209,335. In Manchuria there were in 1938 ('000 head): pigs 5,335, horses 1,800, mules 565, asses 620.

Industry. The country had no big mineral reserves except of coal (estimated in 1947 at 246,000 million metric tons). Iron ore reserves, estimated at 952 million tons, were insufficient to establish large-scale industry. Known reserves of lead and zinc ore were also small, but copper was more abundant. Only of antimony and tungsten was China a leading producer.

TABLE II. INDUSTRIAL PRODUCTION
('000 metric tons, including Manchuria)

	1936	1947	1948	1949	1950*
Coal	41,900	14,148	8,720	15,500	18,755
Iron ore	3,360	150	158	364	2,100
Pig iron	1,535†	40	11	94	1,071
Crude steel	810	57	44	83	647
Tin concentrates	10·8	4·1	4·9	4·3	—
Cement	710†	749	550	145	550
Electricity (million kwh.)	3,130‡	3,120	2,860	—	—
Cotton yarn	394	299	336	200	457

* Estimates based on percentages given by *Bolshevik* (loc. cit.).
† 1935-39. ‡ 1938.

The New China News agency announced in March that the gross industrial output of 1950 exceeded that of 1949 by 117·3% compared with a 44·1% increase for the agricultural production. On Dec. 26, 1951, the same source announced the over-fulfilment of the 1951 plan. The production of pig-iron was 26% higher than in 1950, of cement 23·2%, of cotton yarn 22·4%, of rubber shoes 37%, of copper wire 41·9%, of electric bulbs 32·2% and of electric motors 81·9%.

Foreign Trade. The small foreign trade was typical for a poor agricultural country, exports consisting mainly of raw materials and imports of industrial products and food. The balance of trade was constantly adverse, but the New China News agency claimed in April 1951 that in 1950 a favourable export balance of 9·34% was achieved for the first time since 1877. There was also a shift of trade from the western world to the Soviet Union and its satellites. In 1947 the United States supplied 50% and Great Britain 9·8% of Chinese imports, whereas the main destinations of exports were: Hong Kong 34%, the United States 23% and Great Britain 5%. In 1950 the Soviet Union supplied 19·8% of all imports and the European satellites, mainly Poland and Czechoslovakia, 1·37%. The corresponding figures for the first nine months of 1951 were given as 44·7% from the Soviet Union and 25·3% from the satellites. The export figures for 1950 were 26·6% of total exports to the Soviet Union and 3·87% to the satellites, and 51·5% and 26·4% respectively in 1951. Among the goods imported in 1950 industrial equipment and raw materials for industrial production constituted 78% of the total. Principal exports were soya beans, tea, eggs, hog bristles, tung oil, peanuts and antimony and tungsten ores. State companies were responsible for 53·3% of the total value of exports and 70·5% of imports. (*See* also HONG KONG.)

Transport and Communications. The railways were all single-track of small carrying capacity, and the system was wholly inadequate. By 1950 there were 22,600 km. of track in operation, no more than in Poland, a country of 30 times smaller area. The New China News agency claimed that 99% of passenger trains and 97% of goods trains were running to schedule and that in 1950 the Chinese railways had begun to show a profit for the first time. By 1950 there were 203,000 km. of roads, only twice as many as in Poland; only one-fifth of the highway system was surfaced and one-third was badly in need of repair.

Finance and Banking. Continued civil and foreign wars had never conduced to a balanced budget or a sound currency. The 1947 budget was estimated to be balanced at Chinese National dollars 46,004,100 million, but the revenue amounted to only C.N.$ 12,135,000 million. By 1948 the C.N.$ was almost worthless and a new currency, the *gold yuan*, was introduced with an exchange ratio of C.N.$ 3 million per gold yuan. At the end of 1949 the People's Bank dollar or *jenminpiao* replaced the gold yuan with an exchange rate of JMP$ 1 = G.Y.10. No figures of budget estimates or of currency circulation were published by the Chinese Communist government, but it seemed that the budget deficit continued to be covered by an increased note circulation. By mid-1950 the JMP$ also collapsed and the U.S.$ was officially quoted at JMP$ 42,000. In Sept. 1950 it was announced from Peking that the jenminpiao was "stabilized" with an exchange rate of JMP$ 31,000 per U.S. dollar. Evidence of hidden inflation in China was indicated to some extent by the black market exchange rate at Hong Kong, which by Oct. 1951 was JMP$ 5,000 to HK$ 1 (= 1*s.* 3*d.*) as against the official rate of JMP$ 3,880. Serious inflation, however, was not shown in the cost of living. According to Peking, this increased during 1951 by 15% and in Shanghai wages increased by 12%. Participation in the Korean war no doubt had a disturbing effect on the country's weak economy, but the population were exhorted, as by the *Jen Min Jih Pao* (The People's Daily) on Jan. 1, 1951, to regard the consolidation of the national defence and broadening out of the struggle against imperialism as their primary task, coupled with that of economic construction.



"What can you do about it?" A cartoon by Mee Ku of the "Liberation Daily" (Peking) showing the Americans and their friends trying to shift the people of Asia shown on the rock.

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CHRISTIAN DEMOCRATIC MOVEMENT. For various reasons, the political strength of the Christian Democratic parties of Europe everywhere somewhat declined in 1951. In the postwar period they had been the most important political forces in western Europe, and the decline was partly a natural reaction against those who had been in power for some time, like Alcide De Gasperi in Italy or Konrad Adenauer in Germany. All the Christian Democratic parties were themselves coalitions of very different elements, containing within themselves a much broader scale from Left to Right than any other parties, and therefore tended to splinter. In most of the western European countries 1951 saw greater electoral success for right-wing movements, such as General Charles de Gaulle's Rassemblement du Peuple Français (R.P.F.), the "neo-nazi" Sozialistische Deutsche Reichspartei in Western Germany, or the "neo-fascist" Movimento Sociale Italiano (M.S.I.). Some of this success was ephemeral, but much of it was at the expense of the Christian Democrats.

Italy was the country where the weaker position of the Christian Democrats was least apparent; yet the local government elections in May and June showed that the combined Marxist vote in Italy exceeded that of the Christian Democrats for the first time since 1946—a point obscured by the fact that some of the Socialists contested the election in alliance with the Christian Democrats. The withdrawal of the Socialist members of the government coalition in April was a sign of weakness rather than of strength in the Christian Democratic position, and, although De Gasperi was able on July 26 to form his eighth consecutive government, the decline in his popular support was shown in the local government elections on May 27 and June 10, when the Christian Democrats polled 5,829,648 votes, or 38·7% of the total (48·7% in 1948 general election).

The French Christian Democrats of the Mouvement Républicain Populaire (M.R.P.) were completely estranged from the Socialists and from other parts of the so-called "third force" by the most melancholy feature of the year, which was the recrudescence of anti-clericalism that arose when the confessional schools provided the main political issue of the summer. In the general election on June 17 the M.R.P. secured only 97 seats, as compared with 164 in the previous assembly; nor could this be attributed to the working of the new electoral law, for the aggregate M.R.P. vote was only 2,353,544 as against 5,058,301 in 1946. In the local government elections held on Sept. 7 and 14 the M.R.P. gained 20 seats; this was at the expense of the Socialists and Communists, who lost heavily, but it was a small gain compared to that of 142 seats by the right-wing parties and 80 seats by the R.P.F.

In Austria, the Christian Democratic Volkspartei candidate, Heinrich Gleissner, was defeated in the presidential election on May 27 by the Socialist candidate, Theodor Körner (*q.v.*).

In the Landtage elections in Western Germany, held in the Rhineland-Palatinate, Lower Saxony and Bremen, the position of the Christlich-Demokratische Union was in every case weakened, although in the Rhineland-Palatinate it remained easily the strongest party.

It was in Germany, at Bad Ems, that the fifth congress of the international Christian Democratic movement, the Nouvelles Equipes Internationales, took place in September. Some 250 delegates, from nearly every country of western Europe, took part under the chairmanship of Auguste de Schrijver, from Belgium; others who could not attend sent written contributions which were communicated to the delegates; these included T. S. Eliot. From the opening address by Chancellor Adenauer, to the closing resolutions, the *Leitmotiv* was the urgency of achieving a closer integration of Europe through the co-ordination of defence and industry; and it was characteristic that, among the flags of the participating nations, the central position over the entrance to the Kursaal, where the sessions were held, was occupied by the green and white "E" flag of the United Europe movement. The main speaker from the French M.R.P., Pierre-Henri Teitgen, summed up the feeling of the congress when he expressed disappointment that Great Britain had not yet become fully identified with the European movement, when France and Germany had deserved so well of Europe by the confidence and moral courage which had produced, for example, the Schuman plan.

Defining the Christian Democratic ideal as "to rescue the world from all forms of materialism and totalitarianism," the resolution passed by the congress declared that the defence of spiritual freedom was inseparable from the defence of political freedom and social justice. A message of sympathy for the victims of "barbarous measures" in eastern Europe was published, with a protest against the maintenance and extension of concentration camps and against the forced labour and deportations, calling upon the public opinion of the world to stop "these crimes against humanity." The message also expressed the hope that Europe, now cut in two by "the boundary line of freedom," might again be united and its nations returned to the community of free peoples. (*See* also ELECTIONS.) (M. DK.)

CHRISTIAN SCIENCE. Christian Science is the religion founded by Mary Baker Eddy in 1866. It is represented by the Church of Christ, Scientist, and consists of the Mother Church, the First Church of Christ, Scientist, Boston, Massachusetts, and its branches in the United States and 41 other countries. In 1951 there were also organizations, established in accordance with the by-laws of the Mother Church, at more than 100 universities and colleges. At the annual meeting a record membership of 3,049 branch churches and societies was announced.

Relief activities conducted during 1951 helped to alleviate food and clothing shortages in disaster areas. Substantial relief went to 15 countries; in addition, a gift of ploughs to India was made by churches in the United States. The Communist authorities of Eastern Germany banned Christian Science and closed its churches in March 1951.

Military camp welfare activities in the U.S. were expanded. By Aug. 1951 there were 12 Christian Science chaplains on

CHRISTIAN DEMOCRATIC PARLIAMENTARY REPRESENTATION
(Figures in brackets are those of the preceding election)

Country	Party corresponding to Christian Democratic	Date of last elections	Votes obtained	% of total votes	Seats obtained by C.D.s	Total no. of seats
AUSTRIA	Österreichische Volkspartei	Oct. 9, 1949	1,844,850 (1,602,244)	44·2 (49·9)	77 (85)	165
BELGIUM	Parti Social Chrétien	June 4, 1950	2,354,965 (2,190,898)	47·7 (43·5)	108 (105)	212
FRANCE	Mouvement Républicain Populaire	June 17, 1951	2,353,544 (5,058,301)	12·3 (26·4)	94 (164)	627
GERMANY	Christlich-Demokratische Union	Aug. 14, 1949	7,357,579 —	30·0 —	139 —	402
	Zentrum (Roman Catholics)		727,343 —	2·9 —	10 —	
LUXEMBOURG	Christian Social party	June 3, 1951	— —	— —	21 (22)	52
NETHERLANDS	Katholieke Volkspartij	July 7, 1948	1,531,326 (1,466,582)	31·5 (31·1)	32 (32)	100
NORWAY	Christian People's party	Oct. 10, 1949	146,413 (117,579)	8·4 (7·9)	9 (8)	150
ITALY	Partito Democratico Cristiano	April 18-19, 1948	12,751,841 —	48·7 —	307 —	574
SWITZERLAND	Catholic Conservative party	Oct. 27-28, 1951	— —	— —	48 (44)	196

active duty with the armed forces, including one in Korea. It was arranged that civilian workers should call at many military posts and hospitals.

Sales of the Christian Science textbook, *Science and Health with Key to the Scriptures*, by Mary Baker Eddy increased by 25% in a year. The demand for her writings was double that of ten years earlier. The circulation of daily, weekly, monthly and quarterly publications also reached new levels. Members of the board of lectureship of the Mother Church toured the far east, Alaska, Australia, New Zealand, Africa, continental Europe, the British Isles, Mexico, Cuba, Bermuda, the West Indies, the Panama Canal Zone, South America, the United States and Canada. They reported the widespread alleviation of the burden of sin and sorrow during their lectures, as well as the healing of lameness, deafness, blindness and cancer.

(GE. C.)

CHURCHILL, WINSTON LEONARD SPENCER, British statesman (b. Blenheim palace, Oxfordshire, Nov. 30, 1874). For his earlier career see *Encyclopædia Britannica* and *Britannica Book of the Year 1951*. On Jan. 20-22, 1951, Winston Churchill was in Paris on his way back to England from a winter holiday at Marrakesh, Morocco; he met René Pleven, the French prime minister, Jules Moch, the defence minister, and Robert Schuman, the foreign minister. In a party political broadcast on March 17 he said that the Conservative party had decided, on national rather than party grounds, to bring about a general election as soon as possible. He had acquired in April another French-bred racehorse, Satrape II, a yearling colt, and on May 14 his Colonist II won the Winston Churchill stakes at Hurst park, Surrey. The fourth volume of his memoirs of World War II, *The Hinge of Fate*, was published in London on Aug. 3. He went on holiday on Aug. 15, to Annecy, France, and Venice, to paint and continue his memoirs, and returned on Sept. 12. Churchill signed the Conservative party election manifesto which was issued on Sept. 29 and gave an election broadcast on Oct. 8. He was re-elected for Woodford, Essex, with a majority of 18,579. Winston Churchill was received by King George VI on Oct. 26 and kissed hands on his appointment as prime minister and first lord of the Treasury; his cabinet was announced on Oct. 26, 27 and 30 (*see* CABINET MEMBERS); he retained for himself the post of minister of defence. When parliament opened on Nov. 6 Churchill underlined the gravity of the country's economic position. In the defence debate in the House of Commons on Dec. 6 he said that the theme of the government's policy would be the idea of deterrents rather than the idea of danger; in expressing his belief in the qualities of the new British ·280 rifle design he said that he had himself fired both that rifle and the new American ·30. Churchill visited Paris with Anthony Eden, Dec. 17-19, to explain to French ministers the point of view he would put forward in talks that had been arranged for him in Washington in Jan. 1952. Discussions with René Pleven and Robert Schuman dealt with N.A.T.O., Germany, the near east and the far east. He lunched, on Dec. 19, with General Dwight Eisenhower and at his invitation addressed the staff at Eisenhower's headquarters, S.H.A.P.E. He sailed from Southampton on the "Queen Mary" on Dec. 31 for his talks with President Harry S. Truman and for a visit to Ottawa.

CHURCH OF ENGLAND. The bishop of London (the Right Rev. Dr. J. W. C. Wand) was chairman at the "Week of Prayer for Christian Unity" meetings in Jan. 1951; crowded meetings were also held at Exeter. In Lent the bishop lectured on the Non-Juring Schism. The bishop's appeal for £750,000 for churches and schools reached over £525,000; the bishop of Southwark's appeal for £350,000



The Most Rev. Geoffrey Fisher, Archbishop of Canterbury (right), with the Right Rev. S. F. Falkner whom he had consecrated Bishop of Chelmsford, Feb. 2, 1951.

was met in full and the Salisbury diocese obtained £240,000 of the £250,000 that it needed.

During the winter many churches throughout the country suffered from lack of fuel. Repair of war-damaged churches continued: in London, St. Dunstan-in-the-West, St. Magnus-the-Martyr, St. Bartholomew-the-Less and All Souls', Langham place, were among the churches whose restoration was completed. The king of Norway was present at St. Olave, Hart street, at the laying of the restoration stone. A scheme for the reorganization of the 45 City of London parishes was announced: 24 would remain as parish churches with rectors appointed for life, and 15 would become guild churches with vicars, appointed for five years in the first instance, who would have special duties besides week-day daytime work in the City; 6 churches would not be rebuilt.

In April the Coronation stone, taken from Westminster abbey on Christmas day, 1950, was recovered in Scotland and returned to the abbey. The war-damaged chapter house was restored. A new constitution, giving the dean and chapter more control over the abbey officials, was adopted. The appeal for the repair of Chichester cathedral was oversubscribed by £5,000 (£40,000); the Salisbury cathedral appeal reached £43,000; the tower of Derby cathedral was restored; the repairs at York continued and the Five Sisters windows were restored; repairs were completed at Ripon and continued at Ely. At St. Albans, 15th- and 16th-century paintings were discovered in the Norman tower. Appeals for £20,000 for the tower of Worcester and for £35,000 for Exeter and Norwich cathedrals were made, and plans published for completing Liverpool cathedral. A controversy arose over the plans for the rebuilding of Coventry cathedral. A suggestion was made by some of the deans and by the bishop of Peterborough that state aid should be given to the cathedrals, to meet rising costs. At St. George's chapel, Windsor, a charge was introduced for the visiting public. During the year, services at the cathedrals were well attended all over the country. In the diocese of St. Edmundsbury and Ipswich the stipendary minimum for clergy was raised to £500.

Inspired by the Mission to London (1949), missions were held at Worcester and the neighbouring towns, at Reading by the Church of England Men's society, and at Bournemouth, assisted by the Church Army. Two thousand churchpeople took part in a pilgrimage to Canterbury as a demonstration against Communism. The Anglo-Catholic Progress, beginning at Oxford, visited 60 towns from Darlington to Truro and held a final rally at the Albert hall, London. The work of adult religious education was further promoted by the conversion of the 18th-century house of Moor park,

Farnham, Surrey, into a residential educational college, under the auspices of Canon R. E. Parsons.

Many cathedrals and churches were floodlit to mark the Festival of Britain (*q.v.*). The Festival opened at St. Paul's on May 3 with a service attended by the king and queen, the princesses, the prime minister and members of parliament, and the lord mayor and corporation of London; the service was addressed by the archbishop of Canterbury (*q.v.*). The Festival hall, on the south bank of the Thames, was opened by the king and dedicated by the archbishop. The bombed church of St. John, Waterloo road, London, was rebuilt and opened as the Festival church. Great crowds attended open-air services in Hyde park, and on St. George's plateau, Liverpool, and the primates of England (the archbishop of York), Ireland and Wales and the primus of the Scottish Episcopal church preached in Liverpool cathedral. Celebrations also took place at Warrington, Widnes, Southport and St. Helen's. At St. Albans processions organized by the Church of England Men's society went to the shrine of Britain's first Christian martyr. Exhibitions of books, plate and church art took place in the crypt of St. Paul's, at the Guild hall and at Lambeth palace. Religious drama was performed at Canterbury cathedral, at York minster and at Southwark, Norwich, Derby, Coventry and St. David's cathedrals. At Norwich the celebrations included lectures by Professor H. Butterfield of Cambridge, Sir Ernest Barker and others. A festival of the three choirs of Ely, Norwich and Peterborough cathedrals was held at Norwich. This should not be confused with the Three Choirs festival of Gloucester, Hereford and Worcester, which was held in 1951 at Worcester. At St. David's cathedral several Welsh choirs gave concerts.

On July 4 the queen and the princesses, and the lord mayor and corporation of London, attended a service at St. Paul's when General Dwight Eisenhower presented the roll of honour of 28,000 U.S. servicemen, who had operated from Great Britain during World War II; the dean (Very Rev. W. R. Matthews) dedicated it. The archbishop of Canterbury preached, and dedicated the silver cross and candlesticks presented by the king to Washington cathedral.

The bishop of Derby's report on relations with the Presbyterian Church of Scotland was issued. It said that formidable difficulties prevented closer association between the two churches at present, but the discussions would continue.

Bishop E. R. Morgan (suffragan bishop of Southampton) was consecrated diocesan bishop of Truro in succession to Bishop J. W. Hunkin (d. Oct. 1950).

The convocations of Canterbury and York continued the revision of the canon law. A commission on ecclesiastical courts was set up with Mr. Justice Lloyd Jacob as chairman. Queen Mary attended the Church assembly at the spring session and formally re-opened the assembly hall at Church house, Westminster, which had been extensively damaged during World War II; she also unveiled two memorial panels. Five thousand pounds was voted towards the expenses of the Anglican delegates to the World Council of Churches (1954) and its committees, and £500 to the Central Readers board. At the summer session of the assembly a commission was appointed to report on the repair of churches and to secure regulation of them. Canon law revision was debated. The Diocesan Education Committees (Amendment) measure, 1951, the Bishops Retirement measure, the benefices (Stabilization of Incomes) measure, the Ecclesiastical Dilapidations measures (1923-29) Amendment measure and the Cathedrals (Appointed Commissioners) measure all received the royal assent. (*See* also ANGLICAN COMMUNION; MISSIONS, FOREIGN RELIGIOUS.) (A. J. MACD.)

See *The Official Year-Book of the Church of England* (London, 1951).



The 1951 spring session of the Church Assembly at the Church house, Westminster. The assembly which was opened by Queen Mary was meeting for the first time in the new assembly hall.

CHURCH OF SCOTLAND. The Church of Scotland at the beginning of 1951 had an increase of 2,932 in its communicant membership over the previous year; the number of elders was 38,692. The Christian liberality was £2,826,087 and the income £3,914,317. During the year the moderator of the 1950 general assembly, the Right Rev. Hugh Watt, toured north Africa, Egypt, Kenya, Malta and Germany and his successor in office for 1951, the Right Rev. W. White Anderson, visited Australia for six weeks. The office of lord high commissioner to the general assembly was filled by George Mathers, in the absence through illness of the Viscount Cunningham of Hyndhope.

The work of the church was reflected in the reports of committees to the general assembly. The foreign mission, faced with rising costs, estimated an expenditure of £345,000 and reported that the securing of candidates was slightly easier. The Home board reported intensive evangelical work through various agencies, the opening of 16 new extension churches at a cost of £204,400 and the erection of a further 22 at a cost of about £379,800. The Social Service committee reported continued work for social betterment provided by homes for children, hostels, and eventide homes; 15 of the eventide homes were maintained by this committee. No increase in the stipends of ministers was possible, and a call was made for an increase of one-third in congregational contributions to the Maintenance of the Ministry fund. The colonial and European work of the church continued effectively, though certain stations in Europe and in the colonies had to be closed down. Close contact was preserved with the other Reformed churches. The Church of Scotland through its Inter-Church Relations committee met the representatives of the Church of England to discuss relationships, and a joint report on the issues involved was published. The assembly of 1951 appointed an Iona Community board, as the governing body of the Iona community with the Rev. George F. MacLeod continuing as its leader. Important issues such as Communism, the re-marriage of divorced persons, and the " just war " were considered by the church and in the case of the first two issues reports by special committees were under consideration by presbyteries. The Church and Nation committee presented a wide survey of questions and policies both national and international and gave every evidence of the church's being alive and well-informed on matters of social, national and international import. Steps were taken towards the institution of services' kirk sessions in both Scottish and other units of the armed forces. (*See* also PRESBYTERIAN CHURCH.) (T. C.)

See G. D. Henderson, *The Claims of the Church of Scotland* (London, 1951).

CHURCH OF SOUTH INDIA. The Church of South India assumed its general form at a service held in the cathedral church of St. George, Madras, on Sept. 27, 1947, at which Christians in South India, who had previously belonged to separate communions, were united into membership of a single church by authorization of the governing bodies to which they had previously owed allegiance. These were the General Council of the Church of India, Burma and Ceylon (on behalf of the four Anglican dioceses entering the union), the General Assembly of the South India United Church (itself an earlier fusion, principally of Congregationalist and Presbyterian elements) and the South India Provincial Synod of the Methodist Church.

The North Tamil Church council of the South India United Church, numbering about 30,000 members, joined after the inauguration in 1947; a large group of Anglicans, estimated at about 25,000 members, in the Nandyal area of the former diocese of Dornakal decided finally not to participate and remained still under the jurisdiction of the metropolitan of India. Apart from members of the Roman Catholic Church, the other principal groups outside the Church of South India were the Syrian Jacobite (600,000) and Mar Thoma (300,000) churches in Travancore (branches of the ancient, indigenous church, reputedly founded by the apostle St. Thomas) and the churches founded by western missionaries, from various countries, in the Lutheran and in the Baptist traditions. With the former, the C.S.I. was in official theological conversations, to explore the possibilities of eventual union. The Baptists had hitherto not sent official representatives to conferences, but had received an invitation from the synod of C.S.I. to do so if they wished. Thus in 1951 the Church of South India did not by any means comprise all of the non-Roman Catholic Christians in South India, but it represented a religious community of about one million souls.

The union of 1947 had been under discussion for some 28 years. In May 1919 a conference was held at Tranquebar, on the south coast, where the first Protestant missionaries landed in India in 1706. Nearly all the 33 delegates were Indians; their final resolutions already contained the basic principles upon which the later *Scheme of Union* was based, principles generally known as the Lambeth Quadrilateral (viz., the acceptance, as the basis for church union negotiation, of (i) the Holy Scriptures; (ii) the Apostles' and Nicene creeds; (iii) the sacraments of baptism and the Holy Communion; (iv) the historic episcopate). Negotiations began in 1920 between official representatives, and the following years saw many alternations of hope and despair on the part of those seeking union, and much diversity of opinion amongst those who watched or were consulted. The peculiar significance of the scheme, and the peculiar difficulties in which it was involved, arose from the fact that it was the first proposal to unite previously episcopal and non-episcopal traditions into an organic whole. In 1941 the 7th edition of the *Scheme of Union* was issued, upon the basis of which the union was finally consummated.

The Church of South India comprises 14 dioceses; the governing body is the synod, meeting every two years, of which the bishop in Madras (the Most Rev. Michael Hollis) was elected moderator in 1948 and re-elected in 1950. Continued conversations with a view to union with the Lutherans resulted, during 1951, in a statement by the C.S.I. Theological commission on the necessary and sufficient basis of union and a further joint conference based upon it. (O. S. T.)

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CIGARS AND CIGARETTES: *see* TOBACCO.

CINEMA. The most dramatic gesture of 1951 in the film industry was the decision made by the Swedish producers in January to cease production altogether until the level of taxation on the industry in Sweden was lowered. This meant that an industry which had on a number of occasions achieved a world reputation was putting itself out of business because its position was, in its view, rendered intolerable. At the end of the year there were signs of renewed activity, and it was understood that the tax position was being reviewed by the Swedish government.

The chief film festivals were held at Cannes (at which the main awards went to Vittorio de Sica's *Miracolo in Milano*, Luis Bunuel's *Los Olvidados* and Alf Sjöberg's *Miss Julie*), in Berlin (where the Swiss film *Four in a Jeep* gained the *grand prix*), at Venice (where a Japanese film *In the Woods*, Jean Renoir's *The River* and Robert Bresson's *Journal d'un Curé de Campagne* won the chief awards), and at Edinburgh (a non-competitive annual festival). Great Britain had the

distinction of submitting the best general entry of documentary and specialized films at the Venice festival, in addition to winning many first prizes. The film festival for eastern Europe took place at Karlovy Váry, Czechoslovakia.

Great Britain. The close of 1951 found the British film industry in a slightly better position than it had been at the end of the previous year. At that time less than half the major studio space was occupied. The Association of Cinematograph and Allied Technicians (A.C.T.), the film-makers' union, estimated that the industry was then working at only 30% of its potential and that their members engaged in feature film production were lucky if they were in work for 20 weeks of the year. During 1951, however, two new schemes to develop production were implemented by the government. These were the group scheme of the National Film Finance corporation (which up to March 31, 1951, had had £6 million placed at its disposal by the Board of Trade for loans to film producers) and the British Film Production fund, commonly called the Eady plan after its originator, Sir Wilfrid Eady of the Treasury. The group scheme, announced in Jan. 1951, initiated three production groups, the first based on Pinewood studios, Buckinghamshire, and formed in association with General Film Distributors who agreed to guarantee 70% of production finance; the second based on Elstree, Hertfordshire, and formed in connection with the Associated British Picture corporation; and the third—a group under the general supervision of John Grierson and John Baxter, providing opportunities for young and unknown film-makers to produce special low-budget feature films—based on Southall studios, Middlesex. Sir Michael Balcon became chairman of both the first and third group companies. By the end of 1951 Group Three had three productions completed and two more in progress. The N.F.F.C. would continue to loan money to producers outside the group scheme.

The British Film Production fund was initiated during 1950, and resulted from a levy paid by exhibitors; this levy from Aug. 1951, was ¼*d.* on all seats sold at a price between 4*d.* and 1*s.*, and ¾*d.* on seats sold at over 1*s.* It was estimated that the money raised by these means would amount to some £3 million a year, and producers of British quota films exhibited would receive payments from it in direct proportion to the box-office earnings of their productions, the rate being about 40% of the gross takings. These payments would, it was hoped, close the previously widening gap between production costs and the payments made to producers from box-office receipts. It was also decided that 5% (about £150,000) of the fund should be set aside to finance the production of special children's films, and the Children's Film foundation was set up as a non-profit-making organization under the chairmanship of J. Arthur Rank, with Mary Field in charge of production.

Meanwhile, attendances at British cinemas continued to decline gradually. In the peak year, 1946, the average number of seats sold each week was 32 million; attendances in 1951 averaged 26 million a week, and entertainments duty amounted to 35% of the cinemas' gross total takings. Exhibitors continued to fear the effects of the spreading television habit in British homes, and this was reflected in the many unresolved problems in the relations between the film industry and the British Broadcasting corporation. Certain exhibition interests would have welcomed the chance to use large-screen television in their cinemas, but this would have required a special licence from the postmaster general and so far no licence to transmit television programmes to the public had been granted except to the B.B.C. itself. The industry expressed resentment at the statement in the government's white paper, which followed the report of the Beveridge committee, that, should a licence to transmit special programmes be granted to exhibitors, the B.B.C. should automatically have the right to transmit any or all of these programmes through its own television service. At the end of the year the industry was waiting with interest a statement of policy from the new Conservative government.

Many outstanding feature and documentary films were produced during the year. These included *The Browning Version*, *Cry the Beloved Country*, *High Treason*, *Encore* (the third in the series of Somerset Maugham short-story films), *The Magic Box* (produced by the industry as a whole as its feature contribution to the Festival of Britain), *The Lavender Hill Mob*, *The Man in the White Suit*, *Murder in the Cathedral*, *No Resting Place*, *Secret People*, *Tales of Hoffmann*, *Pool of London*, *Where No Vultures Fly*, *Never Take No for an Answer* and *Outcast of the Islands*. At the Venice film festival British documentaries received collectively a special additional award for the most outstanding national entry.

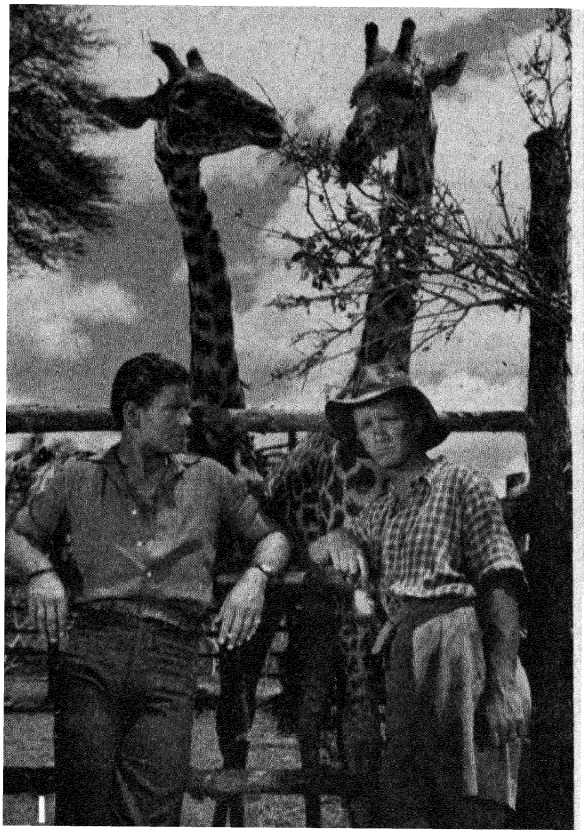
The organization of the film side of the Festival of Britain was placed in the hands of the British Film institute, which was responsible not only for overseeing the production of a number of special documentary films, but also for supervision of the Telecinema at the South Bank exhibition, London, at which stereoscopic films with stereophonic sound were shown.

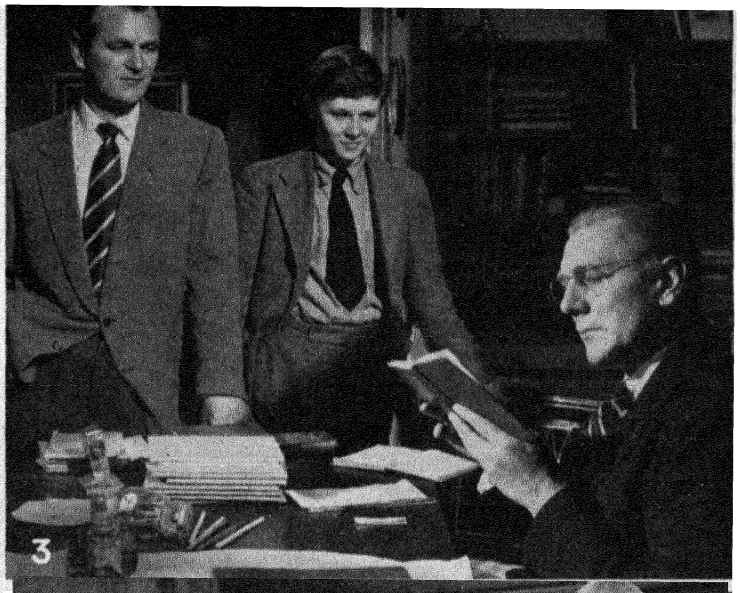
Commonwealth. Film production in the Commonwealth (except in India which continued its large production of feature films for the home market) continued to be mainly documentary, India, Canada, Australia and New Zealand being the principal producing countries. India had previously formed a films division in its Ministry of Information and Broadcasting, and documentaries were made on many subjects, including architecture, agriculture, industry and health. A series of regional films was also being made, so that life in various parts of the country could be understood throughout India as well as abroad.

Czechoslovakia. Production in Czechoslovakia during 1951 was undertaken under the influence of a resolution passed in 1950 by the central committee of the Communist party. This was worded as follows: " Following the example of the great Soviet film, the Czechoslovak film must play an important part in the education of the new citizen of the Czechoslovak republic, conscious of his mission, a selfless builder of socialism, deeply loving his country and ready to protect it at any time against attacks of its enemies—citizens united with the nations of the U.S.S.R., the people's democracies, and the progressive forces in the entire world by indestructible ties of friendship and love."

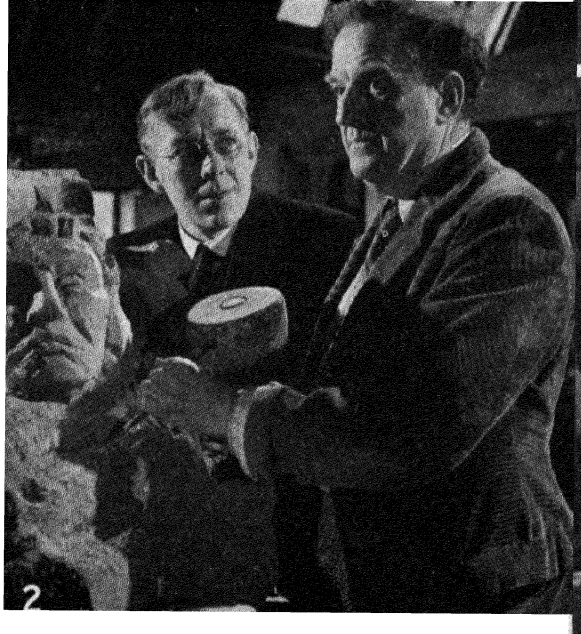
The chief films produced were: *New Warriors will Arise* (directed by Jiři Weiss), a study of the origins of the national proletarian movement in the 19th century; *The Basket Bells* (directed by J. Jorčicka), also a historical study of the workers' movement; *Herald of the Dawn* (directed by V. Krska), a biographical film about Božek, the Czech inventor of the steam-car; *It Happened in May* (directed by Martin Fric), a comedy of a factory worker whose prejudices against becoming a " shock-worker " are overcome; *Girl at the Wheel* (directed by Jiři Sequens), the development of a village to Communist forms of production; and *The Fight will End Tomorrow* (directed by M. Cikán), a Slovak story of the workers' struggle in the 1930s.

France. French feature film production, like that of Great Britain, suffered setbacks after World War II, but its output in 1950 was 112 feature films. In 1948 the Paris Film Accord limited the entry of United States films to France, and made it obligatory for French cinemas to show French films for 5 weeks out of each period of 13 weeks. A national film fund was also created from the receipts of a heavy tax imposed on every film, French or foreign, that was distributed, and also from a small entertainments tax











Five British films of 1951: (1) the Royal Command film "Where No Vultures Fly," with Bob Payton (Anthony Steel) and Gwil Davies (Meredith Edwards). (2) "The Lavender Hill Mob," with Holland (Alec Guiness) and Prendlebury (Stanley Holloway). (3) "The Browning Version," with Frank Hunter (Nigel Patrick), Taplow (Brian Smith) and Andrew Crocker-Harris (Michael Redgrave). (4) The Festival film "The Magic Box" with Robert Donat as Willie Friese-Greene. (5) "Tales of Hoffman" with the doll Olympia (Moira Shearer) and Spalanzani (Leonide Massine).

on cinema seats. French producers, however, who undertook the further production of films received a grant-in-aid from this fund which amounted to a complete refund of the tax on any previous film to their credit in proportion to its box-office receipts (this should be compared with the Eady plan in Great Britain). Even with this substantial assistance, it remained difficult for the many independent producers who made up the French film industry to raise the full capital necessary to undertake fresh production. The French domestic market, working on a single-feature programme basis, could only absorb 70 to 100 films a year after the annual foreign importations of about 185 films—a proportion very bitterly resented by French film-makers—had been allowed for. A further problem was that the French, like the British exhibitors, in general favoured the showing of American rather than native productions because the former on the whole produced higher profits; the rentals for French films, like those for British productions, were higher in the home market, from which they had to recoup the major part of their costs.

Documentary films were normally produced as private commercial ventures, and then as far as possible placed with distributors for exhibition so that they might earn the 3% of the programme receipts which were due to them by law. The abuse of this system (and those who take the documentary seriously in France were doing what they could to stop the abuse) was that producers of feature films themselves manufactured cheaply made short films in order that they might retain the 3% of the proceeds due to the documentary in the programme in which their feature was shown. Responsible documentary producers were sometimes forced to turn to the state for help, since the production of a short documentary never cost less than about Fr. 2 million (about £2,000). It was possible to get minor aid for documentary production through the grant-in-aid scheme referred to above, but producers of short films of a kind likely to interest one or other of the government departments controlling grants for public information work, such as the Ministry of Foreign Affairs, could also obtain help from these sources. Also the film service of the French Cultural Relations department had directly sponsored productions; in this way film studies of the writers Colette, André Gide and Paul Claudel were undertaken.

Among the chief French feature films of 1951 were *Les Amants de Brasmort* (directed by Marcello Pagliero), *L'Auberge Rouge* (Claude Autant-Lara), *Barbe-Bleue* and *Souvenirs Perdus* (Christian Jaque), *Edouard et Caroline* (Jacques Becker), *Le Garçon Sauvage* (Jean Delannoy), *Juliette ou la Clef des Songes* (Marcel Carné), *Maîtres après Dieu* (Louis Daquin), *La Nuit est mon Royaume* (Georges Lacombe), *Olivia* (Jacqueline Audry), *Le Plaisir* (Max Ophüls), *Sous le Ciel de Paris* (Julien Duvivier) and *Journal d'un Curé de Campagne* (Robert Bresson).



A scene from the Swedish film "Miss Julie" which was shown in London in 1951.

Western Germany. The standard of postwar film production in Western Germany was not high. The great majority of film producers tried to obtain quick success, since the greatest problem for German producers, as for those in other countries, was to draw a sufficient proportion from the box-office receipts to recover their costs. In 1951 there was no shortage of producers (there were about 130 registered companies), but few made more than an occasional single film. A production which attracted attention during the year was a political melodrama, *Der Verlorene*, to write and direct which Peter Lorre, a well-known actor in U.S. films, returned to Germany.

Italy. Italian motion picture production increased from 48 films in 1945 to 68 in 1949 and 100 in 1950; audiences increased by 50% between 1945 and 1950. Production costs on the whole continued to be recoverable from the home market, but the best Italian films were widely exported and had firmly established the reputation of the chief Italian film-makers throughout the world. Documentary productions, as in France, received 3% of the receipts of the film programmes to which they were assigned; there was therefore regular production of documentary films, many of them of a high artistic standard. Italy also had an arrangement of awarding feature films of merit a degree of tax remission. A panel, with film critics prominent upon it, graded new films in terms of quality; the top grade received an 18% remission of entertainments tax and the second grade a 10% remission. Films in the third grade received neither tax exemption nor the right to qualify as quota films in Italian cinemas.

The chief Italian productions of the year were *Miracolo a Milano* and *Umberto D* (directed by Vittorio de Sica), *Il Cristo Proibito* (the first film to be directed by the novelist Curzio Malaparte), *Anna* and *Luci del Varietà* (Alberto Lattuada), *Napoli Milionaria* (Eduardo de Filippo), *Paris est toujours Paris* (made by Luciano Emmer in France), *The Medium* (Gian-Carlo Menotti's film version of his famous opera), *Cronaca di un Amore* (Michelangelo Antonioni) and *Due Soldi di Speranza* (Renato Castellani).

U.S.S.R. Among films released and planned were: *Admiral Ushakov* (directed by M. Romm); *Admiral Suvorov* (directed by V. Petrov); *The Conscience of the World* (directed by A. Room), a film on the dilemma of a scientist; *Farewell America* (directed by A. Dovzhenko); *The Glory of the People* (directed by G. Alexandrov), a biography of the composer M. I. Glinka; *Green Ocean* (directed by Mark Donskoy); *Harvest* (directed by V. I. Pudovkin), a film on a backward collective farm; *Sadko* (director, V. Ptushko), a film of Nikolay Rimsky-Korsakov's opera; and two biographical films, *Rimsky-Korsakov* (directed by G. Roshal) and *Pushkin* (directed by S. Gherasimov).

Yugoslavia. In the period 1945-48 Soviet films were the dominating element in the Yugoslav cinemas, but during that period it was decided that national film production should be developed. Although it was intended that the six constituent republics of Yugoslavia should develop independent film production, only Slovenia, Serbia and Croatia had in fact begun work to any extent. Slovenia, with its centre of Ljubljana, by the end of 1951 had produced three films; Serbia, with its centre in the national capital Belgrade, had made ten; and Croatia, with its centre at Zagreb, four.





Two United States films: " Born Yesterday " (left) with Billie Dawn (Judy Holliday) and Paul Verral (William Holden); " All About Eve " with (left to right) Eve Harrington (Anne Baxter), Margo Channing (Bette Davis), Miss Casswell (Marilyn Monroe) and Addison De Witt (George Sanders).

The standard achieved in Yugoslavia was remarkable considering that there had previously been virtually no film production. At Belgrade a so-called " film city " was in process of construction just outside the town; it was begun in 1947 and its plans were based on studies undertaken by Yugoslav architects in Czechoslovakia and Germany. The studios were in use in 1951, and the whole undertaking was expected to be completed by 1953. These studios would give Yugoslavia a film production centre which would be among the most outstanding in Europe. The studios in Zagreb were makeshift adaptations of buildings not designed for the purpose. The country as a whole had about 1,000 cinemas seating from 300 to 1,000 people; it was planned to increase the number of cinemas so that there would be one for every 10,000 people, and to serve the villages with mobile cinemas. British films were shown prominently, as also were U.S., French, Italian and German films.

Among the more successful Yugoslav films were: *Fra Brne* (directed by Fedor Hanžeković), a story about the corruption of monks and the monastic system in 19th-century Dalmatia; *The Magic Sword* (directed by Rade Marković), a legendary story; *The Last Day* (directed by Vladimir Pogačić), a melodrama about sabotage; and *The Red Flower* (directed by Gustav Gavrin), a story of a clash between Yugoslav "Quislings" and partisans in a German prison camp during World War II. (R. MAN.)

United States. The U.S. motion-picture industry in 1951 not only halted but reversed the unfavourable business trends which had beset it since 1947. This was by far the industry's most significant achievement of the year, since it indicated that the business had confounded its prophets of doom and had survived what was possibly the gravest crisis in its history. Estimates of the degree of box-office improvement varied from 4·1% to as high as 20% in certain areas.

Many factors entered into the recovery, in addition to better pictures which resulted in greater attendance. They included adjustment to television's worst competitive effects; a larger number of films in colour, always a box-office stimulant; an increase in the number of theatres, particularly drive-ins; improvement in foreign revenues; cuts in production costs; the excellent position in regard to excess profits tax; the good effects of the autumn promotion campaign entitled " Movietime, U.S.A."; and greater co-ordination of various industry elements in matters affecting their common welfare under the auspices of the Council of Motion Picture Organizations (C.O.M.P.O.). Paul Raibourn, vice president of Paramount Pictures and one of the industry's leading economic authorities, estimated that the business volume of the industry in 1951 was from 6% to 8% greater than in 1950. A 10% decline at the beginning of the year, he stated, was offset by later business volume which exceeded the preceding year by as much as 20%.

One of the most significant indications of the change in the industry's outlook was 20th Century-Fox's full restoration of cuts in the salaries of 130 top executives which had been made as an economy measure in 1950. The restoration was based on the company's earnings during the final six months of 1951. Unspectacular but steady gains in weekly attendance also reflected the recovery. From a weekly U.S. attendance of about 53 million, the figures climbed to about 55 million to 60 million weekly.

The trade magazine *Variety* estimated that the total business of the 131 pictures with the highest receipts was $221,175,000 in the U.S. and Canada, as compared with $210,565,000 for the pictures with the highest box-office receipts in 1950.

The foreign market for U.S. films expanded during 1951, as the total of film theatres in the world rose to 99,617, an increase of 8,000 over the preceding two years. Progress in easing currency and quota restrictions, as well as better pictures, also were important factors; dollar remittances from abroad for 1951 were estimated at between $120 million and $125 million as compared with previous figures of about $100 million annually. The total estimated gross of U.S. pictures abroad amounted to $900·5 million in 1950, and 1951 figures indicated the 1950 gross would be exceeded by $50 million to $75 million.

Showings of foreign films in the U.S. increased during the year; the number of foreign films approved by the Production Code administration in 1951 rose by 13 over 1950.

The popularity of religious subjects set against spectacular backgrounds, revived by Cecil B. de Mille's *Samson and Delilah* in 1950, reached a peak in 1951 with *David and Bathsheba*, the film with the greatest box office receipts of the year, and the release, toward the year's end, of Metro-Goldwyn-Mayer's *Quo Vadis*. Colourful musicals, numerous comedies, a wide range of war stories, several excursions into the classics, a number of biographies, fantasies, adventure epics, science-fiction features and films on political, racial and social themes—such as *I Was a Communist for the FBI*,

Storm Warning, *The Well* and *Sound of Fury*—rounded out the extensive assortment. Many of these, such as *The Red Badge of Courage*, also had historical backgrounds. Large-scale westerns were not so prominent among box-office leaders as in previous years, and films with crime, gangster, psychological and horror themes continued to decline.

U.S. exhibitors, by confidential ballots cast in the annual poll of the *Motion Picture Herald*, chose the following as the ten top box-office stars for 1951: John Wayne, Dean Martin and Jerry Lewis, Betty Grable, Bud Abbott and Lou Costello, Bing Crosby, Bob Hope, Randolph Scott, Gary Cooper, Doris Day and Spencer Tracy. The New York Film Critics, in Dec. 1951, announced the following choices: best English-language motion picture of the year, Warner Bros. Pictures' *A Streetcar Named Desire;* best foreign-language picture, *Miracle in Milan;* best actress, Vivien Leigh in *A Streetcar Named Desire;* best actor, Arthur Kennedy in *Bright Victory;* best director, Elia Kazan for *A Streetcar Named Desire*.

The Academy of Motion Picture Arts and Sciences announced in March 1951 the awards for 1950 among which were the following: best picture, *All About Eve* (20th Century-Fox); best actor, José Ferrer in *Cyrano de Bergerac;* actress, Judy Holliday in *Born Yesterday;* supporting actor, George Sanders in *All About Eve;* supporting actress, Josephine Hull in *Harvey;* best direction, Joseph L. Mankiewicz for *All About Eve* (20th Century-Fox); best documentaries, short subjects, *Why Korea?* (20th Century-Fox Movietone; producer, Edmund Reek); feature, *The Titan: Story of Michelangelo* (Michelangelo company, Classics Pictures; producer, Robert Snyder); foreign-language film award, *The Walls of Malapaca*. Among special awards was one to Louis B. Mayer for his pioneering leadership. (A. AR.)

Educational Motion Pictures. Encyclopædia Britannica Films led 1951 production with films presenting biographical sketches of great Americans. These included: *Thomas Jefferson*, *Benjamin Franklin* and *Booker T. Washington.* Young America Films made a contribution to the study and practice of human relationships with such films as *The Other Fellow's Feelings* and *The Outsider.* McGraw Hill Text-films continued to produce films for use in training teachers. Film production budgets for 1951 were in general increased, mostly because of increases in local school film purchases. The greatest increase in film purchasers was by newly created school film libraries.

While the school use of educational films climbed to its highest peak in the history of U.S. education, several national organizations continued to sponsor programmes of acquainting the adult population of the United States with the power of the educational film. The Educational Film Library association served more than 600 members with information. The Film Council of America was considerably reorganized, and it refinanced the service activities to which it was committed through a substantial grant-in-aid from the Ford foundation. It supplied information about the selection and use of 16-mm. sound motion-picture films. (W. A. WH.)

Technical Developments. *Theatre Television.* Theatre television became a commercial reality in 1951, with the first exclusive theatre telecast of a major sports event being shown in nine theatres in six U.S. cities to capacity audiences. About 50 installations were made of direct projection theatre television systems, and there were several theatre systems in use that photographed a small-sized television receiver tube with either 16- or 35-mm. reversal film. This film was processed in 30 to 40 sec. and then projected normally.

New Technicolour System. Technicolour introduced a new colour system balanced for 3,350 K tungsten illumination with an ASA exposure speed of approximately 50, whereas the original three-colour system was balanced to 5,700 K daylight illumination with an exposure speed of approximately 18. The new system was readily accepted and several feature pictures were made and released using the system. The increased speed and the fact that it allowed the use of incandescent rather than arc lamps resulted in substantial economies in set lighting.

Negative-Positive Colour System. Ansco and the Eastman Kodak company both introduced new negative-positive colour films which were daylight balanced, with an ASA exposure speed of approximately 18. A negative-positive system is one in which two multilayer-type colour films are provided, one for camera use and the other for preparation of release prints. Both films are intended for processing by the user. The camera film, or negative, is exposed in conventional motion-picture cameras. The positive material may be printed on modified conventional printers. Processing is carried out in continuous-type developing machines similar to those used for conventional black-and-white film processing, but with more tanks to allow for the increased number of steps required.

Strippable Negative Colour System. The Eastman Kodak company also made available on an experimental basis a multilayer stripping negative for colour, said to have an ASA speed rating of 64 (tungsten). This negative consists of a single film base bearing three black-and-white emulsions. The layer next to the base is red sensitive, the next is green sensitive and the top emulsion is blue sensitive. Between the red- and green-sensitive layers is a special interlayer which has the property of adhering to the emulsions when dry but readily separating when wet. A similar interlayer is between the green- and blue-sensitive emulsions. As the green- and red-sensitive emulsions are also sensitive to blue light, a yellow filter layer is interposed between the blue and green emulsions. After exposure, but before development, the two upper layers are wet stripped separately and each transferred to its own film base. This strippable negative can be exposed in regular studio cameras and it also provides separation or three-strip negatives which can be developed in standard black-and-white processing equipment. (W. F. KY.)

CIVIL AVIATION: *see* AVIATION, CIVIL.

CIVIL DEFENCE. The year 1951 showed further consolidation in the process of re-establishing civil defence in the United Kingdom. Recruiting continued throughout the year, reinforced by special campaigns; the number of volunteers exceeded 150,000 and it was hoped that this number would continue substantially to increase. Although the numbers had gone up considerably they were still short of the peacetime requirement.

Local authorities throughout the country were busy getting their organizations set up on the lines of the six sections (five in Scotland). Heads of these sections were appointed and the actual training for section duties began.

A further important step was the issue of the first industrial bulletin outlining the part that industry should play in civil defence and giving guidance generally on its requirement. All business undertakings employing more than 200 people were responsible for providing their own civil defence organization. Those employing less than this number would come in as part of the local authority scheme. A number of the biggest ndustries had already made considerable strides in setting up their organization and in getting personnel trained. An important difference from World War II was that, with the exception of the nationalized industries and those being run directly by a government department, the supervision of civil defence arrangements would rest with the Home Office instead of being split up between a number of government departments.

A number of local training centres were set up, including rescue training grounds, and many authorities now had a proper civil defence headquarters where not only training but also social functions could be held. The work of the Civil Defence Staff college at Sunningdale park continued, and representatives from a number of countries within the Commonwealth, belonging to the North Atlantic Treaty organization and others outside it, attended courses. The three technical schools were working at full capacity, and in addition to the training of instructors for the United Kingdom had also trained staff for Canada and Malta, where schools were opened in 1951.

The shelter surveys were completed in many areas and further instructions were sent out, though no actual building of shelters was undertaken.

Civil defence was given its allotment from the total amount of money available for defence in the United Kingdom, and certain priority tasks were allotted which were directly related to the strengthening of the fighting services. The earmarking of buildings for civil defence premises was more or less completed. A number of important exercises were held, including in three cases the bringing in of an *ad hoc* military mobile column in support of civil defence.

During the year authority was given for the extension of the Civil Defence Staff college to take up to 70 students, and the addition of a tactical school to be attached to the staff college for a further 50 students. This project entailed the building of additional premises and the foundation stone of the new building was laid by the home secretary on July 28.

The training of local instructors was pushed ahead with vigour and by 1951 the number was in the region of 10,000.



"High Street, Blitzville" which was constructed in the grounds of Taymouth Castle, Perthshire, to train civil defence rescue teams.

CIVIL LIST PENSIONS. Under the Civil List act, 1937, the amount allowed to be granted as pensions in any one year was £2,500. In the year ended March 31, 1951, £1,150 of this was expended on new pensions, and £1,350 on increases to earlier ones.

Eight new pensions were granted: to Ethel Austin, widow of Frederick Britten Austin, in recognition of his services to literature (£200); to Lily Frances Chitty for her services to archaeology (£150); to Daisy Fowler Drinkwater, widow of John Drinkwater, for his services to literature (£150); to Dorothy Kingsmill Lunn, daughter of Hugh Kingsmill Lunn, for his services to literature (£150); to Catherine Phillips, widow of Walter Alison Phillips, for his services to historical studies (£100); to Lady Elliot Smith, widow of Sir Grafton Elliot Smith, for his services to science (£100); to Rosa Snell, widow of Frederick John Snell, for his services to literature (£200); and to James Lewis Thomas Chalmers Spence for his services to literature (£100).

CIVIL SERVICE. *Structure of Government.* In Jan. and July 1951 two important changes were made in the structure of government. First, certain functions of the Ministry of Health relating to local government were taken from that ministry and combined with those of the Ministry of Town and Country Planning, which was renamed the Ministry of Local Government and Planning. This department thus became responsible for housing and the new towns, services such as water and sewerage, planning and controlling the use of land, and the general oversight of local government and its finance; the Ministry of Health (new style) remained responsible for the health services only. Secondly, the Ministry of Materials was created by the transfer of certain responsibilities from the Board of Trade and the Ministry of Supply. The purpose was to centralize the responsibility for the production and procurement of the bulk of raw materials in a department which could give its whole time to these matters.

When Winston Churchill formed his government after the general election of Oct. 1951, the following further changes were made. Two members of the cabinet were appointed with special co-ordinating responsibilities. The lord president of the council was given general oversight over the activities of the Ministry of Food and the agriculture departments, and a new post was created of secretary of state for the co-ordination of fuel and power and transport, concerned with issues of policy affecting this group of industries and services. A minister of state was appointed to assist the secretary of state for Scotland. The home secretary became the member of the cabinet with special responsibility for Wales, and was to be given a second parliamentary under secretary, whose task was to concentrate on Welsh affairs. The paymaster general was given special responsibility for the supervision of atomic energy research and production. The title of the Ministry of Local Government and Planning was changed to Ministry of Housing and Local Government. One minister was appointed to take charge of both the Ministry of Transport and the Ministry of Civil Aviation.

Strength. No great change took place in the size of the civil service during the year. The expansion of the service and supply departments to carry out the defence programme, and the extra work of rating valuation which fell to the inland revenue department under the Local Government act, 1948, involved increases which more than counterbalanced reductions elsewhere. As the result, the total non-industrial staff of the civil service rose from 675,400 in Oct. 1950 to 685,447 in Oct. 1951.

Recruitment. No important changes were made in the system of recruitment. For the first time a special competition

was held to provide a method of entry to the clerical class for young men after completing their period of compulsory national service.

Professional Classes. Reports were received during the year from two important committees; the first, under the chairmanship of Sir Thomas Gardiner, reviewed the pay and organization of engineers, architects, surveyors and allied professions in the civil service; the second, under the chairmanship of Sir Harold Howitt, considered the pay and organization of medical officers. Both reports recommended some increases in salaries, particularly in the junior grades, in order to bring the rates more into line with those received outside the civil service. (E. E. Bs.)

CLASSICAL STUDIES. The most notable event in 1951 was the fourth triennial joint meeting of the Hellenic and Roman societies, the Classical association and the British schools at Athens and at Rome, which was held at Cambridge during eight days in August. There was a large attendance, which included many scholars from overseas, and the variety of the papers read illustrated the wide sweep of classical interests. Earlier in the year the Classical association held its annual four-day meeting at Liverpool, at which the presidential address was delivered by Harold Nicolson on "Nature in Greek Poetry." There was also a meeting in London on the general theme of Greek and Roman epic poetry. The Virgil society and the Association for the Reform of Latin Teaching also arranged successful conferences. The Orbilian society produced three numbers of *Acta Diurna*, its lively Latin newspaper for schools, as well as a useful catalogue of visual aids for classical teachers. Inter-school prize competitions in the reading of Latin and Greek aloud were again organized by many local branches of the Classical association.

Among books and papers published since the last months of 1950 the most startling was E. Lobel's *A Greek Historical Drama* (London, 1950), which set out the 16 decipherable lines of a papyrus fragment of what was, apparently, a hitherto unknown type of Greek tragedy. D. L. Page, in his inaugural lecture as regius professor of Greek at Cambridge, discussed this fragment further and, with great learning, upheld the early date assigned by Lobel. This lecture was published as *A New Chapter in the History of Greek Tragedy* (Cambridge, 1951). A contrast to these slim pamphlets was the massive work of E. H. L. Lorimer, *Homer and the Monuments* (London). Other important books were D. L. Page, *Alcman: Parthenion* (Oxford), and M. Platnauer, *Latin Elegiac Verse* (Cambridge).

There was a number of welcome re-issues in 1951 of older books, notably R. Meiggs's revision of J. B. Bury's *History of Greece* (London), J. F. Mountford's revision of Sidgwick's *Greek Prose Composition* (London), R. Meiggs's and A. Andrewes' revision of Hill's *Sources of Greek History* (London), G. B. Grundy's *Thucydides and the History of his Age* (Oxford), V. Ehrenburg's *The People of Aristophanes* (Oxford) and F. G. Kenyon's *Books and Readers in Greece and Rome* (Oxford). Important continuations were vol. v of E. A. Lowe's *Codices Latini Antiquiores* (Oxford), vol. iii of Meritt, Wade-Gery and McGregor's *The Athenian Tribute Lists* (Princeton) and, in the Loeb series (London), the sixth of the ten volumes of Pliny's *Natural History*, edited by W. H. S. Jones. To the popular Penguin books (London) were added S. A. Handford's *Caesar's Conquest of Gaul*, R. E. Latham's *Lucretius*, P. N. Ure's *Justinian and his Age* and T. B. L. Webster's *Greek Terracottas*.

Classical scholarship suffered a sad loss during 1951 by the deaths of Miss M. Alford, R. G. Bury, H. E. Butler, R. M. Henry, Miss K. Jex-Blake, Miss N. Jolliffe, J. G. Milne, G. C. Richards and Miss C. Skeel. (L. J. D. R.)

CLOTHING INDUSTRY. Considerable and continuing fluctuation in the prices of raw materials, particularly wool, made the making and selling of clothing a precarious business during 1951. The year opened with a "beat-the-price" buying rush by the public, in the expectation of rising prices as garments made from the current raw material purchases reached the market. When wool prices suddenly fell in April the previously higher prices had by then begun to be reflected in clothing prices, and the demand from the public eased off.

Having reached a record peak in March, which was 11 times higher than the price ruling in June 1939, the wool market, in May, suffered the most severe fall in its history, and afterwards continued to fluctuate. In consequence, clothing manufacturers were, for the second time in the year, faced with the position of having to offer identical garments at different prices, based on the cost of the raw materials. With consumer-buying at a very low ebb, retailers had large sums tied up in stocks bought at the higher level, and they were not all keen to buy further supplies, pointing out that they could not sell the more costly goods side by side with cheaper counterparts. The position was thought by some to be aggravated by speeches by Hugh Dalton, minister of local government and planning, in September, urging the public not to buy clothing until prices were reduced. Rises in unemployment figures in some clothing manufacturing centres followed soon afterwards.

Towards the end of the year, the prices of some items of clothing began to drop. Unemployment and short-time working in the garment centres was on the increase in November, but the outlook was generally more optimistic.

During the year, purchase tax continued to cause concern to the clothing industry, because of the gap it produced between the prices of utility and non-utility goods. A government-sponsored committee was set up to deal with this problem and trade associations in various sections of the industry were invited to submit recommendations. Suggestions varied from the complete abolition of the tax to the introduction of a general sales tax in its place. The majority of opinion, however, appeared to favour a general reduction in the rates of tax as a first step. The committee's report was expected early in 1952.

The Clothing Industry Development council, set up by the Labour government, despite opposition from the employers, opened headquarters in London and branches in Leeds and Manchester during the year. Apart from paying the compulsory levy, the majority of the bigger firms in the industry continued to withhold their support from the organization. Following the defeat of the Labour government in October it was expected that the whole question of the Development council would be the subject of a review by the new government.

In August, the government announced its intention to reintroduce the cost-plus system in the clothing trade, to supplement control by maximum prices. Clothing manufacturers opposed this move, which would have meant their having two sets of prices, and the general election was announced before any further action was taken.

For the ten months to Oct. 31, the value of exports of clothing from the United Kingdom amounted to £39,414,925, as compared with £28,554,005 in the corresponding period in 1950, and £24,337,253 in 1949. The value of clothing shipped to the United States during the period rose to £3,774,720, as compared with £2,628,533 in 1950. Australian purchases, which dropped from £4,043,138 in 1949 to £2,973,085 in 1950, jumped to £5,006,000; the figure for Sweden was £4,002,990, as against £2,469,270. Exports to Canada were valued at £2,855,252 (£2,475,732); Republic of Ireland £1,912,603 (£1,916,468); the Netherlands

£1,157,216 (£915,925); Belgium £1,298,657 (£950,414); Switzerland £1,116,236 (£630,324); and Germany £760,424 (£823,030). (R. J. My.)

United States. The year 1951 was one of slump in the clothing industry. Consumer resistance to high prices, particularly in men's wear, caused unit sales to drop with a consequent fall in production at factory levels. Many factories operated only part time, especially in the work clothing field.

Price controls held textile costs in hand but minor wage increases were granted. The world-wide wool shortage was reflected in the high price of woollens and worsteds and there was a shortage of tropicals. Synthetics took an increasing share of the market; new fibres such as orlon and dacron entered the men's suitings field on a strongly competitive price basis.

Despite reluctance on the part of clothing manufacturers to expand, several large highly efficient factories were opened during the year. Machinery sales fell drastically throughout the entire world. Nevertheless machinery research continued on new models. These included a new powerful, fast self-sharpening cutting machine; automatically lubricated special sewing machines for a variety of purposes on work, dress and woollen clothing; a new button sewing machine of British make; and a number of new air-operated pressing and creasing machines. Changes appeared in U.S. military garments. Following research, a sponge type undergarment was in the final stages of perfection. New developments, stressing dead air space, were used in cold climate garments. Pressure flying suits for high altitudes were used.

The industry became exceedingly price-conscious because of the high cost of labour and materials and high taxes. Manufacturers attempted to cut costs, but often found it difficult to maintain quality. Such minor items as the substitution of pressed-on heat-sealed labels in lieu of sewed-on labels showed the trend. (*See* also Textile Industry.)

(S. L. S.)

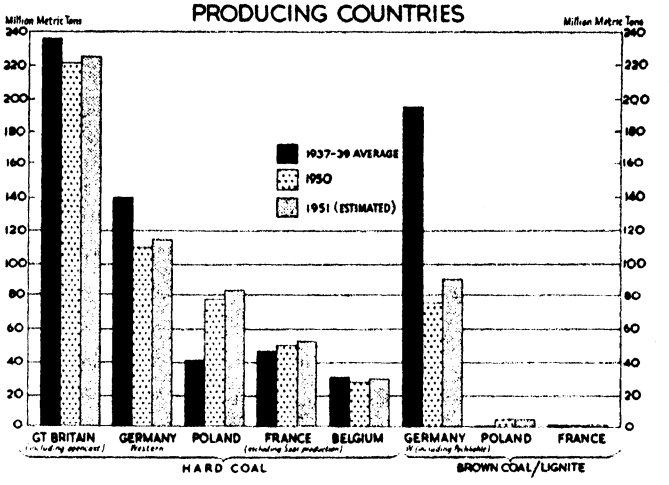
COAL. The coal mining industry in Great Britain was nationalized in 1947 and had completed its first five years under state ownership by the end of 1951. However much one section of the nation objected in principle to the idea of nationalization of industry, all were agreed that in the case of coal it was inevitable. During the 20 years between World War I and World War II, there was little or no co-operation between the opposing camps, coal owners and mineworkers. The general state of the coal industry declined until, during World War II, it became necessary for the government to introduce various forms of control, such as the Coal Charges act. The annual output steadily declined from 259 million tons in 1924 to 182 million tons in 1946. After that it began to rise, but not fast enough to meet the growth in demand. Consequently, coal crises developed with unpleasant regularity in the winter months. The production of deep-mined coal in 1950 was 204·1 million tons and of open-cast coal 12·2 million tons, making a total of 216·3 million tons. For 1951 the totals were: deep-mined coal 211·1 million tons and open-cast 10·99 million tons, a total of 222·1 million tons. This exceeded the highest estimate (222 million tons) made in the government's *Economic Survey* for the year.

Table I. Labour Productivity in Coal Mines in Great Britain

	1949	1950	1951*
Face workers (total) . . .	296,000	288,000	287,000
All workers (total) . . .	719,000	697,000	698,000
Shifts worked (average per week) .	4·67	4·7	4·7
Output (tons) per man shift at face	3·02	3·11	3·16
Output (tons) per man shift at face (overall)	1·16	1·19	1·21

* Estimated.

ANNUAL COAL PRODUCTION IN THE CHIEF EUROPEAN PRODUCING COUNTRIES



The National Coal Board. The control of the industry was vested in the National Coal board, comprising seven permanent members with power to co-opt part-time members. The appointment of the board members was for five years. During 1951, at the expiration of his five years' appointment, the chairman, Viscount Hyndley, resigned and was succeeded by Sir Hubert Houldsworth, previously chairman of the East Midlands Divisional board.

In addition, Sir Lionel Lowe and Sir Eric Young retired and W. J. Drummond, Sir Eric Coates and Sir Andrew Bryan were appointed. The board suffered a great loss during the year when its vice chairman, Sir Arthur Street, died. W. J. Drummond and Sir Eric Coates became joint vice chairmen.

Table II. Wage Earners in Mining in Great Britain, Showing Absenteeism Rate, Recruitment and Wastage

Year	Total Employed	Absenteeism Face Workers %	Absenteeism All Workers %	Recruitment	Wastage
1945	708,905	19·12	16·31	48,668	66,019
1950	697,000	14·51	11·96	50,281	75,803
1951 (est.)	698,000	—	—	60,000	58,000

There were also five part-time members. Originally, the duties of the full-time members of the board were functional, but with new appointments this responsibility began to lapse and they became more concerned with policy than execution.

The National Coal board was, on several occasions during 1951, subjected to severe criticism by ex-members and by prominent ex-colliery proprietors. The chief complaint was that the board itself, with its headquarters staff, retained too tight a control on operations in the divisions and tended to stifle initiative. Other comments were that the powers of the colliery manager were being undermined by the creation of too many advisers at all levels. It is fair to say that the board itself repeatedly stated that the mine manager was the king-pin of the whole organization.

Mining is a mechanized industry and it is doubtful whether it is possible for one man, *i.e.*, the manager of a mine, to keep abreast of all the technical developments. In other words, whereas the vertical chain of control: manager, agent, managing director, of pre-nationalization days had to be retained, there had to be lateral developments at different levels—specialization and service departments—whose duties were to advise the mine manager. The actual day-to-day running of a large mine is a full-time job for any man. Under the National Coal board, the manager had ventilation engineers, dust suppression engineers and safety engineers, specialists in their own line, to advise him. This was not new because earlier managers had engine-wrights, electricians, surveyors, etc., on their staff. The difference was that these

additional officials had been up-graded in status and had developed a higher standard of knowledge. Nevertheless, the manager still had legally the last word about the working of his mine.

Pensions. A pension scheme was agreed between the mine-workers and the National Coal board. The scheme was a joint contributory one and the benefits were in addition to any received under the National Old Age Pension scheme. The amount of benefit was determined by an accummulation of " units," which were earned by length of service and regularity of work. The maximum benefit was 30*s.* per week on retirement at 65. The National Coal board contributed 1*s.* 8*d.* and each workman 1*s.* 3*d.* a week worked. A donation of £2 million was placed in the fund to start it off and this had to be followed by further yearly donations until the scheme became actuarially solvent.

TABLE III. MONTHLY RATE OF DELIVERY OF MACHINERY TO COAL MINES IN GREAT BRITAIN

	1949	1950	1951
Coal cutters	64	48	44
Power loaders	8	5	5
Conveyors	245	200	200
Underground locomotives	6	4	4

New Development. During the year, the " Plan for Coal " was pursued but, because of shortage of materials, the tempo was slower than was intended.

Several large new ventures were started during the year, of which the following are examples. A new colliery designed to raise 1 million tons a year from seams lying under the Firth of Forth was started. It would replace the Kinneil

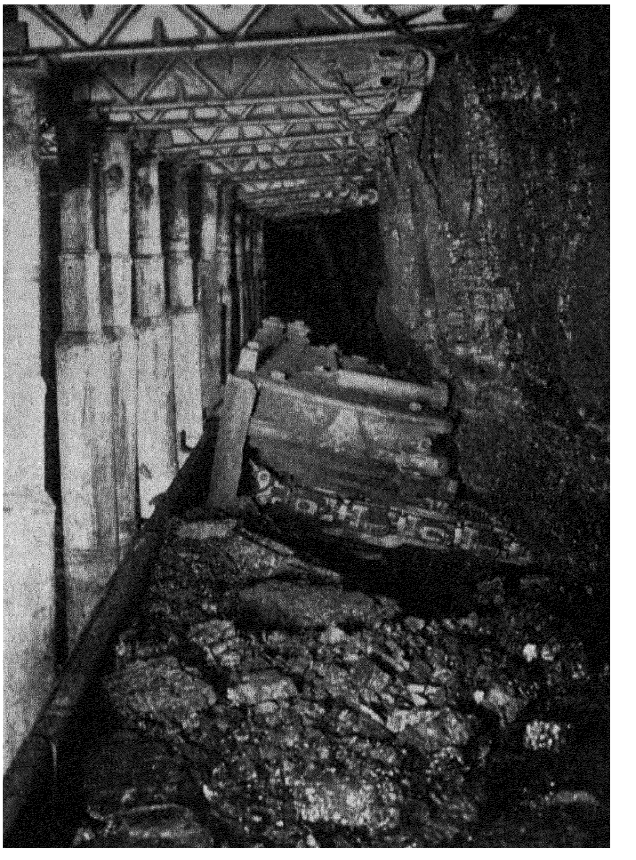
TABLE IV. WORLD PRODUCTION OF HARD AND BROWN COAL
(Thousands of metric tons)

	1946	1947	1948	1949	1950
Belgium	22,852	24,436	26,691	27,845	27,304
Czechoslovakia	33,642	38,578	41,335	43,529	45,962
France	49,289	47,309	45,129	53,044	52,529
Saar	7,886	10,485	12,567	14,262	15,091
Germany, Western	106,851	131,261	153,269	177,083	188,158
Great Britain	193,132	200,632	212,789	218,608	219,776
Hungary	6,352	8,809	10,598	11,816	10,700*
Italy	2,699	3,218	1,880	1,936	1,813
Netherlands	8,792	10,513	11,325	11,907	12,441
Poland	48,742	63,939	75,325	78,732	82,842
Spain	12,021	11,764	11,822	11,949	12,377
U.S.S.R.	161,000*	175,000*	201,000*	226,000*	261,000
China	11,475*	14,148*	8,720*	15,500*	18,755*
India	29,349	30,000	30,301	31,962	32,507
South Africa	23,602	23,498	24,024	25,437	26,473
Australia	19,905	21,295	21,820	21,785	24,187
Canada	16,159	14,396	16,737	17,345	17,359
United States	539,257	623,974	595,410	435,966	504,272

* Estimate.

colliery which, for many years, had worked the shallower portions of the seams. Approval was given to spend £7,500,000 on a new anthracite colliery near Swansea. It was expected that 1 million tons of high grade anthracite would be raised from a depth of about 2,000 ft. and that reserves would be available to last 100 years. It was believed that much of this coal would be exported to the United States and Canada. One large coking and by-products plant came into operation during the year and orders were placed for another, costing £8 million, to carbonize 750,000 tons a year near Chesterfield. It was intended that this plant should incorporate all the most recent European and U.S. innovations. When completed it was expected to be the most up-to-date coking and by-products plant in the world.

Price Structure. An entirely new price structure for house coals was introduced in June 1951. All house coals were classified, according to quality, into eight national groups with substantial price differentials between each group. Great Britain was divided into 60 consuming areas or zones. The prices in each zone were to include the average overall cost of transporting coal to that zone. The price of similar



A coal cutter, tilted to cut at the bottom of the seam, operating on top of an armoured conveyor. The hydraulic pit-props (on left) allow the conveyor to work in a prop-free track.

coal in each zone would be common within that zone but, owing to transport costs, would differ from zone to zone. For a given price per ton, therefore, a customer could be certain of obtaining a standard type of house coal within his zone.

Prices. Pit head prices moved upwards twice during 1951 and coal was 8*s.* to 10*s.* per ton dearer at the pit head than in 1950. Bunker coal was also increased by £1 per ton. These pit head increases were largely due to increased wages and amenities which had not been counter-balanced by increased production or better attendance.

TABLE V. WORLD PRODUCTION OF HARD COAL
(Thousands of metric tons)

	1949	1950	1951
Australia	14,328	16,774	15,672
Austria	180	183	193
Belgium	27,852	27,304	29,105
Canada	15,636	15,361	14,064
Czechoslovakia	17,003	18,456	not available
France	51 204	50,842	52,939
Saar	14,256	15,091	16,394
Germany, Western	103,236	110,725	118,606
Great Britain	218,604	180,000	225,721
Ireland, Republic of	120	170	181
Italy	1,104	1,030	1,177
Netherlands	11,700	12,248	12,476
Norway (Spitsbergen)	455	374	459
Poland	74,112	78,001	81,684
Portugal	443	426	408
Spain	10,644	11,030	10,840
South Africa	25,440	26,473	26,724
Sweden	209*	203	177*
Turkey	4,183	43,631	4,620
United States (bituminous)	397,227	464,000	470,940†
United States (anthracite)	38,738	40,272	35,479
Yugoslavia	1,275	1,153	1,207

* Hard coal equivalent. † Bituminous total includes lignite.

TABLE VI. COAL PRODUCTION IN THE UNITED STATES
(Thousands of metric tons)

	1947	1948	1949	1950	1951
Bituminous	569,485	541,074	397,227	464,000	467,440*
Lignite	2,607	2,500	2,725	3,370	3,500*
Anthracite	51,882	51,836	38,738	40,272	35,479*
Total	623,974	595,410	438,690	507,642	506,419

* Estimated.

Scientific Investigation. When the National Coal board took control of the mines, the scientific resources available solely for the coal industry needed co-ordination. The British Coal Owners Research association, the Fuel Research board and the Safety in Mines Research board were doing good work but their resources were small relative to the importance of the industry. By 1951 there were research stations scattered throughout the industry with a central station near Cheltenham, Gloucestershire. Within the coalfields themselves the scientific staff were mainly concerned with safety of the mines, quality of the coal and a survey of the coal resources. At the central station, a team of 250 workers, scientists and technicians were working on a variety of problems such as carbonization of coal, dust prevention and estimation, improvement of machines and coal-cleaning problems. In general, the work was divided into three main groups, below ground, technical; above ground, technical; and chemistry/physics, applied to fundamental problems common to the first two.

TABLE VII. IMPORTS OF HARD COAL
(Thousands of metric tons)

Importing Country	Period	Exporting Countries: Gt. Britain	U.S.	Germany	Poland	Total incl. other sources
Belgium	1950	228	—	348	48	648
	1951*	238	1,136	370	14	1,782
Denmark	1950	1,956	—	252	1,608	4,008
	1951*	1,558	374	154	1,974	4,288
France	1950	1,248	48	7,020	672	9,804
	1951*	620	2,726	7,175	735	11,640
Italy	1950	1,692	240	3,482	1,020	8,340
	1951*	602	3,114	3,631	1,215	10,372
Netherlands	1950	768	—	2,976	132	4,480
	1951*	288	1,524	2,433	30	4,714
Sweden	1950	1,260	120	900	2,508	4,860
	1951*	650	660	546	3,022	4,946
Argentina	1950	972	36	—	108	1,392
	1951*	278	856	—	110	1,726
Canada	1950	384	24,060	—	—	24,444
	1951*	180	22,371	—	—	22,551

* Estimated.

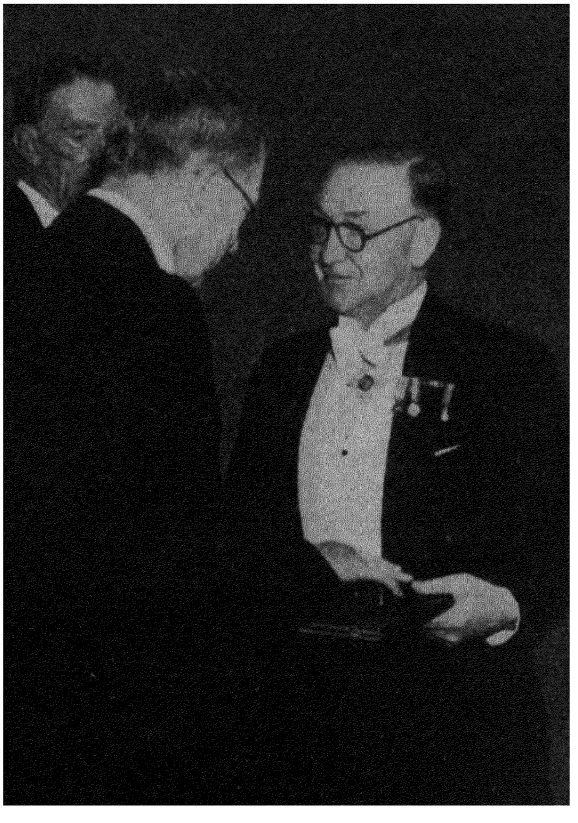
During 1951, output of deep-mined coal rose slightly and the output per man-shift was improving. On the other hand, great difficulty was being experienced in maintaining the level of manpower (*see* Table I). Attempts were made to introduce foreign labour, of which there was a fair supply available, but some of the British miners objected to this system of recruitment. Some Poles and a few Italians were absorbed and were proving satisfactory. In 1938 the output per man-year was 299 tons; by 1950 it had fallen to 293 tons. Unless some drastic change took place in the rate of entry into the coal industry, it was going to be very difficult to maintain the output even at this inadequate level. The reasons were, possibly, a general fall in manpower, rise in average age of the miner, shorter working hours and more difficult and thinner seams. Higher wages had not necessarily produced greater effort.

It seemed reasonable to assume that mechanization would increase the output of the individual. Otherwise its introduction would not repay the cost and labour used in making the machine. Recurring fuel crises had occurred in the early months of each year and warnings of a severe crisis in 1952 were given by many highly placed officials. This would seriously affect the export of coal, which was the exchange medium for many commodities so essential to the national economy. Coal, in fact, was being imported into Great Britain from the U.S., India and Nigeria and the cost was high. (*See* also EUROPEAN COAL AND STEEL POOL.)

(J. A. S. R.)

COCHIN-CHINA: *see* INDOCHINA.

COCKCROFT, SIR JOHN DOUGLAS, British physicist (b. Todmorden, Yorkshire, May 27, 1897), was educated at Todmorden Secondary school, at Manchester university and at St. John's college, Cambridge, of which he was a fellow, 1928-46, and an honorary fellow from 1947. He was Jacksonian professor of natural philosophy in the University of Cambridge, 1939-46. From 1941 to 1944, however, he served as chief superintendent, Air Defence Research and Development establishment, Ministry of Supply, and from 1944 to 1946 was director of the atomic energy division, National Research Council of Canada. In 1946 he became director of the Atomic Energy Research establishment, Ministry of Supply, at Harwell, Berkshire. It was at a meeting of the Royal Society on April 28, 1932, that Lord Rutherford made the dramatic announcement that two of his workers at the Cavendish laboratory, Cambridge—Cockcroft and E. T. S. Walton (*q.v.*)—"had successfully disintegrated the nuclei of lithium and other light elements by protons entirely artificially generated by high electric potentials." On Nov. 15, 1951, the Royal Swedish Academy of Sciences announced the award of the Nobel prize for physics jointly to Cockcroft and Walton for "their pioneer work on the transmutation of atomic nuclei by artificially accelerated atomic particles." Cockcroft had been elected a fellow of the Royal Society in 1936 and had been knighted in 1948.



Sir John Cockcroft (right) receiving from King Gustaf VI Adolf in Stockholm, Dec. 10, 1951, the Nobel prize for physics which he shared with E. T. S. Walton (q.v.).

COCOA. Production in British West Africa was 7·5% greater in 1950-51 than in 1949-50, the Gold Coast crop amounting to 262,000 tons and that of Nigeria to 111,000 tons, as against 248,000 tons and 99,000 tons respectively in 1949-50; for 1951-52 the Gold Coast main crop was forecast at 261,000 tons. Production in both territories, however, still remained a little below the immediate prewar average and swollen-shoot disease continued as the chief problem facing cocoa production. In the Gold Coast, compulsory destruction of diseased trees was replaced by a voluntary scheme in 1951 with increased compensation rates. The use of a new systemic insecticide attacking the mealy-bug which transmitted the swollen-shoot virus was expected to prove a valuable supplement, though not an alternative, to destruction. The prices paid by the Gold Coast Cocoa Marketing board and the Nigeria Cocoa Marketing board were raised to £130 13*s.* 4*d.* and £120 a ton respectively for 1950-51, as against £84 and £100 respectively in 1949-50; for 1951-52 further increases to £149 6*s.* 8*d.* a ton in the Gold Coast and £170 in Nigeria were announced. Prices of Accra cocoa on the New York market, under the influence of price ceilings, fluctuated between 37·0 cents and 38·4 cents per lb. in the first seven months of 1951, thereafter declining to around 35 cents per lb.; in the previous year monthly average prices had ranged from 22·8 cents to 42·0 cents per lb.

Brazil's crop amounted to about 134,000 tons in 1950-51, and was forecast at 138,000 tons for 1951-52 as compared with the record output of 159,000 tons in 1949-50. French West Africa and Cameroun together in 1950-51 provided a further 100,000 tons.

British West Africa's cocoa exports continued as one of the principal colonial dollar earners. In 1950-51 exports from the Gold Coast reached 252,000 tons and those from Nigeria 109,000 tons, the combined total being 4,000 tons greater than in the previous season. Brazil's exports in the first 8 months of 1950 amounted to 67,000 tons, while those from the Dominican Republic in the year 1951 were 22,000 tons. Imports into the United States, the world's chief consumer, in the first 11 months of 1951, amounted to 254,000 tons as against 294,000 tons in the full year 1950. The United Kingdom took 107,000 and 130,000 tons in 1951 and 1950 respectively; from Nov. 1, 1950, cocoa purchases by the Ministry of Food ceased and price and other controls on raw cocoa (but not cocoa products) were abolished. A representative buying panel was set up by manufacturing companies to negotiate purchases and prices with the Cocoa Marketing boards, while in Jan. 1951 the London Cocoa Terminal market was reopened. (E. O. G.)

COFFEE. World exportable production of coffee in 1950-51, at 33 million cwt., was very slightly under the estimate for 1949-50 and at least 20% below the 1936-40 average. Latin America's output was estimated at 27·5 million cwt., as against 28·5 million cwt. in 1949-50 and a prewar average of some 38 million cwt. The main decline was in Brazil, which produced an average of 26 million cwt. before World War II, but only 16 million cwt. in 1950-51, and Indonesia also produced only a fraction of its prewar output. Expansion of output was, on the other hand, marked in Colombia (nearly 6 million cwt. in 1950-51, as against a prewar average of 5·3 million cwt.) and in Africa (5·1 million cwt. in 1950-51, of which British East Africa provided one-fifth), where production in French West Africa, Angola and Uganda had doubled or even trebled since before World War II. For 1951-52, the world exportable crop was expected to exceed 35 million cwt., both Brazilian and Colombian crops being greater than in the preceding season, and extensive plantings resulting from high postwar prices seemed likely to result in an increase in world production.

Total exports from Latin American countries (principally Brazil) in 1950 amounted to 28·5 million cwt., as against 35 million cwt. in 1949, this marked decline being attributed to the great rise in prices which began late in 1949; in both years over 70% of total exports went to the United States. Imports of coffee into the U.S. from all sources in 1950 totalled 21·8 million cwt. as against 26·1 million cwt. in 1949, the prewar average annual import having been some 16·5 million cwt. Total imports into Europe (including the United Kingdom) in 1950 were 9·6 million cwt., 300,000 cwt. less than in 1949, but about 25% below the immediate prewar average; Europe's receipts of coffee from non-American sources were, however, greater in 1950 than in 1949. Imports into the United Kingdom in 1951 amounted to 852,000 cwt. as against 798,000 cwt. in 1950 and 401,000 cwt. in 1938; the Ministry of Food continued as the sole buyer and British East Africa and Brazil were the chief sources of supply.

World coffee supplies in 1951 still fell short of demand and the invasion of Korea produced a further appreciable rise in prices. By the beginning of 1951 Brazil's Santos No. 4 averaged over 50 cents per lb. on the New York market, but in February a ceiling of 55·5 cents per lb. on this type was imposed; following the modification of price control in May, coffee prices showed a slight decline. (E. O. G.)

COKE: *see* GAS.

COLD, COMMON: *see* EAR, NOSE AND THROAT, DISEASES OF.

COLLEGES: *see* UNIVERSITIES AND COLLEGES.

COLOMBIA. Republic situated in northwestern South America adjoining the isthmus of Panama, Colombia is the only South American country with both Caribbean and Pacific coast lines. Area: 439,714 sq.mi. Pop. (1950 est.): 11,260,000. About 68% of the population is classified as mixed blood, 20% as white, 7% as Indian and 5% as Negro. Most Colombians live in the highlands and mountain valleys of the interior. Language: Spanish. Religion: predominantly Roman Catholic. The capital is Bogotá (pop., 1947 est., 482,480). Other major cities: Medellín (237,220); Barranquilla (225,430); Cali (147,160); Manizales (117,760); Cartagena (106,820). President, Laureano Gómez Castro.

History. During 1951, bitter strife between the governing Conservative and opposition Liberal parties brought Colombia close to civil war. The state of siege originally proclaimed in Nov. 1949 remained in force and guerrilla clashes between Conservatives and Liberals, occurring primarily in rural areas, persisted. Under the state of siege, constitutional guarantees remained suspended. Censorship of radio news broadcasts was installed in April as an addition to the previously existing press censorship. Congressional elections, originally scheduled for June, were postponed until September. In explaining that action, President Gómez declared that there would be little point in holding an election so long as the Liberal opposition clung to its policy of electoral abstention, and that he hoped the Liberals would abandon that position by September. This did not prove to be the case: when the congressional elections were held on Sept. 16 there were no Liberal candidates, with the result that the party composition of the national legislature became 100% Conservative.

An attempt to achieve reconciliation between the two major parties was launched by the Liberals in early summer, when that party elected Alfonso López Pumarejo, a former president (1934-38, 1942-45), to a two-year term on the Liberal party council. Further steps toward inter-party harmony were taken in August, when moderate members of

both parties met to discuss a project to call a constituent assembly for the purpose of restoring constitutional government. That project failed. In October, however, the Conservative and Liberal parties agreed to attempt to eliminate violence by political "bandit" gangs, and at the end of the year some Colombians saw hope of eventual domestic peace.

The government announced in February that it would send a "hand-picked battalion" of 1,080 officers and men to assist the United Nations forces in Korea. Considerable publicity attended the battalion's preparation for departure, but by the end of the year it had not yet appeared in combat zones. However, a Colombian frigate—the first South American fighting unit to participate in the Korean action—joined the U.N. Task Force 95 in Korean waters in May.

(G. I. B.)

Education. Schools (1947): primary 11,320, pupils 738,716, teachers 17,528; secondary and vocational 1,005, pupils 92,112, teachers 7,480; universities 5, students 8,032, professors and lecturers 1,335. In addition, 1,206 primary, 630 secondary and 2 higher educational institutions did not report enrolments.

Agriculture. Coffee production in 1950 was about 5,000,000 bags (of 132 lb.), of which 4,480,567 bags were exported, including 4,059,763 bags to the U.S. Banana exports were 6,437,834 stems. Production of other crops included: cotton (ginned) 7,750 short tons; rice (milled) 159,000 tons; potatoes 485,000 tons. Sugar production included: centrifugal 161,000 tons and *panela* 520,000 tons. In 1950 there were an estimated 15,200,000 cattle, 2,470,000 pigs, 531,000 goats and (1949) 1,061,000 sheep.

Industry. Mineral production (1950): gold 379,412 troy oz.; platinum 24,452 oz.; silver 116,104 oz.; salt 155,445 short tons; crude petroleum production 34,059,017 bbl. Crude exports were 28,268,872 bbl., of which 15,672,670 bbl. went to the U.S. and 9,297,535 bbl. to Curaçao (for refining). Refinery production throughout was 9,563,587 bbl., and refined products included 2,019,000 bbl. of petrol.

Foreign Trade. Exports in 1950 totalled 767,556,000 pesos, imports 655,853,000 pesos. Leading exports: coffee (78%), petroleum (16%), gold (2%) and bananas (2%). Leading customers: U.S. (83%), the Netherlands Antilles (4%), Germany (4%). Important suppliers: U.S. (68%), U.K. (5%), Germany (5%).

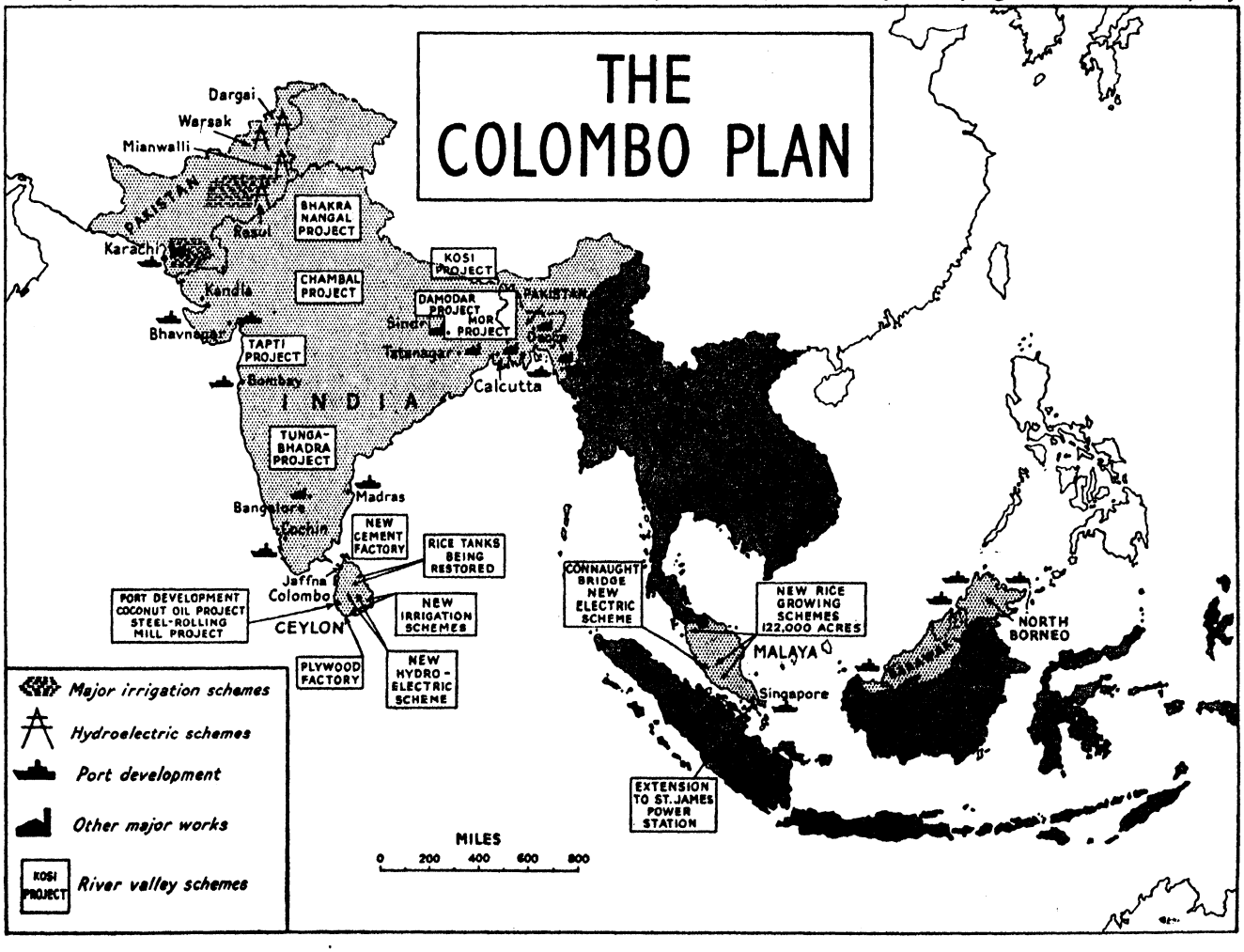
Transport and Communications. Railways (1947): 2,208 mi. Roads, improved (1948): 11,166 mi. Motor vehicles (Dec. 31, 1948): cars 25,657, commercial 22,830.

Finance. (Million pesos). Budget: (1950, actual) revenue 570·2, expenditure 525·4; (1951 est.) balanced at 461; (1952 est.) balanced at 632·7. Public debt (Dec. 31, 1950): 511·4. Currency circulation (Sept. 30, 1951): 406·3. Gold reserves (May 1951) U.S. $66 million. Monetary unit: *peso* with an official exchange rate of U.S. cents 39·84 (Nov. 1951).

(J. W. Mw.)

COLOMBO PLAN. The report published in Nov. 1950 by the Consultative Committee for South and South-East Asia came to be known as the Colombo plan. The committee, set up under Commonwealth auspices to find means of improving economic conditions in the area, met at Sydney in May 1950 and London in Sept. 1950 at ministerial level and a Standing Committee on Technical Assistance met in Colombo in July 1950. The founder members of the committee were Australia, Canada, Ceylon, India, New Zealand, Pakistan and Great Britain, but the non-Commonwealth countries in the area were invited to co-operate in a comprehensive attack upon poverty and under-development in the region as a whole. Vietnam, Laos and Cambodia subsequently joined the Consultative committee; Burma, Indonesia, the Philippines and Thailand had not made their decision by Dec. 1951, but sent observers to the committee's meetings.

The Colombo plan did not take the form of a blueprint drawn up for the area as a whole. It comprised a number of separate six-year development programmes drawn up by



individual participating governments. There would be discussion in the Consultative committee on common problems and a co-operative attack on low standards of living, although aid would be provided on a bilateral basis. The development programmes of India, Pakistan, Ceylon and the British territories in Malaya and Borneo during 1951-57 would cost (on the basis of 1950 prices) approximately £1,900 million of which about half would be financed externally.

Although the six-year period covered by the plan only began on June 30, 1951, a number of important developments occurred during the past year. The original participants announced their contributions for 1951-52: Australia £7 million (out of a total of £25 million for the six-year period), Canada $25 million and New Zealand £1 million, while the chancellor of the exchequer announced that during the period 1951-57 Great Britain's contribution, including the repayment of sterling balances, might amount to well over £300 million. Bilateral discussions also took place on the capital equipment, services, etc., to be supplied to recipient countries.

On Jan. 24 the United States joined the Consultative committee and the U.S. secretary of state, Dean Acheson, said his government would co-ordinate any aid they might give to the area with that given under United Nations or Commonwealth auspices. Subsequently the U.S. lent two million tons of wheat to India to relieve the food shortage; the counterpart funds for which would be used by India to finance development. Arrangements were also made to associate the International Bank for Reconstruction and Development with the plan and both the U.S. and the bank were represented at the third meeting of the Consultative committee held in Colombo in February. At this meeting the question of a continuing organization and the machinery for negotiating aid were discussed.

The Consultative committee also set up the technical co-operation scheme with funds of up to £8 million during the three years 1950-53 to ensure that the main development programmes did not fail through lack of technical necessities. Of these funds Great Britain and Australia were to contribute up to £2,800,000 each, New Zealand £400,000, India £750,000, Pakistan £175,000, Ceylon £400,000, and Canada gave $400,000 as a first year contribution. The scheme operated through a bureau in Colombo which was responsible to the Council for Technical Co-operation. During 1951 substantial progress was made, and several hundred requests for experts or training facilities from India, Pakistan and Ceylon were successfully dealt with. (J. B. HT.)

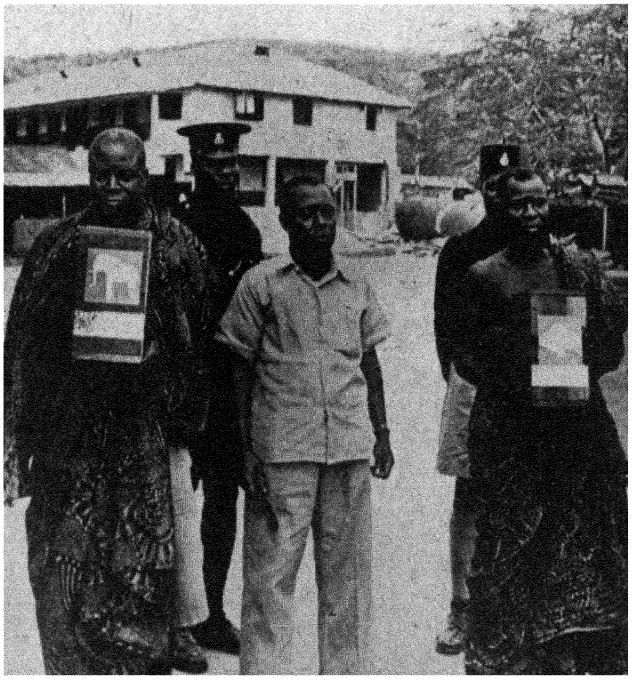
COMMERCE: *see* BUSINESS REVIEW; CHAMBERS OF COMMERCE; INTERNATIONAL TRADE.

COMMONS, HOUSE OF: *see* PARLIAMENT, HOUSES OF.

COMMONWEALTH OF NATIONS. The self-governing territories are dealt with under the sub-heading *Dominions and India* and the others, which include colonies, protectorates and trust and mandated territories, under *Colonies*. The table gives essential data as at Dec. 31, 1951.

Dominions and India. The meeting of the prime ministers of the commonwealth in London, Jan. 4-12, 1951, was well-timed for it took place at a moment when it seemed that Chinese intervention in the Korean war might lead to divided counsels within the Commonwealth, and between some Commonwealth countries and the United States. If these serious risks were not finally removed, it was at the least apparent that their discussions produced a wide measure of agreement. In the words of Louis St. Laurent, the Canadian prime minister, the Commonwealth statesmen at this meeting had sought once again to contribute to the building "of a new bridge of understanding between the east and the west." The final communiqué issued on Jan. 12 stated that the main purpose had been to review the international situation and to consider what further positive action the Commonwealth governments could take to preserve world peace. There was agreement on the urgency of promoting a satisfactory settlement in the far east and, apart from the immediate problems of the Korean war, the prime ministers discussed the terms of the peace settlement with Japan and the safeguards which should be included in it. In respect of western Europe the prime ministers of the United Kingdom and Canada explained the measures being taken to give reality and strength to the North Atlantic Treaty organization and the meeting as a whole agreed that they should recommend to their respective governments a strengthening of the existing Commonwealth machinery for consultation on economic questions with a view particularly to resolving the problems arising from the shortage of raw materials.

Far more remarkable than the formal communiqué was a declaration issued by the prime ministers on the same day. This expressed the belief that the unique quality of the Commonwealth derived from the fact that it embraced nations and peoples from every continent and that this quality gave to its statesmen both special knowledge and special responsibilities. Their paramount aim was the preservation of peace and if that were to be attained they believed that the wounds of World War II had to be healed by early peace settlements with Germany and Japan; and more important still that there had to be a real attempt to understand those "who appear to differ from us." "The great antidote to war is hope; its greatest promoter is despair. When we say that war is not inevitable, we do not just mean that we shall prepare and be strong, and that our strength may deter aggression. We also mean that, in a world worn out and distorted by war, there must be an overwhelming majority of the people of all lands who want peace. We must not despair of reaching them." The ministers recognized, too, that peace could not be secured while large parts of the world continued to live



The first Gold Coast elections were held in Feb. 1951. Symbols (elephant, left, and fish, right) used to help illiterate voters are shown here.



King George VI with his prime ministers in the state dining room in Buckingham palace, London, Jan. 4, 1951. Left to right: T. E. Donges (representing South Africa); D. S. Senanayake (Ceylon); Sir Godfrey Huggins (Southern Rhodesia); S. G. Holland (New Zealand); R. G. Menzies (Australia); Queen Elizabeth; King George; Duchess of Kent; L. S. St. Laurent (Canada); C. R. Attlee; Princess Margaret; Jawaharlal Nehru (India). Liaquat Ali Khan (Pakistan) did not arrive in London until Jan. 7.

in poverty and they laid special emphasis upon the working out of the Colombo plan (*q.v.*) as practical evidence of the resolve of the Commonwealth countries to contribute schemes for developing economic resources and raising social standards.

At informal gatherings representatives of all the Commonwealth countries, except South Africa, took part in discussions on the Kashmir dispute from which at first it was hoped that some compromise solution would emerge. But such hopes proved unfounded and Liaquat Ali Khan (Pakistan) later revealed that three proposals which had been made for holding a plebiscite in Kashmir all proved unacceptable to India. In this respect the conference broke up on a discouraging note, and members of the Commonwealth watched not without anxiety the subsequent efforts of the United Nations special representative on Kashmir to bring about a compromise.

Daniel Malan, South African prime minister, put forward two demands of political importance for the Commonwealth as a whole. The first related to the transfer to South Africa of the three high commission territories; the second was provoked by a speech of the secretary of state for the colonies welcoming the advance of the Gold Coast towards full Commonwealth membership. "Here," said Malan, "we have a glaring anomaly in existing Commonwealth relations." The Commonwealth was a closed group, all free and all equal, but in the admission of new members it would seem that Great Britain felt in a position to act on her own. "This anomaly," demanded Malan, "should be removed without delay" in the interests of the cohesion and homogeneity of the Commonwealth group which was threatened by British policy. In London the existence of the anomaly was questioned and in many parts of the Commonwealth there was strong dissent from the implications behind Malan's words.

In Australia there were celebrations for the jubilee of confederation and in New Zealand for the Canterbury centenary. Both attracted many distinguished Commonwealth visitors including Don Senanayake, the prime minister of Ceylon. But of greatest significance was the Pacific Security agreement with the United States. On April 19, President Truman announced that in relation to the Japanese peace treaty the governments of Australia and New Zealand had suggested a security arrangement between them and the United States and that he had agreed that some such arrangement would help to strengthen the fabric of peace in the Pacific. Frederick Doidge, New Zealand minister for external affairs, saw that this arrangement "would liberate us from the nightmare of a resurgence of Japanese militarism." The treaty between the three countries was signed in San Francisco on Sept. 1.

The economic policies referred to in the communiqué of the Prime Ministers' conference resulted in further steps to implement the Colombo plan and in the holding of a Commonwealth conference in London in September on the production, supply and exchange of raw materials which were of pressing concern in view of the increasing rate of re-armament.

A communiqué issued after the Commonwealth Defence

Country	Area (sq.mi.)	Population (1950 est. in '000s)	Capital	Status	Rulers, Governors and Prime Ministers
EUROPE					
GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF	94,205	50,210*	London	kingdom	King, George VI; prime minister, Winston S. Churchill. *Northern Ireland:* governor, Earl Granville; prime minister, Sir Basil Brooke
CHANNEL ISLANDS:					
JERSEY	45	57*	St. Helier	parts of the United Kingdom	Lieutenant governor, Sir Arthur Grasett
GUERNSEY, etc.	30	45*	St. Peter Port	parts of the United Kingdom	Lieutenant governor, Sir Philip Neame
ISLE OF MAN	221	55*	Douglas	parts of the United Kingdom	Lieutenant governor, Sir Geoffrey Bromet
GIBRALTAR	2	25	—	colony	Governor, Lieut. General Sir Kenneth Anderson
MALTA	121	307†	Valletta	self-governing colony	Governor, Sir Gerald Creasy; prime minister, G. Borg Olivier
ASIA					
ADEN	112,000	900	—	colony and protectorate	Governor, Tom Hickinbothom
BRITISH BORNEO:					
NORTH BORNEO	29,387	345‡	Sandakan	colony	Governor, Sir Ralph Hone
BRUNEI	2,226	41§	Brunei	protectorate	High commissioner } A. F. Abell
SARAWAK	50,000	546§	Kuching	colony	Governor } A. F. Abell
CEYLON	25,332	7,500	Colombo	dominion	Governor general, Lord Soulbury; prime minister, Don Stephen Senanayake
CYPRUS	3,572	480‡	Nicosia	colony	Governor, Sir Andrew Wright
HONG KONG	391	2,030‖	Victoria	colony	Governor, Sir Alexander Grantham
INDIA	1,220,099	347,340	New Delhi	republic	President, Rajendra Prasad; prime minister, Jawaharlal Nehru
MALAYA:					
FEDERATION OF MALAYA	50,850	5,337‖	Kuala Lumpur	2 settlements and 9 protected states	High commissioner, vacant at Dec. 31, 1951.
SINGAPORE	220	1,019	Singapore	colony	Governor, Sir Franklin Gimson
PAKISTAN	337,524	75,687*	Karachi	dominion	Governor general, Ghulam Mohammed; prime minister, Khwaja Nazimuddin
AFRICA					
ANGLO-EGYPTIAN SUDAN	967,500	7,547¶	Khartoum	condominium	Governor general, Sir Robert Howe
BRITISH SOUTH AFRICAN PROTECTORATES:					
BASUTOLAND	11,716	556**	Maseru	colony	High commissioner, Sir John Le Rougetel
BECHUANALAND	275,000	294**	Mafeking	protectorate	High commissioner, Sir John Le Rougetel
SWAZILAND	6,704	184**	Mbabane	protectorate	High commissioner, Sir John Le Rougetel
GAMBIA	4,033	276‡	Bathurst	colony	Governor, Percy Wyn Harris
GOLD COAST (incl. TOGOLAND)	91,690	4,501†	Accra	colony, protectorate and trust	Governor, Sir Charles Arden-Clarke
KENYA	224,960	5,373†	Nairobi	colony and protectorate	Governor, Sir Philip Mitchell
MAURITIUS	807	457	Port Louis	colony	Governor, Sir Hilary Blood
NIGERIA (incl. CAMEROONS)	372,674	25,000¶	Lagos	colony, protectorate and trust	Governor, Sir John Macpherson
NORTHERN RHODESIA	284,745	1,900	Lusaka	protectorate	Governor, Sir Gilbert Rennie
NYASALAND	47,949	2,350	Zamba	protectorate	Governor, Sir Geoffrey Colby
ST. HELENA	95	5‡	Jamestown	colony	Governor, Sir George Joy
SEYCHELLES	157	35§	Freetown	colony and protectorate	Governor, Frederick Crawford
SIERRA LEONE	27,925	1,858†	Freetown	colony and protectorate	Governor, Sir George Beresford-Stooke
SOMALILAND	68,000	500‡	Berbera	protectorate	Governor, Sir Gerald Reece
SOUTHERN RHODESIA	150,333	2,146*	Salisbury	self-governing colony	Governor, Sir John Noble Kennedy; prime minister, Sir Godfrey Huggins
SOUTH-WEST AFRICA	317,725	430*	Windhoek	mandate	Administrator, A. J. R. van Rhyn
TANGANYIKA	362,688	7,412†	Dar-es-Salaam	trust	Governor, Sir Edward Francis Twining
UGANDA	93,981	4,955†	Entebbe	protectorate	Governor, Andrew Benjamin Cohen
UNION OF SOUTH AFRICA	472,550	12,646*	Pretoria and Capetown	dominion	Governor general, Major G. B. van Zyl; prime minister, Daniel F. Malan
ZANZIBAR	1,020	264†	Zanzibar	protectorate	Resident, John Dalzell Rankine
AMERICA					
BAHAMAS	4,403	78‡	Nassau	colony	Governor, Major General R. A. R. Neville
BARBADOS	166	212	Bridgetown	colony	Governor, Sir Alfred Savage
BERMUDA	21	37††	Hamilton	colony	Governor, Sir Alexander Hood
BRITISH GUIANA	83,000	425	Georgetown	colony	Governor, Sir Charles Woolley
BRITISH HONDURAS	8,867	67	Belize	colony	Governor, Sir Ronald Garvey
CANADA	3,843,144	13,893*	Ottawa	dominion	Governor general, Viscount Alexander of Tunis; prime minister, Louis Stephen St. Laurent
FALKLAND ISLANDS	4,618	2	Port Stanley	colony	Governor, Sir Miles Clifford
JAMAICA	4,670	1,389‡	Kingston	colony	Governor, Sir Hugh Foot
LEEWARD ISLANDS	422	115	St. John	colony	Governor, K. W. Blackburne
TRINIDAD AND TOBAGO	1,980	636	Port of Spain	colony	Governor, Major General Sir Hubert Rance
WINDWARD ISLANDS	821	277	St. George's	4 colonies	Governor, Sir Robert Arundell
AUSTRALASIA					
COMMONWEALTH OF AUSTRALIA	2,974,581	8,316	Canberra	dominion	Governor general, Sir William McKell; prime minister, Robert Gordon Menzies
FIJI	7,040	285¶	Suva	colony	Governor, vacant at Dec. 31, 1951.

Country	Area (sq.mi.)	Population (1950 est. in '000s)	Capital	Status	Rulers, Governors and Prime Ministers
New Hebrides	4,633	48¶	Vila	Franco-British condominium	British Resident commissioner, R. D. Blandy
Nauru	8	1	—	Australian trust	Administrator, Robert Stanley Richards
New Zealand	103,939	1,961*	Wellington	dominion	Governor general, Lord Freyberg; prime minister, Sidney George Holland
Norfolk Island	13	1	—	Australian dependency	Administrator, A. Wilson
Pacific Islands	11,625	177§§	—	colonies and protectorate	High commissioner, vacant at Dec. 31, 1951.
Papua-New Guinea	183,540	991‡‡	Port Moresby	Australian territory and trust	Administrator, Colonel J. K. Murray
Western Samoa	1,133	82*	Apia	N.Z. trust	Administrator, G. R. Powles

* 1951 census. † 1948 census. ‡ 1949 est. § 1947 census. || 1951 est. ¶ 1948 est. ** 1946 census. †† 1950 census. ‡‡ 1941 est. §§ 1947 est.

conference in London (June 21-26), emphasized the importance of middle east defence to the Commonwealth. Later the denunciation of the Anglo-Egyptian treaty by Egypt elicited from Commonwealth countries and particularly from Australia and New Zealand statements condemning Egypt's unilateral abrogation and re-emphasizing the supreme importance of the Suez canal as a traditional artery of empire.

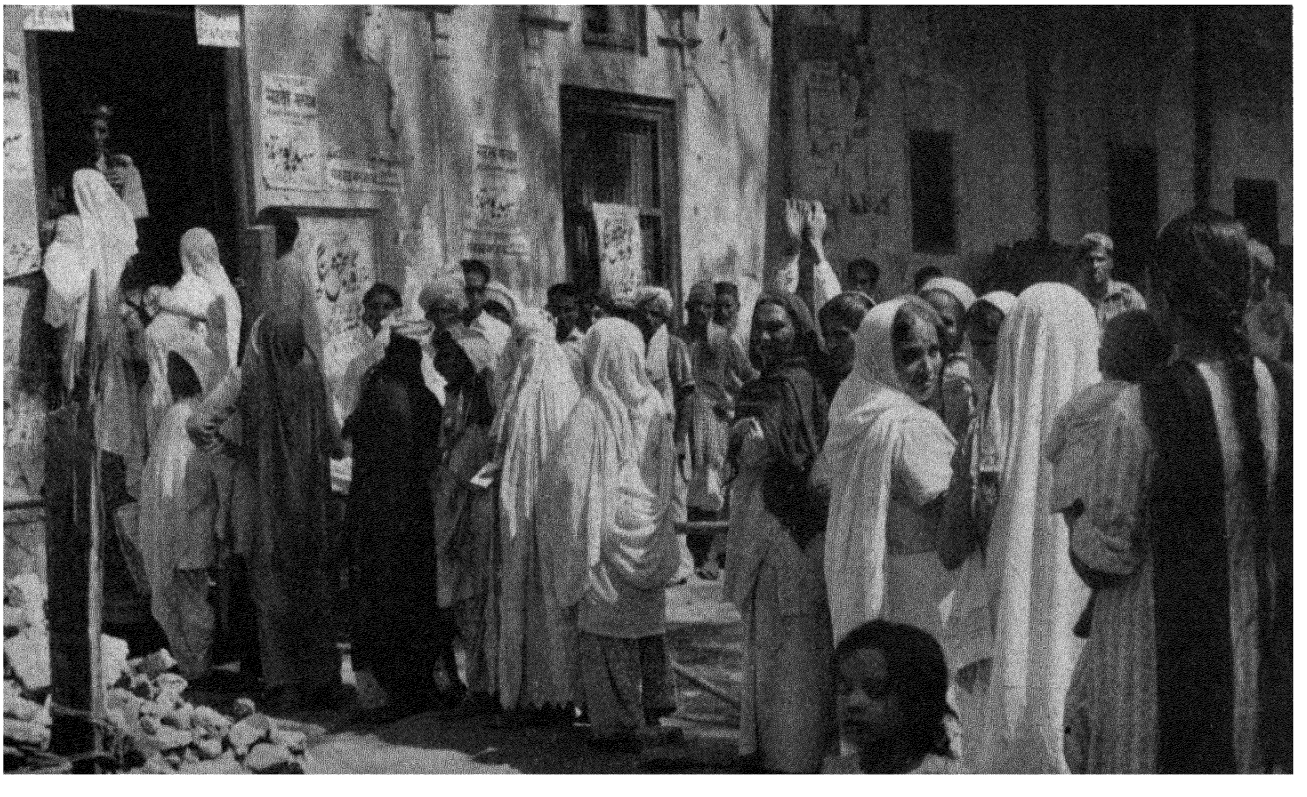
It was with the greatest concern that news of King George VI's serious illness and operation was received and it was announced in October that he had regretfully decided to abandon his projected tour of Australia and New Zealand in 1952; Princess Elizabeth and the Duke of Edinburgh would, however, carry out the tour for him. In October and November the princess and the duke visited Canada where they received an enthusiastic welcome.

The Conservative victory in the general election in the United Kingdom in October brought Lord Ismay as secretary of state for Commonwealth relations and J. G. Foster as parliamentary under secretary. (N. Mgh.)

Colonies. The general election brought Oliver Lyttelton as secretary of state for the colonies, Alan Lennox-Boyd as minister of state, and the Earl of Munster as parliamentary under secretary. A statement by the secretary of state in the House of Commons on Nov. 14 indicated that there would be no immediate change in colonial policy.

The postwar development of air transport had had a remarkable effect on colonial administration by enabling both ministers and the permanent officials of the Colonial Office to acquaint themselves at first-hand with conditions in the colonies and by making possible in the United Kingdom frequent conferences attended by colonial officials and others. Lyttelton visited Malaya, Singapore and Hong Kong in December. His predecessor, James Griffiths, had visited east Africa in May and central Africa, in connection with the federation proposals, during August and September and John Dugdale, the minister of state, toured Fiji and the western Pacific at the same time.

Conferences of officials held in the United Kingdom included police commissioners in April, financial secretaries and public relations and information officers in June and heads of labour departments in October. The meeting in September of Commonwealth ministers concerned with supply and production was attended by 21 colonial advisers



Voters, including women in purdah, lining up outside a polling station in Delhi. In Oct. 1951 voting began in India's first general election. The electorate of about 175 million was the largest in the world.

from some 15 territories. In June a West Indian trade delegation visited London for talks with United Kingdom officials before proceeding to Canada to discuss Canadian-West Indian trade.

But perhaps the most important gathering was the visit of 90 unofficial colonial representatives, for the most part members of their local legislative councils, to the Festival of Britain as guests of the United Kingdom government. In addition to various visits the visitors heard authoritative expositions of policy from leading members of the government. The opportunity of festival year was taken to refurbish many of the permanent colonial exhibits in the Imperial institute, and to stage there the exhibition, " Focus on the Colonies," which had toured the provinces the previous year and an exhibition of traditional colonial art, opened by King George VI on May 24.

The first aim of British colonial policy—to guide the dependent territories to self-government within the Commonwealth—was carried forward with determination; the new constitution of the Gold Coast came into effect in January, and among the new constitutions or important changes in existing constitutions promulgated during the year were those for Nigeria, the Gambia, Sierra Leone, the Windward and Leeward Islands and Singapore. But economic development of the colonies to provide a sound foundation for self-government proved more intractable. The scaling down of the Overseas Food corporation's groundnut project in Tanganyika was followed by the news that a number of the Colonial Development corporation's projects had proved uneconomic and were to be discontinued. In other respects, however, the period was one of steady advance. The report on progress under the Colonial Development and Welfare acts for the year to March 31, 1951, showed that approval had been given in that year to development and welfare schemes involving grants of £11,547,111 and to research schemes for which the United Kingdom contribution would be £2,496,784. The actual payments in the year amounted to £13,271,424, of which £1,406,651—the largest amount disbursed since the first act was passed in 1940—was spent on research. During that same period some 57 new and 60 supplementary schemes of research were approved.

Some of the most marked advances in the postwar years had been in the sphere of education, especially higher education. The three colonial universities and four university colleges in 1950-51 had a total student roll of 3,056, while staffs, excluding the Royal University of Malta, where much of the teaching was undertaken by part-time staff, numbered 388 whole-time professors and lecturers. During 1951 plans took shape for, and in some cases work began on, colleges of arts, science and technology complementary to the university colleges and intended to provide technical and commercial education to a professional level. Meanwhile in an attempt to ensure that the educational advance would proceed on a sound basis the Colonial Office and the Nuffield foundation jointly sponsored a project to study the policy and practice of education to secondary standard in British tropical Africa; two small groups of independent experts, one visiting west Africa and the other east and central Africa, were spending about six months consulting with educationalists, administrators and members of the public on educational policy.

(J. A. HU.)

BIBLIOGRAPHY. *The Colonial Territories (1950-51)*; *Return of schemes made under the Colonial Development and Welfare Acts*; *Colonial Research, 1950-51*; *Higher Education in the Colonies* (all H.M.S.O., London 1951).

COMMUNIST MOVEMENT. There was no radical change in the position of the world Communist movement in 1951, nor was there any indication that its fundamental organization and strategy were being subjected to any important revision. The Soviet Union continued to be the accepted centre of the movement, and Communist orthodoxy to be tested by its decisions.

Asia. The Chinese People's government, wholly Communist-controlled and professing complete adherence to the Soviet pattern of development in home and foreign policy, was far and away the most important of the Communist authorities outside Russia. As its own internal position seemed to strengthen, its capacity to take an independent line seemed to become less doubtful, but there was nothing to suggest that its leaders had in mind any policy but that of Russia.

In both Korea and French Indochina it was China that appeared to be the main spearhead of the effort to spread Communism. In neither area was pronounced success achieved (*see* KOREAN WAR for truce negotiations). In Indochina, the inspiring leadership of General Jean de Lattre de Tassigny and the promise of increased material help from the United States made the outlook for the French less hopeless. As Malaya showed, however, it was still possible for small numbers of Communists to maintain a rural reign of terror indefinitely and to suck away a country's economic prosperity and morale. The problem of enlisting mass popular support against the Communists had obviously not been solved. In Malaya, the murder of Sir Henry Gurney, the high commissioner, in October and successful attacks on British forces showed that the Briggs plan for resettling the Chinese squatters had not produced the results expected from it. Fighting also went on in Burma and the Philippines.

The central fact of the situation in Asia was that most Asian peoples and their governments were not convinced that Soviet-inspired communism was more of a threat than the old " western imperialism " against which their national movements had traditionally been directed. Countries like India and Burma would not automatically take the side of the west in its effort to build up a barrier against Communist penetration. And the refusal of India and Burma to sign the Japanese peace treaty, which was primarily concerned with building up this barrier, was proof of this awkward reality. The result of the elections in Israel in the summer showed that the neutralist forces had lost ground, but even then the Israeli government hesitated to commit itself wholeheartedly to the west.



A cartoon " Lost Horizon " by Gabriel, published in the " Daily Worker " (London) June 1, 1951, after the announcement of the negotiations between China and Tibet.

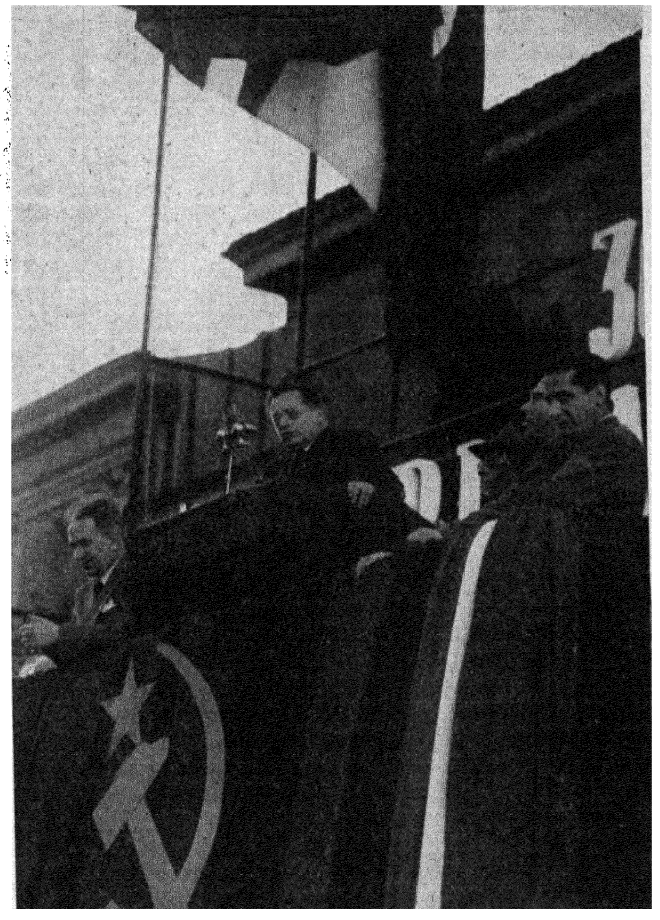
Western Europe and United States. Neutralism in the face of the Communist threat was not confined to Asia. In France, the June elections showed that the Communist party had lost some 9% of its voting strength compared with the elections of 1946; but with almost 5 million voters, their poll represented a fifth of the electorate and they were the strongest single party. But it is important to notice that the

Communists in France were in a position to exploit the sentiments of those non-Communists who felt that their country had not the strength for the full-scale effort demanded by the western defence plans and that it could still contract out of an " American " war.

The French Communists showed little sign of reconsidering their adherence to Soviet policies or of internal dissension. But in Italy, at the beginning of the year, much excitement was caused by the resignation from the party of two Communist deputies, Aldo Cucchi and Valdo Magnani. And in March, Giancarlo Matteotti, the son of the socialist leader murdered by Mussolini, attacked the subservience to Russia of his own party, the fellow-travelling " Nenni socialists." There was, however, no large follow-up of these desertions, and the severe losses sustained by the Italian Communists in the municipal elections in May and June were attributable to the electoral combinations formed against them, rather than to any falling-off in support for them. The plain fact was that the Communists and their associates still numbered 35·5% of the Italian electorate.

In Great Britain the situation was different. There, the October general election found the Communists withdrawing all but ten of their candidates and advising their supporters in other constituencies to work and vote for the Labour party candidates on the familiar principle of choosing " the lesser evil." Their candidates all lost their deposits. The United States continued to show great determination to put legal obstacles in the way of Communist propaganda, but the political excitement generated over the alleged penetration of Communist influence into many important spheres of national life and of government suggested that there was a danger of the whole thing degenerating into a mere heresy hunt in which the fundamental definition of a contemporary Communist, " one who takes his ideas and his orders from Moscow ", might be overlooked.

The western world had two important points of contact with the Communist movement other than those in Asia. The dissident régime of Marshal Tito remained in power in Yugoslavia despite the menaces of the U.S.S.R. and its satellites, and received increasing material assistance from the west. It was still difficult to see how far its dependence on such assistance would bring it closer to the west in its general outlook on world affairs or in the sense of a liberalization of its internal régime. More important was Germany where the Federal government attempted to put some legal curb on Communist propaganda. Here, as the full integration of the Federal republic into the western system became a more immediate prospect, the Communists increasingly sought a method by which this process, so dangerous to the Russians, could be arrested. This led in the late summer to the offer of free all-German elections on conditions which, if genuinely carried out, would inevitably mean the liquidation of the Eastern German Communist régime itself. It was not clear, any more than with similar offers in the past, whether this was more than an attempt to cause confusion in western circles. If the offer were genuine it would be yet another proof of the absolute readiness of the Soviet Union to sacrifice foreign Communist movements and governments

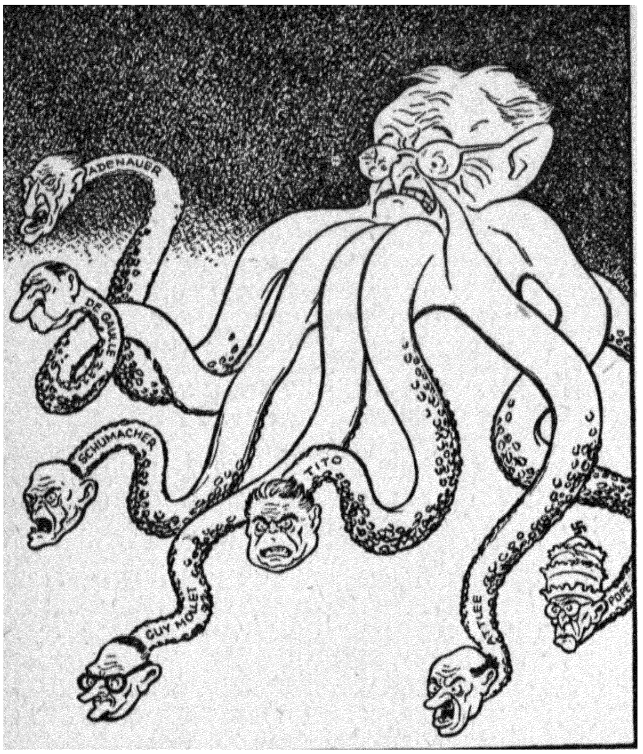


Palmiro Togliatti, secretary general of the Italian Communist party, seen addressing a meeting in Rome, April 15, 1951. He had just returned to Italy after spending two months in the Soviet Union.

TABLE I. COMMUNIST PARLIAMENTARY REPRESENTATION IN EUROPE*
(Figures in brackets are those of the preceding election)

	Date of last election	Votes obtained	% of total votes	Seats obtained by Communists	Total number of seats
Austria	Oct. 9, 1949	212,651 (174,237)	5·0 (4·0)	5 (4)	165
Belgium	June 4, 1950	234,325 (376,876)	4·7 (7·5)	7 (12)	212
Denmark	Sept. 5, 1950	94,495 (141,094)	4·6 (6·8)	7 (9)	151
Finland	July 2-3, 1951	390,647 —	21·4 (20·0)	43 (38)†	200
France	June 17, 1951	5,038,587 (5,489,288)	26·5 (28·6)	106 (190)‡	627
Germany, Western	Aug. 14, 1949	1,360,443 —	5·6 —	15 —	402
Great Britain	Oct. 25, 1951	21,640 (91,815)	0·08 (0·3)	0 (0)§	625
Greece	Sept. 9, 1951	178,325 —	10·5 —	10 (0)	258
Iceland	Oct. 23, 1949	14,077 —	19·5 —	9 (10)	52
Italy	April 18-19, 1948	8,025,990‖ —	30·7 —	132 —	574
Luxembourg	June 3, 1951	— —	— —	4 (5)	52
Netherlands	July 7, 1948	381,953 (502,963)	7·9 (10·6)	8 (10)	100
Norway	Oct. 10, 1949	101,666 (176,491)	5·8 (11·9)	0 (11)	150
Sweden	Sept. 19, 1948	241,812 (318,466)	6·4 (10·3)	9 (15)	230
Switzerland	Oct. 27-28, 1951	— —	— —	5 (7)	196

* Only European countries having a parliamentary system and free elections are included. Ireland is omitted: the only Communist candidate, Michael O'Riordan, chairman of the Irish Workers' league, obtained at Dublin 300 votes.
† Communists and fellow travellers elected under the banner of Finland's Popular Democratic league (S.K.D.L.).
‡ This includes small Communist-controlled groups.
§ There were in 1951 only 10 Communist candidates compared with 100 in 1950.
‖ This represents the number of votes obtained by the Democratic Popular front, that is, the Communists and the left-wing Socialists. Out of 183 deputies elected 132 were Communists.



A cartoon "Tentacles of Washington Octopus" by J. Paulo, which was published on July 27, 1951, in the Cominform journal "For a Lasting Peace for a People's Democracy!" (Bucharest).

where this was necessary for some wider purpose of Soviet strategy.

Eastern European Satellites. The strengthening and unifying of the Communist bloc itself was relentlessly pressed forward. The most important of the processes, obviously centrally directed, by which this was done was the continuation of the purges within the Communist parties of the European satellites of the U.S.S.R. More prominent figures were removed from public life and others previously arrested were tried. It seemed likely that the removal of important Polish military figures and the prosecution of members of the former Polish Peasant party were merely preludes to a trial of Władysław Gomółka, the former secretary general of the Polish Communist party. It was not clear that the victims of the purges had anything in common other than their unwillingness for some reason or other to follow exactly the Soviet line.

The importance attached by Moscow to the Tito dissidence was shown by the continued effort to brand as Tito-inspired all signs of a critical attitude in the remaining satellites. In Warsaw in July V. M. Molotov made a violent attack on Tito. Similar attacks were made by Marshal K. E. Voroshilov when he visited Rumania in August and by Marshal V. D. Sokolovsky when he visited Bulgaria in September. This insistence on total subordination to Moscow must be taken alongside the continued battle against "nationalism" in some of the republics of the U.S.S.R. which figured prominently in the Soviet press. The possibility of internal dissension was more genuinely worrying to the Communist leaders than the alleged "warmongering" of the non-Communist world.

TABLE II. ESTIMATED MEMBERSHIP OF THE COMMUNIST PARTIES

A. Communist-Controlled Countries

U.S.S.R.	6,000,000	Hungary	862,114
China	5,800,000	Rumania	720,000
Czechoslovakia	2,300,000	Bulgaria	428,846
Germany, Eastern	1,700,000	Albania	70,000
Poland	1,360,000		

B. Some Non-Communist Countries

Europe		*Asia*	
Italy	1,600,000	India	75,000
France	600,000	Japan	25,000
Germany, Western	200,000	Lebanon	12,000
Austria	100,000	Syria	10,000
Great Britain	40,000	Israel	8,000
Belgium	35,000	Iraq	3,000
Netherlands	33,000	Jordan	2,000
Sweden	33,000	*North America*	
Denmark	22,500	United States	54,174
Norway	14,000	Canada	15,000

The "Peace" Movement. The World Peace movement could hardly be regarded as anything other than an instrument of Soviet foreign policy. The Stockholm appeal, with its statement of the principal international objectives of the Soviet Union, continued to take pride of place. And, alongside the collection of signatures to it, there was the passage in the early part of the year in the countries of the Soviet bloc of a "law for the defence of peace" rendering illegal all "war propaganda" of the non-Soviet kind. It was not difficult to see the threat which this "law" conveyed to Western German politicians. In February, the World Peace council, the central organ of the movement, met in Berlin and adopted the usual set of resolutions condemning German rearmament and calling for a five-power peace pact. The council also echoed the criticism of the United Nations contained in an interview with Joseph Stalin published in the same month.

The council had appointed a delegation to present to the United Nations the resolutions of the Warsaw congress of 1950. But, despite the intervention of Yakov Malik during his term of office as president of the Security council, the U.S. State Department refused to grant the delegation the necessary visas. On June 28 Malik countered by receiving two members of the Peace council who were in America, and by circulating subsequently as documents of the Security council the resolutions thus presented to him.

The Soviet government was in a position to secure also ecclesiastical support for the Communist peace campaign in the form of an "appeal to Christians of the whole world" issued on July 23 over the signatures of the patriarchs of the Orthodox Churches of Antioch, Russia, Rumania, Georgia and Bulgaria. The Stalin peace prize was awarded to Dr. Hewlett Johnson, dean of Canterbury, one of the most zealous English exponents of Communist views.

Communist propaganda was also served by the fact that the Soviet leaders, despite their intransigence over almost all concrete questions at issue between themselves and the rest of the world, were continually emphasizing their devotion to the idea of the "peaceful co-existence" of the two systems, socialism and capitalism, and were showing some readiness to make this a reality in the sphere of trade. From mid-July, Moscow began the publication of a new English-language fortnightly, *News*, which in relatively un-Marxist terminology devoted itself to stressing the prospective benefits of collaboration between the Anglo-Saxon countries and the Soviet Union.

Anti-Communist Legislation. In Australia, R. G. Menzies' government, which had received wide electoral support, was denied, in a referendum, the new constitutional powers which it felt it required to combat Communism. (M. BLF.)

CONGO, BELGIAN: *see* BELGIAN COLONIAL EMPIRE.

CONGREGATIONAL CHURCHES. The first year of the Forward movement of the Congregational Churches of England and Wales ended successfully at the 1951 May assembly meetings. This preparatory year consisted largely of local gatherings of ministers and office bearers to consider

the significance of the call to deeper spiritual life and richer churchmanship. There was also an appeal for a sum of money to facilitate further church extension and to help to finance the work of the denomination. By means of a single gift day, £50,000 was raised. The Forward movement then entered its second stage, in which the concern was for the better equipment of churches. A feature was a series of mass meetings held in important centres. The third stage of the Forward movement was to be an attempt to win new members.

Assembly meetings in 1951 were distinguished by the holding of a joint session with the Presbyterian Church of England. At this was read the declaration towards co-operation and shared counsels which had been agreed the previous year, and the united company thereupon reaffirmed this decision.

At the end of the war the Congregational Churches of England and Wales raised £500,000 towards the reconstruction of destroyed and damaged buildings. The reconstruction fund was being used to supplement war damage grants and by the summer of 1951 about £250,000 had been thus used. One of the churches which was thus substantially aided was chosen as a Festival of Britain architectural exhibit.

The London Missionary society, the foreign mission agent of the Congregational Churches, was compelled to withdraw from the China field during 1951, and this led to a decision to work among the Chinese in Hong Kong and Malaya. The Colonial Missionary society, the Commonwealth and colonial agent of Congregationalism, raised about £10,000 for the relief of distress among the Congregational Churches of Jamaica following the severe hurricane in August.

The Rev. Leslie J. Tizard, minister of Carrs Lane church, Birmingham, since 1941 and editor of the *Congregational Quarterly* from 1946 to 1948, was appointed chairman elect of the Congregational unions for 1951-52.

The bicentenary of the death of Philip Doddridge, distinguished Congregational hymn-writer, was celebrated in October. (R. F. G. C.)

United States. On Jan. 1, 1951, the total number of Congregational Christian Churches in the United States was 5,651 with 1,227,527 members, 5,728 ministers and 619,679 church school members. During 1950, 48,902 persons were received into the churches on confession of faith—the largest total on record. During that year the churches contributed $5,522,234 to charities and $31,530,701 to local church support.

During 1951 Sidney M. Berry, of London, the minister and secretary of the International Congregational council, visited the United States. Plans were ratified for the holding of the next meeting of the council in Scotland in 1953.

During 1951 the American Board of Commissioners for Foreign Missions, the Congregational Christian foreign missionary board, withdrew its missionaries from China, only three remaining there at the end of the year because they were unable to get passages from Chinese ports.

At the end of 1951 the matter of the merger of the Congregational Christian Churches with the Evangelical and Reformed Church had just come to the appellate division of the supreme court of New York state for review (see *Britannica Book of the Year 1951*). (D. Ho.)

CONGRESS, U.S. The 82nd congress, which convened on Jan. 3, 1951, was composed of 49 Democrats and 47 Republicans in the Senate, and of 235 Democrats, 199 Republicans and 1 Independent in the House of Representatives. More conservative than its predecessor, it immediately restored to the Rules committee of the House the controlling powers of which it had been deprived in 1949. The Democratic majority chose Senator E. W. McFarland as floor leader and Senator L. Johnson as whip. In the House, Speaker S. Rayburn was re-elected for a sixth term.

More even than its predecessors, this congress showed a preoccupation with foreign and defence problems, both in its legislative and investigatory activities. It conducted 134 investigations—a record. Of these the most notable were the Senate's Armed Services and Foreign Relations committees' inquiry into General Douglas MacArthur's dismissal, the Senate Crime Investigating committee's inquiry led by Senator E. Kefauver, and the Senate Banking subcommittee's investigation of the Reconstruction Finance corporation. The session began with a "Great Debate" on foreign policy spread over three months and concluding with the passage of a resolution which approved the dispatch of four divisions to General Dwight D. Eisenhower's European command, but attempted to make the dispatch of any more dependent on further congressional sanction. Legislation was passed extending military selective service until July 1, 1955, lowering the draft age from 19 to 18½, increasing the period of service from 21 to 24 months and providing for the eventual establishment of a system of universal military training. The largest peacetime defence appropriations bill in history was passed, totalling $57,000 million and providing for an increase in the air force from 90 to 140 groups. For foreign aid congress voted $7,328 million out of the $8,600 million requested by the president. Total appropriations reached the peacetime record of $96,000 million. Taxes adequate to provide for these were not voted, but on the last day of the session a bill was passed providing for a tax increase of $5,691 million.

Congress extended the reciprocal trade agreements programme for another two years, though with four amendments restricting the president's power to reduce tariffs. The Defence Production act, which provided for controls on prices and wages, was similarly extended for 12 months with restrictions on the president's previous authority. An amendment to the Taft-Hartley labour act was passed, concerning union shop agreements. Two bills providing ex-servicemen's pensions were passed over the president's veto.

During the session two senators died, V. Chapman (Democrat) of Kentucky and Arthur H. Vandenberg, the distinguished Republican leader from Michigan. Democrats were appointed to fill both vacancies, thus increasing the Democratic majority in the Senate to 6. After congress adjourned on Oct. 20 Senator K. S. Wherry of Nebraska, Republican floor leader, also died. (H. G. N.)

CONSERVATIVE PARTY: *see* POLITICAL PARTIES, BRITISH.

CONSUMER CREDIT. The year 1951 saw a considerable change in the field of consumer credit in Great Britain. For the first three months, retail sales appeared to be maintaining satisfactory figures, but by the late spring or early summer reports from all parts of the country, and covering a wide range of goods, showed that purchases were being substantially reduced: with the increased cost of living the lack of money for commodities other than food was the main cause. As a result short-term retail credit was inclined to fall. The same conditions, however, brought an increase in the amount of hire purchase and long-term credit asked for and extended. This was specially so in the case of sales of such items as furniture, refrigerators, cars and radio and television sets. The retailer, faced with falling sales and, generally speaking, ample supplies, found the only way to maintain a reasonable turnover was to provide long-term credit.

Collections, although becoming more difficult in some cases, remained satisfactory on the whole. More care had apparently been used in selecting customers to whom credit was given and more attention paid to the need for keeping such payments to the agreed terms. At the government's request, the banks continued to limit advances to traders to finance long-term credit on consumer goods. This made it difficult for some retailers to handle all the hire purchase business offered to them. No new regulation affecting hire purchase terms was made. (C. C. Ws.)

Canada. Federal credit curbs imposed on Nov. 1, 1950, did not restrict instalment buying sufficiently to reduce inflation. Accordingly, in March 1951 regulations were tightened. The new orders called for an increase of down payment on car purchases from one-third to one-half, an increase of minimum down payments on other consumer goods from one-fifth to one-third, an increase of minimum monthly instalments from $5 to $10 and a reduction of the maximum instalment period from 18 to 12 months. Canadian motor car and electrical goods manufacturers complained that the tougher credit restrictions caused a major slump in sales, and by mid-year there were a number of job lay-offs in those production fields.

The Bureau of Statistics released in August its new consumer credit analysis, which showed for the first time the estimated value of retail sales in 13 key trades. For the first quarter of 1951 retail sales were $2,155 million of which 8% were on the instalment plan, as compared with 7·2% for the first quarter of 1950. (C. Cy.)

United States. The volume of consumer debt outstanding for the first time since World War II remained stable, being at both the beginning and end of the year about $20,000 million, as against a more than 20% increase during 1950. It may be compared with a 5% increase in personal consumption expenditure during 1951, a 9% increase in personal disposable income and a more than 100% increase in personal savings.

Several factors were responsible for this stability. First, the buying sprees set off by the war in Korea had somewhat slaked the demand for durable goods and such goods did not thereafter move from merchants' inventories to their accounts receivable as rapidly as they had previously been moving. Secondly, the increase in taxes and the continued rise of prices checked expenditures. Thirdly, caution on the part of many consumers made them savers rather than spenders. And fourthly, restraints and credit control upon buying diverted the purchases of some consumers.

Not all forms of consumer credit fared alike. A decline in debt incurred in the purchase of goods occurred in the sales of articles other than automobiles, such as electrical appliances, furniture, etc. Non-instalment debt increased in all categories: single-payment loans, charge accounts and service credit.

The National Retail Credit association passed a resolution recommending discontinuance of use of the term "loss" for uncollectable credits. It was proposed that what had been regarded as bad debt "loss" be referred to as "accounts receivable markdown." To the profession this distinction represented a step in the evolution of the credit function from mere guardianship of funds, in which every loss was to be avoided, to the conception of credit as a facilitation of sales, in which case in order to maximize sales risks of questionable quality were sometimes intentionally accepted with the presumption that a number of the accounts would be uncollectable. Under the latter conception, bad debts were regarded more or less as a sort of sales expense.

By an amendment on July 31 to Regulation W the time period for all durable consumer goods bought on instalment was increased from 15 to 18 months. Down payments on automobiles were left at 33%, but those required for household appliances were reduced from 25% to 15% and traded-in articles were made acceptable as part of the down payment. (R. Ba.)

CONTRACT BRIDGE. The European championship was played at Venice and was won by Italy. Austria was second, Great Britain third, Egypt fourth, Sweden fifth. The British team was: J. T. Reese and B. Schapiro, L. Tarlo and N. Gardener, A. Truscott and R. d'Unienville, I. Macleod (non-playing captain). The ladies' championship was won by Great Britain, with Denmark second. The British team was: Lady Rhodes and Mrs. R. Markus, Mrs. P. Williams and Mrs. H. R. Evans, Mrs. F. Gordon and Mrs. A. L. Fleming, S. Lee (non-playing captain).

A match for the world championship between Italy and the United States was won by the U.S. by 116 match points. The U.S. team was: H. Schenken, J. Crawford, F. Stayman, G. Rapee, B. J. Becker and J. Rosenblum (captain).

In Great Britain the winners of the principal competitions were: Waddington cup for masters pairs, R. Swimer and R. Preston; national pairs, J. T. Reese and A. Meredith; Gold cup, L. Tarlo (captain) and N. Gardener, L. Baron and A. Rose; Crockford's cup, J. Pavlides (captain) and L. Dodds, K. W. Konstam and G. Mathieson.

The Camrose trophy, played between the countries of Great Britain, was won by England, with Scotland runner-up. The Contract Bridge Association of Ireland announced that its team would not enter for this contest in future. (T. Rse.)

Bibliography. (All 1951). Terence Reese, *Your Bridge Questions Answered* (London) and *Modern Bidding and the Acol System* (London); Hubert Phillips, *Bridge at Ruff's Club* (London); Ewart Kempson, *Contract Bridge Hands* (London); Sam Stayman, *Expert Bidding* (New York).

CO-OPERATIVE MOVEMENT. The International Co-operative alliance held its 18th congress at Copenhagen in Sept. 1951. The affiliated membership was 98,175,000 in 30 countries. This total was made up of 52,990 consumers' societies and 40 wholesale societies, with 59,348,000 members; 11,560 industrial producers' societies, with 749,000 members; 70,530 agricultural societies, with 17,801,000 members; 225,500 credit societies and 16 co-operative banks, with 18,333,000 members, and a number of miscellaneous bodies, with 1,944,000 members. There were also 42 co-operative insurance societies, covering 36,380,000 insured persons. For reasons of overlapping, these last are not included in the total. The total trade of the affiliated retail consumers' societies was £1,829 million, of the wholesale societies £700 million, of the producers' societies £142 million, and of the agricultural societies £1,203 million. Savings deposits in the banks and credit societies totalled £447 million, and turnover £8,474 million. Premium income of the insurance societies was £86 million. (Figures mainly relate to 1949; they do not include the large totals of co-operative bodies not belonging to the I.C.A.) Among the non-affiliated movements were those of China, Hungary, Poland, the British colonies (except Jamaica) and most of Latin America; and there were many unaffiliated bodies, especially agricultural and credit societies, in other countries. The I.C.A., however, still included the co-operative movements of the Soviet Union, Bulgaria, Czechoslovakia and Rumania, as well as those of the countries outside the Soviet sphere of influence. The countries of the Soviet group retained their connection with the I.C.A. despite its domination by the western movements. At Copenhagen, the conflict between the two blocs came to a head. The action of the central committee in prescribing conditions for new affiliations in such terms as to rule out the co-operative movements of the Soviet countries was challenged by the Russians, the Italians and other groups as contrary to the constitution,

but the committee's action was upheld by 623 votes to 353. This involved the rejection of the applications for admission of the new Polish co-operative organization and also of that of the co-operative movement of Eastern Germany. The ground for exclusion, laid down in the committee's regulations and approved by the congress, was that "free" co-operative movements could not exist in totalitarian countries. The Soviet group also endeavoured to persuade the I.C.A. congress to adopt a peace resolution corresponding to the terms of the Communist peace campaign; but the congress adopted a resolution on different lines, embodying specific references to the need for freedom of speech, movement, organization, real democratic elections, co-operative independence, and action through the United Nations in the spirit of the Atlantic charter. Other issues dealt with at the congress included the need to adapt the I.C.A. more effectively to meet the needs of the agricultural co-operative movement, for which a special section was set up; the demand for effective action on a world-wide scale against restrictive monopolies and for the nationalization of commodity distribution; proposals for the development of international co-operative trade and for the removal of hindrances in the way of the international co-operative trade in petroleum products; and projects for the expansion of co-operative educational activities. The U.N. Economic and Social council was censured for blocking the discussion of the petrol question, and extended powers were demanded for procuring the discussion of such matters at the instance of the collaborating agencies (such as I.C.A.) recognized by the United Nations. During the year Thorstein Ohde resigned his position as director of the I.C.A. and was succeeded by W. P. Watkins. The congress increased subscriptions, mainly in order to extend its work in connection with U.N. and with the fostering of co-operation in the less advanced countries.

Great Britain. At the end of 1950, British retail consumers' societies had 10,691,000 members, as against 10,413,000 at the end of 1949. Share capital fell, because of withdrawals, from £238 million to £232 million, but loan capital rose from £62·5 million to £64 million. Employees increased from 270,000 to 277,000, and total retail trade from £549 million to £614 million. Average dividend rates continued to fall—from 1*s.* 4½*d.* in the £1 in 1949 to 1*s.* 3½*d.* in 1950. There was much discussion concerning possible means of arresting this fall, which was due mainly to the narrowing of trading margins under government control of prices. The English Co-operative Wholesale society's trade rose from £291 million to £321·5 million, and that of the Scottish C.W.S. from £62 million to £68 million, the increases being caused largely by rising prices. The productive societies' trade showed only a small increase, from £6,072,000 to £6,161,000. Following the establishment in 1950 of a dockers' co-operative society for handling cargoes at Grimsby, a similar society was set up on Merseyside in 1951, but met with considerable opposition from the trade unions as well as from port employers. At the general election of Oct. 1951 the Co-operative party, fighting in alliance with the Labour party, put forward 38 candidates, of whom 16 were successful, as compared with 18 in 1950. Discussions continued between the Co-operative and Labour leaders on the question of further policy in respect of nationalization and development of co-operative enterprise.

Other Countries. In the British colonies, notably West Africa and the West Indies, co-operation continued to expand with government encouragement. The West German movement also continued to regain strength, but attempts to re-establish unity with the movement in Eastern Germany met with no success. In Yugoslavia there was a considerable liberalization of co-operative policy, as the pressure for collectivization was further relaxed. The Chinese movement was brought more fully under Communist control. The Italian movement remained predominantly under Communist influence. (G. D. H. C.)

United States. During 1951 consumer co-operatives in the United States petroleum industry continued to grow. About 2,300 local co-operatives distributed 1,400 million gal. of fuel, primarily to farmers. This represented 2·25% of the total domestic consumption of petroleum products.

Co-operative credit unions continued their spectacular growth by adding nearly 100 new credit co-operatives a month during the year. This brought credit union membership to a total of 6 million in the U.S. and Canada in 12,000 local associations. Rural electric co-operatives added 68,000 mi. of lines and 250,000 new consumer-owners in 1951, bringing the total number of members to 3·5 million. During the year 54 telephone co-operatives took steps to modernize and streamline their operations for about 100,000 subscriber-owners.

Co-operative housing associations under the new co-operative section of the Federal Housing administration completed their first few units in 1951. At the end of the year about $60 million worth of co-operative housing was under construction, and F.H.A. had received applications for more than $300 million worth of this type of housing.

The consumer food store field saw the opening of several large supermarkets during the year, and the business done by established food co-operatives continued to grow. This section of the co-operative movement was still small compared with other fields of co-operation, but included about 1,000 food stores with business totalling about $1,000 million annually. The insurance companies, members of the Insurance Conference of the Co-operative league, reported gains in policy holdings and memberships. The largest group in the field, the Farm Bureau Insurance companies with headquarters in Columbus, Ohio, marked their 25th anniversary by moving into a $6 million headquarters building. During 1951 the Farm Bureau group served about 1·5 million policy holders in 12 eastern states.

Co-operative health associations and co-operative hospitals were reported to the U.S. senate committee on health and public welfare as a possible pattern for a "middle way" in the health field; but opposition to consumer-owned health services by the American Medical association continued. Health associations affiliated with the Co-operative Health Federation of America reported a membership of 600,000. An additional 5 million consumers were served by labour union health programmes and other non-profit associations.

The largest co-operative activity in the U.S. was the marketing of farm products. Activities in such fields as cotton, dairy products, fruit and vegetables, grain, dried beans, rice, livestock, nuts, poultry, tobacco, wool and other products brought together 3·6 million farmers. Their marketing activities covered nearly $8,000 million worth of commodities. Co-operative purchasing of farm supplies—feed, seed, fertilizer, and other essentials—affected a membership of 2,260,000 farmers. The total business of these farm supply co-operatives was about $1,500 million.

Near the close of the year the U.S. congress changed the tax laws affecting co-operatives, virtually eliminating the exemption of farmer-owned co-operatives from federal income tax. This placed all co-operatives on an even footing with other types of business enterprise as far as the tax laws were concerned. (W. J. C.)

CORN: *see* GRAIN CROPS.

COSMETICS: *see* SOAP, PERFUMERY AND COSMETICS.

COSTA RICA. Central American republic lying between Nicaragua and Panama. Area: 19,238 sq.mi. Pop. (1950 census, prel. fig.): 794,000, classified as about 80% white, 16% mixed, 3% Negro and less than 1% Indian. Language: Spanish. Religion: predominantly Roman Catholic. Chief towns (pop., 1949 est.): San José (cap., 79,694); Guadalupe (15,966); Limón (12,666); Puntarenas (12,329). President, Otilio Ulate Blanco.

History. Some progress toward stability and constitutional government was discernible during the year. A major milestone in the return to domestic peace, following the civil war of 1948, was passed on March 4 when *La Tribuna* of San José resumed its daily publication after three years of suspension. A foe of President Ulate, *La Tribuna* continued to criticize him. The administration announced on April 4 that it had frustrated another plot to unseat Ulate. The aborted *coup*, the government said, was directed by former President Rafael Angel Calderón Guardia (1940-1949) from his Mexican exile. Quantities of arms and munitions were seized and 48 persons were imprisoned in connection with the affair. On July 12 a court order disolved four allegedly Communist-dominated trade unions charged with engaging in political activities outside their labour functions. Acting as President Harry S. Truman's personal representative, Edward G. Miller, Jr., assistant secretary of state, in September conferred the U.S. Legion of Merit award on President Ulate for his "exceptionally meritorious conduct" in governing Costa Rica democratically. (G. I. B.)

Education. Schools (1951): public and private primary 1,139, teachers 4,821, pupils 116,157; secondary, public 8, private 16, technical 7. The University of Costa Rica had 907 students in 1945.

Agriculture. Coffee production in the 1949-50 season was 386,449 bags (132 lb. each) including 317,600 bags exported. The 1950-51 crop totalled 335,332 bags. Exports of other crops in 1950 included: bananas 10,198,042 stems (9,244,409 went to the U.S.); cacao 48,028 short tons and abacá 2,896 tons. The 1950 census showed 610,757 cattle. In 1950, 49,449 short tons of fresh frozen tuna were exported.

Foreign Trade. Exports in 1950 amounted to U.S. $34,689,235, imports $46,032,968. Chief exports: coffee (51%), bananas (30%), cacao (6%) and abacá (4%). Leading customers: U.S. (71%), the Netherlands (8%), Italy (6%) and Canada (4%). Leading suppliers: U.S. (67%), U.K. (5%), Canada (5%) and Germany (4%). Important imports included textiles, machinery, instruments and vehicles, wheat flour and fertilizers.

Transport and Communications. Railways: public 410 mi., private 250 mi. Roads (1948): 1,015 mi. including 926 mi. all-weather roads. Registered motor vehicles (Jan. 1, 1951): cars 4,645, lorries 2,308, buses 810.

Finance. Revenue (1950) was 137,987,150 colones, expenditure 126,129,039 colones, thus leaving a record surplus of 11,858,111 colones. Public debt (Dec. 31, 1950): 403,504,340 colones, of which 161,007,368 colones represented the external debt. Currency circulation (July 31, 1951) 97,900,000 colones; commercial deposits 113,500,000 colones; gold reserves U.S. $2,040,000. Monetary unit: *colón* valued officially (Sept. 1951) at U.S. cents 17·64 and on the free market at U.S. cents 13·30. (J. W. Mw.)

COST OF LIVING: *see* PRICES.

COTTON. In contrast to the previous year, trading in cotton goods in the United Kingdom during the early months of 1951 was on an active scale but conditions later deteriorated. Interest on the part of overseas consumers declined and there was a lack of confidence in the existing price level. Yarn output continued to rise slowly, production for 49 weeks totalling 1,025,680,000 lb., as compared with 997,500,000 lb. in 1950. Cloth output was also higher, the total for 11 months being 2,510,420,000 linear yards, as against 2,322,700,000 linear yards in 1950. Wastage of older workers at first exceeded recruitment but the entry of school-leavers later provided a marked change in the labour situation, available manpower exceeding 320,000, as compared with about 312,000 at the end of 1950.

World cotton supply problems were again formidable, mainly as a result of the small 1950-51 United States crop. This barely exceeded 10 million bales and caused a pronounced shortage. The position was reversed in the new crop, originally estimated at 17,266,000 bales, but later reduced by 1,500,000 bales.

The British Raw Cotton commission continued to function throughout the year. Standard U.S.-type cotton was sold at 47·80*d.* per lb. in January, rose to 53*d.* in April, and after being quoted at 38*d.* in September was priced at 45½*d.* in December. Long-staple Egyptian Karnak cotton increased in price from 78*d.* per lb. in January to 94*d.* in March, later being quoted at 59*d.* in September and 89*d.* in December. Egyptian Ashmouni rose from 73·80*d.* to 85·80*d.* in March but was reduced to 48*d.* in September, the latest quotation being 60*d.* per lb.

After the British general election in October talks were instituted by the new government to provide increased facilities for raw cotton merchants to obtain supplies. A committee was set up to investigate the situation, as a preliminary to any moves to reopen the Liverpool cotton market. The commission announced the introduction of cover schemes for doublers, weavers and vertical firms, in addition to the arrangements already in force for spinners and merchant converters.

More encouraging cloth shipments from Britain to overseas markets were recorded. For the first 11 months of 1951 exports of cotton piece goods amounted to 812,912,000 sq. yd., as against 822,375,000 sq. yd. throughout 1950. Yarn shipments for the 11 months totalled 61,709,300 lb., as against 70,974,500 lb. for the previous year. Commonwealth markets were the main cloth buyers, notably Australia, South Africa, British West Africa, Malaya, Pakistan and New Zealand. Australia, Norway, Denmark and the Irish republic were the chief consumers of yarn.

From the beginning of 1951, British cotton spinning and weaving operatives obtained a wage advance of 10%. A further claim for a Christmas bonus resulted in a compromise agreement providing for an increase of 5% from the beginning of September and a lump sum bonus, representing 5% of earnings for the first eight months of the year, to be paid in December. In November employers and unions in the textile finishing trades reached an agreement basing future wage adjustments on the official retail cost of living index. The cotton trade unions also re-applied for a longer holiday with pay, a claim considered by the Industrial Disputes tribunal in December.

The system of issuing buying and selling permits to producers every few months was discontinued from September. The Board of Trade introduced a flexible scheme providing spinners with licences limiting their order books to 40 weeks' production ahead. Doublers and weavers simultaneously obtained licences to acquire yarn up to 40 weeks' estimated consumption.

Business in home trade goods centred on industrial fabrics; the market for domestic cloths was quiet. Sustained consumer resistance was experienced but renewed government contracts kept machinery busy. Fresh efforts were made to introduce more flexibility into the utility clothing programme. British spinners and manufacturers maintained their strong financial position, although the failure of demand to broaden in the later months of the year caused doubts to be expressed as to the future outlook. (F. W. Ta.)

United States. *Manufacture.* The cotton manufacturing industry experienced reduced activity during the latter eight or nine months of 1951. Heavy demand resulting from military requirements and "scare buying" following the outbreak of the Korean war carried over into early 1951, but before mid-year manufacture declined. The pricing problems of the

industry were complicated not only by surplus in stock but also by wide and unexpected swings in raw cotton prices. Mill activity dropped to about 60% of capacity. Spinning, which operated in January at 145·9% of capacity, had declined to 124·1% in October. Of 23,182,000 spindles in place, 20,294,000 were actively consuming cotton in November, as compared with 20,900,000 in February. Cotton goods produced up to end-Sept. totalled 7,770,093,000 yd.; it was estimated that the total for the year would be about 9,750 million yd., as compared with 9,887,344,000 yd. in 1950.

Production. Though the early promise of a very abundant cotton harvest gradually faded as the season progressed, the U.S. cotton crop of 1951 was a large one of 15,290,000 bales (of 500 lb. gross weight), as compared with only 10,012,000 bales in 1950 and an average for 1940-49 of 12,030,000 bales. On Sept. 1, when 2,014,444 bales of the crop were reported as already picked and ginned, a total crop of 17,291,000 bales was forecast; in October this was dropped to 16,831,000 bales, in November to 15,771,000 bales and in December to 15,290,000 bales. The acreage cotton actually harvested in 1951 was estimated at 26,698,000 ac., as compared with only 17,843,000 ac. in 1950 and an average for the previous decade of 21,622,000 ac.

Cotton prices fluctuated sharply during 1951, but were lower and more stable than world prices. Early in the year prices received by farmers were as high as 43·17 cents a lb. but, after a ceiling was placed on cotton at about 45·76 cents a lb., prices declined substantially during the summer on the prospect of a big crop, only to rise abruptly as crop estimates declined late in the season after part of the crop had been sold to producers. The average season price received by farmers was estimated at 37·6 cents (40·07 cents in 1950).

Cotton exports from the U.S. in 1950-51 were 4,117,000 bales; there was some preliminary indication that as many as 6 million bales might be exported in 1951-52. Thus, in summary, a supply consisting of a carry-over from the previous crop of 2·2 million bales, plus a new crop of nearly 15·3 million bales, would support a domestic consumption of at least 9·5 million bales, which would mean that exports must be held below the earlier estimate (6 million bales) if the carry-over on Aug. 1, 1952, was not to fall below the very low one of 1951. In consequence of the probable tight situation, the official goal recommended for the 1952 crop was 16 million bales and 28 million ac. in cotton cultivation on July 1, 1952. Export controls had not been reimposed by the end of 1951.

World Production. Early indications pointed to a 23% increase in world cotton production in 1951-52, as compared with 1950-51, or 33·8 million bales as compared with 27·6 million bales. (*See* also TEXTILE INDUSTRY.) (J. K. R.)

COUNCIL FOR MUTUAL ECONOMIC AID. No official information was published during the year on the activities of the Council for Mutual Economic Aid (C.M.E.A.) or *Soviet Ekonomicheskoy Vzaimnopomoshchi*, the inception of which was announced in Moscow on Jan. 25, 1949, and of which Anastas Ivanovich Mikoyan, member of the Politburo of the All-Union Communist party and deputy premier of the U.S.S.R., who on March 4, 1949, was released from his duties as minister of foreign trade, was reputedly controller.

Conceived as a Soviet reply to the Organization for European Economic Co-operation, C.M.E.A. had the task of co-ordinating the long-term plans of industrialization of the U.S.S.R.'s European satellite states with Soviet grand strategy. The first official announcement stated that the C.M.E.A., which would make decisions only with the consent of the country concerned, was to organize the interchange of economic experience, of technical assistance and of help with regard to raw materials, foodstuffs, machinery and equipment. It was an organization which might be joined by other countries of Europe sharing its principles and desiring to participate in broad economic co-operation with the six founder countries, Bulgaria, Czechoslovakia, Hungary, Poland, Rumania and the U.S.S.R. On Feb. 22, 1949, it was announced that Albania had been admitted to the C.M.E.A. and admission of the German Democratic (Eastern) republic was announced on Oct. 1, 1950.

The council was said to be composed of representatives of the member countries on the basis of equal representation. Although no names were published, it was most likely that the respective countries were represented by the chairman of their State Planning commission and the minister of foreign trade. (*See* also EASTERN EUROPEAN ECONOMIC PLANNING.)

COUNCIL OF EUROPE. The story of the council with its headquarters in the House of Europe at Strasbourg during 1951 might be summed up as a gradual process of gearing the hope for European union to existing realities. Thus, whereas in 1949 and 1950 the pioneers had embraced the notion of a European parliament, of which the consultative assembly should be the principal organ of democratic control and initiative and the committee of ministers a sort of upper house exercising the power of veto, in 1951 it was a question, rather, of developing a tolerable régime of co-existence of the council's two organs. Dirk Stikker, of the Netherlands, chairman in office of the committee of ministers, when delivering the latter's report to the assembly in May, reminded his hearers that the growth of parliamentary democracy in the several countries had itself been marked by the inter-play of the two elements of a charter (*cf.* the statute of the council) and unwritten parliamentary procedure.

After some 18 months' trial many among the representatives to the assembly felt that that statute was overweighted on the side of caution, that something more robust and revolutionary was needed. The protocol for the amendment of the statute, designed to confer on the council law-making powers, was duly elaborated by the committee of seven appointed by the assembly and then, together with sundry other proposals originating in the 1950 assembly, had to run the gauntlet of the committee of senior officials which had been set up by the committee of ministers at its Rome session in Nov. 1950.

This committee of ministers' advisers, as it came to be known, submitted the proposed changes in the statute to a thorough examination. While rejecting outright any alteration in the fundamental principles agreed upon by the ten founder-governments in May 1949, the advisers recommended for adoption certain modifications designed to improve the working of the machine. At its eighth session (May 2-4), the committee of ministers accepted these recommendations and a number of amendments were introduced—not, however, by formal process of protocol, which would have meant reference back to the national governments and parliaments, but, with the authority of the statute itself, through unanimous resolution backed by a certificate of the secretary general. These amendments, mainly, gave sanction to what had become established practice. But there was, too, a significant shift of emphasis in the rewording of article 25 of the statute so as to place the responsibility for election of representatives to the assembly on parliaments and not governments. This was in accordance with established dogma on the Continent, where parliament is the embodiment of the sovereign will of the people: to such a breach with the tradition of government delegation in international conferences the British government had, in 1949, shown itself resolutely opposed.

Certain texts were also agreed, *qua* decisions, by the committee of ministers at its eighth and ninth sessions, by way of declaration of intention, with a view to their ultimate inclusion in a revised statute. One of these decisions which gave particular satisfaction to the zealots of the assembly was the authorizing of partial agreements. Thereby, while the hallowed principle of unanimous decisions underlying the whole conception of inter-governmental co-operation was safeguarded, a member of the committee of ministers was enabled to stand aside, that is to abstain from voting in the knowledge that his government would not be bound by a decision on which other governments were agreed.

The May meeting of the committee of ministers, held on the eve of the third ordinary session of the consultative assembly, was notable for the unanimous accord given, after due consultations with the standing committee, to the promotion of Western Germany to the status of full member. (The Saar remained as the sole associate member of the council.)

While the ministers took note of the special protocol for liaison with the Council of Europe signed on April 18 by the six member nations simultaneously with the treaty establishing a coal and steel community, they were not called upon at this point to go beyond the approval in principle, already accorded at the Rome session, of the policy of establishing specialized authorities with competence and powers in particular fields, which had emerged from the assembly's debates in 1950 as the road along which all could travel. The federalists had been routed and this functional approach to European union was henceforth the Strasbourg gospel—though interpreted by some, it is true, as " federation, sector by sector." Incidentally, among the texts designed for later inclusion in a revised statute, was a whole new chapter on the question of specialized authorities.

Among the recommendations sent forward from the third session of the assembly (first part, May 5-15) to the committee of ministers were a draft convention for the establishment of a European Refugees office; proposals for the establishment of a European manpower board and for safeguarding social security benefits for migrant workers; and a statement welcoming the agreed submission of an Organization for European Economic Co-operation (O.E.E.C.) progress report to each ordinary session of the assembly.

The high light of the proceedings in May was the proposal standing in the name of Paul Reynaud, former prime minister of France, to organize a joint discussion on common problems of the west between representatives of the assembly and representatives of the two houses of the U.S. congress. Encouragement for this move had been given, as it happened, by a resolution of the committee of ministers of March 17 in favour of close liaison between existing European organizations and the countries of north America. In the event the recommendation adopted by the assembly omitted all reference to Canada, for the good reason that the latter, together with other Commonwealth countries, had already, during the second session, received an invitation from the assembly to send observers to attend its debates.

What was now suggested was a new departure, outside the ambit of the assembly proper. The great value of it was that it signified a recognition on the " parliamentary " plane, on a par with the establishment of the North Atlantic Treaty organization at governmental level, that Europe by itself, still more western Europe, was not a significant grouping in the world of today and also that the union of Europe was to be seen no longer as an end in itself, let alone an idealist's pipe-dream, but as an essential and integral part of the process of building up the Atlantic community to which the western world was now dedicated. Political and economic issues, like the proposal for a European army, the manifold activities of the O.E.E.C., the new U.S. appropriations to aid European rearmament and major social problems such as those of refugees and surplus populations—all these were questions of common concern on both sides of the Atlantic; and it was fitting that the representatives of public opinion, no less than governments, should take counsel together, in the interests of an effective partnership. Moreover, duplication of effort was to be avoided wherever possible: the committee of ministers, for example, set aside the recommendation from the 1950 assembly for establishment of a raw material resources and purchasing board on the ground that the international aspects of this particular problem were under examination by a special organization set up for that purpose in Washington, while its specifically European elements were being studied by a committee of the O.E.E.C.

Lord Layton, a vice president of the Strasbourg assembly, went to Washington immediately after the first part of the third session of the assembly for a preliminary reconnaissance, and he reported that the idea of a joint discussion was welcomed by influential members of the U.S. congress. A small party including Paul-Henri Spaak, president of the consultative assembly and the secretary general, proceeded to Washington in September to make the necessary arrangements, and a five days' debate took place in Strasbourg, starting on Nov. 19, just a week before the date fixed for the reconvening of the assembly, with a team of 14 (7 senators, 7 representatives) from the U.S. and a score of representatives of the consultative assembly.

At its ninth session, on Aug. 3, 1951, the committee of ministers adopted the text of a protocol to the convention on human rights, relating specifically to the right to own property, the right to education and right to freedom of electoral process, questions on which agreement had been more difficult to reach and which were now to be added to the corpus of rights whose collective enforcement would be ensured.

On the refugees question the committee considered that the time was not ripe for the calling of the European conference requested by the assembly, so consideration of the assembly's recommendation for a refugees office was for the time being deferred (as also that proposing a European manpower board): the ministers recommended that the committee of experts that had been tackling this question should hold a further meeting which should be attended by representatives of the U.S. government and of the International Bank for Reconstruction and Development. The suggestion that a committee on population and refugees should be formed as one of the assembly committees was commended.

The agenda for the second part of the third session of the assembly included, among the topics for debate, a number of hardy annuals, with emphasis still on the projects for specialized authorities on the pattern of the Schuman plan. Further exchanges took place on the question of European federation. A more down-to-earth question was whether the council might take over the remaining functions of the Brussels Treaty organization and the work of O.E.E.C., which was originally intended to be completed by 1952. Could and should the consultative assembly exercise a sort of democratic control over governments and civil servants working on these common problems? The answer would depend, it was appreciated, to no small extent on the degree to which the Strasbourg organization could claim to speak for the whole of " free Europe," more precisely on the extent to which the new British government would be prepared to depart from its attitude of detachment from the enterprise of establishing a " European authority with limited functions but real powers." The fate of the proposal for

a continental federation (within the Atlantic community) foreshadowed in statements by Robert Schuman, the French foreign minister—that is, for a political authority as a counterpart to the high authority envisaged for the European Coal and Steel pool (*q.v.*) and to direct the employment of a European army—was thus likely to be the crucial test of the council's continuing vitality. (W. H. CTR.)

COUNCIL OF FOREIGN MINISTERS. No meeting of the Council of Foreign Ministers—the four-power body set up at the Potsdam conference in 1945 for the preparation of European peace treaties—took place in 1951, but representatives of the United States, Great Britain, France and the Soviet Union met on March 5, 1951, in Paris to draw up an agenda for a meeting of the Council of Foreign Ministers that was thereafter to be held in Washington. The delegations were led by Philip Jessup (ambassador-at-large, U.S.), Ernest Davies (parliamentary under secretary for foreign affairs, Great Britain), Alexandre Parodi (secretary general of the Foreign Ministry, France) and Andrey Gromyko (deputy foreign minister, U.S.S.R.). The attempt to agree on an agenda failed and, after 74 sessions, the conference broke down on June 21.

The conference arose out of a Soviet request, set out in notes to the three western powers on Nov. 3, 1950, for a meeting of the Council of Foreign Ministers to discuss the demilitarization of Germany. The three western powers replied on Dec. 22 that a four-power meeting should discuss not only the question of Germany but " the elimination of the causes of the present international tension throughout the world."

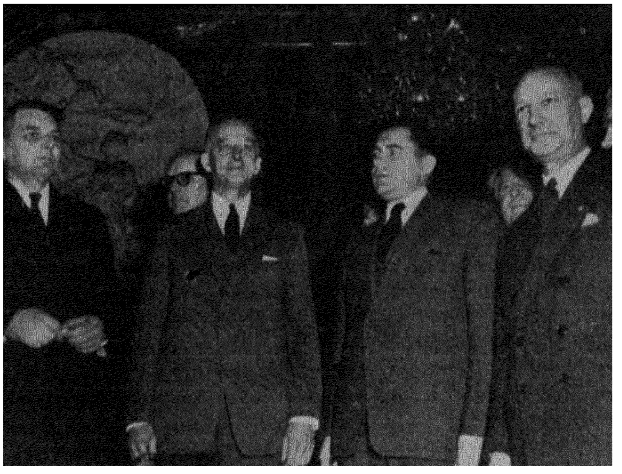
In further exchanges of notes this difference on proposed subjects of negotiation was sufficiently narrowed down to make the attempt to fix a definite agenda appear worthwhile. The Paris conference was called for this purpose.

At the beginning of the conference, the chief difference between the Soviet Union and the three western powers, which throughout maintained a joint position, turned on the question whether the demilitarization of Germany or the causes of the present tension should be put at the head of the agenda. A subsidiary difference arose out of the wish of the three western powers to have the completion of the Austrian treaty put on the agenda, whereas the Soviet Union was unwilling to discuss the Austrian treaty except coupled with the question of Trieste.

Towards the end of March a compromise on these questions seemed in sight. It consisted in a proposal to head the agenda with a general item " causes of international tension," including, in a prominent position, the demilitarization of Germany. But, when agreeing to this compromise, the Soviet Union demanded simultaneously to include as a new item on the agenda the North Atlantic treaty and the establishment of the U.S. bases in Europe and the middle east.

This the three western powers refused on the ground that the North Atlantic treaty, a treaty concluded by 12 powers for the purpose of their common defence, and to which the U.S.S.R. was not a party, did not come within the competence of the Council of Foreign Ministers and could not be called into question by making it the subject of negotiations with the Soviet Union.

On the Soviet insistence to include the North Atlantic treaty in the agenda, and the western refusal to do so, the conference finally broke down after a deadlock of almost three months, during which the western powers submitted three separate agendas for Soviet choice, including a " split " agenda listing both agreed and disagreed items and leaving the latter for the final decision of the foreign ministers themselves. There was also a new recourse to a direct exchange



The deputies of the Council of Foreign Ministers who met in Paris, March 5-June 21, 1951. Left to right, Ernest Davies (Great Britain), Philip Jessup (United States), Andrey Gromyko (U.S.S.R.) and Alexandre Parodi (France).

of notes between the foreign ministries, and a date for the meeting of the Council of Foreign Ministers was actually proposed by the western powers (July 23 at Washington), but all to no purpose. Finding the Soviet Union adamant in its insistence on including the North Atlantic treaty in the agenda, the western powers declared on June 21, through the British representative, that the invitation to Washington remained open, but that a continuation of the present discussion had no practical utility.

The surprising Soviet behaviour of first taking the initiative to bring about a conference on German demilitarization, and then allowing the project to fail over a quite different question, was widely explained by developments outside the Paris conference. In the autumn of 1950 preliminary steps had been taken by the western powers towards rearming German units as a contribution to western European defence and the Russians were believed to be genuinely anxious to prevent this " German rearmament "; in the early spring of 1951 this question had been shelved and, in the opinion of many diplomatic observers, the Soviet interest in a four-power conference had therewith lapsed. From the beginning of April, when it had become clear that there would be no German contribution to western defence in the immediate future, the original Soviet motive for demanding a four-power conference had, in the opinion of these observers, lost its force, and the Soviet Union was no longer interested in a meeting of the Council of Foreign Ministers for the purpose of actual negotiation, but only for propaganda purposes. These would have been served if the western powers had been prepared to be put in the dock for making defence preparations among themselves in the framework of the North Atlantic treaty; but they were not so prepared. The ensuing breakdown of the Paris conference was widely interpreted as proof that the time was not yet ripe for a genuine diplomatic settlement of the outstanding European issues between the West and the Soviet Union. (S. HR.)

COUNTRIES OF THE WORLD, AREAS AND POPULATIONS OF THE: *see* AREAS AND POPULATIONS OF THE COUNTRIES OF THE WORLD.

COUNTRY LIFE. To the townsman visiting the country in the summer of 1951, England was never more beautiful. The rain and the cold of winter, which had lingered so long, had held the flowers in bud past their due season so that, when at last they were warmed by the sun, they blazed forth with

a rich profusion. The May flower alone was too delicate to resist the long winter, and responded but fitfully to the belated sun.

However, the rains that brought this beauty gave more than the usual seasonal troubles to British farmers. The year 1950 had been remarkable enough for persistent rains, but the early months of 1951 produced weather that justified the most gloomy forebodings. The fields were sodden and lifeless right into May. It was widely believed that the corn, so long under water, would be unable to germinate, although this fear fortunately proved to be largely unjustified.

But the sun always returns to earth, and in May all the little green things of the countryside suddenly leapt into life. Hedges which a day or two before had seemed cold and dead, now seemed to breathe and whisper with life. Within a fortnight the whole farming scene changed, and countrymen said that they could " see " the grass growing.

In early June every farmer who had ley fields to mow—and by 1951 these probably constituted the majority of British farmers—was busy haymaking. Summer rains were frequent, but the farmers who watched their chance could snatch in their hay between the showers. Their cut was certainly more successful than in 1950, so that it was expected that there would be no further talk of importing hay from Norway. Those who delayed haymaking until July were unfortunate, for in that month the showers were more persistent, and there were also periods of heavy rain. Not a few cuts of July hay were left to rot in the fields, and fears for the grain harvest became widespread.

Whatever the effect of the wet season on the fields, there were sufficient spells of fine weather to enable the country towns and villages to celebrate the Festival of Britain with enthusiasm. Many old implements were dragged from barns to illustrate agricultural progress since 1851. As the farmer examined these ancient tools, he might well have wondered if the horse plough was not destined soon to follow the mediaeval ox plough into oblivion.

August, the harvest month, came and went in persistent rain. Little corn could be gathered in, except by the combine harvester in the drier districts. In dealing with a corn crop that is liable to be soaked at any time, the combine has an enormous advantage over the reaper and binder, which in 1951 was still the implement most used in Great Britain. A day's fine weather, when the corn is ripe, is enough to enable it to be harvested by the combine, even though, in most cases, it is still necessary subsequently to dry it artificially. This season and the previous one convinced most farmers that an artificial drying system is a necessity when a combine harvester is purchased.

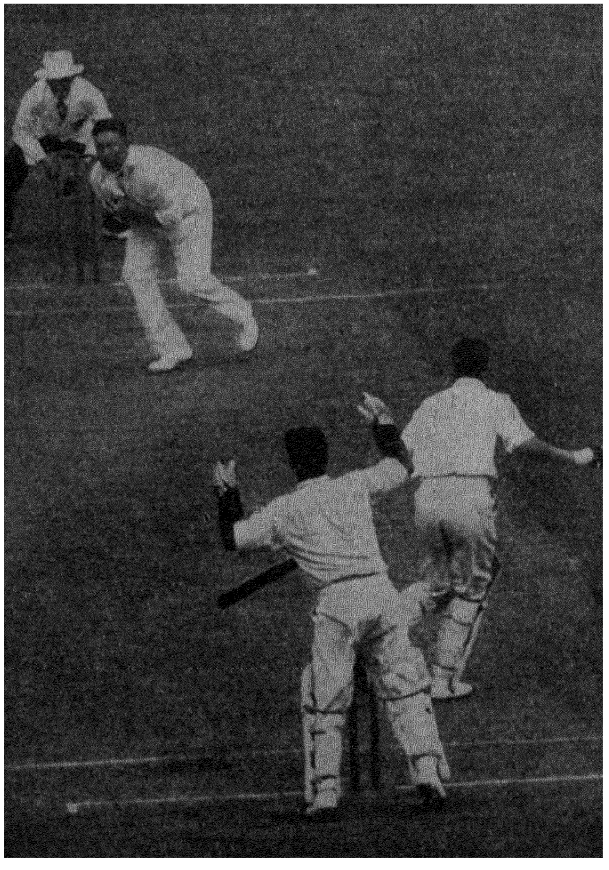
September was the vital month for British farming. As the rain-filled days followed each other it became evident that, if the harvest was to be gathered at all, it would be the latest in living memory. When the middle of the month passed without relief, the farmers looked at the soaked and damaged corn-fields in despair. Fortunately, the reprieve came just in time. In the third week of September the rain ceased, and farmers took heart. News came from every county that farmers, working from dawn to dark, were carrying in their harvest. Cornwall and Devon, both of which suffered so much in 1950, saved about three-quarters of their corn crops. The eastern counties suffered hardly at all.

The rain ceased in September just in time to save the farmer from disaster. The beautiful autumn which followed allowed a fair harvest of potatoes and sugar beet to be gathered in, and restored a certain amount of optimism to the farmer's outlook. Farmers throughout the land who had been saved from disaster at the last moment were especially sincere in their Harvest Thanksgiving. (*See* also AGRICULTURE; BEE-KEEPING; FIELD SPORTS; ORNITHOLOGY; WILD LIFE CONSERVATION.) (G. WI.)

See Frances Pitt, *Nature through the Year* (London, 1951); A. G. Street, *Farmer's Glory* (new ed., London, 1951).

CRICKET. In the winter of 1950-51, an M.C.C. team visited Australia and New Zealand and a Commonwealth side toured India, Pakistan and Ceylon. The former had the satisfaction of winning a test match in Australia for the first time since Dec. 1936, and though this was only achieved in the last of the five matches, it was generally agreed that the difference between the two sides was not really as great as these figures would suggest. As so often happens at Brisbane, rain determined the result of the first match; after A. V. Bedser and T. E. Bailey had bowled splendidly to dismiss Australia on a good wicket for 228, there was a blank second day, and on the third the wicket was so difficult that it reduced batting almost to a farce. F. R. Brown, the M.C.C. captain, declared at 68 for 7 wickets, A. L. Hassett followed suit at 32 for 7, and before the close of play England, in pursuit of the 193 required to win, had lost 6 wickets for 30. Although L. Hutton made a superb 62 not out on the last day, Australia won by 70 runs. The second game, at Melbourne, was a splendid fight, with the bowlers always on top; Brown played a courageous innings of 62 to give his side a lead of 3 runs over Australia's 197 and then, with 4 wickets for 26, played a major part in dismissing them for 181; but only Hutton (40) showed any signs of mastering the accurate and aggressive bowling and Australia won by 28.

At Sydney, England's fate was sealed in the third test by an innings and 13 runs, and K. R. Miller and J. Iverson



F. R. Brown, captain of England, catching Keith Miller in the fifth test match at Melbourne, Feb. 1951. England won the test by 8 wickets. Keeping wicket is T. G. Evans.



The Warwickshire team which won the 1951 county championship. Back row (left to right) D. Taylor, R. T. Weeks, T. L. Pritchard, A. Townsend, R. G. Thompson, F. C. Gardner, and R. E. Hitchcock. Front row, A. V. Wolton, W. E. Hollies, H. E. Dollery (captain), J. S. Ord, C. W. Grove and R. T. Spooner.

dominated the game. After taking 4 wickets for 37 in England's first innings of 290, Miller, in an uncharacteristically dour innings, contributed 145 not out to Australia's total of 426, and then Iverson's accurately controlled spin brought him 6 wickets for 27 in an unworthy last M.C.C. innings of 122. Once again, only Brown and Hutton found any real batting form.

The fourth test at Adelaide brought Australia another decisive victory, by 274. For her total of 371 she owed almost everything to A. R. Morris (206), but England's first innings of 272 was even more dominated by Hutton who, going in first, was still undefeated after six hours for 156. In Australia's second innings Miller made 99 and the young J. Burke had the distinction of scoring 101 in his first test match.

In the last test, at Melbourne, England's victory by 8 wickets was virtually the work of three men. With a match record of 10 wickets for 105 runs, A. V. Bedser crowned a tour of great endeavour and brought his test match figures to 30 wickets for 16 runs apiece; Hutton, with 79 and 60 not out, was once again at his masterly best; but it was R. T. Simpson's 156 not out in the first innings that really laid the foundations of success.

This victory was widely acclaimed as an overdue reward for a team who, thanks largely to Brown's leadership and personal example, had fought gallantly and made many friends; but, though the bowlers had done more than was expected of them, D. C. S. Compton's complete lack of form in the tests and the failure of the young batsmen with whom the M.C.C. selection committee had understandably taken a chance, weighted the scales too heavily against them, even though Australia, with Sir Donald Bradman no longer there to dominate the scene, seemed at times little more than a shadow of the side that had swept victoriously through England in 1948.

On the short New Zealand tour that followed two test matches were played: the first was virtually confined to one innings by each side—New Zealand 417 for 8 declared, M.C.C. 550—but the M.C.C. won the second by six wickets, largely owing to the bowling of R. Tattersall who had been flown out to Australia a month earlier. Throughout the tour, the rate of scoring by both sides in the test matches had been sadly low and before the end there were signs that public interest and support were beginning to be affected by it.

The tour of the strong Commonwealth side in the Indian peninsula was a great success, as many as 40,000 spectators watching the opening day of the second of the so-called "test" matches. Of these five games the visitors won the only two that were completed. The West Indian F. M. Worrell batted brilliantly throughout the tour and his compatriot S. Ramadhin was the most successful bowler, though receiving strong support from the Australian spinners G. Tribe and B. Dooland. Of the Indians, V. S. Hazare scored heavily, V. Mankad bowled with great accuracy and D. G. Phadkar showed good all-round form.

The chief feature of the English season of 1951 was the visit of a South African team under the captaincy of A. D. Nourse. With more than half its members very young and without any experience of English conditions the side was further handicapped by a very cold and wet May and made an inauspicious start. The tourists' win in the first test match at Nottingham created, therefore, a great sensation. The man responsible for this victory was Nourse who, braving the pain of a broken thumb which had been only recently reset, batted for over nine hours for 208 out of a total of 483 for 9, when he declared. After Simpson and Compton had both made ceturies, Brown also declared with England still 64 behind: then Bedser and Tattersall, on a wicket that was taking spin, dismissed South Africa for 121, leaving England 186 to win. Thanks to splendidly accurate bowling by A. M. B. Rowan and N. B. F. Mann, and the astute and aggressive captaincy of E. A. B. Rowan, who had taken over from the injured Nourse, it proved 72 too many, but a heavy responsibility lies with the English batsmen who, except for Wardle, made no attempt to counter-attack and perished ingloriously.

In the second game, at Lord's, fate dealt roughly with the visitors, for after they had done well enough to dismiss England for 311, heavy rain on the next day produced a wicket on which they could find no effective answer to Tattersall's accuracy and spin. Only a spirited stand of nearly 100 by G. M. Fullerton and J. E. Cheetham saved them from defeat before the second nightfall. As it was, England won by 10 wickets.

If this match was Tattersall's his final figures were 12 for 101—the third at Old Trafford, Manchester, was Bedser's with 12 for 112. On a wicket that always gave the bowlers help, E. A. B. Rowan's 57 in South Africa's second innings was the highest score on either side until, on the last morning, Hutton (98 not out) piloted England comfortably home by 9 wickets. Once again South Africa had had the worst of conditions with which their team were still unfamiliar.

At Leeds, in the fourth test South Africa found a true and fast wicket and never looked like being beaten, but the tempo of their batting never threatened England with serious risk of defeat. In making 236 in 9¼ hours, E. A. B. Rowan beat the South African test match record and their total reached 538 against some very poor bowling. To England's reply of 505 Hutton contributed 100 and P. B. H. May a most impressive 138 in his first test match innings. At the end of the fourth day South Africa were 87 for no wicket, E. Rowan again 60 not out, but then came rain and there was no more play.

The fifth match at the Oval, was played throughout on a pitch that, though reasonably fast, helped the spin bowlers and so produced a fascinating game with the balance between bat and ball very even. Once again the inability of the batsmen on either side to break through an accurate attack, supported by a close field, was apparent. In the end England were set 164 to win; Hutton looked like carrying the side serenely home when he made cricket history by being given out, "obstructing the field," and with 4 wickets down for 90 the game was open; but Brown, after a perilous start, made 40 brave runs and England won by four wickets.

1951 County Championship Final Placings

	P.	W.	L.	D.	First Innings lead in match: No dec.	First Innings lead in match: L.	First Innings lead in match: D.	Pts.
Points Awarded		12	—	—	—	4	4	—
Warwickshire	28	16	2	10	0	0	6	216
Yorkshire	28	12	3	11	2	0	10	184
Lancashire	28	8	2	14	4	1	9	136
Worcestershire	28	9	7	10	2	2	4	132
Glamorgan	28	8	4	13	3	1	7	128
Surrey	28	7	6	13	2	0	9	120
Middlesex	28	7	6	13	2	1	7	116
Essex	28	6	2	18	2	0	9	110
Hampshire	28	5	7	13	3	1	9	100
Sussex	28	6	6	15	1	0	5	94
Derbyshire	28	5	6	16	1	2	6	92
Gloucestershire	28	5	9	12	2	1	6	88
Northamptonshire	28	4	4	17	3	1	7	80
Somerset	28	5	15	6	2	3	1	76
Leicestershire	28	4	7	16	1	0	4	64
Kent	28	4	15	8	1	1	2	60
Nottinghamshire	28	1	11	13	3	0	7	40

The Essex and Sussex records include two points for a tie on first innings in match drawn.

In the county championship, Warwickshire had a decisive and popular victory exactly 40 years after their only previous success. Their team, which had a slightly cosmopolitan flavour, were fortunate in having to meet no calls for the test matches, but they were a well-balanced side admirably led by their professional captain, H. E. Dollery, who had a way of making runs just when they were most needed. T. L. Pritchard and C. W. Grove bowled with great persistency and W. E. Hollies' spin was invaluable. R. T. Spooner had a very good season both as a wicket-keeper and batsman and the side included some young players of promise. There was great enthusiasm for the game in the county. The runners-up were Yorkshire, for whom (apart from Hutton) F. A. Lowson and J. V. Wilson batted very well and A. R. Appleyard achieved the notable record of 200 wickets in his second county season. Lancashire, after threatening to challenge, fell away in August. J. D. Robertson (Middlesex) was the most consistent batsman of the season, scoring nearly 3,000 runs; but for the first time within living memory no-one achieved "the double" of 1,000 runs and 100 wickets.

As in 1950, the Gentlemen and Players match produced some most interesting cricket and in the end the amateurs, set by the Players' declaration to get 249 in well under 3 hours, only failed by 21. Batting honours went to Compton (150 and 74 not out) and to May who made 119 not out in his first innings in this historic match.

Oxford university upset all expectations by defeating a much heralded Cambridge side by 19 runs less than 20 minutes from time. They owed much to B. Boobyer (80) and D. B. Carr (50) who carried them in their second innings, more still to R. V. Divecha who bowled most accurately to take 7 for 62 in the final stage of the match and perhaps most of all to the leadership of their captain M. B. Hofmeyr and the magnificent fielding of the side. Cambridge paid the penalty of trying to win by "safety-first" methods.

Eton college, after completely outplaying Harrow school until tea time on the second day, were in the end just foiled, chiefly by the stubbornness of W. J. Nokes, but in A. C. D. Ingleby-Mackenzie and R. V. C. Robins they had two boy cricketers of the highest promise. The latter took 13 for 91 against Harrow; the former scored 81 and 52, and in the following month, with scores of 67 and 58, played the leading part in the victory of a highly promising Public Schools XI against the Combined Services at Lord's.

In December the M.C.C. announced the constitution of the M.C.C. Youth Cricket association, to come into being on Jan. 1, 1952. H. S. Altham, M.C.C. treasurer, would be chairman, Sir W. A. Worsley (Yorkshire C.C.C.) vice chairman and Vice Admiral E. G. N. Rushbrooke secretary and treasurer.

(H. S. A.)

CRIME. International. Two important international congresses were held in Europe in 1950: the 12th International Penal and Penitentiary congress which met from Aug. 14 to Aug. 19 at The Hague and the second International Congress of Criminology held from Sept. 10 to Sept. 19 in Paris. While the former (which was to be the last of its kind) was mainly devoted to penological matters, the Paris congress had as its main topic the study of the various causes of crime. One of the most important results of the congress was the revival of the International Society of Criminology which, founded in Rome in 1938, had so far been hampered in its development by World War II.

Great Britain. *England and Wales.* In 1950 the number of persons found guilty of offences of all kinds was 688,650, of whom 116,021 had committed indictable offences, 564,844 non-indictable offences and 7,785 offences against the defence regulations, an increase of 1,727 and 41,281 and a decline of 4,855 respectively against the figures for 1949.

Among the indictable offences which contributed to the increase were violence against the person (16%), sexual offences (5%), thefts of motor vehicles (32%), and thefts from automatic machines and meters (26%). The number of murderers of persons aged one year and over rose from 95 to 109, the total number of victims from 114 to 122. Seventy-one persons were arrested in murder cases involving 72 victims. Four of those arrested were discharged, 14 found unfit to plead, 15 found guilty but insane, 2 certified insane after conviction and 9 acquitted; 14 were executed and the rest sent to prison or other institutions. Thirty-eight murderers

or suspects committed suicide before arrest. Suicides declined from 4,653 to 4,324, attempted suicides from 4,686 to 4,676.

The number of persons found guilty of traffic offences, accounting for 63% of all non-indictable offences, increased from 320,182 to 357,932, and the fines paid by motorists from £392,905 to £492,038. Of those found guilty of indictable offences, 100,948 were males and 15,073 females; 23% were under 14 years old, 14% between 14 and 17, 11% between 17 and 21, 21% between 21 and 30, and 31% were 30 and over. The number of individuals responsible for those 116,021 indictable offences was 109,911.

Indictable offences known to the police increased from 459,869 in 1949 to 461,435 in 1950. The percentage of indictable offences cleared up remained 47.

Of the two royal commissions already referred to (see *Britannica Book of the Year 1951*) one, the Royal Commission on Betting, Lotteries and Gaming, published its report in 1951. The report reached the conclusion that gambling was of no significance as a direct cause of serious crime and, at least at present, of little importance as a direct cause of less serious offences involving dishonesty. It recommended that the law relating to betting, gaming and lotteries should be consolidated and all existing statutes other than the Racecourse act, 1928, and the Betting and Lotteries act, 1934, be repealed; and that the placing of bets at licensed betting offices should, with proper safeguards, be made legal. It took the view that no important advantage was to be gained by the establishment of a national lottery. (*See* also BETTING AND GAMBLING.)

In the Metropolitan Police district the number of indictable offences known to the police showed a decline from 106,077 in 1949 to 100,304 in 1950; *i.e.*, 11·9 against 12·6 per thousand inhabitants. This decline was confined to persons under 14 and between 21 and 40; for the age group 17-20 there was an increase of 9·1%. However, offences against the person, including sexual offences, increased by 7·1%. Robbery and assault with intent to rob declined by 11·7% from 290 to 256 cases. The percentage of indictable offences cleared up was 32·4 against 31·3 in 1949. Of the 26,862 persons arrested for such offences 39% had previous criminal records.

Scotland. The number of persons against whom a crime or an offence was proved was 96,271 in 1950 as against 92,778 in 1949, an increase of 3·8%. 91·7% of them were males, as compared with 90·9% in 1949. The highest incidence was again in the 17-20 age group for males and in the 30-39 age group for females. The total number of crimes and offences known to the police was 173,708, an increase of 11,210 or 6·9% against 1949; again 60% of them were committed in the four counties of cities. The number of crimes in these four counties was 22·5 per thousand, compared with 13·0 in the 10 large burghs with separate police forces and 8·8 in the 19 county or joint police areas. Twenty-one cases of murder were known to the police compared with 14 in 1949; of the 16 persons prosecuted 4 were acquitted or had the charge against them withdrawn and 3 were found insane and unfit for trial. Of the nine persons sentenced to death seven were reprieved.

Europe. *Austria.* A slight fall occurred in 1950 in the number of cases known to the police; *i.e.*, from 221,097 to 211,783. Murder and manslaughter declined from 155 to 101, but sexual offences showed a further increase from 2,691 to 2,821. Altogether, the trends of crime reflected the greater stability of conditions in Austria: robberies, which had amounted to 1,732 in 1947 and 597 in 1949, went down to 350 in 1950 and burglaries declined from 14,756 in 1947 and 6,555 in 1949 to 5,163.

France. There was a further slight fall in the total number of cases dealt with from 670,962 in 1949 to 658,047 in 1950, and the percentage of arrests declined from 58 to 48. An increase occurred in crimes against persons from 23,550 to 26,626 (Sûreté nationale, 17,622 against 14,969; Préfecture de Police, 939 against 460; Gendarmerie, 8,066 against 8,121), whereas sexual crimes declined from 15,908 to 14,652 and thefts from 233,816 to 187,496.

Italy. The decline noted in 1949 was not maintained in 1950 when the number of cases brought to the notice of the police rose from 1,281,408 to 1,316,506 (crimes 709,033, offences 607,473), and the number of sexual offences from 7,377 to 8,082. (H. MM.)

United States. For the third successive time, both urban and rural crimes increased during the first half of the year. The rise was not by any means uniform either as to areas or types of crime, but there was no mistaking the general result. The great increase of negligent manslaughters (chiefly motor vehicle homicides caused by criminal negligence) recorded in the cities during 1950 was extended into rural areas during the first six months of 1951. Motor car thefts and other larcenies also rose sharply, while robberies in both city and county showed declines. Since 1950 had likewise compared favourably with 1949 in the number of robberies recorded (an even 10% reduction for rural and urban areas combined), the tendencies for this one offence classification were definitely favourable.

CRIME CHANGES IN UNITED STATES JAN.-JUNE, 1950 AND 1951

	Percentage change	
	Cities	Rural Areas
Murder and non-negligent manslaughter	+ 6·1	− 7·4
Negligent manslaughter	+ 3·2	+ 21·3
Rape	+ 6·0	− 2·4
Robbery	− 8·4	− 21·8
Aggravated assault	− 1·9	− 9·4
Burglary	− 3·2	− 5·2
Larceny	+ 7·9	+ 12·9
Motor car theft	+ 18·6	+ 20·0
All crimes listed	+ 5·1	+ 4·0

Yet the total of crimes reported on a nation-wide basis continued at very high levels, with 170,000 motor car thefts, more than 1 million other larcenies, 412,000 burglaries and other crime classifications in lesser numbers. Although rural crimes continued for the most part at a substantially lower rate than was recorded for cities, the property of the average urban dweller was a special target. Thus for each 1,000 urban residents, the first half of 1951 witnessed one motor car theft, five other larcenies and two burglaries. These figures are roughly doubled when extended to an annual basis. Age distribution of offenders showed the greatest concentration between 21 and 25 years; but of the 185,406 persons arrested in 1950 for property crimes, 28·9% were under 21 years of age.

The United States senate's special committee to investigate organized crime in interstate commerce (the Kefauver committee) was widely publicized in 1950 when its public open hearings were held in various large U.S. cities. In 1951, however, the televised broadcasts of the committee's hearings, held in New York, of gamblers and politicians excited an extraordinary response from the U.S. public, whose amused tolerance soon changed to indignation. The reluctant testimony of Frank Costello of New York and Willie Minetti of New Jersey and the recall of William O'Dwyer, former mayor of New York city, from the U.S. embassy in Mexico to face a fusillade of questioning were the highlights of the investigation. Minetti was later assassinated for talking too freely. Costello was indicted for perjury and other major and minor witnesses were charged with contempt of court. (*See* also JUVENILE DELINQUENCY.) (BR. S.)

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CUBA. Island republic in the Caribbean sea, including the island of Cuba, the Isle of Pines, and other minor islands and keys. Area of the main island: 44,217 sq.mi. (Isle of Pines, 1,180 sq.mi.). Pop.: (1943 census) 4,778,583, (mid-1951 est.) 5,400,000. Racial distribution is officially calculated at 75% white (about one-third of this group is mulatto), 24% Negro and 1% Asiatic (largely Chinese). An estimated 200,000 Spaniards live in Cuba. Language: Spanish. Religion: predominantly Roman Catholic. Havana (pop., 1949 est., 800,000) is the capital and chief port. Other chief towns (pop., 1946 est.): Santiago de Cuba (152,000); Camagüey (87,000); Pinar del Rio (64,000); Matanzas (55,000). President, Carlos Prío Socarrás.

History. Cuba's third largest sugar crop on record was harvested in 1951, reaching a total of 6,348,368 metric tons. The problem of marketing the portion not acquired by the United States continued to absorb the attention of the industry. At the end of 1951, the Cuban quota of sugar imported into the United States was slightly reduced. A study of the economy of Cuba by the International Bank for Reconstruction and Development, published in 1951, stressed the need of vigorous promotion of the export of non-sugar products, and also recommended more extensive research on the part of the sugar industry on all aspects of its operations. Among many other recommendations was one of improving the relations between labour and management, through legislation and its effective administration.

The Central bank was able, by the middle of 1951, to substitute Cuban currency for the floating supply of U.S. dollars, which, after July 1, were treated like any other foreign currency. The currency remained stable in foreign exchange markets, but prices and costs of operation went on rising. Building activity continued in nearly all the larger communities. The trade balance was modestly favourable. The treasury's holdings of foreign currency (chiefly dollars) remained high.

The budget was voted late in the year, and expenditure of about $300 million of which debt service absorbed about $6·5 million was estimated. A tax on dividends of 5·8% and one of 4% on corporate surpluses in excess of 30% of capital stock were established to provide a retirement fund for all national government employees. At the year's end the government announced a project of a tax of 6 *c.* on each 100-lb. bag of sugar to pay for the nationalization of the Havana United railways (owned by British investors), which had a costly strike during the year.

The search for oil in the coastal waters of Cuba continued throughout the year, and one well as deep as 10,000 ft. was drilled on the north coast. Activity in mining was sustained, and improvement in transportation facilities aided industry and agriculture alike. (C. McG.)

Education. Schools (1944-45), state, pupils 498,286; private, pupils 72,000. There were 21 institutions for advanced education and a teachers' college and a commercial school in each province. University education was available at the University of Havana, the Oriente university (Santiago de Cuba) and the Catholic University of Villanova (Havana).

Agriculture. Sugar cane, by far the most important crop, 1950-51 production 6,126,000 tons; blackstrap molasses 288,639,643 gal. Other crops (1950-51): coffee 547,000 bags of 132 lb. each; tobacco 38,000 short tons; henequen fibre 17,500 tons; rice (paddy) 143 million lb.; black beans 69 million lb.; red beans 19 million lb. Livestock: (Jan. 1, 1951) cattle 4,600,000; (July 1, 1946) pigs 1,338,000; sheep 154,000; goats 141,000.

Foreign Trade. (1950) exports $657 million, imports $515 million. Chief exports: sugar (85%), tobacco and products (5%) and molasses (4%). Leading customers: U.S. (59%), U.K. (15%) and Netherlands (5%). The U.S. (79%) was the leading supplier.

Transport and Communications. Railways (1949): 3,017 mi. of main line, 7,870 mi. of industrial trackage. Roads (1949): 1,720 mi., including 600 mi. of improved highways. Motor vehicles (Jan. 1, 1951): cars 72,392, lorries 32,377, buses 5,307. Merchant marine (June 30, 1949): 34 steamers and motorships (100 tons and over) aggregating 36,135 gross tons.

Finance. (Million pesos) Budget (1951-52 est.): revenue 299·8; ordinary expenditure 102·3, extraordinary expenditure 197·5. National debt (Dec. 31, 1949): 105·9, including 73·9 foreign. Currency circulation (June 30, 1951): 846; deposit money 523. Gold reserves (Nov. 30, 1951) U.S. $501 million. Monetary unit: *peso* officially pegged at par with the U.S. dollar. (J. W. Mw.)

CURAÇAO: *see* NETHERLANDS OVERSEAS TERRITORIES.

CYCLING. R. H. Harris (Great Britain) won the world professional sprint title for the third successive time. The 1951 track events were held at the Vel Vigorelli, Milan, and the road events at Varese, near that city. The Italians won four of the seven titles: E. Sacchi won the amateur sprint event, while R. Mockridge (Australia) was second, A. Bevilacqua won the professional pursuit title, N. De Rossi the amateur pursuit, and G. Ghidini the amateur road race. In addition to Harris the non-Italian victors were Ferdinand Kubler (Switzerland), professional road race, and J. Pronk (Netherlands), professional motor-paced pursuit.

For the third consecutive year K. H. Joy (Medway Wheelers) won the British Best All-Rounder competition in 50-mi., 100-mi. and 12-hr. events, with an average speed of 23·414 m.p.h. For the fourth time his club won the team



The finish of the final stage in the 14-day Tour of Britain sponsored by the "Daily Express" (London) and run under the rules of the British League of Racing Cyclists.

competition. The women's competition over 25 mi., 50 mi. and 100 mi. was won by E. M. Horton (Coventry C.C.).

Over shorter distances the most successful rider was D. J. Keeler (Vegetarian C. and A.C.). He covered 25 mi. in under 1 hr. no fewer than 12 times. He set up a new record of 57 min. 11 sec., and twice broke the 30-mi. record, his fastest time being 1 hr. 9 min. 20 sec. However, he finished fourth in the 25-mi. championship. The winner was R. Inman (Mercury R.C.) in 57 min. 17 sec. G. K. Bentley (Bec. C.C.) set up a new record for 50 mi. in 1 hr. 58 min. 29 sec. in the national championship. The 100-mi. title was won by L. V. Willmott (Midland C. and A.C.) in 4 hr. 14 min. 33 sec. The fastest 100 mi. of the year was ridden by Joy. He broke the 12-hr. record when he covered 260·02 mi. to win the 12-hr. title. New record figures for the 24-hr. event were also set up. G. Andrews (Addiscombe C.C.) covered 461·31 mi. to win the championship; this was 1·81 mi. more then the previous record.

The Isle of Man road race was won by R. W. Bowes (Solihul C.C.). The national massed-start title was won by P. R. Proctor. The *Daily Express* (London) organized a 14-day Tour of Britain held under the rules of the British League of Racing Cyclists. The winner was I. Steel.

Alan Bannister (Manchester Wheelers), amateur sprint champion from 1948, lost his title in July to 20-year-old Cyril Bardsley (Manchester Clarion). R. Waters (South London R.C.) won the 50-mi. tandem-paced title for the third time. The following day Waters lost his 5-mi. grass title to W. E. Jones (Birchfield C.C.). The ½-mi. grass title went to R. Kitchenham (Actonia C.C.), while W. B. Box (Derby Ivanhoe C.C.) succeeded Alan Geldard (Manchester Wheelers) as 25-mi. champion.

The 2,909-mi. Tour de France was won by Hugo Koblet (Switzerland) in 142 hr. 20 min. 14 sec. His compatriot F. Kubler won the Tour of Switzerland and Fiorenzo Magni (Italy), the Tour of Italy. L. Mathays (Belgium) won the Tour of Belgium. The Paris-Brest race was won by M. Diot (France).

For the first time since 1939 a six-day race was held in Great Britain. A. Bruylandt and R. Andriaenssens (Belgium) won by a lap from A. Strom and R. Arnold (Australia). The distance covered was 1,527 mi. The winners also won similar events in Paris and Ghent, while the Australians had won at Berlin and Antwerp.

CYPRUS. British colony. An island in the eastern Mediterranean. Area: 3,572 sq.mi. Pop.: (1946 census) 450,114; (1949 est.) 480,000. Language: Greek 80·3%, Turkish 17·8%; English is spoken by about 10%. Religion: Greek Orthodox 80·4%, Moslem 17·9%. Chief towns: Nicosia (cap., 34,463); Larnaca (14,746); Limassol (22,693); Famagusta (15,912). Administration: governor; executive council, 4 official and 2 (incl. 1 Moslem) unofficial members. Governor, Sir Andrew Wright.

History. So far as the *enosis* movement for union with Greece was concerned 1951 was a good deal quieter than the previous year. The efforts of both the right and left wings of the movement to enlist foreign support in Europe and at Lake Success had met with little success. The anti-sedition law was made more specific, and in March the editor of a Communist newspaper and five others went to prison for taking part in a demonstration against the measure.

Prosperity and development continued. A new law established selected villages as "improvement areas" and set up local councils as a step towards a more fully developed rural local government; a forestry school was opened in September with students attending not only from Cyprus but also from north Africa, the middle east and Kenya; and a new power station at Dekhelia was due to start operating early in 1952. The garrison was larger than ever before, being more than 10,000 strong, and in October an entire parachute brigade was transported from Cyprus to the Suez canal zone by air. Income tax rates were reduced.

Education. Primary school attendance (1949) 60,000. Other schools: secondary 42, agricultural 2, trade 1, teachers' training colleges 2.

Finance and Trade. Currency: piastre (180 piastres £1). Budget (1951 est.): revenue £4,800,000; expenditure £4,700,000. Foreign trade (1950): imports £13,500,000; exports £11,000,000. Main products: citrus, seeds, vine products, carob, wool and copper. (K. G. B.)

CYRENAICA: *see* LIBYA.

CZECHOSLOVAKIA. People's republic of central Europe, bounded W. and N.W. by Germany, N. and N.E. by Poland, E. by the U.S.S.R., S. by Hungary and Austria. Area: (before Sept. 28, 1938) 54,244 sq.mi.; after annexation of Subcarpathian Ruthenia by the U.S.S.R. (June 29, 1945), 49,330 sq.mi. Pop.: (1937 est.) 15,239,000, (1947 census) 12,164,095, (Dec. 31, 1949, est.) 12,536,000. Language: (official 1948 est.) Czech 67%, Slovak 25%, German 3·5%, Hungarian 3·5%, Polish 0·7%. Religion: (1930 census) Roman Catholic 77%, Protestant (all denominations) 7·5%, Czechoslovak Church 5·6%, Greek Catholic 1·6%, Jewish 1·9%, atheist 6%. Chief towns: (pop., 1947 census) Prague (cap., 921,416); Brno (272,760); Moravska Ostrava (181,181); Bratislava (172,664); Plzeň (118,152). President of the republic, Klement Gottwald; prime minister, Antonin Zápotocký.

History. In Feb. 1951 the government announced a large increase in the production targets of the current five-year plan. The changes were officially attributed to the enthusiasm and initiative of the toiling masses, who felt capable of greater efforts, and to the generous help of the Soviet Union and people's democracies, which supplied the country with the necessary materials. The growing emphasis on the development of the armed forces and war industry, to defend peace and meet the threats of the imperialists who had unleashed aggression in Korea, provided another explanation. Under the revised plan the yearly increase in industrial output was to be 22% instead of the originally planned 16%. The targets for coal production exceeded the original targets by 20%, of chemicals by 30% and of heavy engineering by 48%. The output of heavy industry as a whole in 1953 was to be 230% of the 1948 level instead of 170%.

Problems of manpower and management continued to worry the government throughout the year. During 1950 the number of women in industry had increased by 135,000 and during 1951 pressure continued to recruit women workers. Serious attempts were made to diminish the number of clerical workers and to transfer men and women from office jobs to direct production. By the end of October 72,000 persons had been so transferred. There was still an acute shortage of coal miners. On Oct. 17 a statement was made by the Communist party that in the important Moravska Ostrava coal basin the plan had been systematically underfulfilled. Both workers and management were to blame. A large part of the labour force stayed in the mines only for a short period. The standards of output ("norms") on which wages were based were too low. Existing machinery was inadequately and wastefully used. The local branches of the Communist party had failed in their duty of creating toiling enthusiasm by political enlightenment. The party decided radically to reorganize the managing personnel, to raise norms and to introduce a new wage system providing greater incentives. Local Communists were reminded of their duty "to train young miners in loyalty to and pride in their occupation and in devotion to the Communist party, the U.S.S.R., Gottwald and Stalin." During the year Zápotocký continued, as in earlier years, to urge the workers to greater

efforts and to deplore their slackness. In March he told miners that the demand for a 6-hr. shift on Saturdays, which had been correct in prewar Czechoslovakia, was now anti-revolutionary, tending to undermine the building of socialism. On Oct. 31 he told the National Assembly that in 1950 wages and salaries had risen by 25% but output only by 15%. Welfare institutions were being abused by persons not entitled to them. The plans of the educational authorities were too lavish. On Nov. 9 the premier, himself a veteran trade unionist, told the Trade Union council that demands from the workers for more equal wages must be resolutely resisted. The government had already gone dangerously far in raising the wages of the lower-paid and unskilled categories of workers. The improvement of working conditions for the miners had been from the government's point of view a complete waste: "We did not get a single extra ton of coal out of it." On Nov. 13 the government announced an increase by 15% of the norms in the steel industry and the introduction of a new system of progressive piece rates.

Government spokesmen often stressed the need to speed up the collectivization of agriculture. Zápotocký in October stated that supply difficulties in the towns were due to the fact that the workers' demand for meat had risen in comparison with the prewar period. Higher agricultural output, the premier declared, would come only when agriculture was socialized. The faster the peasants were persuaded to join collective farms, the sooner the supply problem would be solved. According to a statement in the assembly on Nov. 1 by Antonin Novotný, there were then more than 7,000 "agricultural co-operatives" or preparatory committees for the formation of such, and these together held nearly 27% of the arable land in Czechoslovakia. The significance of this figure was not absolutely clear, as there were several types of "co-operative," some of which still allowed considerable concessions to private ownership. The increased speed of collectivization could not however be doubted.

On Sept. 7 a reorganization of the machinery of government was announced. The Ministry of Heavy Industry was subdivided into five separate ministries Fuel and Power, Foundries and Ore Mines, Chemicals, Heavy Engineering and General Engineering. A new Ministry of Forests and Timber Industry was created. The old Ministry of Labour and Social Welfare was transformed into a Ministry of Manpower, and its welfare functions distributed between the other departments. A Ministry of State Control was introduced, based on the institution of the same name in the Soviet Union. Its task was to watch the administration generally, to check up on the efficiency, honesty and political orthodoxy of officials and to encourage and act upon complaints and denunciations by citizens. The former head of the Slovak regional government, Karel Bacilek, became minister of state control and Gustav Kliment became minister of heavy engineering. Bacilek was succeeded in his Slovak post by Julius Duriš, who had held the Ministry of Agriculture since 1946. His place was taken by Josef Nepomucký. The other new nominees were persons who had not hitherto been politically prominent.

The government reorganization was accompanied by the abolition of the post of general secretary of the Communist party and the transfer of its hitherto powerful holder, Rudolf Salzman-Slanský, to a vice premiership without clearly defined functions. Two months later it was announced that Slanský had been arrested for treasonable activities. The fall of Slanský marked the first open major crisis in the Communist party, which had hitherto escaped the convulsions that afflicted its sister parties in neighbouring lands. The Slovak Communists Vlado Clementis and Gustav Husak, disgraced in 1950 and formally expelled from the party in Feb. 1951, had been relatively minor figures. Otto Sling, party secretary in Brno, unmasked in Feb. 1951 as an agent of the imperialists, was not a leading personality. More important was Marie Svermova, unmasked at the same time, who had been an important organizer and a close associate of Slanský. After his fall, Slanský was indiscriminately associated in official propaganda with all the previously disgraced Communists and with the western warmongers. The real reason for his fall was not yet clear. There was little doubt that he had for some time been on bad terms with Gottwald and that his overthrow was a personal triumph of the president. Three other points were of interest. One was that Slanský was generally regarded as being the most servile "Muscovite" in the party, the least likely of all to turn Titoist; yet Gottwald would hardly have dared to arrest him without the knowledge of Moscow's consent. The second was that Slanský could be overthrown in spite of the fact that as general secretary he controlled the party hierarchy. The third was that Slanský was a Jew, a fact which would not recommend him to the rank and file of the party, though it would not necessarily count against him in Moscow.

Czechoslovakia's foreign policy continued faithfully to follow the Soviet lead. Spy trials included alleged French agents in Bratislava in mid-June and the U.S. newspaper correspondent William Oatis in July. On Oct. 23 Wilhelm Pieck, president of the Eastern German republic, paid an official visit to Prague. He publicly declared the transfer of the Sudeten German population to Germany an "irrevocable, just and final solution." Zápotocký and Gottwald made fulsome speeches of welcome. (*See* also EASTERN EUROPEAN ECONOMIC PLANNING.) (H. S.-W.)

Education. Schools (1948): elementary 12,019, pupils 1,059,010; higher grade 2,280, pupils 463,295; secondary 292, pupils 70,440; vocational 1,243, pupils 91,160; universities 7, students 31,769; institutions of higher education 10, students 23,127.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): wheat 1,573 (1,590); barley 1,116 (1,225); oats 1,107 (1,080); rye 1,339 (1,170); maize 231; potatoes 6,263 (7,480); sugar, raw value 627 (880); grapes 60; linseed 11. Livestock ('000 head): cattle (Jan. 1951) 4,100; sheep (Jan. 1950) 480; pigs (Jan. 1951) 3,700; horses (Jan. 1950) 640; goats (Jan. 1949) 982; poultry (Jan. 1949) 15,131. Food production ('000 metric tons, 1949): butter 30; milk 2,618; factory cheese 13·9; meat 290, of which beef 104.

Industry. Persons employed in manufacturing industries (Nov. 1949) 1,477,700. Fuel and power (1949; 1950 in brackets): coal ('000 metric tons) 17,004 (18,500); lignite (000 metric tons) 26,520 (27,500); manufactured gas (million cu m.) 2,189; electricity (million kwh.) 8,268 (9,120). Raw materials ('000 metric tons, 1949; 1950 in brackets): pig iron 1,700 (1,800); steel ingots and castings 2,745 (2,900). Manufactured goods (1949): cotton piece-goods (million metres) 318·0; cotton yarn ('000 metric tons) 75·8; wool yarn ('000 metric tons) 35·4; rayon filament yarn ('000 metric tons) 5·5; rayon staple fibre ('000 metric tons) 20·5; sheet glass ('000 metric tons) 135·5; cement ('000 metric tons) 1,740. New dwelling units completed (1950) 13,000. Production of motor vehicles (1948; 1949, six months, in brackets): 25,200 (14,160). Index of industrial production (on basis of 1937 = 100, 1950) 147.

Foreign Trade. (Million korunas, 1949; 1950, nine months, in brackets): imports 39,399 (25,785); exports 40,308 (26,894).

Transport and Communications. Roads (Dec. 1946): 43,969 mi. Licensed motor vehicles (Dec. 1950): cars 165,000, commercial 65,000. Railways: (1947) 8,161 mi.; passenger-mi. (six months, 1949) 5,502 million; goods ton-mi. (six months, 1949) 4,401 million. Air transport (1949): flights 16,833; mi. flown 4,884,000; goods ton-mi. 2,598,000. Telephones (1949): subscribers 350,708. Wireless licences (1949): 2,280,017.

Finance and Banking. Budget (million korunas): (1950 est.) revenue 131,930, expenditure 131,556; (1951 est.) revenue 166,520, expenditure 166,100. Currency circulation (March 1950): 72,000. Bank deposits (Jan. 1950): 146,000. Monetary unit: *koruna*, with an official exchange rate of Kč. 140 to the pound and Kč. 50·00 to the U.S. dollar.

See R. H. Bruce Lockhart, *Jan Masaryk* (New York, 1951).

DAHOMEY: *see* FRENCH WEST AFRICA.

DAIRY FARMING. The steady increase in numbers of milk cows in the United Kingdom, which had continued

over many years, was broken in 1951. The relevant figures are given in the table.

COWS AND HEIFERS IN THE UNITED KINGDOM
(thousand head)

	Cows and Heifers in milk	Cows in calf but not in milk	Heifers in calf
1939	2,841	480	564
1949	3,049	641	911
1950	3,139	628	862
1951	3,031	604	821

SOURCE: *Monthly Digest of Statistics* (H.M.S.O., London, Sept. 1951).

The population of cows and heifers in milk and dry decreased by 132,000 head (3·5%) between June 1950 and June 1951, and the number of heifers in calf by 41,000 head (4·8%). From 1939 milk producers had been favoured compared with other livestock producers, both in respect of prices they received for their milk and the rationed feedingstuffs they were allowed, but in 1951 this was much less marked. The prices fixed for 1951-52 and the high prices of feedingstuffs were considered by most producers to reduce sharply the attraction of milk production. The break in the upward trend to cow population was the result of producers' decisions, either simply to cease milk production for sale or to concentrate on their best milking stock. The price to producers for milk in 1950-51 was about 34·9*d.* per gal., plus bonuses and premiums equivalent to about 2·2*d.* per gal. The price for 1951-52 was about 1½*d.* per gal. higher. The average price prewar was about 12·8*d.* per gal.

Because farmers were using better cows and were becoming more skilful in managing them, the amount of milk produced did not necessarily follow the trend in numbers of cows. Farmers sold 1,803 million gal. of milk between Sept. 1950 and Aug. 1951, as compared with 1,853 million gal. in the corresponding period of 1949-50, a decrease of 3%. However, the late spring and cool summer of 1951 may have accounted for part of the decline.

For the first time since World War II, the sale of fresh cream was allowed in 1951 by the Ministry of Food. Consumption of liquid milk also tended to increase in 1951, sales for this purpose being 55 million gal. (3·6%) higher in the period Sept. 1950 to Aug. 1951 than in the previous year.

The development of artificial insemination of dairy cows (one way of improving the quality of commercial dairy cattle) was shown by figures issued by the Milk Marketing board, who operated the service. More than 55,000 farmers were members of the insemination centres which provided over 400,000 inseminations in 1949-50. (K. E. H.)

United States. During 1951, the dairy industry was estimated to have produced about 1% less milk than in 1950. Milk production was just under 120,000 million lb. The rate of milk production per cow in 1951 approximately equalled or slightly exceeded the 1950 record of 5,292 lb. The number of milk cows at the end of 1951 was expected to approximate to the 22,660,000 on farms at the beginning of the year, a slight decline as compared with the more than 22,700,000 in the two preceding years and 12% less than the peak number of the middle 1940s. The trend toward use of fresh milk rather than its products continued in 1951. Consumption of fluid milk and cream was about 395 lb. a head for civilians in 1951, 3% more than in 1950 and 16% above prewar levels, despite somewhat higher prices than in 1950 in most urban markets.

The U.S. cheese consumption in 1951 was estimated at 7·5 lb. a head the same as in 1950 but 36% above prewar. Consumption of evaporated milk in 1950 was about 17 lb. per person as compared with a record of 18·3 lb. in 1948. Production in 1951 was heavy in expectation of a large military demand. The ice cream consumption in 1951 was estimated at not less than 40 lb. a head. This was far below the 56 lb. of 1946 and far above the prewar average of 23·7 lb. Butter production and consumption declined from 1,666 million lb. or 10·8 lb. per person in 1950, to 1,500 million lb. and only 9·7 lb. per person in 1951. (J. K. R.)

DALAI LAMA. PAMO TÖNTRUP*, the 14th dalai† lama of Tibet (b. near Jyekundo, eastern Tibet, June 6, 1935), was the youngest of the five children of a Tibetan peasant couple, Chogchu and Dhakya Tsiring. Lamaist emissaries from Lhasa identified him as the new earthly incarnation of Chenrezi, God of Mercy, the patron deity of Tibet, who on Dec. 17, 1933, departed from the body of the 13th dalai lama. Enthroned in the Potala, or chief palace, of Lhasa on Feb. 22, 1940, the Ling Erh (Divine Child) received a name meaning "The Holy One, the Gentle Glory, Powerful in Speech, Pure in Mind, of Divine Wisdom, Holding the Faith, Ocean-wide." On Dec. 21, 1950, the dalai lama left Lhasa secretly and on Jan. 2, 1951, reached Yatung on the border of Sikkim. After the Chinese-Tibetan agreement concluded in Peking on May 23, it was believed in New Delhi that China had recognized local self-government of Tibet (*q.v.*) and that the dalai lama could safely return to Lhasa.

* His name is variously spelt "Lamo Tanchu" (*Chinese Yearbook 1943*) and "Lamu Lankha" (*Almanach de Gotha 1944*) but "Pamo Töntrup," in Sir Charles Bell's *Portrait of the Dalai Lama* (London, 1946), seems to be the nearest to the phonetic transcription of the Tibetan name.

† Dalai, a Mongolian word, means "all-embracing."

DANCE. The feature of 1951 in the dance was quantity, both in the multiplication of companies and of works, and, in consequence, quality suffered. It was not that there was any shortage of potentially competent dancers but that, in many cases, their training was accelerated to meet the demand. The true shortage lay in the lack of art directors with a policy, a background of knowledge and true authority in the arts that make up the composite art of ballet. The public demand for ballet increased through the exhibition of such glamorizing films as *The Red Shoes* and *Tales of Hoffmann* (1951), but this new public had no standards and demanded dancing stars rather than ballet. This had occurred before, at the end of the romantic period, when the idolatry of Taglioni, Elssler, Grisi, Grahn and Cerrito had reached so high a peak that it no longer mattered what they danced so long as their name was on the playbills. Had it not been for the vitality of the Russians, to whom ballet was still something of a novelty, it would have degenerated into a music-hall attraction.

The year 1951 also saw the death of many important figures in the world of dance: of N. Sergheyev (June 23, 1951), the old St. Petersburg maître de ballet who revived so many of the classics of Petipa and Ivanov in western Europe; of Adolf Bolm (April 16, 1951), who, in the Polovtsian dances from *Prince Igor*, played so large a part in re-establishing the role of the male dancer when Diaghilev came to Paris in 1909; of Colonel W. de Basil (*see* OBITUARIES), who, in 1932, in association with the late René Blum, re-formed Les Ballets Russes de Monte Carlo, starting the great renaissance of ballet; of Edmond Audran (July 20, 1951), a young French dancer of outstanding ability; and finally of Constant Lambert (*see* OBITUARIES), one of the founders of the Sadler's Wells tradition. Lambert's demise was a particularly tragic loss for ballet since his work was by no means completed and he, more than anyone, stood for ballet as against the dangerous dancer-domination already mentioned.

London still remained the centre of dance activity in 1951, at any rate as far as quantity was concerned, some 30 companies from all over the world having performed there. The Sadler's Wells ballet at Covent Garden created three important works; Frederick Ashton's *Daphnis and Chloe*, to Maurice Ravel's score, with decor and costumes by John



The first performance at the Royal Opera house, Covent Garden, London, on Dec. 12, 1951, of Léonide Massine's ballet "Donald of the Burthens." Death, danced by Beryl Grey (back to camera), is seen during the finale of scene 2.

Craxton; the same choreographer's *Tiresias*, with music by Constant Lambert and decor and costumes by Isabel Lambert; and Léonide Massine's *Donald of the Burthens*.

Ravel's score for *Daphnis and Chloe* had long been familiar as a concert suite, despite the fact that it was originally commissioned for ballet (1912), with choreography by Fokine. The music is so complete in itself that it places a severe burden on the choreographer. Also the subject, with its Grecian setting, sets the grave problem as to whether to adopt the conventional pseudo-Greek movement, the line of least resistance adopted by Fokine, or to avoid it as Ashton did; he told his story in movement adopted from modern Greek folk dance and from ballet itself. The result served to underline the beauty of the score and there were many moments of superb choreography. The failure, and it was inevitable, was due to the nature of the music itself and to its length. Craxton's decor was in the spirit of the work, but his costumes lost the feeling of a Greece in which peasants, heroes and immortals co-existed.

Tiresias, Lambert's last composition, was also based on mythology. Its setting was in Crete and this gave the choreographer admirable opportunities for a rich composition in which Egypt and Greece met. And these he seized upon in many scenes that were powerful and imaginative. The failure there was one of length. Had the ballet been cut by some 20 min., and there were hopes that it might be, its impact would have been tremendous. Isabel Lambert's debut as a scenic artist was, in spite of some banality and a drop curtain of "old-fashioned modernity," highly successful.

Léonide Massine created *Donald of the Burthens*, a ballet on a Scottish theme making use of authentic folk material. The music by Ian Whyte was scholarly if not particularly distinguished, the scenery and costumes by Robert Colquhoun and Robert MacBryde suggested that these two painters had a really important contribution to make to the theatre. The choreography was a fine piece of craftsmanship, showing that rare thing, a complete translation of folk material. In his handling of a crowd, the ground pattern, the entrances and exits and the superb finale Massine showed himself a great master. Indeed, he had no technical equal. Where the ballet disappointed was in its drama, its promising Faustlike theme being used as an excuse and not as a reason for dancing. The role of Death, however, gave an opportunity, long overdue, for the ballerina Beryl Grey to show not only her brilliant virtuosity but a real command of the stage.

The Sadler's Wells Theatre ballet, which left for a Canadian-U.S. tour in Sept. 1951, had its most important year, revealing a choreographer of marked personality in the South African John Cranko. His two outstanding works were in marked contrast to one another; *Pineapple Poll*, with a score made up from a dozen Sullivan operettas by Charles Mackerass, based on a Gilbert Bab Ballad "Bumboat Annie" and decorated by Osbert Lancaster, and *Harlequin in April*, with music by Richard Arnell and decor and costumes by John Piper, based on some lines in T. S. Eliot's *The Waste Land*. The first was a fine example of English humour, direct and unsophisticated, the second was the evocation of an atmosphere by means of a symbolism that was evident in action but by no means easy to comment upon. The young company showed itself as versatile as its choreographer.

The newly formed Festival ballet, though depending on its star dancers Alicia Markova and Anton Dolin, had such guest artists as Alexandra Danilova and Mia Slavenska. Its repertoire consisted largely of the classics, but the company gave a very successful revival of the Polovtsian dances from *Prince Igor*. It was the first English company to dance in Monte Carlo in 1950-51 and 1951-52. The International ballet appeared at the new Festival hall and continued to break new ground in the provinces.

A new company, the Original Ballet Russe, was formed to succeed Colonel de Basil's company, the Ballet Russe de Monte Carlo. This company had a Christmas season at the Festival hall.

The Rambert ballet celebrated its 25th anniversary in 1951. It was the pioneer British company, with a record of discovery second to none. It presented two creations, both with choreography by David Paltenghi. The first, *Fate's Revenge*, created for the Bath assembly, was a frolic in the regency manner; the second, *Canterbury Prologue*, with music by Pehr Racine Fricker and scenery and costumes by Edward Burra was an interesting attempt to "balletize" Chaucer. Like Paltenghi's previous essay on Keats's *The Eve of St. Agnes*, it was only a partial success but the attempt was worth making. This ballet, Lambert's *Tiresias* and Arnell's *Harlequin in April* were all Arts council commissions for the 1951 Festival of Britain.

A Swedish company under the title of the Swedish ballet, but assembled for touring, gave performances of ballets by Birgit Cullberg based on Euripides, Kafka and Strindberg.

The translation of these literary themes was not successful. *Miss Julie*, alone, enjoyed a certain *succès de scandale*.

The Marquis de Cuevas' Grand ballet showed works by a new choreographer, the dancer George Skibine. The most noteworthy was *Annabel Lee*, danced to a recitation of Poe's poem. This was sensitive and sincere. Whether the choreographer could handle large masses, the true test, remained to be seen.

French ballet was the poorer for the closing down of Roland Petit's Ballets de Paris. Les Ballets des Champs Elysées regrouped but lacked a choreographer who could carry on the richly inventive tradition associated with the company. The ballet at the Opéra, the oldest of all companies, tried the innovation of a full-length work, the first to be created in the building. Serge Lifar, the choreographer, chose Snow White as his subject. The story was treated in a straightforward fairy-tale manner with some highly ingenious choreography in the neoclassical manner. The weakness of the production lay in the music by Maurice Yvain, the famous writer of operettas. There were many tuneful melodies but the orchestration was poor. The scenery and costumes were by Dimitri Bouchenne. The popularity of this ballet with the public, not the critics, showed a trend in favour of the full-length spectacle. England had seen the same with Frederick Ashton's *Cinderella*, but the problem remained one of finding suitable scores.

The year 1951 also saw a great number of dancers from outside the ballet tradition. In every case their problem was to translate for the stage works created for totally different surroundings. Rosario and Antonio thrilled by their virtuosity, the latter being unequalled as a technician; but theirs was a concert composed of interesting fragments. José Greco and later Pilar Lopez brought Spanish dancing to the theatre. Pilar's ballet, based on Enrique Granados' *Goyescas*, was not only the most complete Spanish work seen, but one of the finest ballets shown for many years.

The public for Indian dancing increased, largely through the demonstrations of Ram Gopal, who had educated a large public. Ram Gopal, Mrinalini Sarabhai and Uday Shankar all gave seasons with their companies. Sarabhai completely solved the problem of theatre presentation. Without any sacrifice of the authentic spirit or technique she was able to present complete dramatic works as distinguished from divertissements. Her dance drama *Man*, a dance-symbolized story of birth, life and death was both direct and moving.

Pearl Primus and a small company gave a season of ethnographic dances as well as some creations in the modern manner. Interesting both as a dancer and personality, she unfortunately failed to distinguish between lecture and spectacle.

A Latin-American company gave a spectacle based on folk dance but here the dancers were not sufficiently good nor the material authentic enough to do more than show some disconnected numbers of revue type, numbers distinguished, however, by admirable costumes and sets.

These many travelling companies from outside the classical tradition proved, however, that the public was beginning to realize that there were other forms of dancing than ballet. Their growing popularity made it imperative for ballet to become creative once again. (A. L. HL.)

United States. The New York City ballet made its Chicago debut and danced for 15 weeks in New York, presenting nine new ballets. George Balanchine choreographed *La Valse*, *Capriccio brillant*, *Tyl Ulenspiegel* and *A la Françaix*, with music by Maurice Ravel, Felix Mendelssohn, Richard Strauss and Jean Françaix, respectively. *Lady of the Camellias* had choreography by Antony Tudor and music by Giuseppe Verdi. Jerome Robbins choreographed *The Cage* and *The Pied Piper*, with music by Igor Stravinsky and Aaron Copland. *The Miraculous Mandarin* had music by Béla Bartók and choreography by Todd Bolender, and *Cakewalk* had music by Louis Moreau Gottshalk and choreography by Ruthanna Boris. *The Card Party*, *The Fairy's Kiss*, *Concerto barocco* and *The Four Temperaments* were revived. Tudor restaged his *Lilac Garden* for this company, and danced in it.

The Ballet theatre toured the United States and South America, and danced for six weeks at the Metropolitan Opera house, New York. The company produced *The Thief Who Loved a Ghost*, with choreography by Herbert Ross and music by Carl Maria von Weber; *Ensayos Sinfonicos*, with choreography by Alicia Alonso and music by Johannes Brahms; *Tropical Pas de Deux*, with choreography by Enrique Martinez and music by Amadeo Roldan; and *Schumann Concerto*, with choreography by Bronislava Nijinska and music by Robert Schumann. Roland Petit's *Les Demoiselles de la Nuit* and Jean Babilée's *Till Eulenspiegel* were given for the first time in America.

Zachary Solov was appointed ballet director at the Metropolitan Opera, with Janet Collins (the first Negro artist to be engaged by the Metropolitan Opera) and Maria Karnilova as premières danseuses. Choreographers for the New York City opera were Charles Weidman, Sophie Maslow and Grant Mouradoff.

José Greco and his Spanish ballet enjoyed a long season in New York. Experimental groups active in New York included Theatre Dance, New York Ballet club and Choreographer's Workshop, which also appeared in Bermuda.

Harold Lang, Janet Collins and Jerome Robbins received Donaldson awards for dancing and choreography in musical comedy, while the Antoinette Perry award went to Michael Kidd, and the Capezio award to Zachary Solov.

In October, the Sadler's Wells Theatre ballet began its first American tour. Ana Maria, Iva Kitchell, Lillian Moore, Marina Svetlova, and Slavenska's Ballet Variant also made extensive tours.

The San Francisco ballet produced *Le Gourmand*, choreographed by Lew Christensen, and *Les Maitresses de Lord Byron*, choreographed by William Christensen. In Los Angeles, Lester Horton reopened his Dance Theatre. The Concert ballet was organized by Lasar Galpern. Michel Panaieff's Ballet Intime toured the Pacific northwest. Roland Petit's Ballets de Paris disbanded in Hollywood. Experimental groups were active throughout the country. (LN. M.)

Ballroom Dancing. The principal changes in ballroom dancing during 1951 affected the so-called Latin dances. The most noticeable development was the return of the tango. Another outgrowth affected the rumba. This dance had already achieved an international popularity second only to the fox trot. There was, however, a change in the style of the dance musical compositions shifted from regular, measured beats to a syncopated form known as mambo. Step patterns to this tempo resemble a combination of rumba and jitterbug. Samba, the Brazilian variation of the waltz, continued to flourish. There were no dance crazes or unusual novelties during the year. The Charleston, which had been revived during 1950, died out. (A. MU.)

DATO ONN BIN JA'AFAR: *see* ONN BIN JA'AFAR, DATO.

DEATH STATISTICS: *see* VITAL STATISTICS.

DECORATIONS AND MEDALS. The war in Korea caused the introduction in Great Britain of the *Korea Service Medal*. For the first time an international organization issued its own service medal which was to be awarded to servicemen of national forces: the institution of the *United Nations Service Medal* was announced in July

and the details of the award were published in September. The medal would be given to members of land, sea and air forces participating in the United Nations action in Korea, members of semi-military units serving in Korea and members of the armed forces of the Republic of Korea. The medal was circular and of a bronze alloy, the obverse bearing the inscription " For Service in Defence of the Principles of the Charter of the United Nations " and the reverse the emblem of the United Nations. The ribbon had nine stripes of United Nations blue and eight white stripes.



The obverse and reverse of the United Nations medal for service in Korea.

In the Commonwealth the institution of the *Korea Medal* was announced in July. The cupro-nickel medal, bearing the effigy of King George VI, would have a ribbon of blue and yellow, the blue representing that of the United Nations flag. The design of the reverse was not made known. The medal would be awarded to officers and men of the Royal Navy, the army and the Royal Air Force who served for one day or more in Korea, or, for the Royal Navy, 28 days off the Korean coast, or, for the Royal Air Force, one operational sortie over Korea or Korean waters or 28 days in Korean waters. Certain civilians would be eligible for the award as would the forces of the Commonwealth.

Up to the end of October 135 awards had been made to British servicemen in Korea. Two Victoria Crosses were awarded, to Major Kenneth Muir of the Argyll and Sutherland Highlanders (posthumous award) and to Private William Speakman of the Black Watch. The 1st battalion, Gloucestershire regiment, received the *United States President's Distinguished Unit Citation.* Other non-American units to receive this, the highest U.S. unit award, included " C " Troop of 170th Independent Mortar battery, R.A., the 3rd battalion of the Royal Australian regiment, the French battalion and the Turkish brigade.

A new award, the *Police Long Service and Good Conduct Medal,* was announced in June to be given for 22 years' pensionable or approved service in the British police forces. The king's head would appear on the obverse, and on the reverse the inscription " for exemplary police service " with the figure of justice. The ribbon was dark blue with, on each side, a white stripe on which was superimposed a narrow stripe of dark blue.

Hungary. An *Order of Merit of Motherhood* was instituted. On the lines of the *Medal of Motherhood* of the U.S.S.R., the first class was awarded to mothers with 11 or more living children.

Israel. Details were published of *Ot Hagvura* (Medal of Valour), the only military award in Israel for heroism in battle. A campaign medal *Ot Hakomemiut* (Independence Medal) was issued in 1951 to all who saw at least four months' service in the Arab-Jewish war, 1948.

North Korea. The title of *Hero of the Korean People's Democratic Republic* was created. In addition to the title of hero the recipients received the *Gold Star Medal* and *Order of the State Banner,* 1st class. The title of *Hero of Labour* was instituted in July. Recipients would receive the *Order of the State Banner* and the *Hammer and Sickle Gold Medal.*

Pakistan. The government withdrew recognition in July of British titles conferred before partition in Aug. 1947. The *King's Police Medal* and the *Indian Police Medal* were renamed *Qaid-i-Azam Police Medal* and *Pakistan Police Medal* respectively.

South Africa. The government of the Union was considering instituting its own decorations in place of British awards.

Western Germany. In September, the *Order of Merit* was created. Its purpose was to extend recognition to men and women of Germany and other nations for services in the political, economic, social and the cultural fields, as well as for " assisting in the reconstruction of the fatherland, and in the peaceful development of the Federal republic." The cross was of red enamel with a golden setting and had the federal eagle in the centre. There were to be three classes: grand cross, distinguished service cross and service cross.

DEMOCRATIC PARTY, U.S.: *see* POLITICAL PARTIES, U.S.

DENING, SIR (MABERLEY) ESLER, British diplomat (b. April 21, 1897), served with the Australian Imperial force in World War I, entered the British consular service in 1919 and went to Tokyo in 1920. During the next 18 years he served in Tokyo, Osaka, Kobe, Seoul, Manila, Dairen and Harbin. When in Harbin (1934-38), after the annexation of Manchuria by Japan his brilliant linguistic gifts—he is fluent in Japanese, Chinese and Russian among other languages—made a deep impression. He went again to the east in 1943 as political adviser to Lord Louis Mountbatten, supreme allied commander, southeast Asia, and was concerned in negotiations between the Dutch and the Indonesian nationalists after the end of the Japanese war. In Jan. 1946 Dening represented Britain at the signing of the Anglo-Siamese agreement ending the state of war between the two countries. A few months later he returned to London as assistant under secretary of state, Foreign Office, in charge of the far eastern department. During the next four years he advised at the highest level on British policy in the far east and in Oct. 1950 he was made K.C.M.G. and left on a six-month tour to Hongkong, Malaya, Burma, Australia, New Zealand, Indochina, Nepal, India and Pakistan. In Sept. 1951 Dening succeeded Sir Alvary Gascoigne (*q.v.*) as head of the United Kingdom liaison mission in Tokyo and was to become the first postwar British ambassador to Japan after ratification of the Japanese peace treaty.

DENMARK. Constitutional monarchy of Europe, composed of the peninsula of Jutland and 100 inhabited islands, the largest being Zealand (Själland) and Fyn (Fünen). Denmark controls the three straits between Kattegat and the Baltic sea: the Oresund (between Sweden and Zealand), the Great Belt (between Zealand and Fyn) and the Small Belt (between Fyn and the Jutland peninsula). Area, excluding Faeroe Islands (*q.v.*): 16,573 sq.mi. (Peninsula of Jutland, 11,411 sq.mi.). Pop.: (1945 census) 4,045,232; (1950 est.) 4,271,000. Language: Danish. Religion: Lutheran, with small Roman Catholic and Jewish minorities. Chief towns (pop., 1945 census): Copenhagen including Frederiksberg and Gentofte (cap., 927,404); Århus (107,393); Odense (92,436); Ålborg (60,880); Esbjerg (43,241). Ruler, King Frederik IX; prime minister, Erik Eriksen.

History. On Feb. 9, 1951, the Danish Rigsdag approved

the arrangements, completed by the North Atlantic council at its meeting at Brussels on Dec. 19, 1950, for establishing an integrated force under centralized control and command in Europe. The Danish brigade, stationed in Western Germany, was at once placed under General Dwight D. Eisenhower's command, and Lieut. General Erik Moeller, commander in chief of the Danish army, was appointed commander of the Allied army forces in Denmark, subordinate to Vice Admiral Sir Patrick Brind in the Northern European command of the North Atlantic Treaty organization (N.A.T.O.). A bill organizing the Danish defence in accordance with the military plans of N.A.T.O. was passed in June. It provided Kr. 555 million annual expenditure for the armed forces and in addition a few hundred million kroner were allocated for new military equipment. It was expected that by 1954 the army would have a mobilization force of 100,000 men, supported by a home guard of 40,000 persons; that the navy would comprise light destroyers, motor torpedo boats, minelayers, minesweepers, escort vessels and submarines; and that the air force would number eight fighter squadrons, including one night fighter squadron. The strengthening of military preparedness was advanced further on Sept. 4 when, to prevent potential " fifth column " activities, an order of conduct was given to the armed forces instructing them with immediate general mobilization and immediate resistance in case of an aggression against Denmark or Danish military forces stationed outside Danish territory, and stressing that orders possibly given to stop the mobilization and the fight should be considered as false.

Until summer Danish opinion was strongly opposed to the suggested entry of Greece and Turkey into N.A.T.O., and Ole Bjørn Kraft, the Danish foreign minister, was instructed to vote against it at the meeting of the council at Ottawa (Sept. 16-20). The official Danish point of view was that such an extension would weaken the position of the Scandinavian countries and jeopardize the concept of a North Atlantic alliance. On Sept. 19, however, the Foreign Affairs committee of the Danish parliament approved, by the votes of the Conservatives, the Venstre and the Social Democrats against those of the Radicals and the Retsforbundet (14 votes to 2), a complete change of policy, the government explaining that, as Denmark stood alone in opposing the entry of Greece and Turkey, it did not wish to use its right of veto. The entry of Greece and Turkey into N.A.T.O. was approved by the Danish Rigsdag on Oct. 17.

Denmark continued during 1951 to give full support to all U.N. endeavours to secure a satisfactory and peaceful solution of the Korean conflict and voted for the U.S. resolution condemning China as an aggressor, the Danish delegate simultaneously stressing that the Peking government ought to be the representative of the Chinese people in the U.N. The Danish hospital ship " Jutlandia " left Denmark for Korea on Jan. 23. A U.N. proposal for sending Danish troops to Korea was adopted in the autumn, but not acted upon as it was considered difficult to release troops from Denmark during the first phase of rearmament.

Formal ending of the state of war with Germany was proclaimed on July 13, and Werner Best, German Reichskommissar in Denmark during World War II, was amnestied and repatriated to Germany on Aug. 28, after having served 6 years of the 12-year sentence imposed on him for war crimes committed during the German occupation.

The Soviet Union's claim that its territorial waters extended to a distance of 12 sea miles from the coast was maintained in 1951 and Danish fishing vessels were constantly captured in the international waters of the Baltic, although not in so great a number as in 1950. In order to get an international juridical decision the Danish government suggested that the question should be submitted to the International Court of Justice, but the proposal was rejected by the Soviet Union on Aug. 22.

As in 1950 the income from exports fell short of expenditure on imports, and from July 1, 1950, to June 30, 1951, there was a Kr. 700 million deficit in the balance of payments. It was due to the increasing discrepancy between sharply rising import prices and practically stable export prices, Denmark's terms of trade being 65: 100 in Aug. 1951 as against 83: 100 in Aug. 1950. However, the raising of the bank rate in the autumn of 1950, restrictions on investments, sharply increased taxes and duties and compulsory savings, introduced in March 1951, caused consumption to fall, especially in the summer and autumn; unemployment also grew slowly from 2·4% in Sept. 1950 to 2·9% in Sept. 1951; so for the year from July 1, 1951, to June 30, 1952, the deficit in the balance of payments was expected to sink to Kr. 500 million. From mid-1951 the import prices mounted less rapidly and for textiles they even decreased; following the Danish-British trade negotiations the price to be paid by Great Britain for bacon was raised 5½% from Jan. 1, 1951, and in addition 12½% from Sept. 3, and the price for eggs was raised 25% from Oct. 1. Thus the Danish terms of trade were improved to 69: 100 in September and further improvements were expected.

Elections for 28 seats in the Danish Landsting, or upper chamber, took place on April 3 in the islands of Zealand (excluding Copenhagen), Falster, Lolland and Bornholm and in South Jutland. Together with the remaining members of the Landsting,* the overall party position in the upper chamber was as follows (previous strength in parentheses): Social Democrats 33 (33), Venstre or Agrarian 22 (21), Conservatives 12 (13), Radicals 6 (7), Communists 1 (1), Retsforbundet 1 (0), Faeroe Islands seat 1 (1). The Conservative-Venstre minority government thus retained its 34 seats.

(H. Ln.)

Education. Schools (1949): elementary, middle and secondary 4,112, pupils 494,905; technical 340, pupils 56,000; commercial 207, pupils 34,400; agricultural 26, pupils 2,300; adult 56, pupils 6,500; teachers' training colleges 18, students 2,400. Universities 2, professors and lecturers 270, students 7,400. Institutions of higher education 5, professors and lecturers 152, students 3,958. No illiteracy.

Agriculture. Main crops ('000 metric tons, 1950; 1951 in brackets): wheat 298 (275); barley 1,615 (1,730); oats 834 (780); rye 331 (230); potatoes 1,850; sugar, raw value 322 (360). Livestock ('000 head): cattle (March 1951) 3,075, including 1,710 dairy cows; sheep (July 1950) 61; pigs (March 1951) 3,541; horses (July 1950) 503; goats (July 1949) 4; poultry (July 1950) 24,433. Dairy products ('000 metric tons, 1949; 1950 in brackets): milk 4,894 (5,413); butter 156 (179); cheese 64 (61); eggs 118 (132). Meat production ('000 metric tons, 1950; 1951, six months, in brackets): total 510·0 (306·2), of which beef and veal 168·0 (96·1), pork 342·0 (210·1). Index of livestock production (on basis of 1937 - 100, 1950): 107. Fisheries (1950): total catch 235,000 metric tons valued at Kr. 165 million.

Industry. Industrial establishments (June 1948): 109,288; persons employed 641,379. Fuel and power (1950; 1951, six months, in brackets): coal distributed ('000 metric tons) 8,400 (3,289); lignite ('000 metric tons) 768 (735); manufactured gas (million cu. m.) 377·4 (186·2); electricity (million kwh.) 1,814·4 (1,039·6). Cement production ('000 metric tons, 1950; 1951, six months, in brackets): 872·4 (444·2). New dwelling units completed (number, 1950; 1951, six months, in brackets): 19,968 (7,776). Index of total industrial production (1948 - 100; 1950; 1951, six months, in brackets): 118 (123).

Foreign Trade. (Million kroner, 1950; 1951, six months, in brackets): imports 5,890 (3,570); exports 4,592 (2,782). Main sources of imports (1950): U.K. 32%; Germany 11%; U.S. 9%; France 9%; Sweden 8%. Main destinations of exports: U.K. 42%; Germany 19%; Sweden 6%; Norway 4%; Finland 4%. Main imports: coal, petroleum and products 17%; textiles 16%; machinery and vehicles 11%; wood, paper and manufactures 8%. Main exports: dairy products 33%; meat and products 22%; machinery 7%; live meat animals 6%.

Transport and Communications. Roads (1950): 34,300 mi. Licensed motor vehicles (Dec. 1950): cars 117,000; commercial 62,000. Railways (1950): 2,996 mi., passenger-mi. 1,875 million; goods, ton-mi. 744 million. Shipping (merchant vessels of 100 gross tons and over, July

* Term eight years; 19 elected by the chamber itself; half the remainder elected every fourth year.

1950): 718; total tonnage 1,269,011. Air transport (1950): passenger-mi. 92 million; cargo, ton-mi. 2·7 million. Telephones (1949): subscribers 542,000. Wireless licences (1950): 1,236,274.

Finance and Banking. (Million kroner) Budget: (1950-51 est.) revenue 2,403, expenditure 2,391; (1951-52 est.) revenue 2,700, expenditure 2,690. Gross national debt (March 1948): 9,630. Currency circulation (Aug. 1950; Aug. 1951 in brackets): 1,441 (1,491). Bank deposits (Aug. 1950; Aug. 1951 in brackets): 4,915 (4,725). Gold and foreign exchange (million U.S. dollars, Sept. 1950; Sept. 1951 in brackets): 79·0 (97·2). Monetary unit: *krone*, with an exchange rate of Kr. 19·34 to the pound and Kr. 6·92 to the U.S. dollar.

DENTISTRY. An outstanding feature of 1951 was the increased attention that was given throughout the English-speaking world to the prevention of dental disease. The presidential address of E. B. Dowsett to the annual meeting of the British Dental association (*Brit. Dent. J.*, no. 2, July 17, 1951) was almost wholly devoted to the prevention of dental caries and to the need of bringing about a greater public appreciation of the importance of maintaining the teeth in a healthy state. This latter aspect of the matter formed the subject of a resolution adopted by the 4th World Health assembly requesting the director general " to encourage the training of dental health personnel in preventive dentistry through the World Health organization fellowship programme."

Parallel with developments in the United States, an experiment was conducted in Great Britain by the Ministry of Education on the effect on the incidence of dental caries of treating children's teeth by topical application of sodium fluoride. This concern with preventive measures was deepened by a realization that the number of dentists was inadequate to cope with the amount of treatment required. On this point, the minister of health said that Great Britain needed 20,000 dentists—an increase of 9,000—if a proper standard of treatment was to be provided.

Much work was done during 1951 on the causes of dental disease. Professor E. B. Manley, and J. L. Hardwick, published an important paper " Caries of the Enamel " (*Brit. Dent. J.*, vol. 91, no. 2, July 17, 1951), in which they emphasized that no final solution of this problem was possible without the co-operation of scientists working in many different fields. (B. J. W.)

United States. Fluoridation of public water supplies to reduce the incidence of dental caries was in operation on July 1, 1951, in 102 towns and cities and in two state training institutions, and the number was steadily increasing. In several parts of the country, militant resistance to fluoridation appeared and to obviate objections that it was an infringement of an individual's liberty, the issue was being put to the vote in some communities.

In support of fluoridation of water supplies, on Dec. 1 the American Medical association reported that it was safe. A subcommittee on fluoridation of the National Research council urged that the procedure be considered by all fluoride-deficient communities.

Removal of decay and of deposits and stains by a new " airbrasive " technique attracted wide attention. A stream of abrasive was delivered at high velocity, the particles travelling well in excess of 1,000 ft. a second. It was claimed that with a hard abrasive such as aluminium oxide the tooth was rapidly cut away; with a softer material deposits and stains could be quickly removed without damage to the enamel. The technique aimed at eliminating the three objectionable characteristics of the drill, pressure, vibration and heat, and the pain associated with them. (L. M. S. M.)

DERMATOLOGY. Studies during 1951 indicated that seborrhoea and seborrhoeic dermatitis, characterized by bothersome oiliness, redness, scaling and itching of the face and scalp, might be the result of a metabolic defect in the skin which increased the local requirement for pyridoxine, a fraction of the vitamin B complex. Seborrhoeic dermatitis was experimentally induced in a group of persons by treating them with desoxypyridoxine, a pyridoxine antagonist. It was then eradicated by treatment with pyridoxine, suggesting that the condition might be an indication of human pyridoxine deprivation.

Patients with ordinary seborrhoeic dermatitis, not experimentally induced, were treated with large doses of pyridoxine both orally and by injection but without change in the lesions. But when the pyridoxine was administered topically, in an ointment, the areas of seborrhoeic dermatitis cleared within a period of three weeks and reappeared shortly after therapy stopped. Control areas were not improved.

The studies indicated that the skin converted pyridoxine *in situ* to a metabolically active substance, and, in a broader sense, the studies suggested that disease might on occasion be caused by local, probably conditioned deficiency.

It was suggested that baldness might be influenced by certain constituents in sebum, an oil secreted by human skin. This theory evolved from the observation several years before that a group of workers engaged in the synthetic rubber industry became temporarily bald. The hair fall was subsequently traced to a group of chemicals classed as intermediary polymers or dimers and one of them, choloroprene, not only affected loss of hair in experimental animals but also affected the hair follicles and the sulphhydryl group of chemicals normally present in hairs. It was postulated then that similar changes might be the result of naturally occurring chemical compounds and it was observed that one, squalene, a constituent of human sebum, when applied to the skin of experimental animals did cause depilation which was localized to the site of application and reversible. The mode of action had not been determined at the close of 1951 but the suggestion was made that squalene or a related unsaturated compound present in sebum might be a factor.

Penicillin 92 was introduced with evidence to indicate that it had an antibacterial spectrum *in vitro* similar to that of procaine penicillin G, the form of penicillin usually administered; it also possessed highly desirable hypoallergenic properties. It was found in a comparative study with other antibiotics on 100 patients to be excellent for topical use against ordinary bacterial infections of the skin.

Two enzymes, hyaluronidase and streptokinase-streptodornase, were recommended for the treatment of chronic cutaneous ulcers. The former, a naturally occurring enzyme which was important in the control of viscosity of tissues, promoted rapid healing when applied in three cases of leg ulcers of many years' duration which had resisted all orthodox treatment. The latter, a preparation of proteolytic enzymes elaborated by group C streptococci, employed as a lytic agent for medical *débridement* to liquefy and dissolve purulent and fibrinous deposits, was used successfully for the treatment of infected burns, wounds, ulcers, abscesses and areas of necrosis.

A number of new dermatological entities were added to the list of diseases affected favourably by treatment with ACTH and cortisone during 1951. These were herpes gestationis, pretibial myxoedema, pityriasis rubra pilaris, erythema multiforme, sarcoid, acute irritant dermatitis and acute ringworm of the hands and feet.

Triethylene melamine and proteinamine, new agents for the treatment of cancer, were reported to be successful in effecting improvement in diseases such as certain leukemias, Hodgkin's disease (lymphosarcoma) and other lymphoblastomas. The action of triethylene melamine, administered by mouth, was similar to that of nitrogen mustard but it produced much less nausea, vomiting and central nervous system stimulation. Proteinamine (methyl-bis-betachloroethylamine) effected remissions in addition in two cases each of acute lupus

erythematosus and polyarteritis. Results from proteinamine in 59 cases were as good as those obtained from treatment with nitrogen mustard, but proteinamine had certain advantages: practically without nausea or vomiting, it reduced blood system toxicity; it was tolerated by children and was used on ambulatory patients.

Quotane for topical administration and pronestyl for oral use were both recommended for the relief of itching. Quotane, an amino ether derivative of isoquinoline chemically unrelated to any of the popular "caine"-type local anaesthetics, was found to be more effective and safer than the latter compounds. Though it had been used for urologic instrumentation for some time, its use in dermatology was new. The first results indicated it to be no panacea but effective for the relief of itching. (H. RA.)

DE VALERA, EAMON, Irish statesman (b. New York, Oct. 14, 1882). For his earlier career see *Encyclopædia Britannica*. He was *taoiseach* (head of government) and minister for external affairs from Dec. 1937 to Feb. 1948, and had been president of the assembly of the League of Nations in 1938. During World War II he kept Ireland to a policy of strict neutrality though when Belfast, in Northern Ireland, was heavily blitzed he at once ordered the Dublin fire brigade to its aid with every available engine. He was attacked in Winston Churchill's victory broadcast on May 13, 1945, for his neutrality. De Valera gave his own side of the case from Radio Eireann three days later. After the Feb. 1948 elections, when De Valera's Fianna Fáil was returned as the strongest party but with a minority of the seats in the *dáil*, John Costello was elected *taoiseach*. De Valera, freed from office, left in March for the United States where he spoke in favour of a united Ireland and was made an honorary citizen of New York. In the following months he visited India and Australia, and in October opened a campaign in Great Britain for the ending of partition. The Costello coalition broke up early in 1951 after a dispute with the Roman Catholic hierarchy over a health scheme for mothers and children. In the elections that followed in May, Fianna Fáil improved its position slightly and in June De Valera again became *taoiseach* by 74 votes to 72. In October he went to Switzerland for an eye operation.

DE VALOIS, DAME NINETTE (DAME EDRIS CONNELL, *née* EDRIS STANNUS), British dancer, choreographer and director of ballet (b. Blessington, County Wicklow, Ireland, June 6, 1898), studied dancing under Enrico Cecchetti, made her debut in the 1914 pantomime at the Lyceum theatre, London, and appeared there each year until 1919. In 1918 she was *première danseuse* of Sir Thomas Beecham's British National Opera company, and in the following year was *prima ballerina* for the royal opera season at Covent Garden, London, where she again appeared in 1928. Meanwhile, after a brief interlude as a musical comedy dancer, she toured (1923-26) with the Diaghilev Russian ballet. During this period she also appeared with Léonide Massine and Lydia Lopokova at Covent Garden and (in 1926) as partner to Anton Dolin at the Coliseum theatre, London, and elsewhere. She then founded her own ballet school and in 1926 became director of ballet at the Abbey theatre, Dublin; at this time she also produced ballet at the Cambridge Festival theatre. Her first choreographic work, *Job* (to Vaughan Williams' music), was performed by the Camargo Ballet society, a body formed in 1930 to encourage young English dancers and choreographers. Ninette de Valois had already produced ballet in connection with the opera and Shakespeare at Lilian Baylis' Old Vic theatre (1928-30); when, in 1931, the Vic-Wells ballet was formed as a distinct company and took over the Camargo society's assets, she became its director. Its successor, the Sadler's Wells ballet, became under her direction the leading ballet company of western Europe; her junior company, the Sadler's Wells Theatre ballet, continued the tradition of the Camargo society. On May 15, 1950, at Sadler's Wells, she danced at a single performance of *Wedding Bouquet*, to celebrate the 21st anniversary of the companies. In the 1951 New Year Honours, Ninette de Valois was created a dame commander of the Order of the British Empire. Her choreographic works also included *The Rake's Progress*, *Checkmate*, *Don Quixote* and *The Prospect Before Us;* the last ballet was revived at Sadler's Wells on Feb. 13, 1951, with Robert Helpmann in the leading role, and on Nov. 21 *Don Quixote* was again successfully performed at Covent Garden. In 1937 she published *Invitation to the Ballet*.

DIABETES. The increase in death rates from diabetes in the United States from 1900 onward had slackened by 1930 and almost came to a halt in 1940. This occurred despite the advancing age at death of the population, from 35·2 to 59·2 years between 1900 and 1949. The crude rate in 1940 was 26·6 per 100,000 and in 1948, the last year of statistics based on the fifth revision of the census, 26·4. With the sixth revision of the census in 1949, using the doctor's opinion as to chief cause of death, the rate was 16·9. The halt in incidence could be explained by earlier recognition and better treatment of all cases, both mild and severe, so that at death diabetes was overlooked as a cause.

Evidence that control of diabetes is possible accumulated. (1) The Quarter Century Victory medal had, by the close of 1951, been awarded to 29 diabetics who, after having proved diabetes for 25 years, were free from complications. These patients had undergone meticulous control during their early years. (2) Among 200 patients who had contracted diabetes as children, reported by Priscilla White, those who were nearly free from coma for more than 20 years exhibited few or no complications in the arteries and eyes, in contrast to a high incidence when coma, indicating poor control, was frequent. (3) Among 202 patients whose diabetes began later (ages 15 to 30 years) and had lasted 10 to 29 years, Howard F. Root, Richard H. Sinden and Ralph Zanca found those with poor control had far more advanced arteriosclerosis, retinal and kidney lesions than those under better control. (4) Among 247 patients with onset of diabetes between infancy and 30 years of age, and in existence for 10 to 34 years, a clear relationship was evident between the various degrees of control of diabetes and the development of calcified vessels, retinitis and albuminuria.

F. C. Young produced diabetes in adult dogs and cats by injections of anterior pituitary extract, but in puppies and kittens these same extracts or pure crystalline growth hormone exerted instead a growth-promoting effect and no diabetes, proving a single agent stimulated growth in the immature young but development of diabetes in the old. However, some puppies, persistently injected for long periods, when they became adults and ceased to grow, developed diabetes. The rat, even when old, responds to the anterior pituitary extract by growing and never becomes diabetic. Maintenance of lactation in the cow parallels its diabetogenic activity in the dog. Growth and diabetes induced by growth hormone represent an alternative effect of the same general metabolic stimulus. Young supported this thesis by metabolic balances which showed increased deposition of protein and increased oxidation of fat. Glucose oxidation was inhibited. A level of pituitary activity appropriate for growth or lactation might exist, but with no physiological outlet available, diabetes could result. Before the onset of their diabetes some women gave a history of having had exceptionally large babies. Was this the result of excessive activity of the maternal pituitary which led later to the development of diabetes in the mother?

Priscilla White observed excessively rapid growth in some diabetic children preceding diabetes.

The extractable insulin of the pancreas was measured by Gerald A. Wrenshall at autopsy in diabetic and non-diabetic human subjects (Gerald A. Wrenshall, W. S. Hartcroft, A. Bogoch and R. C. Ritchie, "Extractable Insulin and Histology of Pancreas: A Study of Diabetic and Non-Diabetic Cases," presented at a meeting of the American Diabetes association at Atlantic city, New Jersey, June 1951). In non-diabetic adults concentration of extractable insulin of the pancreas increased progressively with decreasing pancreas weight, those subjects with high concentrations being characteristically obese and having fatty yet small pancreases. The extractable insulin of the pancreas after death by coma was found to be very low and likewise low in diabetics whose diabetes was discovered during the growth period, but much higher in subjects who had reached full stature prior to onset. (*See* also ENDOCRINOLOGY.) (E. P. J.)

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DIAMONDS. The demand for rough diamonds, both gem and industrial, was even stronger in 1951 than in 1950 and the sales of rough diamonds during the year reached a value of £65,057,965. This total was a new record and exceeded the 1950 figures of £50,967,041 by £14,090,924. Table I shows sales of rough diamonds from 1946.

TABLE I. DIAMOND SALES, 1946-51
(£ million)

	1946	1947	1948	1949	1950	1951
Gem	26·1	20·1	26·8	19·9	38·3	46·8
Industrial	3·5	4·4	11·3	8·5	12·6	18·3
Total	29·6	24·5	38·1	28·4	50·9	65·1

Production was maintained and in some cases expanded in the diamond properties of the Union of South Africa, South-West Africa, the Belgian Congo, Angola, Tanganyika, the Gold Coast, Sierra Leone, French Equatorial Africa, Brazil and British Guiana. A high rate of production at the Premier mine near Pretoria was achieved as a result of its re-equipment with the most modern machinery. During the year, a diamond weighing 160 carats, of the finest blue-white colour and best quality, valued at £80,000, was discovered in the alluvial diggings in South-West Africa.

From London, the world centre of the diamond trade, diamonds continued to be sold to manufacturers and primary distributors in the United Kingdom, the United States, Belgium, the Netherlands, France, Israel, Australia and Canada. Figures of diamond imports into the United States are given in Table II.

TABLE II. U.S. DIAMOND IMPORTS, 1950-51

	1950		1951*	
	Carats	Value	Carats	Value
Uncut gems	976,134	$45,665,212	627,752	$29,870,620
Cut gems	492,671	$58,524,902	322,879	$41,284,329
Industrial	10,835,596	$35,062,104	6,767,555	$24,403,994

* Jan.-July only.
SOURCE: *National Jeweler*, Chicago, and *Jewelers' Circular Keystone*, New York.

Considerable quantities of industrial diamonds were purchased by the U.S. government for its stockpile of strategic war materials.

The range of uses to which industrial diamonds are put was increasing and a well-equipped research laboratory in Johannesburg continued the work of discovering new uses for industrial diamonds and of improving existing applications. An important part of the work carried out in the laboratory was that of conducting experiments which would result in an increase in the efficiency of diamond recovery at the mines. Industrial diamonds were vital to the rearmament effort of the North Atlantic Treaty organization as they were used for all precision work including wire-drawing. Many drilling and boring operations now relied on diamonds, and mining engineers found that drill crowns set with diamonds were more economical and effective than the crowns previously used. Industrial diamonds were being used in the manufacture of such diverse products as hearing-aids, musical instruments, plastic goods, electrical lamps and other appliances, and telephones. Such processes as paper-making, glass-cutting and engraving and many others, relied at some stage of their production on the use of industrial diamonds. (*See* also GEMS.) (X.)

DIETETICS: *see* NUTRITION.

DISASTERS. During 1951 loss of life and property took place in the following disasters:

Air

Jan. 27 Near Tarquinia, Italy. Fourteen people died when an Italian air liner was wrecked by lightning.

Jan. 28 Eastern Formosa. An R.A.F. Sunderland flying boat crashed, killing all 16 on board.

Jan. 31 Between Reykjavik and Vestmanaeyja, Iceland. An Iceland airways Dakota aircraft crashed in a blizzard, all 20 people aboard being killed.

Jan. 31 Near Victoria beach, Terceira Island, Azores. A Portuguese army plane crashed into the sea, everybody aboard being killed.

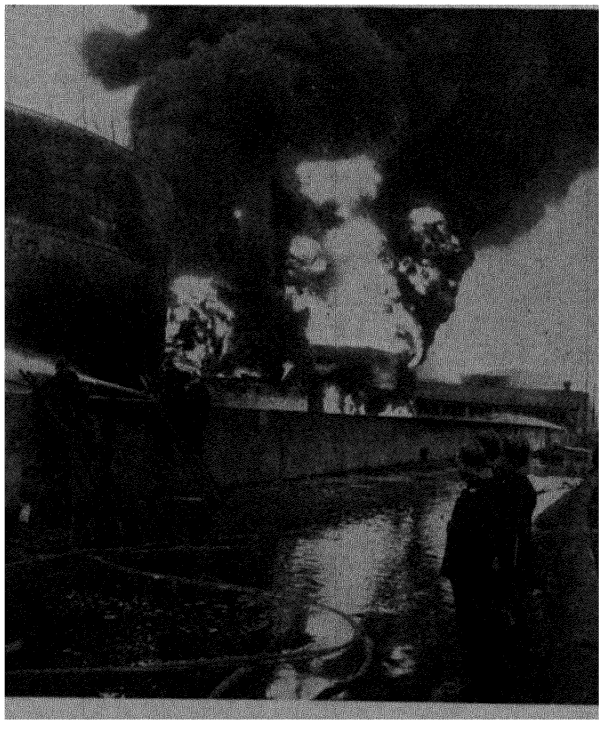
Feb. 3 Mount Cameroon, Nigeria. Twenty-three passengers and the crew of six were killed when an Air France Brazzaville-Paris air liner crashed.

Mar. 2 Sioux City, Iowa. Sixteen people were killed when a DC-3 air liner crashed while landing in a snowstorm.

Mar. 11 Hong Kong. A Thai Skymaster aircraft crashed on Parker mountain. All 24 aboard were killed.

Mar. 23 Atlantic ocean. A U.S. air force C-124 Globemaster with 53 aboard disappeared while flying across the Atlantic. Wreckage found on March 28 showed that there were no survivors.

April 6 Santa Ynez mountains, California. Twenty-two died when a transport plane crashed.



Firemen directing hoses on to burning oil tanks at Avonmouth in Sept. 1951.



The scene at Ford station, Sussex, on Aug. 5, 1951, when a Brighton-Portsmouth train ran into the rear of a local train. Seven persons were killed.

April 8 Charleston, West Virginia. A U.S. air force plane carrying a military funeral escort of 21 men crashed into a fog-shrouded hill, killing 19.

April 9 Off Hong Kong. A Siamese airways air liner crashed; all 16 aboard were killed.

April 25 Off Key West, Florida. Forty-three people died in the mid-air collision of a Cuban air liner and a U.S. navy trainer.

April 27 Central Oklahoma. The pilot of an F-51 fighter and 12 of the crew of a B-36 bomber were killed in a mid-air collision.

May 6 Albuquerque, New Mexico. Twenty-three members of the crew of a B-36 bomber died when the plane crashed and exploded while trying to land during a sandstorm.

June 22 Near Sanoye, Liberia. A Pan-American airways Constellation air liner crashed in the jungle, killing the 40 people aboard.

June 30 Rocky Mountain National park, Colorado. All 50 people aboard a Skymaster air liner were killed when the plane struck a mountain peak.

July 12 Near Aracaju, northern Brazil. Thirty-two people died when a Brazilian air liner crashed into a hill.

July 21 Near Juneau, Alaska. A Canadian Pacific air liner bound for Tokyo with a crew of seven and 31 passengers, mostly U.S. military personnel, disappeared.

Aug. 20 Fort Dix, New Jersey. Two U.S. air force officers and 11 infantrymen were killed when a jet training plane plunged into a bivouac area.

Aug. 24 Near Oakland, California. Fifty people aboard a DC-6B air liner were killed when the plane crashed near the airport.

Sept. 12 Western Mediterranean, between the Balearic Islands and Spain. A French air liner flying from Toulouse to Oran was wrecked by an explosion while in flight.

Sept. 15 Flager, Colorado. Nineteen people were killed when an aircraft taking part in an air circus crashed among the spectators.

Oct. 15 Near Kokstad, Cape Province, South Africa. A South African airways Dakota aircraft crashed into a mountainside and its 13 passengers and crew of 4 were killed.

Oct. 17 Near Nanaimo, British Columbia. A flying-boat crashed, killing 23 people.

Oct. 27 Near Flores, Guatemala. Twenty-seven Guatemalans were killed when an army plane crashed in the jungle.

Nov. 13 Mont Dore, Puy de Dôme, France. Thirty-six U.S. soldiers, airmen, women and children were killed when a U.S.A.F. Flying Boxcar hospital plane crashed.

Nov. 21 Calcutta, India. An Indian air liner crashed at Dum Dum airport, killing 16.

Dec. 6 Near Lages airfield, Azores. A U.S. B-29 bomber crashed, killing all 16 occupants.

Dec. 16 Elizabeth, New Jersey. An air liner carrying 56 holiday-makers to Florida crashed after an engine had caught fire; all aboard were killed.

Dec. 22 Near Tehran, Persia. An Egyptian air liner crashed, killing the crew of five and 15 passengers.

Dec. 29 Salamanca, New York. An air liner crashed on a flight from Pittsburgh to Buffalo; 26 people died; 14 survived.

Dec. 30 Near Phoenix, Arizona. A U.S.A.F. C-47 transport plane crashed, killing all 28 aboard, of whom 19 were West Point cadets on Christmas vacation.

Fires and Explosions

Jan. 3 Near Chimbote, Peru. A delayed dynamite explosion set off an avalanche that killed at least 132 railway workers.

Jan. 30 Hoquiam, Washington state. Fire that swept through a rest home killed 20 elderly people.

April 27 Gibraltar. The ammunition ship "Bedenham" blew up, killing seven people and doing considerable damage to the dockyard and town.

May 13 Kano, northern Nigeria. In a fire that destroyed a cinema, 317 persons died.

May 17 Nha Trang, Vietnam, Indochina. Fifty-five French soldiers died and 130 were injured when a French landing-ship was wrecked by an explosion and fire.

May 19 Kushiro, Japan. Thirty-five children and three adults were killed when fire spread thoughout a cinema.

May 29 Easington, County Durham. An explosion at Easington colliery killed 82 miners and a rescue worker.

June 3 Hikone, Japan. A fire that began when cinematograph film caught fire caused the deaths of 23 girl silk-factory workers.

June 15 Montreal. Thirty-five people, mostly elderly women, died in a fire at the Hospice de Sainte Cunegonde.

July 5 Treptow, eastern Berlin. A pleasure steamer crowded with school children exploded and caught fire; about 30 children were killed.

July 7 Haifnen-la-Bassée, Nord, France. Seventeen people were killed, three missing and 13 seriously injured in an explosion that wrecked a munitions factory.

Aug. 20 Pulau Bukom, Singapore. Two explosions, followed by fire, aboard the British tanker "Dromus," killed 22 men and injured 30.

Sept. 6 Avonmouth docks, Bristol. Twelve million gallons of oil were destroyed in an oil-tank fire following an explosion in which two men were killed.

Nov. 23 Copenhagen. Fire and explosion wrecked the Holmen naval station, killing 16 men and wounding 79.

Nov. 24 Bristol. Eleven people were killed and 15 injured in a petrol explosion at a garage.

Dec. 21 West Frankfort, Illinois. An explosion at the New Orient bituminous coal mine killed 119 miners.

Dec. 22 Tiajuana, Mexico. Forty-one people were killed in a fire at a children's Christmas party.

Natural

Jan. 3 French Morocco. Floods that swept the Rharb plain killed 71 people; 60 were missing.

Jan. 4 Comoro Island. A two-day tornado caused the deaths of about 500 people.

Jan. 18-21 Mount Lamington, New Guinea. About 4,000 Papuans and 34 Europeans were reported to have been killed when this volcano erupted.

Jan. 19-24 Swiss, Italian, Austrian and French Alps. Avalanches killed about 300 people in this period.

May 6-7 El Salvador. Earthquakes killed at least 375 people and left 25,000 homeless, the greatest losses occurring in Jucuapa and Chinameca.

May 12 Faridpur district, East Bengal, Pakistan. It was reported that 200 people had been killed or injured in a tornado.

July 12-14 Western Japan. Floods caused the deaths of nearly 100 people and left more than 200 injured and 200 missing.

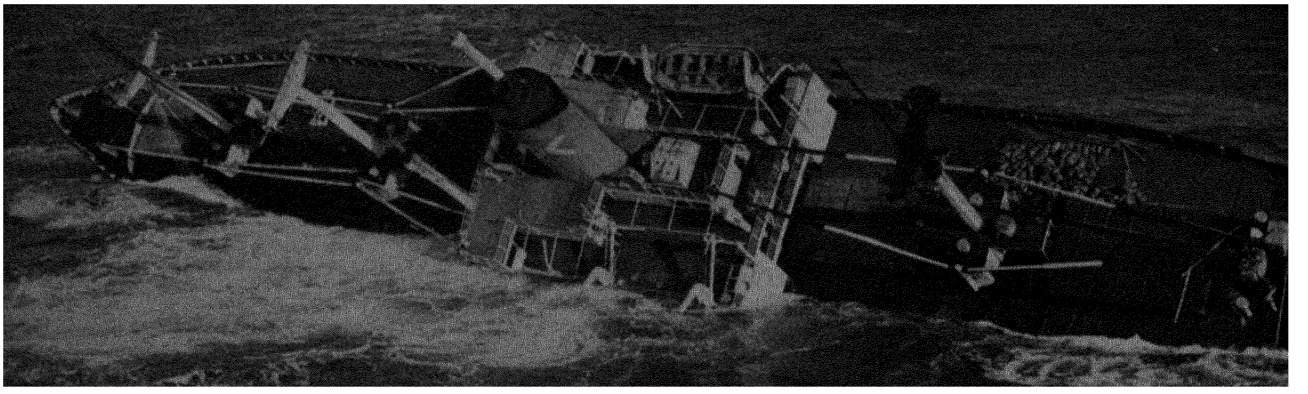
July 11-25 Kansas, Oklahoma, Missouri and Illinois. In flooding of the Mississippi and its tributaries, damage of property valued at over $870 million was incurred, nearly 200,000 people left their homes and about 1 million ac. of fertile land were covered with mud and debris. The number of dead was believed to be about 40.

Aug. 3 Potosi, Nicaragua. Earthquakes split a dormant volcano, releasing water in its crater which inundated this small coastal port, causing heavy casualties and severe damage.

Aug. 6-7 Manchuria. Floods were reported by Mukden radio (Aug. 20) to have killed 1,800 persons; 3,000 others were missing.

Aug. 13 Changra Vilayet, Turkey. Earthquakes caused 54 deaths and injuries to 150 persons.

Aug. 15-25 Jamaica and Mexico. A severe hurricane struck Jamaica,



The "Flying Enterprise," photographed from the air on Jan. 9, 1952, after the towline had parted from the tug "Turmoil."

later sweeping on to Tampico, Mexico. Great damage was done and 151 people killed and many injured. The total number of deaths in Jamaica and Mexico, including those of 42 people drowned when a dam burst at Cardenas, was 260.

Sept. 26-27 Pescadores Islands and Formosa. More than 100 people were killed in a typhoon.

Oct. 4 Southern Japan. It was reported that 448 people had been killed in a typhoon.

Oct. 22-23 Formosa. Earthquakes killed 32 people.

Nov. Persia. It was reported that floods near the Caspian sea had demolished the village of Roodsar: 225 people had been killed or were missing.

Nov. 1-20 Po river valley, Italy. Three weeks of storms and floods were reported to have caused the deaths of 150 people and to have made about 150,000 homeless.

Nov. 21 Philippine Islands. Typhoon killed about 60.

Dec. 4-13 Camiguin Island, Philippines. Repeated eruptions of Mount Hibok-Hibok killed at least 248 persons; about 500 were missing and about 20,000 homeless.

Dec. 10-13 Central Philippines. Reports indicated that 724 people had been killed in typhoons.

Dec. 25 Epi Island, New Hebrides. It was reported that a hurricane had killed 100 people.

Rail

Feb. 6 Woodbridge, New Jersey. Eighty-five people were killed and about 500 were injured when a suburban train was derailed on a temporary trestle.

April 24 Yokohama, Japan. A broken power cable fell on to the roof of a train, and the ensuing fires caused the deaths of 104 people; 66 were injured.

June 8 Near Nova Iguassu, Brazil. Fifty-four people were killed when a train struck a petrol lorry near this town, 20 mi. from Rio de Janeiro.

Aug. 5 Ford, Sussex. A train loaded with bank-holiday travellers collided with a stationary one; nine passengers were killed and 46 injured.

Aug. 24 Sary-sur-Nied, Moselle, France. Twenty people were killed and more than 30 were injured when a Basle-Calais train rammed a Frankfort-Paris train standing outside a station.

Sept. 21 Weedon, Northamptonshire. The 8.20 a.m. Liverpool-Euston express crashed over an embankment; 15 passengers were killed or died later as a result of the accident.

Sept. 24 Langenwang, Styria, Austria. Twenty people were killed and more than 50 injured when a Vienna-Rome express crashed into a stationary goods train.

Nov. 12 Near Evanston, Wyoming. Two trans-continental passenger trains collided in a snowstorm, killing at least 16 passengers and injuring many.

Nov. 25 Near Woodstock, Alabama. Sixteen people were killed and 70 were injured when two passenger trains collided head-on.

Dec. 17 Near Carneiro, Ceara state, Brazil. Fifty-three people were killed when a train was derailed.

Road

Feb. 24 Horsham, Victoria, Australia. Eleven people were killed when a train crashed into a bus at a level crossing.

June 19 Harrsching, Bavaria. Fifteen Roman Catholic students, returning from a pilgrimage, were killed when the lorry in which they were travelling was struck by a train.

Aug. 13 Near Bolzano, Italy. Thirty-four people were drowned when a bus plunged into the Resia lake.

Nov. 15 Po valley, eastern Italy. Thirty-three people were drowned when a lorry carrying flood refugees was swept away.

Dec. 4 Chatham, England. Twenty-three boys were killed when a bus ran into the back of a Royal Marine cadet column.

Sea

Feb. 21 Off the Dutch coast. It was reported that the wreckage of the French fishing vessel "Duc de Normandie" had been found; 22 of her crew of 24 had been drowned.

April 16 Sixteen miles N. of Alderney, Channel Islands. The British submarine "Affray," which had a crew of 75, failed to surface after a diving exercise.

April 20 Gulf of Mexico, off Morgan City, Louisiana. Two tankers collided in a dense fog, and in resultant fires 40 seamen of the two vessels were killed.

May 14 Off Cape Henry, Virginia. Thirty-six lives were lost in a collision between the U.S. navy seaplane tender "Valcour" and the collier "Thomas Tracy."

May 25 Newport, Rhode Island. Nineteen U.S. naval personnel were drowned when a launch capsized during a storm.

June 16 Off Cedros Island, Mexico. A cannery fishing boat with 37 people aboard capsized in high seas; 23 people were drowned.

Aug. 12 Dogger Bank, North Sea. The Norwegian freighter "Bess" capsized, shortly after it had been abandoned in heavy seas; nine survivors were picked up, two bodies were recovered and 20 other people were reported missing and presumed lost.

Sept. 1 Off Montauk Point, Long Island, New York. The captain and 45 passengers aboard the fishing boat "Pelican" were drowned and 19 were saved, when the boat capsized.

Oct. 5 Off Cape Hatteras, North Carolina. Seventeen seamen died and six were rescued when a U.S. ore ship broke in two.

Dec. 15 Perak river, near Mannong, Malaya. Eighteen people were drowned when a motor-boat struck a submerged object and capsized.

Dec. 28-31 Channel and Atlantic coasts of Europe. At least 40 seamen from five ships were drowned during severe gales.

Dec. 28-Jan. 10, 1952. Atlantic and English Channel. After the U.S. passenger-freighter "Flying Enterprise" (6,700 tons) had developed a severe list she was abandoned 100 mi. S.W. of Land's End (Dec. 28) by all but her Danish-American master, Capt. Kurt Karlsen. On Jan. 4 K. R. Dancy, mate of the British tug "Turmoil" leaped aboard and the tug took the freighter in tow (Jan. 5). On Jan. 9, however, the tow parted and on Jan. 10 the "Flying Enterprise" sank about 40 mi. from Falmouth, Karlsen and Dancy being picked up. Karlsen was later awarded the Lloyd's Silver medal and was appointed an officer of the Danish Order of Danebrog.

Miscellaneous

Jan. 31 Belfast. Eighteen shipyard workers were killed when a gangway from a ship to the shore collapsed.

Feb. 11-17 Calcutta. Smallpox killed 462 people in the city.

April 1 Indore, Central India. Thirty-eight women and four children were killed when a house collapsed.

Aug. Pont-Saint-Esprit, Gard, France. In an outbreak of poisoning from bread made of contaminated rye, and in later smaller outbreaks, 200 people became ill or temporarily insane and 5 died.

Sept. 16 Campinos, Brazil. The roof of a cinema collapsed, killing 28 children.

Oct. 28 Atlanta, Georgia. Thirty-six people died and 200 were taken seriously ill after they had drunk "hooch" made from wood alcohol.

DISPLACED PERSONS: *see* REFUGEES.

DISTILLING: *see* SPIRITS.

DIVORCE: *see* MARRIAGE AND DIVORCE.

DOCKS AND HARBOURS. The third annual report of the British Transport commission, covering 1950, was published in July 1951 and recorded a deficit of £54,847, before any contribution to central charges had been made, in the operation of docks, harbours and wharves, as against a deficit of £824,053 in 1949. The financial improvement was due in large measure to increased charges to shipowners and traders which came into force in May 1950; but economies in expenditure and increased traffic played their part. Southampton docks were taken over by the Docks and Inland Waterways executive in 1950, and Plymouth docks were transferred in 1951. The principal works authorized during 1950 were estimated to cost £1,182,500. Traffic totals (including coastwise) for 1950 were better than those for 1949: imports amounted to 23,291,000 tons (as compared with 22,372,000 tons in 1949); and exports, 36,991,000 tons (36,947,000 tons in 1949). The outward figure (coastwise and foreign) for 1950 included 28,996,000 tons of coal and coke—about 2 million tons less than in 1949. In 1951, the British Transport commission appointed consultants to advise on the reconstruction of war-damaged facilities at Hull, including the Riverside quay and the south side of the Albert dock. Owing to the expansion of a refinery at Grangemouth, Stirling, a new oil port was established at Finnart, Loch Long, on the west coast, and connected to Grangemouth by a 50-mi. pipeline; the new port would accommodate tankers of at least 28,000 tons, deadweight. At Hartlepool, Co. Durham, the commission approved a £330,000 scheme for the reconstruction of the lightering berth at the old harbour. At Barry, Glamorgan, the old commercial dry dock was leased to a firm of ship-repairers and was reconstructed to give an overall length of 940 ft. capable of sub-division into two compartments 445 ft. and 475 ft. A four-year plan costing £525,000 was approved for new works at Cardiff, Swansea and Newport, the main object being to replace steam pumping and hydraulic plant by electrical equipment.

National Dock Labour Board. The National Dock Labour board published its fourth annual report and statement of accounts for the calendar year 1950 on March 31, 1951. The labour force averaged 75,264 men throughout the year, voluntary absenteeism amounting to 1·5%. The average surplus of labour over the year was 6,895; but in June there were serious shortages at Liverpool. At the end of the year, traffic reached an abnormal peak; there were heavy labour shortages in a number of ports and many vessels were seriously delayed. The average number of men on daily transfer was 2,565, and the daily average of non-registered workers who were given jobs was 112. There was one major dispute during 1950: it occurred in London and lasted from April 19 to April 29. Weekly earnings averaged £8 12*s.* 10*d.*, as compared with £8 8*s.* 11*d.* in 1949. Generally, employers continued to pay 15% as a surcharge on total wages to finance the board's activities; but the surcharge on coastwise dockers' wages was dropped to 10% as from July 1, 1950, and the surcharge on weekly workers' wages continued unchanged at 5%. As from Jan. 1, 1951, these percentages were lowered to 13·5, 9 and 3 respectively. The board's excess of income over expenditure in 1950 was £861,558; and after bringing forward an excess from 1949 and making appropriations to the general reserve, general welfare and capital reserve funds, the balance carried forward to 1951 was £692,881. At the end of 1950, the balance on general reserve fund stood at £1,254,073.

Liverpool. In the programme of war damage replacement, two more transit sheds were completed and a third nearly finished; two miles of sheds had now been built since the end of World War II. Work continued on the new entrance for the Langton-Canada system of docks, and with the construction of sheds, the widening of quays, the construction of dock walls and the diversion of sewers. The first phase of work on the new iron-ore berth at Bidston dock, Birkenhead, was almost completed.

London. The Port of London Authority made considerable progress in the provision of additional accommodation for both shipping and goods. Most of the work consisted of restoration and improvement of damaged property, but a substantial advance was made on major schemes involving new work at the India, Millwall and London docks. There was a large increase in export traffic involving heavy expenditure on new cargo-handling equipment. In its report for the year ended March 31, 1951, the authority recorded that the work of the port had been seriously delayed on several occasions during the year by unofficial strikes. A proposal was made to construct a new fish quay at Billingsgate. At Hay's Wharf a new pair of dock gates, welded and electrically operated, was fitted. Work proceeded on a new Shell jetty at Thames Haven designed to accommodate tankers up to 38,000 deadweight tons.

Manchester. Further progress was made in the building of a new £15 million oil refinery and the construction of the oil dock to be opened in 1952.

Southampton. Fawley oil refinery, costing over £37 million and the largest in Europe, was opened. The main terminal accommodated four tankers of up to 39,000 tons deadweight and a maximum length of about 700 ft. requiring a minimum depth of water of 34 ft. The harbour board made plans to establish a new control station, equipped with radar and radio-telephone, at the top of Calshot castle. The largest dredging programme ever undertaken in the port was completed; it necessitated the removal of 3·5 million cu.yd. of spoil and included work in the western approach, at Calshot spit and in the reaches upstream of Fawley.

Sunderland. Further progress was made with two widening schemes in the lower reaches of the River Wear and also with improvements to the junction and east side quay at Hendon dock. A firm of ship-repairers lengthened one of their dry docks from 515 ft. to 565 ft. and made a substantial advance with the construction of their new 675-ft. dry dock and the extension of their quay. Several firms of shipbuilders modernized their yards and increased their productive capacity.

Tyne. It was announced that the port authority proposed to begin work at an early date upon two new coal shipping staiths at Whitehill point. The cost would be about £600,000 and the berths would have 30 ft. of water. Northumberland dock would be made tidal. Work proceeded on the extension of Sutherland quay and the installation of mechanical unloading plant to accommodate and discharge ore carriers of 20,000 tons capacity. A firm of ship-repairers was constructing a 700-ft. dry dock and a repairing quay having 25 ft. minimum depth alongside.

Australia. The commonwealth government completed plans for the construction of a new wharf, with an area of 80,000 sq.ft., at Port Darwin. At Sydney, one of the largest cranes in the world was brought into use. Its maximum capacity was 250 tons and its working radius 178 ft.; it carried a 6-ton travelling crane on top of its main arm. At Melbourne, the mechanization of cargo-handling was further developed by the addition of five new wharf cranes, and of new mobile cranes and fork-lift trucks; progress also continued on the scheme for new docks to provide 28 additional ocean berths.

Belgian Congo. At Stanleyville, terminal of the main navigable channel of the Congo river, work continued on the enlargement of quays, the construction of marshalling yards, the erection of cranes and the mechanization of cargo handling.

Belgium. Work commenced at Zeebrugge on a new terminal for the train-ferry service from Harwich; this was designed to avoid passing through the lock and thus to reduce the round-voyage time by about two hours.

Burma. The Economic Co-operation administration announced in Washington that they would allocate about £535,000 towards the rehabilitation of the port of Rangoon. The Burmese government proposed that the outports of Akyab, Bassein, Mergui, Moulmein and Tavoy should be rebuilt and modernized; the works contemplated included mechanized rice-loading facilities, the installation of mooring and channel buoys, new pontoon jetties, extensive dredging and the reconstruction of pilots' quarters.

France. Further progress was made in the development of Gennevilliers, the new port of Paris. At Dunkirk, plans were made for the modernization of a shipyard to permit the construction of vessels up to 58,000 tons deadweight with a beam of over 100 ft.

French West Africa. The new port of Abidjan, Ivory Coast, was officially opened on Feb. 6, 1951. The railway from the interior had its terminus there and the port replaced the open roadsteads of Port Bouet and Grand Bassam. The work included the completion of a canal, three km. long, to connect the 70-mi. lagoon of Abidjan with the sea, and sea protection works consisting of two piers of rubble masonry and weighted fascine-work to prevent sand encroachment. Plans were made to add inner piers, wharves, a goods station, bonded warehouses, quays and cranes; it was anticipated that 850,000 tons of cargo would be handled during each year.

Gold Coast. At Takoradi, progress was made in the construction of two deep-water quays for general cargo and one for coal, an import jetty for oil and an export jetty for bauxite, and a mass-concrete quay for timber exports.

India. The government of India accepted an outline plan for the future development of the port of Madras. The principal features were a new tidal dock comprising ten berths with two-storey transit sheds, warehouses, sidings and a marshalling yard. A model was built and the siltation problem was further studied but it was recognized that the principal construction work must await a solution of the financial difficulties. It was announced that the construction of the main harbour works at Kandlax would begin shortly.

Northern Ireland. The Newry Port Harbour trust decided to construct reclamation banks, carry out dredging, replace a timber jetty and construct a new wharf and berth. At Belfast, the reconstruction of the northern portion of Queen's quay was completed so that coal cargoes could be received, and progress was made with works at the east quay of Abercorn basin, the Musgrave shipyard delivery wharf, the Spencer dock entrance and dock roads.

Republic of Ireland. At Dublin, the port and docks board placed a contract for the construction of a graving dock costing over £890,000 to accommodate ships up to 18,000 tons deadweight; the work would take three years. This work formed part of a £4 million improvement scheme which also included deepening the bar to 30 ft. minimum, additional storage, a new ocean pier, new jetties and an oil zone. At Cork, progress was made on a £1 million programme to include dredging, quay improvements and river widening. At Waterford, work proceeded on a new wharf and the erection of cranes, general repairs to quays and preparations for the construction of a new transit shed. At Limerick, a £300,000 scheme for deepening the dock was approved. New works and repair operations also went forward at Fenit (Co. Kerry), Sligo, Dundalk (Co. Louth), Arklow (Co. Wicklow), Wicklow and Killybegs (Co. Donegal).

Israel. It was decided to begin work on a new lighter port at the mouth of the Kishon river in Haifa bay to relieve traffic in Haifa port and to provide storage for goods in transit and a free zone.

Kenya. At Mombasa, work proceeded on the ten-year development plan, the first stage being the provision of an open stacking-ground behind the deepwater quay; more storage accommodation would then be built followed by additional deepwater berths.

Lebanon. At Beirut, the Trans-Arabian pipeline project came into operation and the first consignment of oil from the new Sidon terminal reached Great Britain early in 1951. The whole scheme cost the dollar equivalent of over £75 million. The oil originated from the Saudi Arabian fields in the region of the Persian gulf. The tanker roadsteads at Beirut covered an area measuring about 2 mi. by $1\frac{1}{2}$ mi. and there were four off-shore loading berths having depths of 50-55 ft.

Morocco. At Agadir, a three-year scheme for the fivefold enlargement of the harbour was begun. The work would include the building of a mile-long breakwater and the dredging of an area of 75 ac.

Nigeria. At Lagos harbour, work began upon extensions to the Apapa wharf at an estimated cost of £2·5 million. Six new berths and four transit sheds figured among the facilities to be provided; the work was expected to be completed by April 1955.

North Borneo. Tenders were invited for the development and reconstruction of wharves at Jesselton, Labuan and Sandakan.

Pakistan. The government decided to open an inland port near Chalna on the River Pussur to handle ocean-going vessels for the export of jute and tea and the import of coal and grain. Further progress was made with developments at Chittagong where work began, under a contract valued at £2·25 million, on seven berths for ships of up to 10,000 tons each.

Panama. It was announced that a free port zone would shortly be established at Colón.

Poland. It was announced from Poland that the wreck of the German battle cruiser "Gneisenau" had been raised at Gdynia, thus clearing the main entrance of that port.

Portuguese East Africa. At Quelimane, work began on new wharves to accommodate ocean shipping for which no alongside berths formerly existed. The low-water depth in the berths would be about 21 ft. and the new facilities would be available in 1952. The pier for the new port of Nacala was completed and plans for the deep-water wharf were settled.

Sarawak. Borings were made at the site of the new port at Gunong Ayer.

Tanganyika. At Dar-es-Salaam, work began on the construction of three deep-water berths, two to the order of the Railways and Harbours administration and a third to the order of the Belgian government. At Mtwara, it was decided to continue, on a reduced scale, with the construction of the new port (otherwise known as Mikindani) in order to hurry on the development of the Southern Province. The amended scheme included two deep-water berths and general improvement of the port.

Thailand. A contract valued at $4·4 million was placed for the deepening of the channel in the Chao Phya Menam river which connects Bangkok with the Gulf of Siam. The object was to eliminate barge work and thus reduce the cost of exporting rice.

Turkey. The government decided to proceed at an early date to carry out port developments, costing 7·3 million Turkish pounds, at Istanbul, Izmir, Samsun, Iskenderun and various Black sea ports.

Venezuela. Work began on a scheme to double the capacity of the Cardon refinery, northern Venezuela. By 1952, the

annual output of oil products would be raised from 3·5 million tons to 7 million tons. (A. H. J. B.)

United States. In 1951 construction was executed on 150 regular river and harbour projects by the U.S. army corps of engineers; of this number 23 were completed. Maintenance was performed on a total of 330 projects. During the fiscal year ended June 30, 1951, $186,142,500 of federal funds was expended for new work and maintenance of river and navigation projects and inland and coastal harbours. The Rivers and Harbours act of 1951, including supplementary appropriations, provided $192,657,613 for maintenance and improvement of U.S. rivers and harbours. Of this total $125,192,613 was for new construction work on 43 projects in 29 states, the District of Columbia and Alaska. The act specified that no planning could be undertaken or continued unless certified by the president or necessary to defence. No new construction could be initiated except the Dalles lock and dam, Oregon and Washington, and Old Hickory lock and dam, Tennessee, both multi-purpose projects providing hydro-electric power.

At the end of 1951 there were 686 authorized investigations in advanced stages of completion. (G. Hb.)

At Baltimore, work was continued on a new ore pier, designed to receive 2,400 tons an hour, as an addition to four existing piers. Expansion of facilities at the port of Arecibo (Puerto Rico) was begun, the principal improvement being the construction of a 402-ft. bulkhead to facilitate the loading of sugar, molasses, pineapples and other products.

Canada. During 1951 about $1·4 million was spent to widen ship channels in the Fraser river, and add more dykes and dams to the existing $11 million Fraser valley dyke water control system. The irrigation gates of the 2,530-ft. earth dam (the largest in Canada) on the St. Mary river near Lethbridge were opened on July 16, bringing the river water to 500,000 ac. Eight major ports were administered by the national harbour board and of these six had a bigger volume of traffic in 1951 than in 1950. The government was active in the preparation of a complex shield of seaward defences around the strategic harbours. Plans went forward for a multi-million dollar expansion and improvement of Toronto harbour, in anticipation of the deepening of the St. Lawrence seaway. (*See* also CANALS AND INLAND WATERWAYS.) (C. Cy.)

See G. de Joly, Ch. Laroche, P. H. Watier and A. de Rouville, *Travaux Maritimes*, vol. iii, *Ouvrages Intérieurs et Outillage des Ports* (Paris, 1951); P. Ford and J. A. Bound, *Coastwise Shipping and The Small Ports* (Oxford, 1951).

DOMINICA: *see* WINDWARD ISLANDS.

DOMINICAN REPUBLIC. West Indian republic covering the eastern two-thirds of the island of Hispaniola or Haiti. Area: 19,129 sq.mi. Pop.: (1935 census) 1,479,417; (Aug. 6, 1951, census) 2,121,000. Racial distribution is estimated at 13% white, 68% *mestizo* and mulatto and 19% Negro. Language: Spanish. Religion: Roman Catholic. Capital: Ciudad Trujillo (pop., 1951 census, 181,000). President, Generalissimo Rafael Leónidas Trujillo y Molina.

History. The sugar production of the Dominican Republic in 1951 was the greatest on record—nearly 530,000 metric tons. All of it was sold to Great Britain, the normal market for Dominican sugar, at prices above those of 1950. British purchases of Dominican products were again substantially greater in value than those of the United States. The government took the occasion of the coming into effect on June 6 of the tariff changes agreed to at Torquay, viz., to emphasize all of the concessions made to the United States and to stress the merit of a modest increase in the Dominican quota in the U.S. sugar market. The turnover of goods in domestic trade continued to slow down, as in 1950, but unemployment did not increase. The price level and wage level did not change perceptibly. The government continued to build up its cash resources, but established no increases in tax rates.

The seizure on July 26 of a Guatemalan vessel, en route from Cuba to Guatemala, by a Dominican naval vessel gave rise to renewed recriminations between the Dominican Republic, which imprisoned the crew and passengers as enemy elements, and Cuba and Guatemala. The Guatemalans were released, but the Cubans were sentenced to 20 years' imprisonment. Nevertheless, on Christmas day 1951, President Trujillo released the Cubans also, and lessened the tension with Cuba. Relations with Haiti were more cordial than for some years. (C. McG.)

Education. Schools (1951): elementary and secondary, state 2,749, state-aided 107, private 95; total pupils 262,499; university, students 2,254, teaching staff 172.

Agriculture. In the 1950-51 season, a record total of 587,343 short tons of sugar and 25,813,275 gal. of blackstrap molasses was produced. Other crops: coffee 326,899 bags (132 lb. each), cacao (34,000 short tons), tobacco (1949-50) 24,200 short tons, bananas (1949-50) 5,237,168 stems. Livestock (1950): pigs 1,140,000, goats 340,000, cattle (1949) 602,000, horses 140,000, mules and asses 126,000.

Foreign Trade. Exports in 1950 were valued at $83,500,000, imports $43,000,000. Leading exports: sugar (47%), cacao (17%), coffee (15%) and tobacco (6%). Leading customers: U.S. (44%) and U.K. (42%). Leading suppliers: U.S. (73%), Netherlands Antilles (5%), U.K. (2%) and Germany (2%).

Transport and Communications. Railways: state 170 mi., and 650 mi. operated mainly by the sugar companies. Roads (1949): surfaced highway 500 mi., other roads 2,500. Motor vehicles (1948): cars 3,124, commercial 2,390.

Finance. Budget (pesos, 1950 actual): revenue 96,590,000, expenditure 90,881,000; (1951 est.) balance at $74,606,200. Internal debt (June 30, 1951): $21,261,000; no external debt. Notes in circulation (Sept. 30, 1951): 29,510,000 pesos. Gold reserve: U.S. $8,100,000. Monetary unit: *peso* officially pegged at par with the U.S. dollar. (J. W. Mw.)

DONATIONS AND BEQUESTS. The National Thanksgiving fund, launched by the lord mayor of London on March 21, 1950, in gratitude for food gifts from the Commonwealth and the United States, was officially closed in July 1951. Sir Denys Lowson, lord mayor of London, announced, on July 27, that of the original target of £2 million only £800,000 had been raised. The following first allocations were made from the fund: £600,000 for halls of residence for women and married students and U.S. men students; £100,000 to London house for maintenance; and £35,000 to The Burn, the parallel establishment in Scotland to London house. These allocations enabled the original purposes of the fund to be carried out.

After the loss, on April 19, 1951, of the submarine "Affray," the mayors of Chatham, Rochester and Gillingham launched a relief fund which amounted to £177,492 by December. Eton college launched a building appeal for £1 million; by the middle of November £390,000 had been raised. In August an appeal for £150,000 was launched to endow a chair of Commonwealth studies at Cambridge university as a permanent memorial to Jan Christiaan Smuts.

The Nathan committee on charitable trusts, set up in Jan. 1950, continued to receive evidence during 1951; the creation of the committee was welcomed in the sixth report of the Nuffield foundation, published in June 1951. In August the vice chancellor of the University of Cambridge announced that the trust had granted £37,000 to the university. At the same time a grant of $82,500 was announced from the Rockefeller foundation. The Carnegie United Kingdom trust had granted £4,065,555 since its creation in 1913. Of this sum more than £1·5 million had been expended on library services. The Pilgrim trust, in its 20th annual report issued in May, forecast " a somewhat less liberal grant policy." In 1950, the trust had made grants of £143,823.

Lord Dulverton gave £42,000 to Bristol university to restore the great hall, which had been destroyed in an air raid in World War II. An art collector, H. S. Reitlinger,

bequeathed his art collection for the benefit of the public. The National gallery, London, received two paintings bequeathed by Mrs. H. C. Tarleton and P. M. Turner. George Bernard Shaw, who died on Nov. 2, 1950, left £367,233. After making other bequests he directed that the residue be left on trust for an inquiry into a new alphabet. A first payment of £1,020,322 duty was paid on the estate of the 10th Duke of Devonshire who died on Nov. 26, 1950. He left £796,473. Sir G. Holcroft, who died on April 19, 1951, left £1,176,313; duty paid was £910,822.

In the United States, G. M. Moffett, who died on Dec. 22, 1951, left approximately $20 million. He bequeathed the bulk of his fortune to the Whitehall foundation, an organization which helps students through U.S. colleges. Mrs. H. S. A. H. G. Wilks, who died on Feb. 5, 1951, left her fortune of more than $100 million to charity, principally to churches, hospitals and colleges. The Ford foundation, created in 1950, granted $1,309,500 to the "free university" of Berlin. The trust also created a fund "for the advancement of education" with an interim budget of $7,154,000.

DRAMA: *see* THEATRE.

DRAWING AND ENGRAVING. In many of the numerous art exhibitions held in Great Britain during the Festival year of 1951, drawings occupied at least a modest share of the available wall space. At the Tate gallery, London, in January, a memorial exhibition of the drawings and lithographs of Randolph Schwabe (1885-1948; Slade professor, London university) emphasized the increasing rarity of fine, academic drawing as an end in itself. Drawing as a means to an end was exemplified in a selection of Henry Moore's studies which was shown at the Tate gallery in May as a subordinate feature of an exhibition of his sculpture. They consisted of experimental projections of shapes and spaces on paper as preliminaries to final statements in solid form. Later in the year, a fairly comprehensive collection of Pablo Picasso's drawings was assembled in London at the Institute of Contemporary Arts as a tribute to his 70th birthday. The exhibition was a retrospective survey, beginning with astonishing specimens of his talent as a boy and ending with assured and characteristic drawings of the period after World War II. The works shown included directly drawn sketches, abstract arrangements, imaginative effusions, pictorial allegories, studies for paintings and light-hearted, witty scribblings. It was not only a survey of Picasso's development and accomplishment as a draughtsman, but it was, at the same time, a disclosure of the source of major influences which continued to affect the practice and teaching of drawing.

The once clearly indicated aesthetic boundary between drawing for its own sake and drawing for reproduction seemed to have lost much of its definition by 1951. Artists had now discarded the deliberately formal manner of drawing for reproduction in favour of a free and spontaneous approach. This new informality was not only in keeping with contemporary idioms, it was also consistent with the essentially personal character of good drawing. Moreover, standards of reproduction by line, half-tone and lithographic methods were now so consistently reliable that drawings



"Rue St. Antoine, Paris," by Ronald Searle, who illustrated "Paris Sketchbook" by Kaye Webb, published in 1951 by Saturn Press.

were often translated into print without much loss of their original quality.

In France, outstanding examples of book illustration were André Marchand's rich lithographs for André Gide's *Nourritures Terrestres*. In Norway, there were Guy Krohg's pleasing illustrations to a translation of the *Daphnis and Chloë* of Longus, Ridley Borchgrevink's strong and convincing drawings for his own book *Animal Tracks and Wild Honey* and Knut Rumohr's woodcuts for Alexander Kielland's *Working People*. In Great Britain, there were Ronald Searle's irresistible line drawings for Kaye Webb's *Paris Sketch Book* and delightful and engaging work by Edward Ardizzone for Maurice Gorham's *Londoners* and *Showmen and Suckers*.

At the Victoria and Albert museum, London, in November, the British Broadcasting corporation showed a group of original designs that had been reproduced in their publications. The exhibition provided encouraging evidence that many good drawings by such able artists as Susan Einzig, Pearl Falconer, Lynton Lamb, Eric Fraser and Leonard Rosoman were seen by a very large public.

Copper engraving, etchings and dry-points, save for desultory revivals, were not much in evidence. Wood engraving was practised widely and prints of good design and craftsmanship were produced in Italy, the Netherlands, Germany and Great Britain; but wood engravings had a more limited currency as individual hand-made prints than as illustrations produced on high-speed presses. In lithography, there was considerable activity. Drawing on stone was to some extent supplanted by drawing on zinc plates and some highly interesting experimental work was done on new plastic surfaces which offered intriguing possibilities of different techniques and treatments. (*See* also ART EXHIBITIONS; ART SALES; MUSEUMS.) (F. W. W.-S.)

DRESS: *see* FASHION AND DRESS.

DRUGS AND DRUG TRAFFIC: *see* NARCOTICS.

DYESTUFFS. International. French, Swiss and German technical organizations convened a meeting in 1951 to consider international agreement on methods of testing colour fastness and expressing the results; delegates from 14 countries attended. Nine countries assented to proposals put forward at the final session but others, including Great Britain, reserved a decision. The British observers called attention to the fact that the International Standards organization was already studying the problem. A sub-committee on colour fastness had been set up when the textile committee of I.S.O. met in England in 1949. Later, the committee held a further meeting and consideration was again given to colour fastness. Considerable progress was made and agreement in principle was reached on about a dozen tests.

Great Britain. Like many other British industries the dyestuff industry was threatened by the sulphur shortage in the earlier part of the year. But the cuts in United States exports proved less drastic than had been feared and certain economies in the use of sulphur were effected. Nevertheless, the sulphur situation and tightness in the supplies of various coal-tar chemicals made trading in dyestuffs during much of 1951 more difficult than it had been. Later in the year, however, the lull in trade brought about some easing of the situation.

British contributions to dyestuff chemistry were featured at the Festival of Britain South Bank exhibition. The Society of Dyers and Colourists held a conference on " The Tinctorial Arts Today "; it was emphasized that the rapid development of synthetic fibres, completely different in composition and properties from the older textile materials, would call for great efforts from the dyestuff industry.

France. A court of appeal in Paris ordered the restoration to the former owners of that part of the shareholding of Francolor, the French dyestuffs combine, which had been held by I. G. Farbenindustrie, the German dyestuffs combine, during World War II and subsequently sequestrated by the French government. The three leading French chemical and dyestuffs companies, Kuhlmann, Saint Denis and Saint Clair-du-Rhône, were forcibly amalgamated in 1941 into a new corporation known as Francolor. I. G. Farbenindustrie took a 51% participation and in exchange for their property the French received shares in I. G. Farben stock, representing 1% of that organization's capital. Following the Paris court order a new company, Cie. Française des Matières Colorantes, was formed to take over the management of the assets of Francolor.

Germany. The Allied High commission in Germany issued its final plan for the splitting up of the former I. G. Farbenindustrie. There were to be three large groups, together with a number of smaller ones producing a variety of goods including dyes. Considerable interest was taken in the introduction in Germany of new members of the important copperphthalocyanine group of colours.

India. The newly formed Dyestuff Manufacturers' Association of India urged the government to stop issuing import licences for certain classes of colours which could be made in India in sufficient quantity to meet demands. More important still was the plea that the authorities should issue import licences for adequate quantities of intermediate chemicals and remove the excise duties on certain raw materials. It was also suggested that the government itself might manufacture intermediates in the ordnance factories. (L. E. Ms.)

United States. The volume of production and sales of U.S. dyestuffs in 1951 maintained essentially the high level of 1950. The needs of the civilian economy were fulfilled with some minor exceptions. Through technological advances in dyeing and finishing and the increased use of vat and other fast colours, the quality of dyed merchandise was better than ever before. Defence requirements accounted for 80% of the consumption of such vat colours as khaki, brown and olive. Despite increases in the costs of raw materials and labour the prices of most dyes remained at the 1950 parity. Despite aggressive competition from foreign dye-exporting countries, credit restrictions and other economic and political factors, the U.S. industry exported about the same volume as in 1950.

Several new synthetic fibres possessing unusual characteristics were introduced commercially. They could be used alone or combined with those of natural origin to form unique fabric constructions. These new fibres and their resultant blends imposed numerous technical difficulties of colouration which were largely overcome through the combined knowledge of the textile and chemical industries. (A. G. BR.)

EAR, NOSE AND THROAT, DISEASES OF. *Deafness in Children.* It had always been difficult to evaluate and diagnose deafness in children under two years of age and in young patients with psychogenic deafness. Two techniques of experimental psychology, however, had been employed to determine hearing functions by the application and observation of conditioned reflexes. The first method is primarily designed to determine if any hearing impairment exists in an infant. The basic idea is to associate the ringing of a bell with feeding. Eventually, the child with normal hearing will develop a conditioned reflex and start to suck and smack its lips when it hears the bell. The child with a hearing impairment will make no such sign, thus indicating that he cannot hear the bell.

The second method, developed by John E. Bordley and William G. Hardy, also employs the conditioned reflex but is

a broader and more definitive technique. The investigators record the changes in skin resistance which follow a mild electric shock. A warning sound is produced four or five seconds before the electric shock is given. The young child may be conditioned quickly to develop skin resistance changes after the warning sound in anticipation of the coming shock. When the child begins to respond regularly to the warning signal alone, intensity of tone is gradually diminished until the threshold is reached. A child conditioned to one tone is thereafter conditioned to all tones audible to him.

The Fenestration Operation. In the light of knowledge in 1951, no one could definitely predict the outcome of the fenestration operation as far as complete restoration of hearing was concerned. In some cases the patient's hearing had improved; in many, hearing had returned to the pre-operative level; while in others, hearing retrogressed. The fenestration operation had rehabilitated great numbers of hard of hearing, but, no matter how successful, it did not re-establish normal hearing. (M. S. ER.)

The Common Cold and Antihistamines. It was suggested by Edmund P. Fowler, Jr., in 1951, that colds involve overaction of either the sympathetic or the parasympathetic nervous system of the nose. Since histamine or histamine-like substances are involved in the autonomic balance, antihistamines sometimes interfere in its action enough to produce symptomatic relief. First, they produce on the peripheral vessels an effect of a stimulant, like epinephrine, and perhaps secondarily they act as a paralysing agent, like procaine or atropine. It also seemed possible that the antihistamines must have some effect on secondary processes developing after physical or psychic stimuli which tend to predispose to the infectious type of cold in some people.

Observations indicated that a specific hypersensitivity and imbalance of the involuntary nervous system is fundamental in the allergic type of cold. Histamine or histamine-like substances appear to contribute to the symptomatology. The allergic individual is, apparently, the constitutional type in whom there is a comparatively reduced functioning of the sympathetic response from his autonomic nervous system with overaction of the parasympathetic response. This can be due either to lack of adequate opposition or from sensitization to parasympathetic stimuli. Either could be influenced by antihistamines which were shown to have adrenergic (sympatheticomimetic) as well as atropine-like properties.

Whether one could assume that the person who develops the infectious cold does so from overaction of the sympathetic side of his autonomic nervous system was not clear. The theory was presented that when and if the antihistamines have an effect on the infectious cold they block secondary parasympathetic tissue responses in the psychic or physical stimuli stages of certain colds and so produce symptomatic relief. They may also reduce the action of histamine as it is released by infection in the early invasive stages of a mild cold. The adrenergic action of antihistamines may tend to make the later stages of a cold worse. Whether there is also eventual destruction of the cilia and changes in the cells of the mucous membranes, as with ephedrine and other nose drops, had not been proved by the end of 1951, nor had increased permeability of the epithelium to bacteria and to viruses. Laboratory experiments indicated that therapeutic doses of the common antihistamines would not be of value in well-developed infectious colds. They might give some help in the early stages of the infectious cold or such colds in which an allergic factor is present.

Maintenance of the Airway: Tracheotomy. When a patient becomes too ill to expel secretions from his throat and lungs, tracheotomy should be done without delay. Drainage is thereby made more effective than with a nasal catheter, and the larynx is not injured. Life is often saved, and even in hopeless cases the airway is cleared and broncho-pneumonia is prevented. The trachea was opened by Roy W. Dickman and Ivan D. Baronofsky in 14 surgical cases involving such grave conditions as severe head injury, chest wounds with fractured ribs, hemothorax or tension pneumo-thorax, third-degree burn from inhalation of hot fumes, ruptured ulcer with peritonitis, and separation of an esophageal suture after the resection for carcinoma. If secretions collect and air flow is reduced, mucus rapidly becomes more viscid, clogging the cilia and dulling the cough reflex. As more air is cut off, cyanosis, cerebral anoxia, and stupor develop, still further deadening the response to bronchial irritation.

The unconscious patient, originally free of pulmonary symptoms, is too often suffocated by the sticky mucoid accumulation. If the subject is stuporous, a nasal catheter drainage requires a laryngologist rather than a nurse, and the procedure may be necessary every 30 min. for several days. The larynx is inevitably damaged as a result. Even in the deepest coma, a catheter inserted through the tracheotomy tube arouses a vigorous cough reflex which empties the small bronchi and bronchioles. Both air and sputum are passed more easily than through the larynx, and the patient's respiratory efforts are much reduced. (F. LR.)

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EAST AFRICA HIGH COMMISSION. The commission was established in 1948 to administer the public utilities and other services, including research, of common concern to the territories of Kenya, Tanganyika and Uganda. It has power to legislate, with the advice and consent of the East Africa Central Legislative Assembly, on any of these matters. The assembly consists of 7 *ex-officio*, 3 nominated and 13 unofficial members, including Indian and African representatives.

The commission's organization for desert locust control went into action in 1950 and its teams were operating throughout 1951 in the territories in the "Horn of Africa." The threatened invasion of Kenya was reduced to quite small proportions, but the outbreak to the north was widespread and showed little sign of abating. The East African Agriculture and Forestry Research organization at Muguga was opened by James Griffiths, secretary of state for the colonies, on May 26. Its capital cost (£366,000) was met from colonial development and welfare funds. It had a staff of 22 engaged on fundamental research. Work continued on the building of three new deep-water berths at Dar-es-Salaam and on expanding port facilities there and at Mtwara. Surveys were being conducted for the extension of the railway which runs inland from Mtwara and of the Uganda railway westward to the Kilembe copper deposits in the Ruwenzori mountains. Also under the commission's aegis was the proposed rail link between east and central Africa. Three possible routes had been selected and in May the firm of Sir Alexander Gibb and Partners, with their American associates, started the second series of surveys designed to provide the basic economic information which would determine the final choice. (*See* also KENYA; TANGANYIKA; UGANDA.) (K. G. B.)

EASTERN EUROPEAN ECONOMIC PLANNING. Further progress in the industrialization of Soviet-dominated Europe was made during 1951, which was the third year of long-term planning in Bulgaria and Czechoslovakia,

the second in Hungary and Poland and the first in Rumania. In Albania and Eastern Germany new five-year plans were announced. Meanwhile the Bulgarian, Czechoslovak, Hungarian and Polish plans were speeded up by substantial increases of capital investment and the augmented output of heavy industry.

Bulgaria. Speaking at Sofia on Sept. 8, Vlko Chervenkov, the prime minister, stated that Bulgaria, a purely agricultural country, was being turned into an industrial country. No reference was made to the metallurgical plant, lead and zinc foundry and copper ore smelters which in 1948 had been planned to start production in 1951. The completion, however, on Nov. 5 of the Stalin Chemical combine and the Chervenkov thermo-electric power station at the new town of Dimitrovgrad was vigorously hailed in the press. According to the five-year plan, operation of these two enterprises had been scheduled to start at the end of 1955, but the Bulgarian government was instructed to postpone other projects and concentrate on the two plants at Dimitrovgrad. Production at the Stalin Chemical combine, engaged in extracting nitrogen from air and producing calcium nitrate and other chemicals, was planned to be 70,000 metric tons a year. The Chervenkov power station alone was expected to produce a 40% increase of electric power, the major part of which would be consumed by the Stalin combine. During the year 15 ships of various tonnage, the first to be built in Bulgaria, were completed at new shipbuilding yards at Varna (renamed Stalin).

Anton Yugov, minister of heavy industry, stated that by the end of 1951 industrial output had reached 97·3% of the level envisaged by the plan for 1953 and that "in its basic branches" the five-year plan had been completed in three years. Bulgarian industry had produced almost four times as much in 1951 as in 1939. In 1952 over 52% of a budget expenditure of 344,800 million levas was earmarked for investment in the national economy. At the official exchange rate this represented £221·5 million, or over £30 per head of the population. Incidentally, in a Communist country the national budget comprises revenue and expenditure of all nationalized enterprises.

Czechoslovakia. Klement Gottwald, president of the republic, announced on Dec. 31 that industrial output during 1951 had been 12·7% higher than in 1950 and two-thirds higher than in 1937; in Slovakia particularly the increase was 19·2% compared with 1950 and more than treble compared with 1937. Heavy industry production increased between 1950 and 1951 by 14·3% (in Slovakia by 36·4%). The president's announcement was in fact a declaration of failure rather than of achievement, for at the beginning of 1951 the Prague government had decided that the year's increase in industrial output, planned originally as 16%, should be 22%.

The percentages revealed by Gottwald indicated that general industrial production in 1951 was 8% below the target and even lower in heavy machinery and coal. In the summer Václav Nosek, minister of the interior, admitted that only 47,000 metric tons of coal were produced daily of the 55,000 tons essential to the Czechoslovak economy, and he castigated the miners of the Ostrava-Karvina basin, responsible for over four-fifths of the coal production, for failing to fulfil their promises. As the situation in the coal mines did not improve, Antonin Zápotocký, the prime minister, in December attributed the workers' resistance to the influence of the Slanský clique and of reactionary *émigrés*, but the simple explanation probably was that original enthusiasm was undermined by the constant lowering of living standards. Nor was any comfort to be derived from statements that, expressed in 1937 prices, the national income amounted in 1951 to Kč. 78,100 million compared with Kč. 56,500 million in 1937, that the total increase was 38·2% and, per head of population, amounted to 68%. This increase was immediately reinvested, and less food and clothing than in 1937 were purchasable by actual wages.

The construction of new steelworks at Kunčice near Moravská Ostrava was well advanced: at the end of the year the first blast furnace and open hearth steel plant were completed. Another steelworks, temporarily described at "Hu-Ko" (Hutiovy Kombinat), was being built in eastern Slovakia, south of Košice. During 1951 Kč. 105,000 million (65·6% of the budget expenditure) was invested in the national economy, averaging at the official exchange rate £60 per head of the population, compared with the United Kingdom's similar investment averaging £40 per head in 1950.

Hungary. The National Assembly on May 17 passed a revised five-year plan under which far greater importance was to be assigned to industry than had been originally intended. Ernö Gerö, chairman of the Council of National Economy, proposing the revision, explained that Hungary, an agrarian country before World War II, would become in consequence "a country of steel and machines." Zoltan Vás, chairman of the State Planning commission, seconding, stated that the people's needs exceeded the scale of the original plan. The total capital investment was increased from 50,900 million forints to 85,000 million forints, that is, at the official exchange rate, to £2,576 million, or £280 per head of population in five years. The volume of all industrial production by 1954 was to represent 310% of that of 1949, instead of 186·4% as originally planned. Objectives for chemical and electrical industries were doubled, those for heavy engineering trebled.

Industrial production in 1951 was 30·1% higher than in 1950 and 210·9% higher than in 1938. Capital investment in 1951 was 44·8% greater than in 1950 when the total budget expenditure was F. 17,454 million. The budget expenditure in 1952 was increased to F. 42,481 million out of which more than a half was earmarked for investment in the national economy.

Projects under the five-year plan included power stations at Inota, in the Veszprém country and at Tisza Lök, an aluminium foundry at Szent-Gal, a new blast furnace at the Diósgyör iron and steel works and, most important of all, the Stalin Iron and Steel works of Dunapentele. These works were first planned at Mohács, which, however, was considered too near to the Yugoslav frontier. Dunapentele was renamed Sztalinváros (Hungarian "Stalingrad") on Nov. 7 when the already completed blast furnace and open-hearth steel plant produced the first tons of steel.

Poland. During the first year of the Polish six-year plan its objectives were considerably increased. Industrial production was to be 158·3% higher by 1955 than in 1949, instead of the 90% increase originally planned; steel production was to be doubled to 4·6 million metric tons, while coal output was to be raised almost two-fifths to 100 million tons. The total capital investment for the whole plan was increased from Zł. 120,000 million to Zł. 185,000 million, or £16,518 million at the official exchange rate.

Industrial production in 1951 was 24·4% higher than in 1950, while the corresponding increase in the preceding year had been 30·8%. Although neither the mining nor the metallurgical industries reached their objectives for 1951, the increases recorded were 5% for coal, 11% for crude oil, 18% for electric power, 6% for pig iron, 11% for steel, 7% for cement and 18% for calcium nitrate.

Many important projects were completed during the year. On June 12 new steelworks were inaugurated at Częstochowa which were to produce 300,000 tons of steel in the first year, increasing in three years to 1·1 million tons. On Aug. 12 fires were lit in what was described as "the biggest and

most up-to-date blast furnace in Europe": the capacity of this addition to the Kościuszko iron and steel works at Chorzów, Silesia, was 250,000 tons of pig iron yearly. In November production started at a motor-car factory at Żerań, near Warsaw, and a lorry factory at Lublin. A synthetic oil plant at Dwory, near Oświęcim, began activity, and an oil refinery at Trzebinia, near Cracow, was considerably enlarged. During the year the construction continued of Nowa Huta, the new iron and steel works near Cracow which was planned to be the largest in Poland.

On Dec. 31 President Bolesław Bierut stated that a total of Zł. 25,000 million had been spent in 1951 on new buildings, machinery and plant, or 1,000 złotys (£89 6s.) per head of the population. Such a sum represented about two months' average wage.

Rumania. The first five-year plan was put into effect on Jan. 1. The total capital investment was to be 1,330,000 million lei (£3,090 million or £195 a head), including L. 678,300 million (51%) earmarked for industry. By 1955 Rumania was to produce 4,700 million kwh. of electricity, 10 million metric tons of oil, 8·5 million tons of coal and 1,250,000 tons of steel.

Construction began of the Lenin hydro-electric power station at Bicaz, in northern Rumania, the yearly production capacity of which was to be 1,000 million kwh., and a reservoir being built on the upper Bistriţa river would enable the irrigation of some 300,000 ha. of arable land. Two other hydro-electric and three thermo-electric power stations were in construction. As Rumania produced in 1950 only about 5,350,000 tons of crude oil, the 10-million-ton objective seemed difficult to attain in view of the fact that in 1934, its best year, the Prahova valley field yielded only 8,467,000 tons of crude oil. However, in 1948, production of oil started in a new field near Târgu-Ocna, in the Trotuş and Tasleu valleys in Moldavia. Soviet experts pronounced this region as rich in oil as central Rumania north of Ploeşti. A pipeline from the refineries of this city to the port of Reni, on the Soviet side of the lower Danube, carried eastwards the major part of Ploeşti production. Output in the new Trotuş-Tasleu field increased eightfold in 1950 compared with 1948 and during 1951 ten times more wells were sunk than the preceding year. New blast furnaces were being built at iron and steel works at Hunedoara, Transylvania, and a metallurgical plant at Reşiţa, in the Banat, was being enlarged. Industrial production in 1951 was 23·0% higher than in 1950, 22·1% more crude oil being produced, 19·4% more coal, 17% more electric power, 20·9% more iron ore and 15·7% more steel.

Albania. Addressing the central committee of the Albanian (Communist) Party of Labour, at Tirana, on Sept. 24, on the first five-year plan for 1951-55, Enver Hoxha, the prime minister, said that under the two-year plan 1949-50 a total of 3,497·9 million leks had been invested in the national economy. At the exchange rate of Rb. 1 = L. 12·50, this sum represented Rb. 279·8 million (about £25 million or £20 *per capita*). The budget for 1951 estimated a revenue of L. 9,500 million and an expenditure of L. 9,100 million, of which L. 3,607 million were to be invested in the national economy.

In 1950 the output of the mineral-extracting industry was 274·4% higher than in 1938 and that of the processing industry 301·1% higher. As a result of the two-year plan a Stalin textile works was completed at Fieri with a planned yearly production of 20 million m. of cotton fabric which would supply all the country's needs. A Lenin hydro-electric power station started production, supplying the capital with ten times more electricity and four times more water than in 1949. Production of crude oil in 1950 at Kuçovë and elsewhere was estimated at 150,000 metric tons. The crude oil was conveyed by pipeline to the port of Valona (Vlonë) and thence by Soviet tankers to refineries at Constanţa or Batumi.

Projects under the five-year plan included the construction of an oil refinery at Valona, of a metallurgical combine, and a hydro-electric power station on the river Mati with a yearly production capacity of 100 million kwh.

Eastern Germany. Walter Ulbricht, deputy premier, in a speech to the People's Chamber on Oct. 31, presented a five-year plan according to which metallurgical enterprises in Eastern Germany were to produce 253·6% more by 1955 than in 1950, the precision-instrument and optical industries 238·9% more, the chemical industry 204·4%, and the building material industry 209·8% more. The total value of industrial production was to increase between 1950 and 1955 from DM.(Ost.) 23,400 million to DM.(Ost.) 45,000 million. Objectives for 1955 included the production of 2 million tons of pig iron and 3·1 million tons of steel. The shipyards of Rostock, Warnemünde and Stralsund were to build 59 ocean-going steamers, 81 smaller vessels and many fishing boats. The first blast furnace of a new iron and steel combine at Fürstenberg-on-Oder started production on Sept. 19.

Satellites' Role in Soviet Economy. From such details as have been summarized above emerges a picture of strenuous effort and notable achievement, of great sacrifices and puzzling haste. That it was possible to exhort such vast contributions to capital investment out of nations who were never rich was sufficiently remarkable. To express these amounts in pounds sterling at official exchange rates must obviously be misleading because for the satellite countries as well as for the Soviet Union the rates were artificially high and much above the real purchasing value of the respective currencies. Even with this reservation, capital investments were on an important scale and the results achieved spoke for themselves.

The Soviet government's interest in the industrialization of its European satellites, and the whole purpose of eastern European planning, as directed by the Council of Mutual Economic Aid, was not to raise but to lower the satellites' standards of living to the Soviet level, not to increase the economic independence of the subjected nations but to create as great a dependence on Soviet raw materials, finance and distribution machinery as possible. The hastening of industrialization in Soviet-dominated Europe involved no political dangers, for the decision to start the long-term plans had been taken, probably at the end of 1948 when all Soviet hopes of seizing Western Germany without war had faded, when the Communist-controlled régimes were strong enough and sufficiently purged of national-deviationist elements to eliminate any such threat. As the Ruhr remained under the control of the west, it was imperative to build up an "eastern Ruhr." The Donets industrial basin was too far behind the Iron Curtain, which Soviet strategists regarded as a potential front. The Soviet railway system was inadequate and already overworked.

SATELLITES' ROLE IN SOVIET ECONOMY (1951)

Countries	Coal (Million metric tons)	Lignite (Million metric tons)	Crude Oil ('000 metric tons)	Electricity (Million kwh.)	Crude Steel ('000 metric tons)
Poland	81·7	5	194	10,380	2,775
Czechoslovakia	17·2	28	60	9,100	3,300
Eastern Germany	2·5	132	—	21,080	1,750
Hungary	1·1	12	660	2,300	1,200
Rumania	2·9	3	6,530	1,100	600
Bulgaria	0·3	4	—	1,000	—
Total satellite contribution	105·7	184	7,444	44,960	9,625
	159·7*				
Soviet production	285·1		42,112	98,838	31,740

* As Soviet coal production included lignite or brown coal, the table includes lignite also in the satellites' production. It was not known what coefficient was used for converting Soviet lignite into the thermic equivalent of coal. The coefficients used for the satellites are as follows (quantities of lignite per ton of coal): Eastern Germany 4·5, Czechoslovakia 1·7, other countries 3.

In 1951 for every 100 metric tons of coal produced by the Soviet Union, the European satellites added 56 tons to the pool, for every 100 kwh. of electric power generated in the Soviet Union the satellites produced 45·4 kwh., and for every 100 tons of steel they added 30·4 tons. The fact that between 1940 and 1950 industrial production in the Asian regions of the Soviet Union had increased and that, since 1945, militarily and industrially the Soviet government had assumed great responsibilities in Asia enhanced the economic importance of the European satellites. These alone were producing 110 tons of coal and 61 tons of steel for every 100 tons of each produced in the U.S.S.R. west of the Urals. To the 7,444,000-ton total of crude oil given in the table must be added 2·5 million tons extracted in the Soviet zone of Austria at Zistersdorf, 150,000 tons from Albania and of synthetic oil about 1 million tons produced in Eastern Germany and about 200,000 tons from Czechoslovakia. Thus, for every 100 tons of Soviet crude oil the satellites added 26·9 tons. Against 100 tons of crude oil produced by the European part of the Soviet Union alone they were contributing 51·3 tons. (*See* also COUNCIL FOR MUTUAL ECONOMIC AID.) (K. SM.)

EASTERN ORTHODOX CHURCHES: *see* ORTHODOX EASTERN CHURCHES.

ECONOMIC CO-OPERATION ADMINISTRATION (E.C.A.): *see* EUROPEAN RECOVERY PROGRAMME.

ECUADOR. Republic on the west coast of South America, straddling the equator, bounded N. and E. by Colombia and E. and S. by Peru. Area: 104,510 sq.mi. (including the Galápagos Islands, 3,029 sq.mi.). Pop. (1950 census prelim. fig.): 3,076,933, incl. *c.* 60% Indians, 30% *mestizos* (mixed blood), 9% whites, and 1% Negroes. Language: Spanish, but Indians speak Quechua and Jibaro. Religion: mainly Roman Catholic. Chief towns: Quito (cap., pop. 1947 census, 200,185); Guayaquil (the main port, 235,000); Cuenca (53,520). President, Galo Plaza Lasso (*q.v.*).

History. President Plaza's term was to expire in 1952, and political activity during 1951 in part reflected attempts of the political parties to prepare for the election of his successor. In June the Socialist party announced the formal termination of its opposition to the Plaza administration, paving the way for a broadened anti-Conservative coalition likely to emerge for the 1952 elections. Following the Socialists' action, Plaza reorganized his cabinet to include in it two Socialists, one Radical Liberal, one member of his own National Civic Democratic movement and four Independents.

In May President Harry S. Truman invited President Plaza to visit the United States, which he did from June 20 to 30. While he was in Washington, Plaza received assurances of additional U.S. aid in repairing the damage done by the disastrous earthquake of 1949, and also was given a pledge of more Point Four assistance for his country. In New York, Plaza addressed the U.N. general assembly. On the way back to Ecuador, he visited Mexico and Venezuela.

Ecuador's century-old border dispute with Peru was reopened in August when the Quito government charged that between Aug. 8 and 15 Peruvian forces launched ten small attacks against the Ecuadorian border province of Santiago-Zamora. The charges were denied at Lima, and the matter was referred to the United States, Argentina, Brazil and Chile, the four states which had mediated in the 1941 Peruvian-Ecuadorian border war. A mediation conference was called for Aug. 29; when that parley opened at Rio de Janeiro, the frontier skirmishes had ceased and no further action was deemed necessary.

The publication on March 2 of the preliminary figures of the 1950 census was an event of some importance for the republic: the statistics represented the initial result of the very first nation-wide census ever taken there since Ecuador established its independence in 1830. (G. I. B.)

Education. Primary schools (1949-50): state 2,544, pupils 225,571; municipal 390, pupils 34,222; private (mostly Roman Catholic) 357, pupils 61,138. Secondary, state 73, pupils 16,999; municipal 11, pupils 2,515; private 72, pupils 7,882. Institutions of higher education including four state universities (with 4,512 students), the Catholic university of Quito (164) and the polytechnical school (58).

Agriculture. Principal export crops (1950-51): cacao 30,707 short tons; coffee 210,000 bags (of 132 lb.); rice (paddy) 149,000 short tons. There were 1,600,000 cattle and 1,800,000 sheep in 1949.

Industry. The most important manufacturing activity was the textile industry, which produced cotton (principally), silk, woollen and rayon textiles. The manufacture of *toquilla* (Panama) hats was also important. Cement production in 1950 was 63,516 short tons. Mineral production (1950): gold 83,071 fine ounces; silver 273,200 fine ounces; copper 1,160,000 lb.; lead 496,000 lb.; petroleum 2,632,266 bbl.

Foreign Trade. (1950) Exports (Ecuadoran ports only) $63·3 million, imports $42·3 million. Chief exports: coffee (30%), cacao (29%), rice (13%) and bananas (12%). Leading customers: U.S. (55%), Italy (8%), Peru (8%). Leading suppliers: U.S. (67%), Belgium (7%), U.K. (6%), Germany (5%).

Transport and Communications. Railways (1949): 698 mi. Roads (1947): 1,591 mi. of main roads and 1,121 mi. of branch roads. In 1948 there were 2,921 cars, 4,245 lorries and 945 buses. Wireless sets (1951): 45,000.

Finance. Budget (million sucres): (1950 actual) revenue 679·6, expenditure 669·8; (1951 est.) balanced at 470; (1952 est.) balanced at 465. National debt (June 1951): foreign, U.S $42·6 million; internal, 141·9 million sucres. Currency circulation (Sept. 1951): 453 million sucres. Monetary unit: *sucre* with an official exchange rate of 37·80 sucres to the £ and 13·50 to the U.S. $. (J. W. MW.)

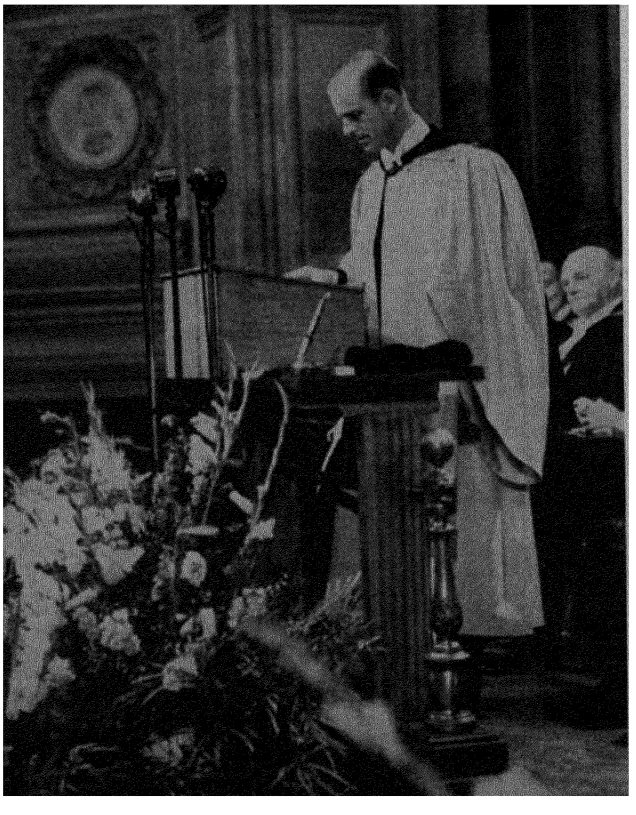
EDEN, (ROBERT) ANTHONY, British statesman (b. Windlestone hall, near Bishop Auckland, Durham, June 12, 1897), was educated at Eton college and, after service in World War I, at Christ Church, Oxford, where he took a first class honours degree in Oriental languages. He had won the M.C. with the King's Royal Rifle corps. In 1922 he unsuccessfully contested Spennymoor, Durham, but was elected to the House of Commons for Warwick and Leamington in 1923 and has held the seat since. From 1926 to 1929 he was parliamentary private secretary to Sir Austen Chamberlain, the foreign secretary, and in 1931 became under secretary of state for foreign affairs. He was made lord privy seal in 1934 and minister for League of Nations affairs a year later. After visiting Hitler in Berlin with Sir John Simon, then foreign secretary, he went on to Warsaw, Prague and Moscow to discuss an eastern European pact and was one of the first leading western statesmen to meet Joseph Stalin, on whom he was reported to have made a most favourable impression.

When Sir Samuel Hoare resigned over the Hoare-Laval pact in Dec. 1935, Eden became foreign secretary. He resigned in Feb. 1938 because of disagreement with Neville Chamberlain's policy towards Italy. On the outbreak of World War II Eden returned to the government as dominions secretary and when Winston Churchill became prime minister in 1940 he was appointed secretary of state for war. Later in 1940 he became foreign secretary. He led the British delegation to the San Francisco conference in 1945 which adopted the United Nations charter. He had become in 1942 leader of the House of Commons and the strain of the two appointments and the war years led to an illness in 1945 which prevented his taking part in the election campaign in his constituency, but he did make one broadcast for the Conservatives. After the election, in which the Conservatives were defeated, he became deputy leader of the opposition. He toured Canada, New Zealand, Australia, Malaya, India and Pakistan, Jan. 21-March 30, 1949, and visited Canada and the United States, Aug. 1-29, 1951. He was appointed deputy prime minister and foreign secretary in Churchill's

government of Oct. 1951. He had become chancellor of Birmingham university in 1945.

Eden's marriage to Beatrice Helen Beckett (1923) was dissolved in 1950. They had two sons of whom the elder, Simon, was killed while serving with the R.A.F. in Burma, 1945. (R. JA.)

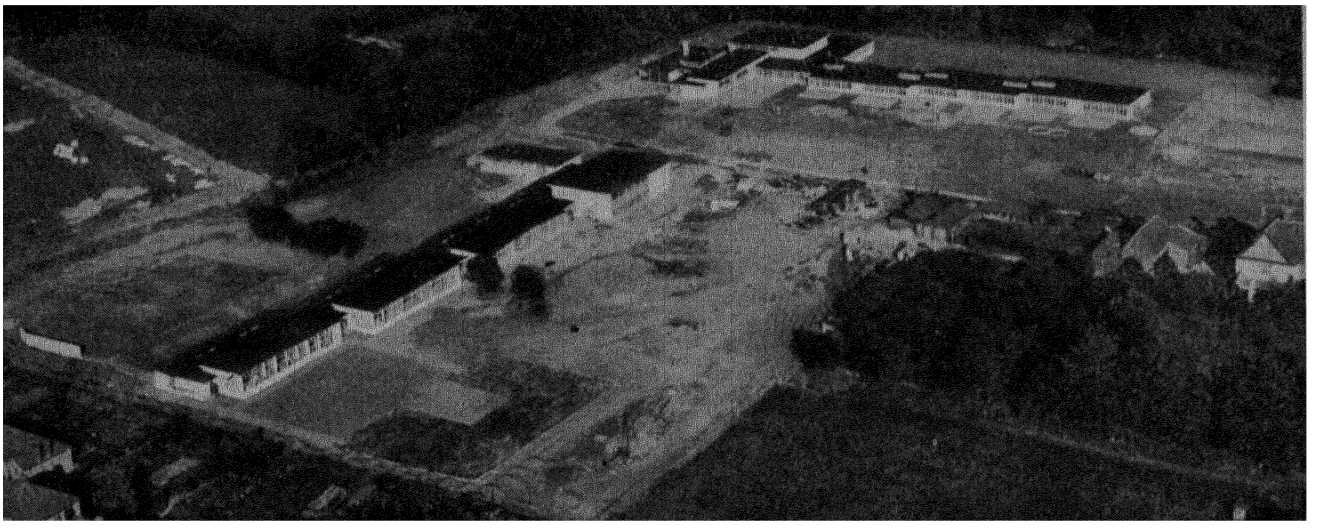
EDINBURGH, DUKE OF (PRINCE PHILIP, DUKE OF EDINBURGH, EARL OF MERIONETH AND BARON GREENWICH, b. Corfu, Greece, June 10, 1921). The son of Prince Andrew of Greece, he was educated at a preparatory school at Cheam, Surrey, and at Kurt Hahn's school at Gordonstoun, Scotland. He joined the Royal Naval college, Dartmouth, as a cadet in 1939 and served throughout World War II in the Royal Navy. He was mentioned in despatches after the battle of Cape Matapan, 1941, and took part in the Sicily landings, 1943. He became a British subject in March 1947, renouncing his right of succession to the Greek throne—he was fifth in line—and his title. He took his mother's family name and was known as Lieutenant Philip Mountbatten. On July 9, 1947, his betrothal to Princess Elizabeth (*q.v.*), heiress presumptive to the British throne, was announced and they were married on Nov. 20. His titles and the right to the prefix " his royal highness " were conferred by King George VI on the eve of the wedding. He proceeded to share fully in the public life of the royal family, but resumed his seagoing naval career in Aug. 1949 as first lieutenant of the destroyer " Chequers " in the Mediterranean, and took command of the frigate " Magpie " in Sept. 1950. He was granted indefinite leave from the navy in July 1951. He was installed chancellor of the University of Wales (April 28, 1949), opened Gibraltar's new legislative council (Nov. 23, 1950) and inaugurated at Edinburgh, as president, the 113th meeting of the British Association for the Advancement of Science on Aug. 8, 1951. In October and early November he toured Canada and visited Washington with Princess Elizabeth.



The Duke of Edinburgh, wearing the robes of doctor of laws of Edinburgh university, delivering his presidential address to the British Association for the Advancement of Science, Edinburgh, Aug. 8, 1951.

EDUCATION. United Kingdom. It would be idle to pretend that in a material sense 1951 was a good year in the field of education; the times were out of joint and educationists had to accustom themselves to the economic consequences of rearmament. The prevailing mood was not one of pessimism but rather that of Seneca, the good stoic, when he said: " The good things which belong to prosperity are to be wished, but the good things that belong to adversity are to be admired." It was a disappointment to educationists, however, that the new minister of education, Florence Horsbrugh, appointed in November, was excluded from the cabinet. If therefore the high hopes of 1944 had in some measure to be set aside, there was no slackening of the resolve to make the Education act of that year a living reality. Recognizing that for the present they had to be content with a restricted building programme, education authorities tended to seek progress in other directions. Now that there had been some definite experience of the operation of the act, it became possible to examine critically the trends and tendencies that it had stimulated and to consider whether development was along the right road. There was therefore a good deal of mental stock-taking and something like an audit of the educational balance sheet.

By recalling past achievement the Festival of Britain (*q.v.*) encouraged this reflective mood. There were educational exhibitions in various localities that recalled the history of schools during the previous 100 years and helped to distinguish the good and the bad in British educational tradition. Some of the earlier training colleges, such as those at Westminster and Derby, celebrated their centenaries. F. C. Pritchard's *Story of Westminster College, 1851-1951* was an essay on the theme " Respice et Prospice," recalling the past but in a modern spirit reaching out also to things that were to come. Bookshelves bore witness to this tendency to study the history of British education constructively; for among additions were books like W. F. Connell's *Educational Thought and Influence of Matthew Arnold*, which gave not only an admirable portrait of one of England's greatest educators but was also essentially a tract for the times. Another interesting addition was T. L. Jarman's *Landmarks in the History of Education*, for he concluded his scholarly retrospect with a sharp criticism of contemporary trends, deploring especially " the vast multiplication of committees." The year was also remarkable for the large number of retrospective lectures about education, and of these the most notable was that given by the Duke of Edinburgh as president of the British Association (*see* SOCIETIES, LEARNED AND PROFESSIONAL). Taking as his theme " The British Contribution to Science and Technology in the past hundred years," he focused attention on one of the great educational issues of the time. " Possibly the most vital factor affecting the industrial application of scientific research," he declared, " is the lack of a co-ordinated system of scientific and technological education in this country. Excellent as they are, the existing institutions, which have grown up to meet particular circumstances, do not produce anything like enough trained technologists to meet the urgent needs of scientific development in industry and to provide leaders for the future. It is to be hoped that the new and rather uncertain science of education will develop sufficiently quickly to point the way to a speedy solution of this problem." Among the more ambitious series of lectures arranged during the festival year was a course at King's college, London, during which leading educationists attempted a revaluation of the great educators of the 19th



An aerial photograph of Marylands schools, the first pair of primary schools built in Adeyfield neighbourhood unit of the Hemel Hempstead new town, Hertfordshire.

century; a lecture by Sir Philip Morris in this series recalled the English tradition in education. It was felt that these many excursions into the past might strengthen the sense of perspective of those concerned with education and help them as they proceeded with the adaptation of the traditional British educational system to the requirements of modern society; for such a task the vision both of the present and the past was certainly needed. Educationists needed to prove all new theories and to hold fast to whatever was good in their heritage.

The Ministry of Education itself celebrated an anniversary, for it devoted its annual report to a survey of central administration in the period 1900-50. The Board of Education came into being in 1900, and this survey was a storehouse of historical information of a kind not otherwise readily obtainable. In his foreword the minister described it as " the story of a progressive partnership between the central department, the local education authorities and the teachers." This emphasis on the value of administration by partnership was expected to help to reassure those who feared that the immense powers assigned to the minister by the Education act of 1944 would lead to excessive direction and control; and it is good to find the minister rejoicing " that the department has traditionally valued the life of institutions more highly than system and has been zealous for the freedom of schools and teachers." If the Education act continued to be administered in a spirit of partnership for a generation, there was reasonable hope that a synthesis of order and liberty would become too firmly established to be smashed by a strong-willed, misguided minister.

It was appreciated in 1944 that one of the major problems would be that of finding the teachers: " It is not merely a larger number of teachers that will be required," R. A. Butler said at the time, " it depends almost entirely upon the quality of those who staff the schools whether the reforms proposed will be merely administrative reforms or whether they will, in practice, work out as real educational reforms." Later, in pursuance of the McNair report, a national advisory council was set up to keep a vigilant eye on this vital issue; and its first report on the " Training and Supply of Teachers " appeared during 1951. It was a document of only 23 pages, but its importance for the future of education could hardly be exaggerated. For it gave warning in plain words, supported by convincing facts and figures, of the urgent necessity for more teachers and for teachers suitably qualified for the various branches of education. It expressed concern about standards, saying that it was at least doubtful whether the quality of the new entrants was " good enough to maintain the present level of quality of the whole body of graduate teachers in grammar schools." The shortage of well-qualified teachers of mathematics and science had become a source of anxiety in the industrial world; there was a growing realization by leaders of industry that unless the standard of teaching in these subjects was maintained in schools the country could not hope to hold its own in the technological field. There was thus an important dilemma in the disposition of technical personnel that had to be resolved; if industry and the scientific branches of government continued to absorb an undue share of the better mathematicians and scientists they would dry up the supply of them at the source, that is to say in the schools and technical colleges. It was to some extent a question of relative remuneration, and in that respect constituted a difficult problem for the Burnham committee.

The over-all impression was one of growing appreciation by parents of the value of good education. There was considerable evidence of an increasing interest in child development, and as a consequence of parents' associations and other media of information much knowledge about the psychology and physiology of childhood and adolescence, translated into simple terms, found its way into many homes. The long period of fuller employment from 1939 onwards enabled parents to think of their children's schooling without regard to the necessity for premature wage-earning. There had been some criticism of parents who withdrew their children from the secondary school before the completion of the normal course; the most impressive feature, however, was the demand for admission to the grammar schools. One reason for this was the delay, because of economic conditions, in the provision of the new secondary schools envisaged in the development plans prepared in compliance with the Education act, 1944. In areas where adequate alternatives were not yet available this competitive struggle for entry into the grammar schools was likely to continue. As a result, parents of the higher income groups, often at considerable sacrifice, were sending their children to independent schools, but for parents who could not afford this alternative there was no such solution of the dilemma. The absence of well-provided alternatives to the grammar school constituted for them a denial of the gospel of equality of opportunity so fervently proclaimed when the Education act was framed. (W. O. L. S.)



Some of the 150 boys who started at Woolverstone Hall, near Ipswich, Suffolk, in Sept. 1951. The school, run by the London County council, opened in Sept. 1951 as a secondary boarding school. It would eventually accommodate 300 boys.

England and Wales. In Nov. 1950 the Durham County council threatened to dismiss any of its employees who were not members of a trade union or professional organization. The National Union of Teachers protested on behalf of its members and, failing to obtain satisfaction, in April 1951 made arrangements for them to resign from their posts. At this point the minister of education intervened with an order to the Durham authority to rescind its decision. For a while the council resisted, but finally gave way. In August, the teachers' representatives complained to the minister of education that the authority was still operating the "closed shop" policy by insisting that applications for special leave or extension of sick leave benefit should be submitted through the employee's organization.

The first report of the National Advisory Council on the Training and Supply of Teachers, published in May, showed the number of teachers in maintained and assisted primary and secondary schools in 1950 to be 209,000. It estimated that by 1954, owing to the increased birthrate, 229,500 would be required to maintain 1950 staffing standards. To meet the needs of the secondary schools, one-third of each year's output of arts and science graduates from the universities would be required. The supply of mathematics and science graduates had been insufficient, and there was a shortage of women teachers. In January the minister of education approved the Burnham committee's recommendations on salaries for teachers in maintained and aided schools. In March the first exchange of posts took place between a Ministry of Education official and a member of the staff of a local education authority (Birmingham). The exchange was for 12 months. In April the president, ex-president and general secretary of the National Union of Teachers, at the invitation of the Soviet Teachers' union, paid a ten-day visit to the U.S.S.R.

In August the Ministry of Education issued the substance of two reports prepared by the Ministry of Education sub-committee of the Local Government Manpower committee. The sub-committee's main objective was to simplify the methods of departmental supervision over local government activities, to reduce the need for and the extent of such supervision and to ensure that, wherever possible, a greater measure of responsibility rested on local authorities. The reports listed certain "key-points of control" necessary for the minister's performance of his duties, and the changes in existing procedure that would result from their establishment.

In April King George's Jubilee trust held a conference attended by almost all the leaders of the youth service in the United Kingdom to discuss the principles on which the service was based and improvement in its practice. It was announced in September that a small "pilot" experiment in the use of television in schools was being planned by the B.B.C. and the School Broadcasting council. This would be followed by a "main" experiment a year later. The number of schools registered as making regular use of school broadcasts in 1951 was 22,411 compared with 20,192 in 1950. The first progress report of the Education Foundation for Visual Aids, set up in 1948, was published in October.

In November, the minister of education stated in parliament that, between Oct. 1945 and Oct. 1951 649 new schools had been completed and 610,215 new school places brought into use; and that 18,616 new full-time students entered

universities and university colleges in England and Wales in Oct. 1951.

The approach of the general election in October, coupled with the rapidly rising costs of educational building and equipment, revived once more the controversy over the provision of state funds for denominational, and particularly Roman Catholic, schools. The delicately balanced settlement incorporated in the Education act, 1944, though generally accepted by all other denominations, had not been endorsed by the Roman Catholic hierarchy and at the time of the elections church voices were raised both for and against revision of the Act. The political parties, however, refrained from promises designed to capture the Catholic vote, and the matter never became a serious election issue. Almost the only public criticism of Winston Churchill's new Conservative administration was directed against the omission of his minister of education, Florence Horsbrugh, from the cabinet—the first time such an omission had occurred for at least a quarter of a century.

Scotland. Some 800 pupils from 20 Glasgow schools took part in summer visits to Belgium, France, Scandinavia and Switzerland, up to half their expenses being paid by the Education committee.

Northern Ireland. New salary scales for teachers, effective from April 1, were approved by the ministers of education and finance. For assistants in primary and secondary schools five scales were arranged, for two-year, three-year, and four-year trained teachers, graduates and honours graduates respectively. Scale I was the salary range £360-£675 (men) or £315-£555 (women), scale V £451-£850 (men) or £385-£680 (women). Like the English scales, these provided allowances for posts of special responsibility. These ranged from £40 to £150. The scales meant broadly an increase of 20% on teachers' salaries.

Australia. Scotch college, Melbourne, one of the largest boys' schools in the British Commonwealth, celebrated its centenary on Oct. 6.

New Zealand. The annual meeting of the New Zealand Educational institute in the summer requested the minister of education to set up a consultative committee " to recommend an equitable system of appointments." The existing grading system, adopted in 1920 to get rid of " wire-pulling " and injustices, had been repeatedly condemned by visiting educationists, but teachers were unwilling to abandon it until they were sure that better methods of promotion could be devised.

South Africa. The appeal court at Bloemfontein reversed the decision (of 1950) of the Supreme court in Pretoria which established the right of Transvaal parents to choose the language of primary instruction for their children in private schools. The chief justice stated that in his opinion the Transvaal Education Amendment ordinance, 1949, did not contravene the South African act, and that the state had the right not only to compel parents to educate their children but also to prescribe how they should be educated. The decision provoked the criticism that it empowered the state to order attendance at Afrikaans-medium schools, all of which inculcated " Christian-National " doctrines likened by those outside the three Afrikaans churches to Hitler's National Socialist teaching.

On Aug. 28, the minister of education opened three state schools for physically handicapped children near Kimberley. They were the first of their kind in South Africa. A contracted Braille system in Zulu for blind native children was almost completed by the end of the year.

Malaya. The report, published in August, of the committee appointed by the high commissioner to enquire into the future development of education in Malaya recommended the abolition of separate vernacular schools for the country's different racial communities and the substitution of a single type of primary school purposely used to build up a common Malayan nationality. This would be known as the " national school " and would provide a free six-year course for pupils aged 6-12 aiming at effective literacy in Malay and English by the end of the course. The report also urged the creation of local education authorities to link school and community.

Albania. It was reported in March that all curricula and textbooks in the schools were completely based on Soviet methods and experience.

Bulgaria. In January the State Planning commission's report on 1950 said that 69·3% more young people had finished high school education than in 1949, and that the number of students attending specialist and trade schools was 24 times greater. The number finishing their examinations in these schools was 16,700, or 14% greater than in 1949; in technical and factory schools it was 47% greater. The number of elementary schools had increased from 7,700 in 1944 to 8,400 in 1950, and of secondary schools from 134 to 218. Kindergartens had increased from 1,092 to 4,500. Special attention was given to minority schools: the number for the Turkish minority had risen from 420 to 1,200.

In March it was announced that owing to the shortage of paper the publication of school books would be considerably decreased.

Czechoslovakia. In February, as part of the new school order, each pupil was issued with a book setting out 16 rules of behaviour. The book was to contain pupils' pledges, accounts of his work at school and home, quarterly reports by teachers, praise and punishments, and correspondence between teachers and parents.

Finland. In February comment was made on the acute shortage of competent secondary school teachers. This was attributed to shortage of buildings, increase in the number of pupils and unsatisfactory salaries, and the opinion was expressed that the shortage would grow worse. In the same month, the elementary school teachers' association threatened to strike, along with civil servants and municipal workers, unless the question of their salaries received a just solution. A motion proposing that the publication of school text books and educational equipment should be taken over by the state was tabled in the Diet and approved by the Cultural Affairs committee.

France. The long-standing controversy over state support for confessional schools played a large part in the cabinet crisis which lasted the greater part of the summer. After many weeks during which a succession of ministers tried unsuccessfully to form a government, René Pleven received a vote of confidence after outlining a compromise plan. This provided for an increase in state scholarships to secondary schools from £1,760,000 to £2,610,000 and made them tenable at state or church schools according to parental choice. A second proposal was for a subsidy of Fr. 300 a month to parents of children at school, the subsidy being paid not to the parent but to an equipment fund in the case of children attending a state school or to the school itself in the case of children at a confessional school. Both proposals eventually passed into law but only after prolonged and bitter debate. In protest, a token strike was called of nursery and primary school teachers on Nov. 9. Earlier, secondary teachers had conducted a five weeks' strike for higher salaries to the consternation of 25,000 baccalauréat candidates whose scripts remained unmarked. The strike ended on Oct. 25 when the minister confirmed that efforts would be made in 1952 to revise their salaries.

A law promulgated in January required the Board of Education to investigate ways of promoting the study of dialects and languages in the regions where they were still used. It permitted teachers to use these dialects and languages in instructing children and, if required, to give one hour a week

to teaching their grammar and literature, attendance at the lessons being voluntary. The law was restricted to Basque, Breton, Catalan, and Provençal regions.

Hungary. In January the cabinet established a Council for Higher Education, to co-ordinate the activities of institutes of higher education. Also in January the Budapest city council opened 70 study halls in secondary schools for 3,560 children without facilities for study at home.



Vicky's cartoon "Babes in the Wood" which appeared in the "News Chronicle" (London), Dec. 12, 1951, after Florence Horsbrugh, Britain's minister of education, had asked for a 5% cut in education estimates.

The minister of education, Jozsef Darvas, in January attributed the unsatisfactory state of education to lack of central direction by the head master of each school, of political and professional knowledge in the teachers, an incorrect balance between educational and political work among students, shortcomings in the Union of Working Youth (DISZ), the teachers' trade union and the Ministry of Education, and a wrong conception of learning among parents. Among the measures he prescribed were the reporting of unsatisfactory conditions to the competent authorities by the teachers' union and the establishment of the head master as the sole representative of the administration of education. Among his duties were "the consolidation of state discipline among the teachers and of their political and professional training." Among measures to improve the MHK (Ready to Work and Fight movement) system of physical training introduced (from the U.S.S.R.) in 1949, the youth sports section of the movement's committee, in conjunction with the Ministry of Education, was in February ordered to elaborate within one month a new physical training curriculum, based on MHK, for general, secondary and high schools.

Republic of Ireland. In July the Minister of Education accepted new salary scales recommended by the Conciliation council. An important feature of these was provision for children's allowances.

Israel. It was stated in August that £I 3 million would be spent on building new schools in 1951-52. Immigration and the introduction of compulsory education had made existing premises totally inadequate. The Compulsory Education act led to 25,750 children registering in Israel's Arab schools, three times as many as in 1948. About 15,000 were said to be still evading school.

Italy. A new "children's city" for orphans came into being on the outskirts of Modena as the result of collections among British ex-prisoners of war who had been helped by the local population to elude the Germans after escaping from their camps in 1943. The city honours particularly Don Elio Monari who was deported to Germany and shot for sheltering ex-prisoners.

Netherlands. In July the minister of education proposed to parliament drastic reforms in the educational system, including an additional year of compulsory education, making eight years in all. A ministerial report published in September stated that, of 6,894 primary schools, 1,043 were using modern methods. Among them were 45 Montessori schools, 18 Dalton Plan schools, 451 with a special task system and 324 in which education was grouped around centres of interest.

In January the *Werkplaats*, the well-known progressive school at Bilthoven, founded and run by Kees Boeke, celebrated its silver jubilee. Among the pupils were Queen Juliana's four daughters.

Poland. In February it was reported that an international academy of Islamic culture had been set up, to unite the Moslem scholars of the world, spread education, establish research centres, open libraries and set up an international Moslem university in Europe. The Economic Plan and Budget committee reported in March that expenditure on education and culture in 1951-52 was to be 5·7% greater than in the previous year, totalling nearly 14% of budget expenditure. Expenditure on higher education was to be 17% higher. In March the claim was made that "the principle of universal education was realized for the first time in Polish history in the school year 1950-51."

Rumania. For the first time correspondence courses were started to enable working people to improve their qualifications. Among the students were people being trained as teachers of physics and mathematics for elementary and middle schools. The first middle school of popular art was opened in Bucharest. Its curriculum included a course in Marxist-Leninist aesthetics. The first school in the country for mining surveyors was opened at Baia Mare.

Spain. In his New Year message General Franco (*q.v.*) claimed that 4,000 new schools had been set up in 1950.

Sweden. New salary scales for teachers were introduced in Jan. 1951. For the ordinary teacher the range was £700-£950, for the better teachers £950-£1,200. Teachers in the far north received additional allowances. The scales covered nine years, with increments every third year.

Turkey. In January the minister of education announced the adoption of severe measures to cope with extremist tendencies in teachers.

U.S.S.R. In January Serghey Kaftanov, minister of higher education, stated that at the end of 1950 there were 37 million pupils in 220,000 primary, seven-year, secondary schools and the technical schools and other specialized secondary establishments—4 million more than the target set by the Five-Year plan. There were 1,600,000 teachers—80,000 more than in 1949. According to the figures published in March, 26% of the budget expenditure for 1951-52 was allocated to social and cultural affairs.

Yugoslavia. In January it was stated that 2,400,000 Yugoslavs, 15% of the total population, were attending elementary, secondary, and higher schools. The number of secondary school pupils (440,000) was treble that before the war, and since the introduction of compulsory eight-year schooling the number of children between 7 and 13 attending school had increased considerably.

International. In January U.N.E.S.C.O. announced the first steps taken under the United Nations scheme for technical assistance to under-developed countries. It stated that an authority from Tunisia had arrived in the Lebanon to assist with the organization of research centres for education, and an Indian educationalist had gone to Indonesia to draw up a plan for combating illiteracy. The sixth general conference of U.N.E.S.C.O., held in Paris in June-July, resolved to set up six regional centres to train teachers for

fundamental education in countries with largely illiterate populations. The scheme would take 12 years to complete, at an estimated cost of $20 million. The first centre was opened in May at Patzcuaro, Mexico. At the instance of the United Kingdom delegation U.N.E.S.C.O.'s constitution was amended to admit non-self-governing territories to associate membership. In August, the director general of U.N.E.S.C.O. appealed to governments to co-operate in remedying the shortage of newsprint, stating that it would be impossible to supply books and papers to people learning to read if their number increased by as little as 5%. A U.N.E.S.C.O. seminar on the teaching of history was held at Sèvres, near Paris, and in November 125 teachers from seven countries of southeast Asia attended a six-day seminar in Delhi, organized by U.N.E.S.C.O. and the World Federation of United Nations associations, to study ways of teaching children and adults the ideals behind the United Nations.

Towards the end of the year U.N.E.S.C.O. inaugurated a gift coupon scheme to enable groups of people in Great Britain, France and the United States to present books, films, musical instruments and other educational equipment to needy schools in various parts of the world. A regional conference, similar to that held in Havana in 1950, was held in Bangkok in November and December. Representatives of Afghanistan, Australia, Burma, Ceylon, India, Indonesia, New Zealand, Pakistan, the Philippines and Thailand attended to consider means of strengthening their national commissions and of securing the greatest benefit for their region from the general programme of U.N.E.S.C.O.

In April it was announced that, under the technical co-operation scheme of the Colombo plan, the Australian government had offered 50 scholarships and the Canadian government 25 scholarships and fellowships to the government of India for postgraduate study. A treaty for joint consultation on educational and agricultural matters between the U.S.A. and Chile was signed in January. In September France and Turkey signed an agreement to extend cultural relations.

The Seventh World jamboree took place at Bad Ischl, Austria, in August and was attended by 13,000 boy scouts (*q.v.*). In Berlin, the Communist-sponsored World Festival of Youth made much of processions of young people chanting slogans and bearing portraits of Communist leaders and caricatures of western statesmen. In July the Commission on Educational Organizations of World Brotherhood met in Copenhagen. It considered the implications of anthropology and social psychology upon inter-group behaviour. (H. C. D.; L. WN.)

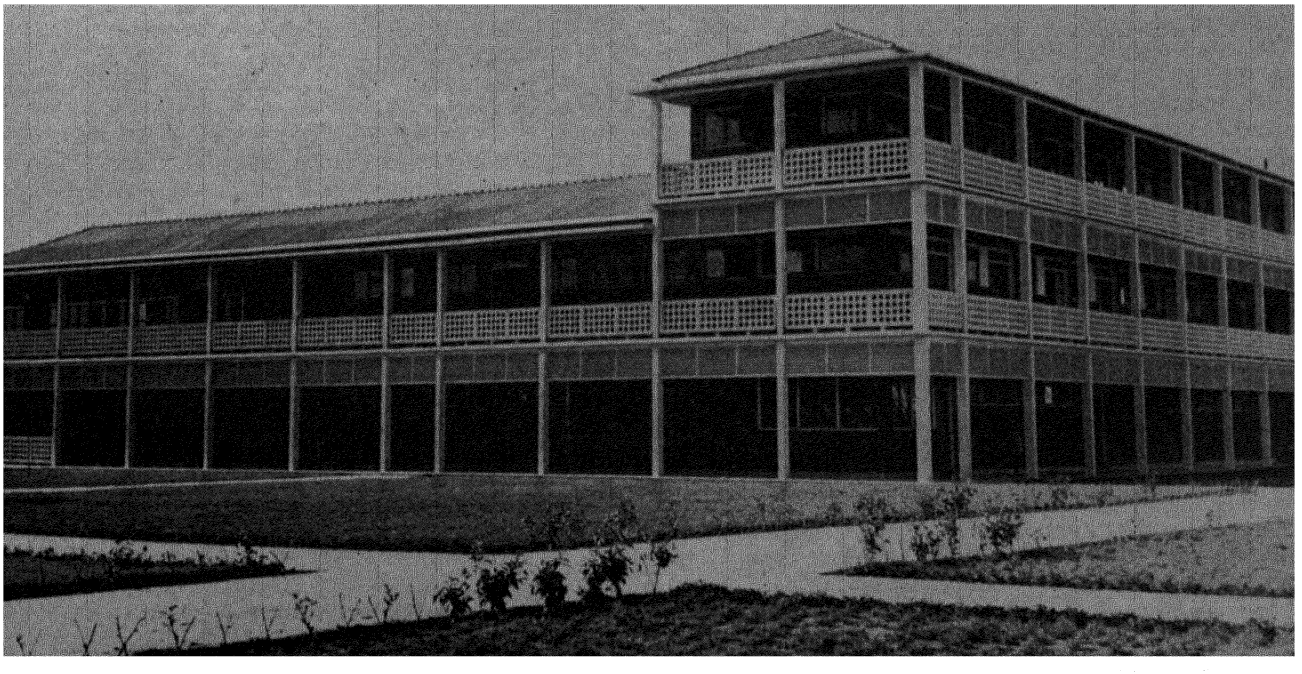
United States. The Office of Education estimated in Sept. 1951 that enrolment in public and private schools was: elementary schools, 24,468,000; high schools, 6,168,000; colleges, 2,225,000; total, 33,121,000, an increase of about 420,000 over 1950. In November an attendance was reported for colleges and universities of 2,116,000 in 1,806 institutions, a drop of 10·8% in male students and of 1·3% in female students below 1950. The number of veteran students declined by 32·1%.

Federal Participation in Education. As he had done in earlier years, President Harry S. Truman reminded congress in January of the need for immediate legislation to provide federal aid to public education but very little action was taken by congress during the year.

Early in November President Truman vetoed a bill authorizing the government to construct and operate schools in communities where federal defence activities caused an excessive burden on school facilities because of a clause which would perpetuate race segregation.

In June congress passed public law 51 to allow high school and college students who were doing well scholastically to be deferred from military service. Aptitude testing up to October of 175,000 students in mathematics, vocabulary and reading comprehension resulted in 37% failing to qualify for exemption.

Higher Education. The knotty question of how to finance colleges and universities again came to the fore in 1951. Inflation and the decline in funds from tuition pointed to curtailment of curricula and reduction of teaching personnel. That no grave crisis ensued was attributed to increased appropriations by municipal and state legislatures, contributions by alumni and other citizens and grants by the Ford foundation and the Twentieth Century fund.



The class-room block of the new buildings of the Wesley girls' secondary school designed by Maxwell Fry at Cape Coast, Gold Coast. The school was completed in 1951.

Considerable public attention was focused upon the revelations regarding the status of intercollegiate athletics. The authorities at the United States Military academy dismissed 90 cadets for cheating in examinations. These students, according to the superintendent of the academy, composed an organized ring of football players and their friends. Another national scandal, in basketball, affected seven colleges in the east and midwest. Basketball players of national repute were arrested for allegedly having accepted money to "fix" results. A wave of criticism emanated from college and lay sources and some institutions announced reforms in the administration of athletics such as the removal of subsidies to athletes and greater stress on intramural than on extramural sports.

Teacher Supply. The annual survey of teacher supply conducted for the National Education association, reported that only 32,000 new elementary school teachers were available for a minimum 80,000 vacancies.

Race and Religion. Early in January the U.S. Supreme court ruled that Louisiana State university, Baton Rouge, must admit Roy S. Wilson, a qualified Negro student, to its law school. In October the same court ordered the university to permit Negro students to study in the school of nursing.

The fact that the federal district court of Tennessee handed down a decision in April compelling the University of Tennessee, Knoxville, to admit Negroes to its professional schools did not remove the barrier of segregation; it was necessary for four Negro students to submit an appeal in December to the U.S. Supreme court regarding their application for admission to the university. The University of North Carolina, Chapel Hill, announced in April that it would accept its first Negro medical student and in November, after some debate, it allowed Negroes to sit beside white students at football games.

The Office of Education announced the presence of 74,526 students in Negro colleges during 1950, whereas in 1900 there were only 2,624 enrolled.

Communism and Academic Freedom. The dispute which strained relations between the faculty and the board of regents of the University of California over a period of two years was settled by two actions. In October the board voted to discontinue the anti-Communist oath requirement, and in November it defeated an attempt to reconsider the first vote.

The case of the eight teachers in New York city who had been suspended in March 1950 for having refused to say whether they were Communists or not also reached a conclusion. Early in February the board of education unanimously upheld the findings of the special trial examiner, who had recommended at the end of the previous year that these teachers be dismissed.

A survey released in May by the *New York Times* showed that the faculty and students of 72 representative colleges felt that free inquiry was being stifled by the fear of being branded "red" or "pink."

Relations with Other Nations. The Institute of International Education reported in April that there were more than 30,000 students from other countries attending 1,400 U.S. colleges and universities during 1950-51, as compared with the 26,433 in attendance at 1,210 institutions during the previous academic year. An important factor in the rise in such enrolment was the influx for the first time of students from many areas of Asia and Africa. (*See* ADULT EDUCATION; CAMBRIDGE UNIVERSITY; LIBRARIES; LONDON UNIVERSITY; OXFORD UNIVERSITY; TEACHERS, TRAINING OF; UNIVERSITIES AND COLLEGES; VOCATIONAL EDUCATION.) (W. W. BN.)

See *The Idea and Practice of General Education* (Chicago, 1951); *Education 1900-1950* and *Annual Report of the Ministry of Education for 1950* (H.M.S.O., London, 1951).

EGYPT. Independent kingdom of northeast Africa, bounded N. by the Mediterranean, S. by the Anglo-Egyptian Sudan, E. by Israel and the Red sea, W. by Cyrenaica and the Sahara. Area: 386,110 sq.mi. Pop.: (1947 census) 19,087,849; (mid-1950 est.) 20,439,000. Language: mainly Arabic (97%), with minorities speaking Greek, Italian, Armenian, etc. Religion: Moslem (mainly Sunni) 91·4%; Christian (mainly Copts) 8·19%; Jewish 0·4%. Chief towns (pop., 1947 census): Cairo (cap., 2,100,506); Alexandria (925,081); Port Said (178,432); Tanta (139,965); Mahalla el-Kubra (115,509); Suez (108,250); Mansura (102,709). Ruler, King Farouk I; prime minister, Mustafa el-Nahas Pasha.

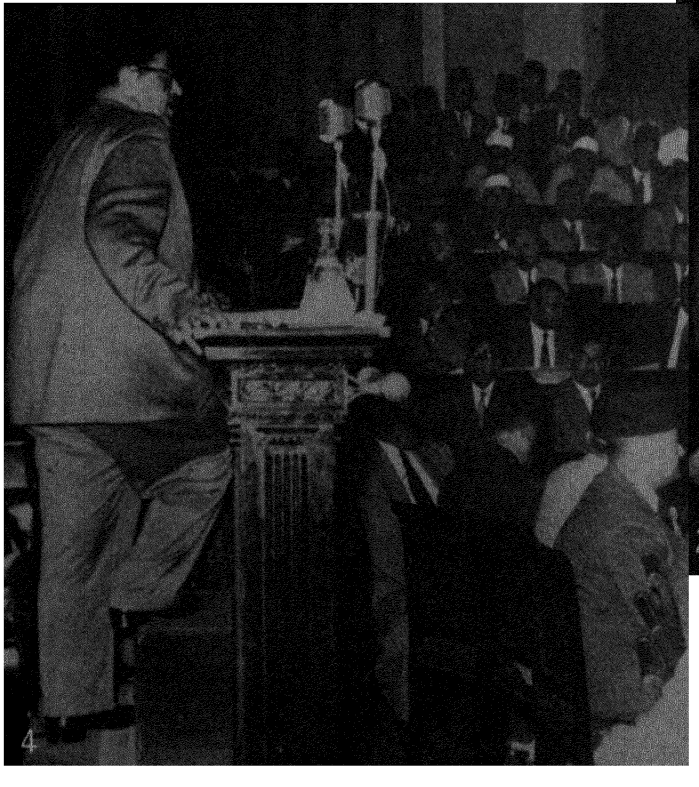
History. The year 1951 was dominated by a catastrophic deterioration in relations with the United Kingdom. The Wafd had negotiated, amid almost complete satisfaction, the agreement of which the Anglo-Egyptian treaty of 1936 was the fruit, and it was this party, under the leadership of Nahas Pasha, which had stood firmly by the Allies during the military crisis of 1942. These circumstances had given rise to the expectation that the return to power of the Wafd in the preceding year would be followed by another satisfactory adjustment of Anglo-Egyptian relations. Early expectations that this might be so were already diminished by the events of the first year of Nahas Pasha's new period of office. The accumulation of internal difficulties, together with the revival of the familiar charges of corruption and political unscrupulousness, once more coincided with an increasingly anti-British tone in official pronouncements.

In Jan. 1951 Egyptian and British naval units took part in joint manoeuvres, and in March land forces of the two countries engaged in joint exercises in the Sinai peninsula. On March 15 a long-term settlement covering the use of Egypt's sterling balances was announced but, when it became apparent that political negotiations were in prospect, the familiar spectacle of anti-British demonstrations made it clear that they would be beset with difficulties. On the British side, the House of Commons, where there was a considerable irritation with Egypt, arising from the latter's policy of restricting the free use of the Suez canal in consequence of the continued official state of war with Israel, expressed anxiety at reports of the British government's intention to withdraw from the Suez canal, and on April 11 the foreign secretary, Herbert Morrison, promised that the house would have an opportunity to veto any agreement that might be arrived at in this connection. On May 1, the Egyptian foreign minister, Mohammed Salah ed-Din, declared that British proposals were inadequate and that Egypt stood by its demand for complete evacuation and the unity of the Nile valley. Egyptian proposals involving the immediate evacuation of the Suez canal were rejected by the United Kingdom on June 9, and feeling was exacerbated when an Egyptian corvette stopped and searched the British supply ship "Empire Roach" in the Gulf of Aqaba. On July 14 British forces in these waters were reinforced, and on July 22 Egypt officially rejected an invitation to attend a conference on African defence. On August 6 Salah ed-Din publicly accused the British government of "closing the door" on further useful discussions and Aug. 26, the 15th anniversary of the signature of the Anglo-Egyptian treaty of 1936, was marked by demonstrations in Cairo which degenerated into rioting. This was notable for attacks on not only the British, but the U.S. embassy.

In August there was a good deal of talk in Egyptian circles of the abrogation of the 1936 treaty and extreme opinion took comfort from the evident embarrassment of the British government in its relations with Persia. The British government attempted to keep negotiations alive, but an important new factor made itself felt when it became known that a proposal to set up a joint middle eastern command had







On May 6, 1951, King Farouk was married in Cairo to Narriman Sadek, daughter of the late Hussein Fahmy Sadek Bey. The bride and bridegroom with members of their families (1), and (2) the official engagement photograph of Narriman Sadek. (3) The monograms of Farouk (left) and Narriman (right) (4) Mohammed Fuad Serag ed-Din Pasha, minister of the interior, announcing in parliament on Oct. 15, 1951, the Egyptian government's decisions to abrogate the 1936 treaty and the 1899 Sudan agreement.

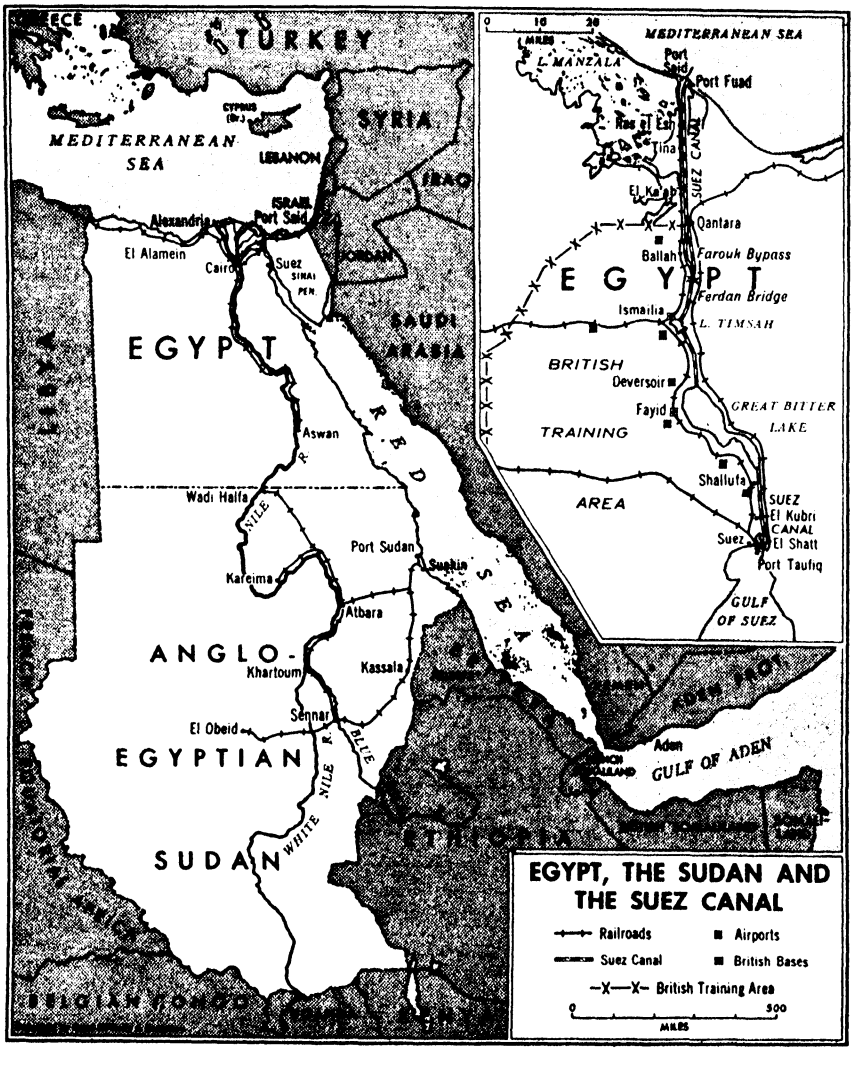
been agreed to in Washington, and that Egypt would shortly be approached to join such a body which would be linked to the North Atlantic treaty organization. On Oct. 8, a matter of days—perhaps even of hours—before the official approach to the Egyptian government in this connection, Nahas Pasha acted unilaterally by tabling decrees in the Chamber of Deputies to approve the abrogation of the 1936 treaty which provided the legal basis for the presence of British troops in the canal zone. At the same time he asked the Egyptian parliament to agree to the abolition of the Anglo-Egyptian condominium over the Sudan, with the proclamation of King Farouk as "King of Egypt and the Sudan." The next day the British government, through the foreign secretary, issued a statement taking the strongest exception to Egypt's action and announcing its intention to adhere to the treaty right by which troops were maintained in Egypt. Morrison declared that the treaty contained no provisions for such a unilateral abrogation of it.

It was possible to hold the view that, had the proposals for a joint command been made some months earlier, there might have been a good prospect of their immediate acceptance, but feeling in Egypt had been steadily mounting and its strength was at once apparent in the renewed popularity of the Wafdist government, a result which may very well have entered into its calculations. It should further be noticed that British opinion during the year was much less detached than during past periods of Anglo-Egyptian friction, nor were the hostile and often unrestrained comments of some sections of the English press upon the conduct and personality of King Farouk without their influence in the creation of ill-will. Another unfamiliar feature in this situation was the outright declarations of support for the United Kingdom which came from both the United States and France.

On Oct. 13 the proposals for joint defence which had been anticipated by Nahas Pasha's action were presented to the Egyptian government by the ambassadors of France, Great Britain, the United States and Turkey. These provided for the creation of a new middle east command in which Egypt would be an equal partner, and the British government indicated that it would agree, if these proposals were accepted, to the supersession of the treaty of 1936 and the immediate surrender of the Suez canal zone to the Egyptian government, on the understanding that it would become an Allied base with full Egyptian participation.

On Oct. 17 a state of emergency was declared, and the British forces in the canal zone, heavily reinforced, began to prepare themselves as for a siege. The canal was kept in full operation, although the decline in the number of Egyptian workers and organized passive resistance caused some embarrassment. On the Egyptian side, the Arab league did not make the immediate rejection of the western military proposals which had been looked for.

Charges and counter-charges were frequent during November, each side standing its ground, and there were some outbreaks of violence involving loss of life, but for the most part the situation remained comparatively calm, a notable feature being the continued close liaison of British and Egyptian armed forces. Bad feeling between the British and the Egyptian police in the affected areas was a major cause of such violence as occurred.



The year was by no means uneventful apart from this dominant theme. On May 6 King Farouk was married, for the second time, to Narriman Sadek, the daughter of a government official. Substantial measures for rearmament were planned and a £6 million social security programme was inaugurated at the end of January. Significant social changes seemed to be indicated when it was announced on Feb. 3 that large areas of reclaimed lands would be distributed in an attempt to create a class of small landowners, and on the following day that the tax on farm land would be doubled. An agitation for equal political rights for women gained considerable support, and in February the police felt obliged to close the doors of parliament to over 1,000 women demonstrators. A royal decree on May 12, appointing replacement for 36 term-expired senators, gave the Wafd a clear majority in that house. (*See* also ANGLO-EGYPTIAN SUDAN; SUEZ CANAL.) (H. S. D.)

Education. Government schools (1948-49): kindergarten 57; primary 327, pupils 100,000; elementary 5,000, pupils 1,000,000; technical 70, pupils 17,136; commercial 17, pupils 5,481; agricultural 13, pupils 2,725; domestic science 15, pupils 1,763. Non-government schools: primary 452; secondary 76. Teachers' training colleges 53, pupils 8,382. Universities 3, students 20,259. Other institutions of higher education 8.



A cartoon by Vicky in the "News Chronicle" (London), May 3, 1951.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): cotton, ginned, 391 (377); maize 1,250 (1,287); wheat 1,167 (1,018); barley 138 (91); millet and sorghum 567; rice, paddy, 1,168 (1,241); sugar, raw value 170 (180); onions 184 (217); potatoes 204 (160); broad beans 321; lentils 47. Livestock ('000 head, March, 1947): cattle 1,321; sheep 1,875; goats 1,474; asses 1,125; horses 28; mules 12; camels 197; buffaloes 1,240; pigs 50; chickens 16,312. Fisheries (1948): total catch 48,350 metric tons.

Industry. Crude oil production ('000 metric tons, 1950; 1951, six months, in brackets) 2,343 (1,170). Raw materials ('000 metric tons, 1948; 1949 in brackets): phosphate rock 377 (350); manganese ore 59 (138); salt 126 (350). Manufactured goods: cotton yarn ('000 metric tons, 1949; 1950, nine months, in brackets) 38·72 (23·28); cotton piece-goods (million sq.m., 1948; 1949 in brackets) 156 (151); cement ('000 metric tons, 1948) 768.

Foreign Trade. (£E million, 1950; 1951, six months, in brackets): imports 196·5 (118·2); exports 175·4 (123·7). Main sources of imports (1950): U.K. 19·4%; France 9·8%; Italy 7·3%; U.S. 5·9%. Main destinations of exports: U.K. 21·7%; India 12·5%; U.S. 8·8%; Italy 8·5%. Main imports: machinery 9·5%; wheat and flour 8·1%; fertilizers 5·9%. Main exports: cotton (raw) 85·4%; rice 4·4%; cotton yarn 1·4%; onions 1·2%.

Transport and Communications. Roads (1947): 8,874 mi. Licensed motor vehicles (Dec. 1950): cars 59,000, commercial 17,000. Egyptian State railways (1949): 5,318 mi. Shipping (merchant vessels of 100 gross tons and over, July 1949): 57; total tonnage 105,462. Telephones (1948): subscribers 98,093. Radio receiving sets (1949): 183,000.

Finance and Banking. Budget (£E million): (1950-51 est.) revenue 178·0, expenditure 206·0; (1951-52 est.) revenue 212·4, expenditure 231·0. National debt (April 1947; April 1948 in brackets): 118·8 (125·0). Currency circulation (Sept. 1950; Sept. 1951 in brackets): 161·2 (177·1). Gold and foreign exchange (million U.S. dollars, April 1950; April 1951 in brackets): 943 (777). Bank deposits (May 1950; May 1951 in brackets): 172·0 (167·3). Monetary unit: Egyptian *pound* with an exchange rate of £E 0·975 to the pound and £E 0·349 to the U.S. dollar.

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EIRE: *see* IRELAND, REPUBLIC OF.

EISENHOWER, DWIGHT DAVID, United States army officer (b. Denison, Texas, Oct. 14, 1890). He graduated from the U.S. Military academy at West Point in 1915 and during World War I served as an instructor, camp commander and commander of tank troops. He graduated later from the Army War college and the Army Industrial college, served in the office of the chief of staff in Washington, and in 1935 saw duty in the Philippines as chief of staff to General Douglas MacArthur. During World War II he was supreme commander of the Allied armies that conquered North Africa and Sicily (1943), invaded Italy (1943), landed in France (1944) and completed the conquest of Germany from the west in 1945. He was made commander of U.S. occupation forces in Germany in 1945 and chief of staff Nov. 20, 1945, retiring from that post, Feb. 7, 1948, to become president of Columbia university. On Dec. 19, 1950, he took leave from Columbia to become supreme Allied commander of the integrated Atlantic treaty forces set up for the defence of western Europe.

He spent much of 1951 organizing both U.S. and European participation in the pact armies, and on April 2 formally assumed command of S.H.A.P.E.—supreme headquarters, Allied powers in Europe—with headquarters near Paris. After touring western Europe early in 1951 he appeared before U.S. congressional committees to report on western European defence measures. He told the committee he would "instantly" use the atomic bomb in any new war if the net advantage were on his side.

Eisenhower was prominently mentioned as a possible presidential candidate for 1952. Elements of both political parties at one time or another sought to claim him, and in various polls it was indicated that he would be a strong contender if nominated.

ELECTIONS. During 1951 general elections were held in Great Britain, Australia, New Zealand and Ireland; in Finland, France, Greece, Luxembourg, Switzerland and Israel. On Oct. 25 the biggest democratic experiment in history began in India when polling started in Himachal Pradesh: returns from all the states of the Union were expected to be completed by the second half of Feb. 1952.

Great Britain. In the general election of Oct. 25, out of the electorate of 34,553,197, 82·6% recorded their votes as against 84% on Feb. 23, 1950. Results, compared with those of 1950, were as follows:

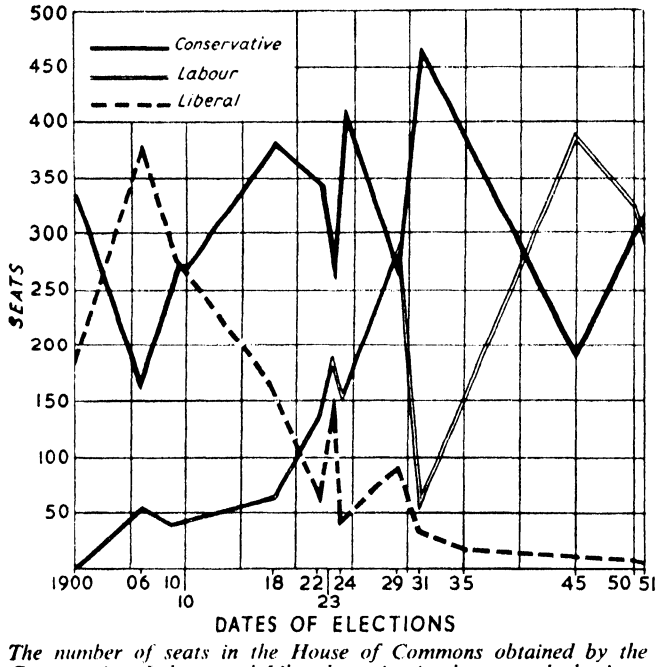
	1951			1950		
Parties	Votes	%	Seats	Votes	%	Seats
Conservative*	13,724,418	48·04	323	12,501,983	43·5	298
Liberal	730,551	2·53	6	2,621,489	9·1	9
Labour	13,948,385	48·73	295	13,295,736	46·4	315
Communist	21,640	0·08	0	91,815	0·3	0
Other	177,329	0·62	1	258,454	0·7	3
Totals	28,602,323		625	28,769,477		625

* Including National Liberals and Liberals and Conservatives.

The Conservative party increased its total vote by 1,222,435 and the Labour party by 652,649. Only 109 candidates were put forward by the Liberal party as against 475 in 1950. The Labour party lost 22 seats, one to a Conservative-Liberal alliance at Bolton West and 21 to Conservatives elsewhere, and in Anglesey and Merioneth gained two seats from the Liberals. Of the 22 constituencies lost by Labour, all but one—Doncaster—had Liberal candidates in 1950: on Oct. 25 only four of the remaining 21 were contested by Liberals. In three of the four—Blackley, Dulwich and Conway—the Liberal vote exceeded the Conservative majorities. In the other 17 constituencies the Liberal vote appeared to have favoured the Conservatives against Labour in the ratio of about 5 to 2. Eight of the 22 seats lost by Labour were won on majorities of less than 500 and 21 on majorities below 2,500.

Of 1,376 candidates 95 forfeited their deposits of £150 by failing to receive one-eighth of the total poll in the respective constituencies: 66 Liberals and all 10 Communist candidates lost their deposits.

Commonwealth. *Australia.* On Dec. 10, 1949, the Conservative-Liberal coalition had been voted into office with a majority of 27 in the House of Representatives. But, owing to the method of election for the Senate, Labour had in the upper house a majority of eight which was used to



The number of seats in the House of Commons obtained by the Conservative, Labour and Liberal parties in the general elections, 1900-1951.

obstruct legislation and the Menzies-Fadden government was eventually compelled to seek a double dissolution. On April 28, 1951, nearly five million Australians voted in a federal election to renew the entire membership of the Commonwealth parliament, that is, 60 senators and 123 members of the House of Representatives, including two members for the Northern and Australian Capital territories.

With the exception of Tasmania, where proportional representation with single transferable vote is used, the Australian states elect their representatives by majority system with alternative vote. The results of the voting for the House of Representatives, as compared with three previous elections, were as follows:

Parties	1943	1946	1949	1951
United Country (Conservative)	9	11	20	17
United Australia (Liberal)	14	17	54	52
Federal Labour	49	43	48	54
Other	3	4	1	0
Totals	75	75	123	123

Senators are elected for six years and members of the lower house for three. Each of the six states voting as a single electorate returns 10 senators under a system of proportional representation with single transferable vote. The new Senate was composed as follows (previous party strength in brackets): United Country and United Australia parties 32 (26), Labour party 28 (34). The Conservative-Liberal coalition saw its majority in the House of Representatives reduced from 27 to 15, but in the Senate it gained a majority of four seats.

At the election to the House of Representatives the Communists, all of whose 22 candidates forfeited their deposits, received 91,411 votes including 81,560 cast in New South Wales.

New Zealand. Seeking a vote of confidence in its handling of a waterfront strike, the National government went to the country when only halfway through its normal term of office, and in so doing increased its majority from 12 to 20. The results of the election on Sept. 1 (by majority system), as compared with the four previous elections, were as follows:

Parties	1938	1943	1946	1949	1951
National (Conservative)	24	34	38	46	50
Labour	54	45	42	34	30
Independents	2	1	0	0	0

There were 1,167,073 European and 38,530 Maori electors, and 80·6% of the total went to the polls. The 30 seats gained by Labour included the four seats allotted to Maoris. The votes polled by the parties were as follows (in brackets, votes polled on Nov. 30, 1949): National 518,721 (515,649), Labour 446,545 (469,766), Communist 476 (3,267), Independents 1,412 (6,450). All six Communist candidates forfeited their deposits.

Ireland. The Republic of Ireland was the only country in Europe to adopt a system of proportional representation with a single transferable vote. At the election of May 30 this system, reproducing the moods of the electorate with almost mathematical exactitude, failed to give a majority to any party. The election was in fact a trial of force between the Fianna Fáil of Eamon De Valera and the Fine Gael of John A. Costello, that is, between two parties broadly Conservative. The results, as compared with those of the election of Feb. 4, 1948, were as follows:

	Seats		First Preference Votes	
Parties	1951	1948	1951	1948
Fianna Fáil (Sons of Destiny)	69	68	616,722	553,917
Fine Gael (Irish Clan)	40	31	343,823	262,202
Clann na Talmhan (Farmers)	6	7	38,872	71,686
Clann na Poblachta (Republicans)	2	10	54,260	173,166
Labour	16	19	151,831	149,089
Independents	14	12	127,529	112,816
Totals	147	147	1,333,037	1,322,876

The government coalition (Fine Gael, Farmers, Republicans and Labour), which combined 67 seats in the previous Dáil, was reduced to 64, but within the coalition the Fine Gael increased its strength by nine seats, mainly at the expense of its allies the Republicans. The Independents continued to hold the balance of power. The only Communist, Michael O'Riordan, chairman of the Irish Workers' league, obtained only 300 votes in southeast Dublin.

Europe. *Finland.* In the general election on July 2-3, the Finnish people demonstrated for the third time since World War II that their country would not be conquered by the Communists from within. The Social Democrats, main opponents of the Communists, displaced the Agrarians as the largest party in the Eduskunta or Diet (200 members); the Communists and their " fellow travellers " of the Finnish Democratic People's league (S.K.D.L.) regained five seats out of 13 they had lost on July 1-2, 1948. The position of the various parties was as follows (results of the previous election in brackets):

Parties	Votes	%	Seats
Conservative	265,188	14·5 (17·1)	28 (33)
Swedish	137,151	7·5 (7·7)	15 (14)
Agrarian	425,747	23·4 (24·2)	51 (56)
People's (Liberal)	102,894	5·6 (3·9)	10 (5)
Social Democratic	479,998	26·4 (26·3)	53 (54)
S.K.D.L. (Communist)	390,647	21·4 (20·0)	43 (38)

Out of some 2,560,000 electors on the register, 73% recorded their votes, as compared with nearly 80% in 1948.

France. On June 17, France went to the polls for the fourth time since the end of World War II but under a revised electoral system.

Except in Greater Paris (the *départements* of Seine and Seine-et-Oise), the elector voted for a list comprising a number of candidates equal to the number of seats to be filled in the constituency. There was only one ballot and the vote was a majority one in the sense that a list, or a group of allied lists, which obtained an absolute majority of the votes cast, was allotted all the seats. If no list or group of allied lists secured a clear majority, the seats were allotted on a proportional basis. In the Greater Paris area proportional representation remained in force. The need to reduce the parliamentary representation of both Communists and

Gaullists was responsible alike for this exception and for the return to the majority vote in the rest of France.

Replacing the 621 deputies of the outgoing National Assembly, the number to be elected was 627, the increase being exclusively in the number of oversea deputies. The election results for metropolitan France, which returned 544 deputies in 103 constituencies, compared with those for 1946, were as follows:

Parties	June 17, 1951 Votes	%	Nov. 10, 1946 Votes	%
Rassemblement du Peuple Français (R.P.F.)	4,134,885	21·7	313,636*	1·6
Conservatives†	2,496,570	13·1	2,465,526	12·8
Mouvement Républicain Populaire (M.R.P.)	2,353,544	12·3	5,058,307	26·4
Rassemblement des Gauches Républicaines‡	2,194,213	11·5	2,381,384	12·4
Socialists	2,764,210	14·5	3,431,954	17·9
Communists	5,038,587	26·5	5,489,288	28·6

* The R.P.F. was formed in April 1947, but at the 1946 election there were lists of the Union Gaulliste in certain constituencies.
† Includes the former Parti Républicain de la Liberté (P.R.L.), the Independent Republicans and the Parti Paysan d'Union Sociale.
‡ Includes the Parti Républicain Radical et Radical-Socialiste and the Union Démocratique et Socialiste de la Résistance (U.D.S.R.).

Out of 24,973,148 electors 78·2% voted, almost exactly the percentage of 1946 (78·1%). From the voting figures for metropolitan France emerge the fact that out of 18,982,009 valid votes cast, 9,173,472 were recorded by the two anti-parliamentarian but mutually hostile movements.

Party labels at the general election and those of *groupes* in the National Assembly do not always correspond. In order to collect more votes many parties conclude electoral alliances, but divide after the election and form their own groups in the assembly. The distribution of seats in the newly elected National Assembly, as compared with that in the old, was as follows:

Groups	New Assembly July 1951	Old Assembly Dec. 1946	Old Assembly May 1951
R.P.F.	121	10	25
P.R.L.	51	38	27
Independent Republicans		28	25
Peasant and Social Action	42	8	30
M.R.P.	94	164	155
U.D.S.R.	16	26	13
Radicals	72	43	46
Socialists	107	101	99
Communists*	106	190	183
Others	18	11	18
Totals	627	619	621

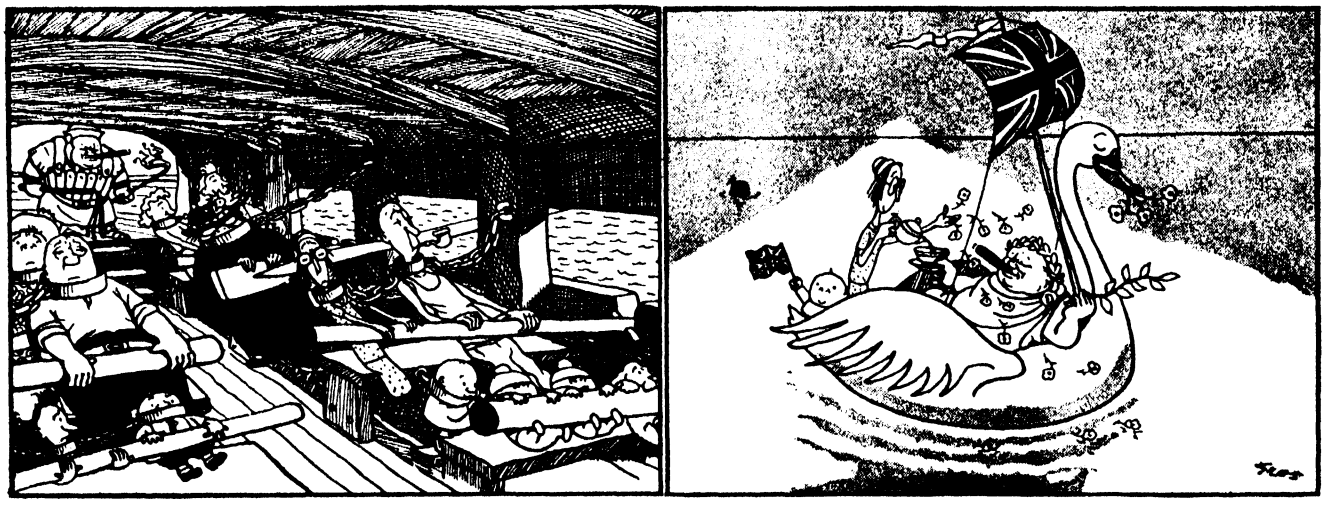
* In the Communist totals are included the deputies of the Communist-controlled groups, the Union des Républicains Progressistes, who were 13 in Dec. 1946, 8 in May 1951 and 4 in July 1951, and the Rassemblement Démocratique Africain, who were 6 in the old assembly and 3 in the new.

Although the Communists lost only 450,701 votes (8·2% of their total vote in 1946), they lost 84 seats (44·2%). The Socialists lost 667,744 votes (19·6%), but, thanks to the electoral law, gained eight seats. Greatest losers were the Christian Democrats, or M.R.P.: their total vote was reduced by 2,704,763 (53·5%), and between 1946 and 1951 they lost 70 seats. Most certainly all their lost votes went to the R.P.F.

Greece. For the third time since the liberation a general election took place on Sept. 9. Formally, voting was still by the proportional representation system, with an exclusively male franchise, but the new electoral law adopted by the Chamber of Deputies on July 27 favoured parties securing over 17% of the total poll, enabling them to increase their seats. In contrast to 1950, when 26 parties sought representation, in 1951 there were 17. As in the past, the contest was more a battle of personalities than one concerned with differences of policy. The results were as follows:

Parties	Votes 1951	Votes 1950	Seats 1951	Seats 1950
Ellinikos Synaghermos (Greek Rally)	623,297	—	114	—
Neo-Metaxists (P.A.P.)	—	137,721	—	16
Nationalists (N. Zervas)	—	61,580	—	7
National Revival Front (M.E.A.)	—	88,798	—	7
Populists (K. Tsaldaris)	113,580	317,583	2	62
Liberals (S. Venizelos)	324,482	290,983	57	56
National Progressives (E.P.E.K.)	399,529	277,812	74	45
Democratic Socialists (G. Papandreou)	37,033	180,085	—	35
Socialists (E.L.D.)	4,208	163,520	—	18
Communists (E.D.A.)	178,325	—	10	—
Others	25,835	177,933	1	4
Totals	1,706,289	1,696,015	258	250

The Greek Rally under Field Marshal Alexandros Papagos became the strongest single party, having secured 36·6% of the votes: it supplanted all other parties relying on right-wing and Conservative opinion. The Populists led by Konstantinos Tsaldaris, who on March 31, 1946, won an absolute majority in a Chamber of 354 members, and who on March 5, 1950, polled 18·8% of votes, fared badly on Sept. 9, polling 6·7% of votes and gaining only two seats. The right-wing Liberals led by Sophocles Venizelos, who with a poll of 17·2% had the second strongest party in the previous chamber, increased their poll to 19·1%, but the E.P.E.K. (Ethniki Proodeftiki Enosis Kentrou or National Progressive Union of the Centre), otherwise the left-wing Liberals, led by General Nikolaos Plastiras, did better still, increasing their poll from 16·4% to 23·5%. Papandreou's



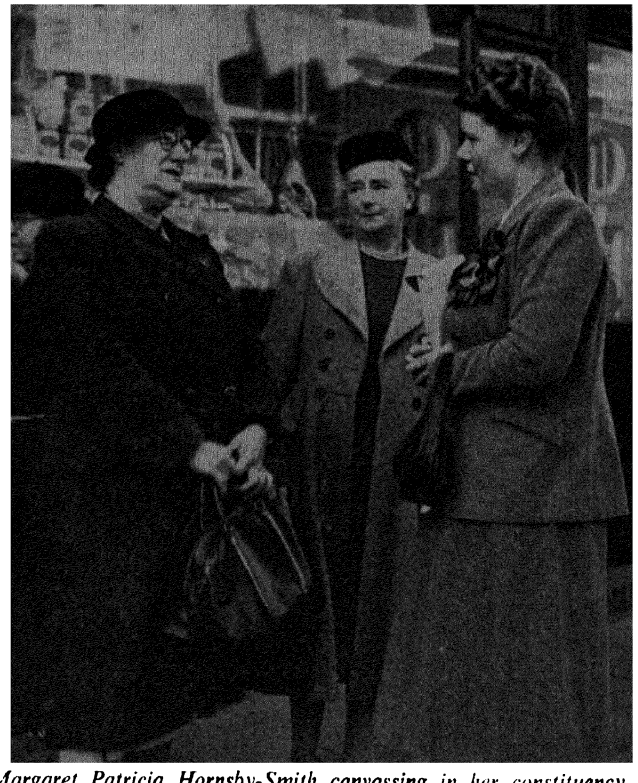
"The Ship of State if Attlee Loses," a cartoon by Giles in the "Daily Express" (London) on election day, Oct. 25, 1951. On left "As Giles's George dreams of it" and on right "as Giles's Vera dreams of it."

party and the Socialists (E.L.D., Enosis Laikis Dimokratias or Union of Popular Democrats) led by Alexandros Svolos were other victims of the electoral law. Under the name of E.D.A. (Enosis Dimokratikis Aristeras or Union of the Democratic Left), the Communists took part in a general election for the first time since World War II; they polled 10·5% of votes and gained 10 seats.

Luxembourg. On June 3 more than 80,000 electors renewed 26 seats of the Chamber of Deputies, of which the total was increased from 51 to 52. Including the 26 deputies elected for six years on June 6, 1948, the composition of the chamber was as follows (previous strength in brackets): Christian Democrats 21 (22), Liberals 8 (9), Socialists 18 (14), Communists 4 (5), Independent 1 (1).

Switzerland. On Oct. 27-28 the oldest democracy of the world renewed its parliament composed of the National Council (Nationalrat or Conseil National) and of the Council of States (Ständerat or Conseil des Etats). The National Council consisted of 194 members elected for four years, but from 1951 the cantons of Zürich and Aargau were each allotted an additional seat. Out of 44 members of the Council of States (two per state), 23 were submitted for re-election in 1951. The political composition of the new parliament, compared with that elected on Oct. 27, 1947, was as follows:

Parties	National Council		Council of States	
	1951	1947	1951	1947
Liberal Conservatives	5	7	2	2
Catholic Conservatives	48	44	18	18
Agrarians	23	21	4	4
Radical Democrats	51	52	11	10
Independents	10	8	—	1
Liberal Democrats	4	5	2	2
Social Democrats	49	48	7	6
Party of Labour (Communists)	5	7	—	—
Others	1	2	—	1
Totals	196	194	44	44



Margaret Patricia Hornsby-Smith canvassing in her constituency of Chislehurst, Kent. In the Conservative government she became parliamentary secretary to the Ministry of Health.

Voting is by the proportional representation system, with an exclusively male franchise.

Middle East. *Israel.* For the second time after its creation as an independent state, Israel held a general election on July 30. Its population having in the meantime almost doubled, the number of valid votes rose from 440,095 on Jan. 25, 1949, to 687,492. The new Knesset (parliament) showed some change which, however, involved no break in the continuity of Israel's young political tradition. The Nationalist Herut or Freedom party of Menahem Beyghin lost 6 of the 14 seats it had held. The United Religious Front of Ashkenazim Jews split into four small parties but lost only one seat in the process. The Conservative General Zionists strengthened their position by gaining 13 new seats. The Israeli Labour party or MAPAI (Mifleget Poalei Eretz Israel) lost one seat and remained the strongest single party in the Knesset. The pro-Cominform United Workers' party or MAPAM (Mifleget Poalei Menuhedet) polled 2% less than in 1949 and lost four seats. The official Communist party increased its vote by 0·6% and added one seat to its previous four. The results, compared with those of Jan. 25, 1949, were as follows:

Parties	1951			1949		
	Votes	%	Seats	Votes	%	Seats
Herut	45,651	6·65	8	49,782	11·3	14
Hapoel Hamizrahi	46,347	6·75	8			
Aguda Israel	13,799	2·0	3	52,982	12·0	16*
Poalei Aguda Israel	11,194	1·6	2			
Mizrahi	10,383	1·5	2			
General Zionists	111,394	16·1	20	22,661	5·2	7
Progressives (Liberals)	22,171	3·2	4	17,786	4·0	5
Sephardi group	12,002	1·8	2	15,287	3·5	4
MAPAI	256,456	37·3	45	155,274	35·3	46
MAPAM	86,095	12·5	15	64,018	14·5	19
Communists	27,334	4·0	5	15,148	3·4	4
Arab Democrats	16,370	2·4	3	7,387	1·7	2
Others	28,296	4·2	3	39,770†	9·1	3
Totals	687,492		120	440,095		120

* United Religious Front.
† This includes 24,835 votes dissipated among nine splinter parties.

The party list method was used with proportional representation and women's suffrage. (K. SM.)

ELECTRICAL INDUSTRIES. *Generating Plant.* The demand for generating plant, both for home use and for export, remained insistent. Despite the assistance rendered by heavy engineering manufacturers who did not formerly make boiler-house plant for thermal power stations, shortages of labour and raw materials, occasioned partly by the rearmament drive, created difficulties. Nevertheless, the supply position showed some improvement in 1951. That the effect of the installation of new high-efficiency plant was beginning to be felt was demonstrated by the increasing overall thermal efficiency of the British Electricity authority power stations. Figures published for 1950 showed that the best station (Battersea "B") had an efficiency of 29·31%, and nine other stations had efficiencies between 26% and 28%. These stations generated over 17% of the total energy in the year ended March 31, 1951.

Manufacturing developments made it possible for the B.E.A. to place orders for 100-Mw. turbo-alternator sets, each with one boiler, instead of the previously standardized arrangement of 60-Mw. sets, each with two boilers supplying 360,000 lb.hr. Early in 1951, it was announced that the B.E.A. had placed orders for £21·5 million worth of generating plant comprising 57 turbo-alternator sets with an aggregate capacity of about 2,500 Mw. Hydrogen cooling for large turbo-alternators was being increasingly employed and among the hydrogen-cooled sets under construction were several of 60 Mw. capacity. A 70,588-kva. hydrogen-cooled alternator exported to Canada had a stator weighing almost 120

tons. The manufacture of water-turbine sets was also very active and a vertical reaction turbine supplied to Portugal by a British manufacturer was of 63,000 b.h.p. Difficult problems in the development of gas-turbine installations were being solved and it was expected that two 15-Mw. sets and one 12·5 Mw. would be in operation by 1951. Work on generation by atomic power showed that there was a reasonable prospect of its large scale development but the cost of energy would probably not differ widely from that generated by coal.

Transmission and Distribution Equipment. The increasing need for bulk transmission of power over long distances in several European countries was reflected in plans for stepping up transmission voltages and in the development of larger sizes of circuit breakers and other control equipment. In Sweden, France and Western Germany 225-kv. systems had been in operation for some years, but to facilitate later interconnection of national systems agreement was reached upon unification of new voltage levels. Two values had been adopted, 275/300 kv. and 380/400 kv. The plans for the B.E.A. super grid were a first step up to 275 kv. from the 132 kv. of the existing grid, but provision was being made in tower designs for subsequent conversion to 380 kv. if this should prove economically desirable. The next step in countries already having 225-kv. systems was an increase to 380 kv.

For the main transmission in the B.E.A. 275-kv. grid, the conductors chosen were twin 0·4 sq.in. per phase, having a thermal rating of 570 Mva. per circuit. The ratings of transformers for this system were limited by transport problems and those proposed were 120-Mva. 3 phase and 60 or 80-Mva. single phase, incorporating a tap-change range of ± 15%.

For the first time on the British 132-kv. grid, wooden poles were used on a 30 mi. section in south Wales, carrying a 90-Mva. circuit. The reasons for this were shortage of steel for towers and economy in construction.

Short-circuit powers on very high voltage systems may attain values of 5,000 Mva. or more and circuit breakers having adequate breaking capacities were being developed in 1951. The largest oil-break circuit breaker ever built in Great Britain was on show at the Festival of Britain site on the South Bank. It was for 275/300 kv. and had a rated breaking capacity of 7,500 Mva. (British) or 9,400 Mva. (U.S.). The increasing use, in the United States, of microwave equipment for the transmission of control information in power systems, led to a decision to make experiments with the method in Great Britain. For distribution in the development of dockland boroughs of London, the distributed transformer system was being used. Primary distribution was at 6·6 or 11 kv. with numerous transformer chambers of 500-kva. capacity connected to it. These fed an interconnected low-voltage network. The high-voltage system took the form of radial mains and was capable of interconnection.

Utilization. One of the most interesting developments was the Pimlico, London, district-heating scheme which was formally inaugurated in July. From two 1,350-kw. back-pressure turbo-alternators, installed in Battersea power station for auxiliary power supply, heat was provided for a 30-ac. housing estate and for blocks of flats, both located on the opposite side of the river from the power station. Pipes carrying hot water were run under the river through an existing tunnel. Space heating and hot water was to be given eventually to 2,900 dwellings and some communal buildings, thus serving some 10,000 people. This heat-electric generation was adopted because of its high economy and fuel saving. A large-capacity hot water accumulator facilitated co-ordination of heat and electric loads, giving a high annual load factor for the system. The estimated annual saving of coal was 10,000 tons.

Interest in railway electrification was aroused by the publication of the report of a technical committee, which had reviewed the general problem. This committee recommended a 1,500-v. D.C. system with overhead line as the best for Great Britain. French experiments with a 20-kv. 50-c/s single phase system, using overhead distribution and transformers on the locomotives, on the newly electrified Aix-Annecy-La Roche line attracted world-wide attention. Previously experience in France had been with 1,500-v. D.C. traction, but the new system was designed to lower installation costs and reduce the number of sub-stations. An international congress on electric traction was held at Annecy in October. (*See* ELECTRIC TRANSPORT.)

An international conference on illumination was held in Stockholm. There was much interest in British research on high-speed flash photography using a xenon-filled tube with a hydrogen-filled thyratron for pulse control. There was interest also in luminescence and particularly in the luminous capacitors being developed in the United States. These provided a low-intensity light source based on the electro-luminescence of a phosphor under the influence of a rapidly changing electric field. For the artificial illumination of growing plants an irradiator, using a horizontal mercury vapour lamp, was developed. Electric welding was rapidly advancing in 1951 and an international congress on welding was held in London, in July.

Progress in the electrification of agriculture continued. Published figures on the use of electric motors on British farms showed that the number had increased from some 3,500 in 1931 to 91,750 in 1950. The use of electricity in mining increased and resulted in a greater output per manshift.

Research and New Developments. Both through technical papers and "open days" at several industrial research laboratories, electrical research attracted considerable attention. The researches reflected contemporary pre-occupation with generating-plant developments and with high-voltage transmission. They included investigations on metals for gas and steam turbines, on magnetic materials, using both optical and X-ray diffraction methods for determining crystal orientation, on the performance of transformers and other high-voltage equipment under impulse tests with voltages of 2 million or more and on the connections between the structure and dielectric properties of materials. High-tension switchgear and cables, mercury-arc rectifiers, high-voltage direct-current transmission, radio interference from power circuits, and wind power were other subjects of research. A plan was formulated for a group of Scottish firms to undertake electronics research.

The professorship of electrical engineering at Cambridge university, originally endowed by the Institution of Electrical Engineers in 1945, was permanently endowed by the British Electrical and Allied Manufacturers' association. In connection with the Festival of Britain, a joint engineering conference was held in London to record British contributions to engineering and science during 1851-1951. Cable for 275 kv. was being made and tested by a British manufacturer. It was of the impregnated pressure type for operation under a nitrogen gas pressure of 200 lb./sq.in.

Among other interesting new developments were the construction of a new plant for the production in Great Britain of polystyrene, the use of geranium triodes to replace thermionic valves for radio work, the construction of a resistor, of 2,000-kw. rating, for use in machine testing, a new non-metallic, high-permeability low-loss core material and a paramagnetic continuous oxygen recorder for use in industrial processes. The construction of a 400-Mev. synchro-cyclotron—the largest in Europe—for Liverpool university

was well advanced. A very versatile digital computer was built and installed at Manchester university.

Trade. The value of all electrical goods and machinery exported from Great Britain in Sept. 1951 was £12,919,529, as compared with £10,111,528 for Sept. 1950. In August and July 1951 the totals of £14,162,700 and £13,974,738 respectively were both records for any month.

Among export orders received by British firms were those for £1,600,000 of generating plant for oil fields in Indonesia, Venezuela, Colombia and British Borneo, trolley buses for Hobart, Tasmania, 14 diesel-electric locomotives for Australia and 300-kv. and 275-kv. transformers, having an aggregate capacity of 400,000 kva., for Canada. Eight 625-h.p. diesel-electric locomotives were built for Ceylon Government railways.

Refrigerator production was rising and, for the first six months of 1951, was valued at £15,752,064, of which £6,719,135 worth was exported. These values compare with a total production of £24,660,904 for the whole of 1950 when £10,102,342 worth was exported. (E. W. G.)

United States. During 1951 the indices for manufacturing activity were revised on the basis of 1947-49=100. The federal reserve board estimated the 1951 index of industrial production at 119, 11 points above 1950 and 15 points above 1948. For electrical manufacturing the index rose to 149·5, or 13·4 points above 1950 and 51·1 points above 1949. The index for electrical appliances for domestic use dropped to 137·9 in 1951 from 161·5 for 1950, but was still 37·7 points above 1949 and 29·5 points above 1948. The industrial apparatus index continued to mount by going to 176·6, 62·5 points above 1950 and 91·5 points above 1949. (*See* BROADCASTING; RADIO, SCIENTIFIC DEVELOPMENTS IN; TELEVISION.) (F. J. K.)

ELECTRIC POWER. The electricity supply industry faced increasing difficulties. Limited resources in labour and materials had to be shared between the constructors of generating and distribution equipment and industries fully occupied with rearmament. Great efforts were made to reduce the deficiency in generating capacity which, however, tended to increase because of higher power demands from the engineering industries and agriculture.

The development of plans to utilize new sources of energy, such as atomic and geo-thermal energy, peat and wind, and to improve supplies by super-tension international grids continued, but perhaps the most interesting progress was in rural electrification schemes in such widely separated parts of the world as Manitoba, Madras, Northern Ireland and the Republic of Ireland, South Africa, the U.S.S.R. and Australia. The economic value of rural electrification in the sparsely populated areas being developed was doubtful when considered solely from the point of view of the revenue immediately obtained, but the advantage of a well-mechanized agriculture as a national asset was unquestioned.

Great Britain. The power position was rendered more difficult in Great Britain by a threatened shortage of coal. Power cuts were rather less severe in the early part of the year but warnings were given that they would become more frequent and extensive in the winter unless load-spreading by industrial consumers increased. During a cold spell a plant shortage of 2,400 Mw. might occur. To ease the position a reduction of 600 Mw. in the national simultaneous maximum demand was called for and the installation of auxiliary generating plant by industrial consumers was encouraged. The need for some form of load-controlling device for domestic consumers was recognized and experiments were made to determine its most appropriate form.

The rate of installation of new generating plant by the British Electricity authority, which was 965 Mw. in 1950, was expected to rise to between 1,600 and 1,800 Mw. a year. The capital invested in the British supply industry was over £1,000 million, being increased by some £127 million during 1951. The industry employed 176,000 people and used over 16% of the home-consumed coal.

The importance of new generating plant in coal-saving was emphasized by the fact that, whereas the average thermal efficiency for the whole country was 21·5%, that for the 50 best stations was 25%, rising to between 28% and 29% for the best individual stations.

The B.E.A.'s third annual report to March 31, 1951, showed that 46,580 million units were sold out of more than 53,000 million generated. The number of consumers rose to 13,079,473 and the average revenue a unit sold was 1·181*d.* Electricity consumption in agriculture showed the greatest rate of increase, 28·3%, as compared with the previous year; it was still, however, only about 1% of total consumption. The percentage increases for commerce and industry were 16·7 and 11·8 respectively. A provisional 10-yr. programme for the B.E.A. 275/300-kv. super grid was adopted. Certain sections were being designed for possible operation eventually at 380-400 kv. Construction of the first 275-kv. line from Staythorpe to Sheffield made good progress and contracts were being placed for further sections to be in commission by 1955. In nine months to Sept. 30, 1951, the total energy sent out by generating authorities in Great Britain was 40,924 million units, an increase of 11·6% on the corresponding period of 1950. The installed capacity of B.E.A. generating plant was 14,987 Mw. at Sept. 30.

At the beginning of the year the North of Scotland Hydro-Electric board had 199·7 Mw. of generating plant in operation, with 229·3 Mw. under construction, schemes for 206·3 Mw. promoted and surveys being made for schemes to provide a further 278·5 Mw. The number of consumers was 244,314 representing 855,000 people. In 1950 the units sold totalled 722,514,458 at an average rate of 1·2704*d.* a unit. The largest hydro station in operation was Loch Sloy (130·45 Mw.) and the second largest was Cluanie (61·2 Mw.). The board estimated that by 1958 the total capacity of their water power plant would be almost 1,000 Mw., giving an annual output of 3,000 million units. The Affric station was almost complete in 1951 and the first of its three 22-Mw. sets was running.

In 1950 the board sold 136 million units to B.E.A. and it was expected that in the winter of 1951-52 the load which could be provided, on demand, to B.E.A. would be 185 Mw. Electricity supply to the remote parts of northern Scotland was uneconomic. The average cost of connecting a rural consumer was about £300, three times the prewar cost. Consumers were asked for annual guarantees but, under the Hill Farming act, 1946, grants could be obtained towards the cost of improvements to farms, including electricity supply. In May the board's new diesel generating station at Kirkwall, Orkney, was opened. This was the largest diesel station for public supply in Britain having an initial capacity of 3·75 Mw. with an ultimate capacity of 7 Mw.

Commonwealth. *Canada.* A review of Canada's water power resources showed that it would be feasible to install turbines up to a total capacity of 55 million h.p. At the end of 1950 the total installed was 12,562,750 h.p. Hydro-electric construction was very active and new projects were in hand during 1951 in Quebec (50,000 h.p. at No. 2 rapids on the Upper Ottawa river and 35,000 h.p. on the Megiscane river), British Columbia (56,000 h.p. on the Campbell river) and Manitoba (38,000 h.p. at Pine falls). In Manitoba progress was made in rural electrification, the aim being to connect 5,000 farms a year. In Alberta about 3,500 farms were connected during the year, bringing the total to 15,700.



The Brighton " B " generating station (in foreground) under construction at Shoreham harbour, Sussex. The first half of the station was due to be completed in 1953. In the background is the existing Brighton generating station.

Australia. Good progress was made on the Snowy mountain hydro-electric scheme and an order was placed for two 30-Mw. turbo-alternators for the first pilot station at Guthega at an altitude of 4,000 ft. Two vertical Francis water turbines, each of 82,000 h.p., were ordered for Eildon power station on the Goulburn river in Victoria. The purchase of a floating barge power station of 20 Mw. capacity was under consideration by the New South Wales Electricity commission. Rural electrification progressed in New South Wales and in Victoria where 127,000 rural consumers, including 16,000 farms, were being served. In Tasmania rationing of power became necessary, although the position was to be improved when several hydro-electric schemes were completed in 1954.

New Zealand. Shortage of power in New Zealand caused load restrictions. Experimental geo-thermal bores gave good results and encouraged development. Work progressed on the 220-kv. grid to connect hydro-electric stations under construction.

South Africa. Difficulty was experienced in obtaining plant for power station extensions. For the Rand undertaking alone 215 Mw. of new plant was needed for existing stations and 570 Mw. for new stations. The total installed capacity was 1,514 Mw. but plant on order was to increase this to 2,488 Mw.

Central and West Africa. A report on the Kariba gorge scheme on the Zambesi was published recommending that the first part, to produce 385 Mw. and to cost £43·5 million, should be put in hand immediately. In Uganda progress on the Owen falls hydro-electric scheme was maintained and was well up to schedule. A report was being prepared for the Gold Coast government on the Volta river scheme (750 Mw) which would provide power for aluminium production.

India. In India's first five-year development plan provision was made for spending £338 million on irrigation and power. Power projects would increase generating capacity by 1,100 Mw. (70% of existing capacity). The Madras government proposed to spend over Rs. 10 million during the year for electricity supply to rural areas.

Pakistan. The total generating capacity was estimated at 69,074 kw. Plans were made to utilize the country's extensive water power resources and to erect a grid system.

Europe. Although Europe has considerable power resources in hard and soft coal, peat, oil and water these were not uniformly distributed and the need for development of all such sources, with an international grid network for the interchange of power, remained. Of the countries possessing large water power resources Norway and Austria were most likely to be able to export power. Large-scale transmission from Norway to Britain and the continental mainland would have to await the development of h.t.d.c. transmission. Some of the most easily developed Austrian water power sources had a potential capacity of more than 4,000 Mw. of which over 60% would be available in winter. The corresponding annual energy production would be some 17,000 million units. In Norway an underground 50-Mw. power station was undergoing final tests.

In Switzerland the annual generation of electrical energy exceeded 12,000 million units.

Electricity consumption in France in 1950 was 33,000 million units and the first few months of 1951 showed an increase of more than 15% on the comparable period in 1950. In September the fifth 65-Mw. generator was put into commission at Génissiat, on the Rhône, bringing the total capacity of the station up to 325 Mw.

The first of three 32,000-kva. generators was commissioned in June at a new hydro-electric station at Vila Nova, Portugal. A total increase of generating capacity of 180 Mw. in southern Holland was planned to supply increasing industrial demands. Hydro-electric projects had been planned in Luxembourg for the rivers Sûre and Our. Most of the energy generated would be available for export. New Soviet power plants under construction at Kuibyshev, Stalingrad, Kakhovka and

along the main Turkmenian canal would supply 22,000 million units a year mainly for agricultural purposes and irrigation. In the Republic of Ireland, during 1950-51, 32,737 new consumers were connected and the total annual output was 969 million units. A third turf-burning power station, at Firbane, was planned. The Rumanian government published a 10-yr. plan for electric power development increasing the installed power from 740 Mw. to 2,600 Mw. (E. W. G.)

United States. Power production rose to record heights in 1951. Weeks in which output was 7,000 million kwh., were eclipsed by the week before Christmas when output reached 7,800 million kwh. The Federal Power commission reported that in the 12 months ending Nov. 30, 1951, electric utility plants produced 367,852 million kwh., a gain of 13·9% over 1950. Generating capacity rose to 75·2 million kwh., as against 67·9 million kwh. in service 12 months before. Industries and railways generating energy for their own use had 14·2 million kwh. installed. Continuing its expansion programme, the electrical industry spent vast sums to increase generating capacity, principally in steam plants.

Large hydro-electric projects authorized by the Federal Power commission included the Roanoke Rapids dam, licensed to the Virginia Electric and Power company, which was appealed to the courts by the secretary of the interior and Rural Electrification administration co-operatives; the Kings river projects of the Pacific Gas and Electric company in California; the Pelton project of the Portland General Electric company on the Deschutes river in Oregon; and the city of Tacoma's $143 million project on the Cowlitz river. Installed capacity involved in hydro-electric projects under commission licence rose to more than 7 million h.p. Ultimate proposed installation of all licensed projects advanced during the fiscal year from 8,678,000 to 9,932,000 h.p. and the total cost of all major projects under licence rose from $958 million to $1,134 million. In its studies of river basin development and hydro-electric possibilities of flood-control projects the commission staff participated in 101 co-operative investigations with the corps of engineers and 50 basin surveys or project investigations with the bureau of reclamation. Six power market surveys were completed. (J. W. J.)

ELECTRIC TRANSPORT. The most important event of 1951 was the conference organized by the French national railways in October at Annecy to demonstrate the progress made in electric traction at 50 cycles. Experiments with a 50-v. 20-kv. overhead contact wire on the Hollental line in Baden had been initiated by the German federal railways in 1933 and were continued there after World War II by the French railways and afterwards on the Annecy line. The success of these tests indicated that the system was practicable for complete electrification. It was claimed that the overall economy in capital cost of the 50-cycle system over 1,500 v. D.C. for an average French line was about 38%.

The economic case would vary for each particular scheme as the saving on substation feeders and track equipment had to be balanced against the increased cost of obtaining physical clearances for high-voltage track conductors. It was stated that the increased cost of rolling stock equipment would be very small and also that, in France, the cost of overcoming telecommunication interference and of altering signalling installations would be little different from the cost at 1,500 v.

Electric traction loads on industrial networks had an important bearing on national economy and a paper on the subject was read at the World Power conference at Delhi early in 1951. The displacement of the rotary converter removed the necessity for a low frequency supply for D.C. railways. This development eliminated the need for low frequency generators or converters on A.C. lines and also the necessity for a railway-owned high-voltage distribution system.

Great Britain. The report of the committee appointed by the British Transport commission was published early in the year. It gave a detailed account of technical progress in electrification in the intervening period. The committee recommended the adoption, as standard, of the 1,500-v. D.C. overhead system for future electrification, except for an area to be allocated for the third-rail system of the southern region. The retention of the fourth rail on the existing London Transport railways and its use on any extensions was recommended. The committee did not rule out the possibility of 3,000 v. D.C. or single-phase 50-cycle A.C. for light secondary lines.

In November, British Railways decided to make a trial of the single-phase 50-cycle system on the Lancaster-Morecambe-Heysham line operated from 1908 at 6·6 kv. 25-cycle single-phase, the equipment of which was life-expired. A committee appointed to investigate transport facilities in Glasgow and the Clyde valley submitted, to the British Transport commission, an electrification scheme estimated to cost £10 million and to save 70,000 tons of coal a year.

Erratum. In the *Britannica Book of the Year 1951*, page 225a, it should have been stated that Great Britain in 1927 possessed 15,000 tramcars, not 15,000 modern tramcars, etc.

Austria. Electrification expenditure for 1951 was estimated at £8 million. Work continued on two railway-owned power stations, one near Uttendorf in the Tauern area and the second near Braz on the Arlberg main line. In July, electrification was extended eastwards from Linz to Amstetten (40 mi.) and conversion work was continued between Amstetten and Vienna (79 mi.), the only remaining steam-worked section of the great trunk route Vienna-Bregenz (478 mi.). In Carinthia, work was begun on the Villach-Tarvisio line (17 mi.), the last link of the electrified route from Salzburg connecting at Tarvisio with the Italian state railways' electrified main line to Udine.

Denmark. At the request of the Danish state railways, a traction committee was appointed by the Danish Academy for Technical Schemes to investigate the technical and economic problems involved in a change of railway motive power. It was independently estimated that about £2 million could be saved annually, mainly on the cost of fuel, by the electrification of the main lines.

France. Electric working between Paris and Dijon had led to a considerable cut in timing and work was well advanced on the Dijon-Lyons section of the Paris-Lyons electrification. There were 2,380 mi. of main line and 125 mi. of suburban route electrified by 1951. This represented 10% of the whole French national system and carried about 24% of the total traffic.

In May, the 50-cycle single-phase electrification from Aix-les-Bains to Annecy was extended to La Roche-sur-Foron and future extensions were planned from La Roche-sur-Foron to Annemasse and to St.-Gervais. The electrification of the Dunkirk-Lille-Mézières-Thionville line in the northern and eastern regions was being considered on this system. The scheme, in which the German federal railways were interested, also envisaged the inclusion of the line from Thionville to Trier and Koblenz in Western Germany.

A number of experimental locomotives and motor coaches had been built or adapted for trial on the single-phase 50-cycle Annecy line. Two C_0-C_0 locomotives were dual-purpose machines, one Oerlikon-built and the other by Alsthom. Each locomotive worked normally from a 20-kv. 50-cycle overhead line but could operate at reduced power by means of a motor-alternator set when working on a 1,500-v. D.C. line. The third 80-ton B_0-B_0 Alsthom-built locomotive was for operation solely on 20-kv. 50-cycle lines. It was equipped with two pumpless air-cooled rectifiers and had a continuous rating of 2,660 h.p. at 37 m.p.h. Two railcar sets were

equipped with traction motors working direct from a 50-cycle supply. In addition, an ignitron equipment manufactured by the Westinghouse company was installed for trial in a motor coach. Complete renewal of the Paris Metropolitan rolling stock was planned and the first order was for 200 3-car articulated units valued at £9 million.

Italy. The first electrified section of the Italian state railways in Sicily was opened between Messina and Barcelona-Castroreale (28 mi.). Work was also in hand on the next stage to Sta. Agata di Militello (38 mi.). These sections formed part of the Messina-Palermo (144-mi.) single-track main line of which the line between Palermo and Fiumetorto (27 mi.) was being doubled. Power for this electrification was supplied from a new thermal station at Messina. The building of a similar thermal plant at Palermo and a hydro-electric station on the River Troina was in hand. In addition aerial power cables bridging the Straits of Messina to link the Sicilian supply with the mainland grid were under construction.

Two of the earliest electrified lines were converted to 3,000 v. D.C.: the 750-v. third-rail service between Milan and Porto Ceresio, opened in 1901-02, and also the Monza-Lecco section of the Milan-Sondrio line, formerly part of the three-phase $16\frac{2}{3}$-cycle 3,700-v. system. The overall time between Lecco and Bergamo was cut by the elimination of the change-over at Monza and by higher running speeds. On the privately owned Nord-Milano railway, the line Saronno-Laveno ($31\frac{1}{2}$ mi.) via Varese Nord was electrified.

Netherlands. The preference of the Netherlands railways for the 1,500-v. D.C. system was due to the close spacing of points at which power was available and also to the widespread use of multiple-unit stock. But since 1947, when the British Railways' locomotive had been lent for tests, proposals were made for the use of electric locomotives. In 1948, the first of ten 1A-B_0-A1 locomotives with a high-power rating and a maximum speed of 100 m.p.h. was introduced. But owing to the difficulty of maintaining the permanent way for high speeds the next order for 50 B_0+B_0 locomotives built by Alsthom for mixed traffic work had a maximum speed of 75 m.p.h. and a lower power rating. Delivery of these locomotives continued during 1951. To meet new demands for heavy freight trains 10 C_0-C_0 locomotives were ordered from Alsthom and 25 C_0-C_0 commissioned in the Netherlands under licence from Baldwin-Westinghouse. Pre-stressed concrete portals were being used in the equipment of lines in the north and the east. These were similar to the French Weinberg system used on the Paris-Dijon electrification, but with diagonal bracing. The total amount of steel needed was only 16% of that for a steel portal. There were 659 route mi. electrified, and 148 route mi. under conversion in 1951.

Norway. Electric traction was introduced on the Lillestrom-Charlottenberg (71-mi.) line via Kongsvinger in June. The conversion, on the 1,500-v. $16\frac{2}{3}$-cycle single-phase system, began in 1948, cost about £1,253,000 and enabled trains to be worked electrically between Oslo and Stockholm with a saving in journey time of about one hour. Nearly half the total traffic in Norway was carried on 640 mi. of electrified track representing about 23% of the whole mileage. Other lines planned or under conversion were Bergen-Voss, Millestrom-Hamar (Trondheim line) and Egersund-Stavanger (Sorland line).

Poland. The electrification of the Katowice-Warsaw line via Częstochowa, and the Katowice-Wejherowo-Pruszcz lines was planned in a six-year economic project. Meanwhile, preliminary work on the Warsaw underground railway made progress and shafts were sunk in the centre of Warsaw and in the suburb of Praga. Motor coach equipment for the Warsaw electrified lines, to replace wartime losses, was delivered.

Spain. Early in 1951, the Spanish government published its "Development of the General Reconstruction Plan" covering the railway modernization and electrification programme previously approved and more recent developments. On the Torre Branuelas section of the Leon Ponferrada mountain line with a heavy coal traffic, the capacity had been tripled with important economy in operation. The national railway administration planned to electrify, at 3,000 v. D.C., the trunk line from Hendaye on the French border to Algeciras (820 mi.) and sought foreign credit for the work.

Switzerland. In October, the Winterthur-Bauma-Wald standard gauge line (25 mi.) was converted to electric traction. Station buildings were modernized, bridges reconstructed and passing loops lengthened. Power-operated points and colour light signalling were installed.

The Swiss government agreed to the construction of a new railway from Sembrancher to Le Chable in the Valais. The line would facilitate tourist access to Verbier and the transport of materials for building the Mauvoisin dam.

The federal railways took delivery of six new lightweight steel restaurant cars, seating 52. Each car weighed 31·5 tons fully equipped. Electricity at 220 v. for the all-electric kitchen, maximum load 39 kw., was taken from a transformer in the 1,000-v. train heating circuit when the train was running at a speed above 25 m.p.h. When stationary, or running below this speed, current was taken from a pantograph mounted on the car itself which was automatically lowered if the speed exceeded 25 m.p.h. or the line supply failed.

Australia. In February, approval was given to the plan for the electrification of seven sections of line in the Brisbane suburban area involving 225 single-track miles. The total cost, with ancillary works, was estimated at nearly £9 million, to be spread over a period of about nine years. A contract valued at £3 million was placed for 1,500-v. overhead track equipment for the extension of the Sydney suburban system. The line from Paramatta to Lithgow, in the western coalfield of New South Wales, was to be electrified and heavy coal trains hauled over the arduous route in the Blue Mountains area. There were 236 single-track miles to be equipped, including four tracks between Paramatta and Doonside and two tracks from Doonside to Lithgow.

The Victorian government railways decided to extend the 1,500-v. D.C. system beyond Frankston, but the existing route from Frankston to Mornington was to be abandoned and an electrified coastal route built $4\frac{1}{2}$ mi. shorter. The line ($8\frac{1}{2}$ mi.) would be single-tracked. A new line from Moe to the Yallourn coalfield (5 mi.) was under construction and would be electrified.

India. Twenty-eight four-car multiple units, each with two 1,500-v. 700-h.p. motor-coaches with two intermediate trailer coaches were supplied for the Bombay suburban services of the Bombay, Baroda and Central India and Great Indian Peninsula railways. Built in Great Britain, the coaches were nearly 26% lighter than the conventional types in use. They were subjected to a comprehensive series of practical tests at the makers' works in a specially designed test rig, capable of applying buffing loads up to 150 tons.

New Zealand. Labour difficulties slowed down progress on the electrification of the Wellington-Hutt Valley line and also delayed completion of the Maraetai hydro-electric scheme. Despite existing 1,500-v. D.C. systems, it was decided all future electrification would be single-phase A.C. (J. W. GE.)

United States. Continued expansion of trolley coach operation was the most notable development of 1951. At the beginning of the year a total of 6,500 electric trolley coaches were being operated on 42 transit systems. This was more than double the number of vehicles in operation ten years earlier. During this period the mileage of trolley coach routes had increased by 80%. In 1951 about 636 additional coaches were placed in operation bringing the total at the end of the year to more than 7,100.

Delivery was started on the largest single order for trolley coaches ever placed in the United States, 349 units for Chicago. A notable instance of trolley coach expansion during the year was the inauguration of service on the heavily travelled Grand river route at Detroit. A total of 80 new trolley coaches replaced street cars on this route. Another significant development was the completion of the conversion from steel-wheeled to rubber-tyred vehicles at Des Moines, Iowa.

In late years the operation of surface electric railway cars had been concentrated more and more on the heavily travelled lines in large urban centres. At the beginning of 1951 a total of 13,800 electric surface cars were in operation on 84 electric transit systems. Rolling stock added during the year included 25 cars of the so-called president's conference committee type for San Francisco and 50 of these cars for Boston. These brought the total of the modern vehicles in operation to 4,354.

In the cities of more than 1 million population, rapid transit lines carried more passengers than any other type of public transportation service, and many improvements were being made in rapid transit facilities. All of the new construction begun or proposed during the past few years was in subway or open cut. Elevated railways were being gradually eliminated. The same number of passengers were being carried in 1951 over the same mileage of track by about 10% fewer cars than were in use ten years before. The most notable of the developments in the rapid transit field during 1951 was the inauguration of service on the new Milwaukee-Dearborn-Congress subway route in Chicago. This was the second and final step of the initial phase of that city's subway building programme.

Delivery was made during the year of the remainder of a New York Central order for 100 multiple-unit cars of 600-v. D.C. operation in the Grand Central terminal zone. This resulted in a substantial improvement in service in the New York suburban area. Delivery was also made on most of a Pennsylvania railroad order for 100 multiple-unit cars for operation on 11,000-v., 3-phase, 25-cycle A.C. Eight straight electric locomotive units were delivered during the year for freight service on the Pennsylvania railroad. They were designed for operation on 11,000-v., single-phase, 25-cycle A.C. Four of these units, rated 3,000 h.p. each, were equipped with rectifiers and D.C. traction motors. Four, rated 2,500 h.p. each, were powered by single-phase A.C. traction motors, and as many as four units could be operated in multiple. (*See* also RAILWAYS.) (J. A. MI.)

ELECTRONICS. The technique of electronics had permeated, by 1951, throughout the fields of pure and applied science, and devices such as thermionic valves, gas-discharge tubes and photo-electric cells were used for a wide variety of operational, control and measurement purposes. The year 1951 saw not so much the spectacular invention of a new device as a steady improvement in, and extension of, the application of existing instruments and components. This improvement included the developing of measuring instruments of many types, so that various phenomena involved in electronics might be subject to increasingly accurate quantitative assessment. The impact of atomic research on the electronics industry was made very evident by publications and by the large range of instruments shown at exhibitions. The wide use being made of radio-active materials and machines for producing ionizing radiations created a demand for various types of nuclear particle and radiation detectors.

Among many different types of detector used in nuclear physical work, two were dependent on gas-ionization and photo-conversion respectively. In the former type, the ionization produced by the active radiation between two electrodes in a gas was measured as in the original form of Geiger-Muller counting tube. A multiple counter was made available during 1951, in which ten counting tubes with samples could be automatically selected in time-sequence, the resulting counts being registered by a pen-recorder. The use of this instrument not only saved time, but avoided the difficulties due to contamination when the same Geiger-Muller tube was used for different samples in turn.

In the photo-conversion type, or scintillation counter, the particles from the radio-active specimen are absorbed by a phosphor, the scintillations from which are converted into pulses by a photo-electric multiplier tube and then registered electronically in the usual way. In one type of instrument developed for counting alpha-particles, a light-tight slide was used to present a sample accurately below a multi-crystalline deposit of activated zinc sulphide. Alpha-particles striking this deposit produced minute flashes of light, which were reflected on to the photocathode of a multiplier photocell. Such scintillations produced output pulses of several volts, and these were passed through a discriminator to reduce or reject the noise background signals from the multiplier tube. One type of alpha-particle counter developed on these lines had a useful range of from ten counts per hr. to 100,000 counts per min., with a background rate of less than four counts per hr.

Another application of electronics technique was in the field of meteorology. An instrument for measuring meteorological conditions on the ground, rather than in the air (*see* RADIO), was the photo-electric hygrometer, which automatically measured the frost-point of the air. Light scattered from a deposit of natural frost on a cooled metal thimble was collected by photo-electric cells, the output of which was made to control the current in a heater coil inside the thimble so that the frost deposit was kept constant. Another resistance coil then measured the temperature of the air.

Apart from the specific examples described above, electronic tubes and apparatus were applied to the very large field of servo-mechanisms. In this application, a combination of electronic and mechanical equipment was used for automatic regulation and control purposes in many industrial processes. Examples of these were the control of speed of rolling mills, wire-drawing machines and printing presses, where departure from the desired speed was detected electrically, the response amplified and the output used to control the driving mechanism. For such purposes the electronic device, with its rapid response and suitability for amplification to any desired extent, was almost ideal; and research and development showed that this was being found a most useful and reliable aid in the factories of industry as well as in the laboratories of research scientists. (R. L. S.-R.)

United States. An electronic development of biological interest, reported at the Cleveland meeting of the American Association for the Advancement of Science, was a miniature radio station that was carried by an experimental subject and broadcast his brain waves or other signals, such as those indicating electrical activity associated with heart beats; a receiver picked up the signals and presented them on a television-type screen. The apparatus was described by N. J. Holter, of the Holter Research foundation, Helena, Montana, and J. A. Gengerelli, of the University of California, Los Angeles.

In a paper presented at the 1951 National Electronics conference, held in Chicago in October, James L. Murphy and Hilary W. Pavela, of the Armour Research foundation, announced a method for magnetically recording on tape the minute electrical impulses originating in the muscles of the body. The device was developed for the University of Illinois, and at the end of the year was in use in the university hospital.

A method of using television techniques to extend the range, power and adaptability of the light microscope was announced by A. K. Parpart, chairman of the department of biology at Princeton university. It was developed with the co-operation of L. E. Flory and J. M. Morgan, of the laboratories division of the Radio Corporation of America. The experimental installation was used primarily by Parpart at the Marine Biological laboratory, Woods Hole, Massachusetts, in studying a wide variety of marine life. It consisted of a laboratory microscope mounted beneath an R.C.A. industrial television camera, about the size of a small 16-mm. motion picture camera, from which the picture was transmitted by cable to a standard receiver. The camera pickup tube, called a Vidicon could be made sensitive only to a particular narrow band of colour. A red-sensitive and a violet-sensitive tube were used by Parpart. In some cases he employed a binocular microscope with a camera above each of the two eyepieces, and connected to two receivers. Thus red and violet images could be examined side by side.

Using a single narrow band of colour, it was explained, it is possible to study in a living cell a particular material whose light absorption lies in that band, giving a degree of contrast between various chemical components of the cell that is superior to methods formerly used.

The velocity of light (C) is one of the most important physical constants, and a Stanford university physicist, Edward Ginzton, announced that electronic means had been used to determine its value with what was believed to be 10 to 20 times the precision of former methods. The speed was given as 186,280 mi. per sec., compared with 186,272 mi. per sec., considered the best previous value. The new determination was estimated to be accurate to within 0·0002%. Instead of visible light, radio microwaves a few inches long were used. These, like light and all forms of electromagnetic radiation, are known to travel at the same speed. Just as sound from a tuning fork is greatly reinforced when it is held over a tube of such a length that the natural pitch of the tube corresponds to that of the fork, so a resonant cavity for radio waves can be constructed. The wave length multiplied by the resonant frequency gives the speed of light. The cavity used in the new experiments was a cylinder 4·5 in. high and 9·8 in. in diameter. William W. Hansen, former professor of physics at Stanford, was credited with originating this technique, and most of the research was performed by Kees Bol and William J. Barclay. It was sponsored by the Sperry Gyroscope company.

The year 1951 saw the inauguration of a new and extremely precise master timekeeper in the Bell Telephone laboratories at Murray Hill, New Jersey. This was expected to vary less than a ten-thousandth of a second a day, which corresponds to a precision of a second in 30 years. The timekeeper was known as the Bell System Primary Standard of Frequency. At the heart of the standard were four quartz crystals excited electrically to vibrate at 100,000 cycles per second. These vibrations, through circuits containing 600 electron tubes, controlled the frequency of a special alternating electrical current with a precision of one part in 1,000 million. The entire equipment was housed in air-conditioned rooms where the temperature never varied more than two degrees. The new frequency standard was said to be about ten times as precise as its predecessor, which operated similarly and had been in use since 1937 at the New York headquarters of the Bell laboratories.

In October the General Electric company announced completion for the U.S. air force of the largest and most complex radar systems yet produced. A number of these had been installed by the air force as major units of the radar "fence" protecting the U.S. and Canada against unexpected enemy air attack. Installations in the arctic regions were housed in rubberized fabric balloons, 54 ft. in diameter and 36 ft. high supported entirely by air pressure and capable of withstanding winds of 125 m.p.h.

Minute cracks in gun barrels, or other iron or steel tubes, could be quickly detected and plotted with a device developed by R. D. Kodis, formerly of the Watertown arsenal, Massachusetts, and R. Shaw, of the Graydon Smith Products company. An electric current passed through the barrel magnetized it; cracks and other defects caused a distortion of the magnetic field. On a "crawler," pulled through the barrel by a chain at a speed of as much as six feet per minute, was a pickup coil that spun round close to the bore of the gun, at a speed of up to 1,800 r.p.m. This detected the irregularities of the magnetic field and a visible record was made on a strip of paper. When complete the record showed the defects as dark markings, as if the inside surface of the barrel were laid out flat.

A new amplifying device, called the junction transistor, was announced by the Bell Telephone laboratories, who credited William Shockley with its development. It had the form of a plastic bead about $\frac{3}{16}$ in. in diameter with three wires extending from it and was capable of amplifying a weak electrical signal about 100,000 times. The smallest electron tube of the usual type that would perform the same job was about 400 times as big. In addition, even though the original signal might have a power of as little as a millionth of a watt, a full watt of power was ordinarily required to amplify it in a conventional tube. The junction transistor, it was stated, would itself operate on about a millionth of a watt. The heart of the junction transistor was a tiny rod of germanium, an element belonging to the class of materials known as semi-conductors. The rod was treated so that both ends were electrically negative, with a thin positive layer sandwiched between them. The two "junctions" between the middle layer and the ends gave the device its name.

An electron tube of ceramic material instead of the usual glass, capable of producing radio waves about a foot in length and with power of one kilowatt, was announced by the General Electric company's electronics department. The first ceramic tube of its kind to operate at such power, it was intended for use in television transmitters in the ultra-high-frequency range. (J. STO.)

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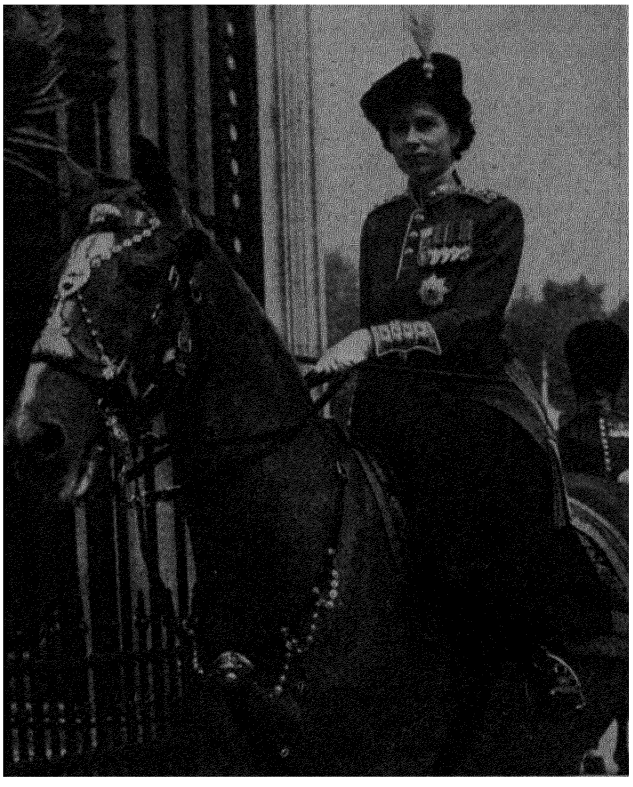
ELIZABETH ALEXANDRA MARY, PRINCESS, Duchess of Edinburgh, the heiress-presumptive to the British throne (b. 17 Bruton street, London, April 21, 1926). For earlier career see *Britannica Book of the Year 1951.* In the latter part of 1950 Princess Elizabeth had been staying in Malta where the Duke of Edinburgh was stationed. She came to London on Feb. 12, 1951, and returned to Malta on March 19; there she presented a new king's colour to the Mediterranean station, Royal Navy, on April 5. On April 11 she and the duke went to Rome for a two-week private visit during which they lunched with the Italian president and Donna Ida Einaudi, were received by Pope Pius XII, saw the Villa d'Este, St. Peter's and the Anzio war cemetery and, with Signora De Gasperi, wife of the prime minister, visited a number of social welfare organizations. On a visit to Florence for two days they stayed with the duke's aunt, ex-Queen Helen of Rumania. The princess returned to England on April 24. She re-opened Windsor guildhall on May 16 after its reconstruction and, May 18-20, made a tour of Sussex. During an illness of George VI she deputized for



Princess Elizabeth, in a uniform based on that of a colonel of the Grenadier guards, returning to Buckingham palace, after deputizing for the king at the trooping the colour ceremony at Horse Guard's Parade, London, June 7, 1951.

him on a number of occasions: she presented new colours to the third battalion, Grenadier Guards, May 25; read the king's speech at a state dinner at Buckingham palace to welcome King Haakon of Norway, June 5; and took the salute at the trooping the colour on the king's official birthday, June 7. On July 5 she was elected president of the English Speaking union.

Princess Elizabeth and the Duke of Edinburgh were to have left Great Britain by sea on Sept. 25 for a tour of Canada, but because of the king's lung operation the tour was postponed and they left by air on Oct. 8, arriving at Montreal the same day (*see* CANADA). They arrived back on Nov. 17 and drove through the streets of London by an extended route to Buckingham palace. Two days later the princess and the duke drove in state to Guildhall, where the lord mayor of London, Sir Leslie Boyce, gave a lunch to welcome them home. On Sept. 29 Princess Elizabeth had been made a member of the Council of State which was to relieve the king of many of his formal duties after his operation and, on Oct. 9, it was announced that she and the Duke of Edinburgh would carry out the tour of Australia and New Zealand the king had hoped to undertake in 1952.

ELIZABETH, QUEEN, consort of George VI (b. St. Paul's, Waldenbury, Hertfordshire, Aug. 4, 1900, as Lady Elizabeth Angela Marguerite Bowes-Lyon, daughter of the Earl of Strathmore and Kinghorne), was betrothed to the Duke of York, Jan. 15, 1923, and married, April 4, 1923. The duke and duchess made a long series of tours and visits abroad—Belgrade, Oct. 1923; Northern Ireland, July 1924; Africa, Dec. 1924-April 1925; world tour, Jan.-June 1927; Berlin and Oslo, 1929; colonial exhibition, Paris, 1931; and the international exhibition, Brussels, 1935 (her first flight). Her daughters, Princess Elizabeth and Princess Margaret (*qq.v.*), were born on April 21, 1926, and Aug. 21, 1930.

She became queen on Dec. 11, 1936, on the Duke of York's accession after the abdication of his brother, Edward VIII. The coronation was at Westminster abbey on April 12, 1937. Queen Elizabeth thereafter shared fully in the arduous duties of the king and accompanied him on his tours abroad (except in wartime) and at most public engagements (*see* GEORGE VI). A counsellor of state in the king's absence in North Africa in June 1943, she held an investiture, the first held by a queen in Great Britain since the reign of Victoria. Again a counsellor of state in 1944 when the king went to Italy, she signed a commission giving assent to new statutes. She was appointed a master of Middle Temple, 1944; colonel-in-chief, Queen's Own Hussars, 1947; and a doctor of law of Cambridge university, the first woman admitted to full membership of the university, Oct. 1948. She was treasurer of Middle Temple in 1949 and dined in hall in that and later years; on Feb. 2, 1951, she attended, in hall, a performance of *Twelfth Night.* On April 17, she opened the University College of North Staffordshire at Keele near Stoke-on-Trent.

As the king was suffering from the after-effects of influenza Queen Elizabeth, accompanied by Princess Margaret, carried out his engagements in Northern Ireland on June 1-3, presenting a charter to the city of Belfast on June 1. On July 13, in London, she laid the foundation of the National theatre which was to be erected on a site between the Royal Festival hall and Waterloo bridge. She again became a counsellor of state on Sept. 27 after the king's lung operation. On Nov. 22 she was present at the Royal concert at the Royal Festival hall, London, in aid of the Musicians' Benevolent fund. When she presented prizes at St. Mary's hospital, Paddington, on Dec. 5 she paid tribute to the nursing profession: " Of late I have seen much of their skill and care and I speak from my heart of what I know."

EL SALVADOR: *see* SALVADOR, EL.

EMPLOYMENT. During 1951 the demand for labour in western Europe continued to rise, under the influence of rearmament programmes and further industrial recovery. The rise was particularly great in Western Germany, where the level of employment outside agriculture had risen by the middle of 1951 to 14·4% more than that of 1948 and by 7% more than that of 1950. In some countries, *e.g.* Great Britain, there was not much scope for a further increase; and in Nov. 1951 there were 400,000 unfilled vacancies notified to the employment exchanges, while the aircraft industries were estimated to need an additional 175,000 in the near future to meet the demands of rearmament. The coal mines, the railways, and the textile industries, as well as the metalworking industries, were all short of manpower. There remained, however, considerable numbers unemployed in certain countries of western Europe, notably Italy and Western Germany and, on a smaller scale, Belgium. Attempts to import Italian labour to the British coal mines made very slow progress. Industrial employment increased in the Scandinavian countries and in France and Switzerland. There were also increases in the British dominions—Canada, Australia, New Zealand and South Africa.

In examining Table I it must be borne in mind that the statistics are by no means on a uniform basis and that some of them have only a narrow coverage. They should be taken as indications of trends rather than as absolute measurements. These considerations apply even more to Table II. It should also be borne in mind that seasonal fluctuations were very much greater in some countries, such as Austria, Canada and Scandinavia, than in others, such as Great Britain. The figures for January to June were affected in such cases by having temporary unemployment in the first quarter of the year.

TABLE I. EMPLOYMENT IN WESTERN EUROPE AND THE BRITISH DOMINIONS
(Index numbers)

	Base Date	1948	1949	1950	1951 (latest month)
General					
Austria	1937	136·6	137·0	137·3	143·7 (July)
France*	1937	107·7	109·5	110·0	113·1 (July)
W. Germany*	1948	100	103	107·3	114·4 (June)
Norway*	1949	—	100	102·3	105·0 (Aug.)
United Kingdom	1948	100	100	101·9	103·0 (July)
Canada*	1937	171·6	172·0	167·7	183·9 (Aug.)
Australia*	1939	137·0	140·8	147·1	152·0 (June)
New Zealand*	1947	103·1	105	107·5	108·7 (April)
South Africa†					
(a) general	1937	128·6	134·1	136·7	141·7 (June)
(b) Europeans only	1937	129·4	133·1	134·3	135·7 (June)
Manufacturing Industries only					
Belgium	1937	120	113	—	—
France	1937	110·3	112·7	113·6	117·5 (July)
W. Germany	1948	100	110·9	118·0	127·8 (June)
Italy	1947	98·3	97·1	96·6	—
Netherlands	1947	109·9	115·3	120·0	—
Norway	1949	—	100	102·6	105·5 (Aug.)
Sweden	1937	125·5	126·3	126·5	128·7 (July)
Switzerland	1937	135·1	126·6	124·9	136·2 (June)
United Kingdom	1948	100	102·2	104·8	107·4 (July)
Canada	1937	179·2	179·4	173·7	189·7 (Aug.)
Australia	1937	159·9	161·7	169·6	175·2 (June)
New Zealand	1947	102·7	104·9	107·9	208·9 (April)
South Africa:					
(a) general	1937	156·1	160·6	161·0	171·6 (June)
(b) Europeans only	1937	122·8	125·1	124·1	127·8 (June)

* Excluding agriculture. † Industry and transport only.

During 1950 and the first half of 1951 considerable progress was made towards the further liberalization of inter-European trade, with beneficial effects on employment in western continental Europe. European rearmament programmes called for considerably increased manpower in the engineering, aircraft and vehicle-building industries; but up to nearly the end of the year the rearmament programmes of the continental countries had not in fact made much progress. Employment in the steel industry, especially in Great Britain, was adversely affected by the acute shortage of scrap, of which only reduced quantities could be got from Germany in view of the rising internal demand.

In Great Britain, the working population increased from 22,962,000 at the end of 1949 to 23,180,000 a year later, and 23,449,000 in Aug. 1951. The numbers in the armed forces at the same dates were 725,000 (1949), 752,000 (1950), and 835,000 (1951), the increases being due to rearmament. The numbers unemployed or on release leave at the same three dates were 371,000; 328,000; and 212,000. This left the following in civil employment:

	Males	Females (thousands)	Total
1949 (Dec.)	14,835	7,031	21,866
1950 (Dec.)	14,934	7,166	22,100
1951 (Aug.)	15,062	7,342	22,404

Relative shifts between the main industrial groups were small. During the year ending in June 1951, agriculture lost 20,000 workers, transport and communications also 20,000, and professional, financial and other services 6,000. Manufacturing industries gained 205,000, the distributive trades 31,000, and public utilities 9,000. Other changes were small: mining and quarrying were up by 3,000, but were losing in the second half of the year; building and contracting were up by 4,000, and local government services by 7,000. Among manufacturing industries the engineering, shipbuilding and electrical group—by far the biggest—increased from 1,819,000 to 1,886,000, and the vehicle-making group, including aircraft, from 935,000 to 963,000. The textile group, the second largest, rose only from 1,009,000 to 1,025,000. The food, drink and tobacco group was up from 762,000 to 780,000, and rose further after the middle of the year. Coal-mining showed a net increase of 14,000 during the first quarter of 1951, following the concession of improved conditions; but deaths and retirements again exceeded intake of new workers in the second and third quarters, leaving only a small net gain.

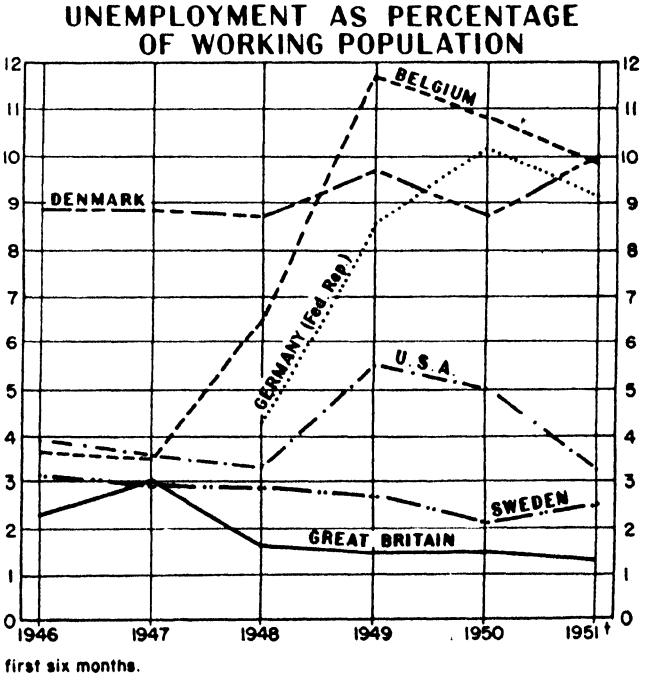
The question of unemployment played some part in the British general election of Oct. 1951 but was overshadowed by other issues. The *Economist* and some other journals had been pressing for a measure of deflation, or disinflation, designed to reduce the total demand for labour to rather less than the available total of workers. The Conservatives, on taking power, put into operation a small rise in bank rate designed to discourage lending, but the *Economist* dismissed this as inadequate to make the rate effective. In view of the increased claims of rearmament it would probably require a fairly drastic deflation to produce a labour surplus. Indeed, the danger of unemployment in Great Britain seemed more likely to rise from shortages of materials for certain industries, which might cause pockets of unemployed labour to arise side by side with a general shortage.

TABLE II. INDUSTRIAL UNEMPLOYMENT IN WESTERN EUROPE AND THE BRITISH DOMINIONS

	Totals in thousands (average) 1950	1951 (Jan.-June)	1951 (latest month)	Percentages (average) 1950	1951 (1st half)	1951 (latest month)
Austria*	124·8	145·4	69·4¶	6·2	7·2	3·6**
Belgium†	221·7	198·2	199·2¶	11·1	9·7	9·7¶
Denmark**	54·8	64·4	38·5¶	8·7	9·9	5·9¶
France*	152·9	138·7	90·7¶	—	—	—
W. Germany*	1,585·2	1,533·2	1,259·3¶	10·2	9·1	8·3††
Ireland†	30·3	32·0	25·8¶	7·6	7·2	6·2¶
Italy*	1,614·9	—	1,594·0‡‡	—	—	—
Netherlands*	79·1	86·7	67·6**	—	—	—
Norway*	9·0	15·3	3·5¶	1·3	—	—
Spain*	166·2	163·4	126·8**	—	—	—
Sweden‡	22·1	20·2	10·7††	2·2	2·1	1·6††
Switzerland§	9·6	4·9	1·2¶	1·8	1·0	0·2**
United Kingdom†	341·1	290·5	227·7¶	1·6	1·4	1·1¶
Canada†	190·6	171·7	80·9¶	6·0	6·9‖	3·0††
Australia†	—	—	—	0·8	0·7	0·8§§
S. Africa (Europ.)*	16·3	10·9	9·1¶	—	—	—

* Registered unemployed. † Insured unemployed. ‡ Trade union members unemployed. § Totals are of wholly unemployed only; percentages are of insured unemployed. ‖ Including supplementary benefit claimants. ¶ Aug. ** July. †† June. ‡‡ Mar. §§ May.

The United Nations experts' report on *National and International Measures for Full Employment*, published at the end of 1949, was followed by a series of reports from various



countries on the steps taken to maintain full employment; and the matter was also debated at the Economic and Social council. But in view of the rising trend of employment resulting from rearmament, most countries did not regard the question as urgent. More stress was laid on the need to increase migration from countries with an excess of manpower—especially Italy—but with disappointing results. (*See* also BUSINESS REVIEW.) (G. D. H. C.)

Canada. The civilian labour force increased from 4,933,000 in July 1950 to 5,332,000 in July 1951, while for the same dates unemployment changed from 140,000 to 85,000. The general employment index (1939 = 100) rose to 183·4 as at July 1, 1951, as compared with 170·8 for July 1, 1950. The Canadian index value for employment in manufacturing (1939 = 100) was 177·5 in 1950 and averaged 189 for the first eight months of 1951.

United States. The civilian labour force (persons not in the armed forces and available for employment) numbered 64,208,000 in Aug. 1951, a decline of 659,000 from Aug. 1950. Unemployment also declined, the Aug. 1951 total of 1,578,000 being 922,000 less than the Aug. 1950 total.

TABLE III. NUMBER OF EMPLOYEES IN NON-AGRICULTURAL ESTABLISHMENTS, BY INDUSTRY DIVISION, UNITED STATES*
(in thousands)

Industry division	Aug. 1950	June 1951	July 1951	Aug. 1951
Total est. employment	45,080	46,559	46,436	46,670
Mining	950	925	907	926
Contract construction	2,629	2,687	2,749	2,796
Manufacturing	15,450	15,950	15,829	15,970
Transportation and public utilities	4,120	4,159	4,180	4,195
Trade	9,474	9,733	9,657	9,627
Finance	1,837	1,893	1,907	1,914
Service	4,827	4,835	4,851	4,842
Government	5,793	6,377	6,356	6,400

* Proprietors, self-employed persons, domestic servants and armed forces excluded.
SOURCE. United States Bureau of Labour Statistics, *Monthly Labour Review.*

Between Aug. 1951 and Aug. 1950 every division of non-agricultural employment showed an increase with the exception of mining, in which the number of employees declined by 24,000; the largest decline within mining itself was 35,000 in bituminous coal. The greatest changes occurred in manufacturing, contract construction and trade, where the increases numbered 520,000, 167,000 and 153,000, respectively. These increases were a continuation of the 1950 trend, although the rate of increase had declined in 1951 as full employment was approached.

Most of the increase in employment in manufacturing occurred in the durable goods industries, the increase being greatest in the machinery, transportation equipment and primary metal industries. In the same period employment in the non-durable goods industries declined by 86,000. The increase in employment in some non-durable goods industries, particularly in the chemical industry, was more than offset by the drop in employment in the textile, food and leather industries.

TABLE IV. INDICES OF WORKER EMPLOYMENT AND WEEKLY PAY ROLLS IN MANUFACTURING INDUSTRIES
(1939 average = 100)

Period	Employment	Weekly pay roll
1945 (average)	157·0	293·5
1946 ,,	147·8	271·7
1947 ,,	156·2	326·9
1948 ,,	155·2	351·4
1949 ,,	141·6	325·3
1950 ,,	149·7	371·7
1951 ,,	159·4 (8 mo.)	430·2 (7 mo.)

SOURCE. United States Bureau of Labour Statistics, *Monthly Labour Review.*

The employment index for manufacturing industries increased from 149·7 in 1950 to 159·4 for the first eight months of 1951. For the same industries the weekly pay roll index for the first seven months of 1951 was 430·2 as compared with the 1950 value of 371·7. The expanded rearmament programme continued to be the major factor affecting employment and wage structures.

TABLE V. EMPLOYEES IN MANUFACTURING, BY MAJOR INDUSTRY GROUPS, UNITED STATES
(in thousands)

Industry group	Aug. 1949	Aug. 1950	Aug. 1951	Net Change Aug. 1950 to Aug. 1951
All manufacturing	14,114	15,450	15,970	+520
Durable goods	7,302	8,294	8,900	+606
Ordnance and accessories	22·6	25·0	49·4	+24·4
Lumber and wood products (exc. furniture)	746	845	823	— 22
Furniture and fixtures	305	367	330	— 37
Stone, clay and glass products	480	532	561	+ 29
Primary metal industries	1,092	1,256	1,353	+ 97
Fabricated metal products (exc. ordnance, machinery and transportation equipment)	843	972	993	+ 21
Machinery (exc. electrical)	1,229	1,374	1,576	+202
Electrical machinery	712	853	927	+ 74
Transportation equipment	1,224	1,347	1,505	+158
Instruments and related products	230	252	309	+ 57
Miscellaneous manufacturing	417	471	474	+ 3
Non-durable goods	6,812	7,156	7,070	— 86
Food and kindred products	1,718	1,718	1,654	— 64
Tobacco manufactures	98	89	95	+ 6
Textile mill products	1,179	1,316	1,240	— 76
Apparel and other finished textile products	1,155	1,208	1,147	— 61
Paper and allied products	436	479	496	+ 17
Printing, publishing and allied industries	719	741	757	+ 16
Chemicals and allied products	636	684	756	+ 72
Products of petroleum and coal	247	254	266	+ 12
Rubber products	227	258	275	+ 17
Leather and leather products	397	409	384	— 25

SOURCE. United States Bureau of Labour Statistics, *Employment and Payrolls.*

In Jan. 1951 a national manpower mobilization policy was promulgated by the president. Following this, the Wage Stabilization board ordered a general ceiling on wage increases, later followed by a series of orders relaxing the "freeze" for various groups of wage earners. A new wage policy was formulated by the board in Aug. 1951 whereby all workers, both organized and unorganized, might receive wage adjustments related to changes in the cost of living. (*See* also BUSINESS REVIEW.) (P. TA.)

ENDOCRINOLOGY. The adrenal cortex was again the centre of interest in endocrinology during 1951. Research in this field during the year contributed to a better understanding of the chemical steps by which adrenal steroids are produced in the body, indicated some of the mechanisms by which the gland is stimulated to oversecretion, and partially explained the manner in which the active steroids such as cortisone and compound F (17-hydroxy-corticosterone) influence the inflammatory expressions of many diseases.

Perfusion of the isolated, surviving beef adrenal gland (O. Hechter) revealed the following facts about the biological synthesis of the adrenal hormones. The parent substance is cholesterol, which the gland can synthesize from acetic acid. Under the stimulus of ACTH (adrenocorticotropic hormone) the adrenal cell changes cholesterol to pregnenolone. The latter steroid is then transformed through successive steps to the biological end products, which are compound F and compound B (corticosterone). Both of these steroids are active in restoring to normal the metabolism of foodstuffs and of

electrolytes in the adrenal-deficient animal. The perfused glands have a high capacity for steroid manufacture, which is in agreement with previous observations that under stress the adrenal delivers comparatively huge amounts of active steroids to the tissues.

The means by which the anterior pituitary gland is signalled to increase its output of ACTH during stress had not been completely elucidated. The work of the year made it appear likely that more than one type of signal is used (G. Sayers). There seemed no doubt that whenever the circulating level of adrenal cortical hormones falls ACTH is liberated and by its action on the adrenal serves to bring back the level to a normal value. This type of homoeostatic mechanism accounts for many of the adjustments observed, but not for all. Evidence had accumulated to show that adrenaline can evoke ACTH secretion by a direct effect on the pituitary gland and that stimulation of the central nervous system (even in the absence of the adrenal medulla) leads to increased adrenal cortical secretion.

During the past few years the great number of experimental and clinical studies dealing with the effects of ACTH and cortisone upon inflammatory phenomena under various conditions inevitably led to some initial confusion and contradiction in interpretation. However, during 1951, a large number of observations were correlated and it became possible to establish a more unified concept of the mode of action of these hormones. The anti-inflammatory effect seems to be non-specific; *i.e.*, equally exerted whether the inflammatory agent be a living bacterium, a non-living protein antibody or a simple chemical irritant. The tissue elements which are acted upon are the small blood vessels (capillaries, arterioles and venules), the fibroblast cells and the materials produced by them (ground substance and fibres). The C_{11}-oxysteroids, *e.g.*, cortisone, modify the response of the small blood vessels to drugs and prevent damage to the endothelial cells lining such blood vessels. The proliferation of fibroblasts which follows tissue irritation is sharply reduced, as is also the outgrowth of new capillaries. These actions were shown to be exerted locally upon the lesion and not through the mediation of a special organ or of some general bodily response. Most workers in the field agreed that cortisone does not interfere with the formation of antibodies or with their fixation to a sensitized group of cells. It does inhibit the usual inflammatory reaction of the connective tissue elements to the fixed antibody.

Anterior Pituitary. Diabetes insipidus is a disorder of water excretion caused by a deficiency of antidiuretic hormone (A.D.H.), secreted by the posterior pituitary gland. The kidney becomes unable to hold back water efficiently, and the result is a urinary volume which may reach 15-20 litres per day. It had been known for many years that an activity of the anterior pituitary was also involved in this disorder, because damage to both parts of the pituitary gland did not result in diabetes insipidus. During 1951 it was shown that the growth hormone or a factor associated with it acts in an opposite fashion to A.D.H. It promotes the excretion of water. It became evident that the regulation of body water is complex and that at least three hormonal factors are involved: A.D.H., growth hormone and the adrenal cortical steroids.

Thyroid. Many years before the observation had been made that the cells of a small area of the mid-brain seemed to concentrate iodine. No explanation for this phenomenon was forthcoming. During 1951 D. E. Clark and his co-workers studied the problem with the use of isotopic iodine (I^{131}). They found that there was no particular concentrating capacity for inorganic iodine in any part of the brain. However, thyrozine (possessing isotopic iodine) accumulated in certain areas of the mid-brain. This work served to stimulate interest in two aspects of thyroid physiology: the well-known effects of thyroxine on the autonomic aspects of brain function, and the equally well-established effects of central nervous stimulation on the rate of thyroid function. It began to appear that both of these aspects might have their seat of action in the mid-brain. (RA. L.; S. SO.)

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ENGINEERING: *see* AIRCRAFT MANUFACTURE; BRIDGES; BUILDING AND CONSTRUCTION INDUSTRY; CANALS AND INLAND WATERWAYS; COAL; DOCKS AND HARBOURS; ELECTRICAL INDUSTRIES; ELECTRIC POWER; ELECTRIC TRANSPORT; ELECTRONICS; FLOODS AND FLOOD CONTROL; GAS; HEAVY ENGINEERING; IRON AND STEEL; JET PROPULSION AND GAS TURBINES; LIGHT ENGINEERING; MACHINERY AND MACHINE TOOLS; MOTOR CYCLE AND CYCLE INDUSTRY; MOTOR INDUSTRY; RADIO, SCIENTIFIC DEVELOPMENTS IN; RAILWAYS; ROADS; SEWERAGE; SHIPBUILDING; TELEGRAPHY; TELEPHONE; TELEVISION; TEXTILE INDUSTRY; TUNNELS; WATER SUPPLY.

ENGLAND: *see* GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

ENGLISH LITERATURE. In English writing in 1951, intelligence, industry and ability were applied in good measure, but that extra *élan* needed to lift the writer's prose above the level of mediocrity was too seldom evident. The predicaments of the times were much in writers' minds. E. M. Forster's occasional pieces had long stimulated a desire for a new large-scale work from his pen. This, alas, did not seem to be forthcoming, but some consolation was to be derived from *Two Cheers for Democracy*, a stimulating collection of essays, lectures and broadcasts on political and aesthetic themes. So far as the political writings were concerned the conclusion suggested was that "though we cannot expect to love one another, we must learn to put up with one another"; the papers on the arts were informed, cogent and persuasive, and the whole volume reflected an alive, creative intellect.

While E. M. Forster advocated tolerance, Bertrand Russell, in his *New Hopes for a Changing World*, made a plea for courage to overcome and discard obsolete fears and hatreds which had involved man in conflicts with Nature, with other men and with himself, and which had brought oppressive gloom instead of the happiness that modern knowledge and skill rendered possible.

From the time of *The Great Illusion* (1910) onwards Sir Norman Angell had campaigned for sane political thinking, and this appeal to reason was reiterated in his autobiography, *After All*, which gave, too, a full account of the vicissitudes of a life spent largely in the cause of peace and service of others. The dangers which Charles Morgan believed threatened the mind and spirit of man were examined in *Liberties of the Mind*, a collection of essays designed to assist recognition of the attack upon those mental and spiritual freedoms which are "the breath of reason and faith"; while *The Estate of Man*, the last work of Michael Roberts, poet, philosopher and teacher, was an inquiry into "the limits of man's capacity to adapt himself to the conditions which he had helped to create."

Something of Stephen Spender's efforts to adapt himself to his times, his private and public life, and his political preoccupations and personal friendships were described in *World Within World*; and the second part of Freya Stark's autobiography, *Beyond Euphrates*, concerned with the years 1928-33, illuminated the author's thoughts and beliefs, as well as her life in Baghdad and travels in Persia and other lands.

A group of royal portraits ranged from the Duke of Windsor's memoirs, *A King's Story*, and the late Lord Sysonby's impressions of court life with Queen Victoria, King Edward VII and King George V, *Recollections of Three Reigns*, to Miss Dorothy Margaret Stuart's study of Princess Charlotte of Wales and her family, *Daughter of England*, and Professor A. Aspinall's edition of the unpublished correspondence of Mrs. Jordan and the Duke of Clarence, later King William IV—*Mrs. Jordan and Her Family*.

Steven Runciman, having declared his belief that the supreme duty of the historian was " to attempt to record in one sweeping sequence the greater events and movements that have swayed the destinies of men," presented, in the opening volume of *A History of the Crusades*, a political and military narrative of the first crusade. Austin Lane Poole's *From Domesday Book to Magna Carta*, a scholarly volume in the " Oxford History of England," concentrated on documentation and facts, and if in so doing it sacrificed, to some extent, the interest of the general reader, it was a valuable contribution to the study of one of the most remarkable passages in English history. David Mathew's *The Age of Charles I* surveyed the social life of the period; B. H. G. Wormald's *Clarendon* reassessed the great 17th-century statesman's career and offered some conclusions about his beliefs and policies before the Restoration; and Professor Andrew Browning completed a definitive life and letters of *Thomas Osborne, Earl of Danby and Duke of Leeds*, who helped to bring about Clarendon's fall.

The changes brought about in Great Britain's international position between 1830 and 1841 were surveyed in Sir Charles Webster's two volumes on *The Foreign Policy of Palmerston* and rewarding studies of more recent statesmen and politicians included the fourth volume of *The Life of Joseph Chamberlain* (1901-03), written by Julian Amery, who undertook completion of the task after the death of J. L. Garvin; Thomas Jones's satisfying " interim, unofficial " portrait, *Lloyd George*, based on his own intimate acquaintance with affairs and with the former prime minister; *The Life of George Lansbury*, by Raymond Postgate, who sometimes allowed his own political philosophy to get between his subject and the reader; and *The Last of the Radicals*, Miss C. V. Wedgwood's biography of her uncle, that staunch individualist Josiah Wedgwood.

While Winston Churchill was continuing his story of World War II—the fourth volume, *The Hinge of Fate*, was devoted to Jan. 1942-June 1943, when, for the first six months " all went ill; for the last six months everything went well " —biographies of two kindred spirits, fighting admirals of World War I, whose talents Churchill recognized when first lord of the Admiralty, were being completed. *The Life and Letters of David, Earl Beatty* was authoritatively written by Rear-Admiral W. S. Chalmers; the career of Roger Keyes was ably and affectionately recorded by General Aspinall-Oglander in *Roger Keyes*.

Roy Harrod offered a well-proportioned *Life of John Maynard Keynes*, which did not neglect Keynes's interests outside economics. Noel Annan's book, *Leslie Stephen*, on the man of letters, mountaineer, editor of the *Dictionary of National Biography* and father of Virginia Woolf, was largely concerned, with Stephen's thought and character, his participation in the main intellectual movements of his time and the contribution he made to Victorian ethics. A study of the Victorian theatre and the relationship then existing between stage and society formed part of Laurence Irving's comprehensive life of his famous grandfather, *Sir Henry Irving: the Actor and his World*.

William Cowper, John Clare, S. T. Coleridge, James Thomson, Jefferson Hogg, William Hayley and Wilkie Collins were among the familiar literary figures of the past reassessed and re-examined and, if the re-siftings of evidence yielded little to revolutionize accepted judgments, they at least contributed something towards fuller understanding of the writers' lives and backgrounds. Two important works on literary and linguistic criticism respectively were J. W. H. Atkins's *English Literary Criticism: the 17th and 18th Centuries* and William Empson's brilliant *The Structure of Complex Words*, which was a worthy successor to his *Seven Types of Ambiguity* (1947).

Lastly, there was Mr. and Mrs. Peter Opie's fascinating and scholarly *Oxford Dictionary of Nursery Rhymes*, which brought together more than 500 traditional rhymes and songs, and offered some interesting theories about their origins and functions. (A. Ck.)

Fiction. During 1951, most of the leading novelists produced work of some kind, if not, in some cases, their best. Foremost among them was I. Compton-Burnett whose characters in her new novel *Darkness and Day*, from rebellious bootboy to tragi-pathetic children, were ruthlessly and superhumanly articulate as ever and haunted, as in all her books, by the menacing but always mentionable sins of the fathers. The mood of the book seemed mellower than in Miss Compton-Burnett's earlier novels but the reader still felt the impact of a wise and cultured mind, and the wit was keen and sure.

Graham Greene's preoccupation with sin and sex was dispiriting, if cathartic, in *The End of the Affair*; physical passion was brilliantly conveyed in a guilt-ridden tale of adultery that ended with minor miracles. It could be objected that the submergence of personality through lust, though convincing, made of its hero something less than a man. (The same was true of Julia Strachey's pretentious novel *The Man on the Pier*.) Greene's description of Roman Catholicism as an infection had doubtless, in a Protestant country, provocative appeal.

The Masters by C. P. Snow was an erudite and tense tale of college politics and Machiavellian dons, although Snow's avowed aim to follow his hero through the differing strata of English life was perhaps more soçiological than literary. Beside Robert Liddell—with whom he invited comparison—he seemed somewhat humourless; a lightweight novelist. A sense of culture informed every page of Charles Morgan's *A Breeze of Morning*, a tale of subtly differentiated shades of love and longing told urbanely, at times poetically, against the background of a classical education. Through it ran the flashing stream of Morgan's immaculate prose. In the same tradition was Anthony Powell's slight but civilized autobiographical novel *A Question of Upbringing*. In *A Way through the Wood*, Nigel Balchin's treatment of the theme of adultery was somewhat similar to Graham Greene's, with, characteristically, more stress on psychology than religion. He communicated with understanding the feelings of an analytically minded husband for the irresponsible and faithless wife he still loved. William Sansom, in *The Face of Innocence*, gave, less convincingly, the case history of a tiresome female psychopath. Francis King's *The Dividing Stream* saw the return of the unspoilt child of nature. *My Fellow Devils*, a new work by L. P. Hartley, and V. S. Pritchett's *Mr. Beluncle* were published towards the end of the year.

Among historical novels, Lord Belhaven's *The Eagle and the Sun*, an inspiring account of the march of the Tenth

Legion into Arabia in the time of Augustus, was well-documented and written in soldierly, if sometimes over-disciplined prose. John Cowper Powys' *Porius* was a vast, shrouded chronicle of the time of King Arthur. It was strenuous work to follow Powys through his shadowy, glamorous world of magic and legend. Of the semi-documentary novels of contemporary history, Robert Harling's *The Paper Palace* and, in the thriller class, Eric Ambler's *Judgement on Deltchev* were outstanding. Ambler brilliantly evoked the atmosphere of subterfuge and tortuous plot and counterplot in a régime behind the iron curtain. Harling dealt with the shady chapter in a press baron's success story. It was an accomplished first novel, slick and journalistic, yet illuminating the social scene. Of the war novels, the greatest demand was for Nicholas Monsarrat's *The Cruel Sea*, which became a best-seller on both sides of the Atlantic. Robin Maugham showed signs of family talent in *The Rough and the Smooth*, a well-planned if somewhat uneven story of a tawdry *femme fatale*. Anthony West, in *Another Kind*, proved himself to be a more mature and sophisticated writer, but this, his second novel, was over-ambitious. The first part, which dealt with the infatuation of a mediocre architect for a superior harlot, was at times impressive. His idea of civil war in Great Britain was less convincing and the two strands of his novel failed to cohere.

In 1951, few collections of short stories called for special comment. The most noted event was probably the publication, in three volumes, of W. Somerset Maugham's collected tales. H. E. Bates's stories in *Colonel Julian* seemed at times mechanical. Compassion for the underdog was vitiated, in some of them, by a stultifying bitterness. Noel Coward's *contes* in *Star Quality* were typical—rather dated, a little like nostalgic gramophone records. The theme throughout Denton Welch's posthumous *A Last Sheaf* was the plight of the sensitive, even soft, individual in a hard world. In novels and short stories alike there was less satire than in the previous year. Preoccupation with sex could be seen as an escape through the senses from a world that was viewed, sometimes with perplexity, sometimes with compassion, often with despair. Apathy rather than Stoicism set the literary mood. Heroes were notably unheroic. Helen, not Penelope, was the Woman of the Year. (L. Pa.)

Poetry. The year 1951 was not outstanding in English poetry. The Arts Council of Great Britain instituted a poetry competition for narrative and lyric poems, to be judged by a panel of university dons and, perhaps for this reason, few established poets competed. The winning entries did not discover any remarkable new young talent, unless it was that of Robert Conquest, one of the lyric winners. These poems were published by Penguin Books.

In general the publication of poetry became even more difficult, owing to rising costs, but several small productions on the lines of the old broadsheets gave new hope to young poets seeking a hearing. In particular, the Hand and Flower Press and the Latin Press produced works of taste and promise by poets whose names were unfamiliar to the public; *e.g.*, Thomas Caddick and Guido Morris.

Of the older, established, poets, Walter de la Mare published a long poem, *Winged Chariot*, on the subject of time, full of the felicities of his unique talent; Robert Graves, in his *Poems and Satires 1951*, did not add greatly to his reputation. Perhaps the most remarkable publication of the year was *The Collected Poems of Keith Douglas*, a young writer of very great promise killed in Normandy in 1945. The *Selected Poems* of the American poet Richard Eberhart gave English readers a new insight into one of the most original poets writing, and the *Collected Poems* of Marianne Moore emphasized the preciosity of much that had been labelled " modern " in the previous 25 years. *Poems 1938-49* introduced to English readers another young American poet of promise, Robert Lowell. *The Poems of C. P. Cavafy*, the Greek poet, translated by John Mavrogordato, were compared with those of W. B. Yeats as being some of the most beautiful the 20th century had produced.

Among books by women writers, *One is One*, a new collection by Mrs. P. D. Cummins, was a book noteworthy for its expression of the pain and grief of existence. In *The Golden Bird*, Anne Ridler forsook her domestic variations for fairy-tale, not entirely unsuccessfully. In her heroic poem, *Gods with Stainless Ears*, Lynette Roberts produced a work of eccentric brilliance.

The activities of those bodies concerned with presenting poetry to the public orally were continued. The British Broadcasting corporation produced a new translation, by C. Day Lewis, of Virgil's *Aeneid*. Many lesser readings were given by the P.E.N., the National Book league, and the Apollo society. The British Council, in collaboration with the Gramophone company, continued to present its issues of recorded classics. (P. Dn.)

ENGRAVING: *see* Drawing and Engraving.

ENTOMOLOGY. The Ninth International Congress of Entomology was held in Amsterdam during Aug. 17-24, 1951, and was attended by over 700 entomologists from 38 countries. Nearly 300 papers were read at the meetings of the 14 sub-sections. Two topics of special interest to the host country—the role of entomology in temperate and tropical agriculture—attracted many experts in these fields.

The Insect Egg-Shell. Insect eggs are small and would rapidly dry up unless adequately " waterproofed." This is one function of the egg-shell. A second is the mechanical support of the embryo. But those properties which confer rigidity and impermeability also render the shell impermeable to oxygen. Although the microscopist Karl Leuckart in the last century described certain minute channels in the egg-shell, little was previously known of their function and anatomical complexity. By employing a new method for injecting the air spaces with a black precipitate of cobalt sulphide, V. B. Wigglesworth and J. W. L. Beament were able for the first time to trace their distribution accurately. Leuckart's canals were shown to have a respiratory function, permitting oxygen to diffuse into the embryo. An unexpected discovery was that the canals did not contain a continuous air column, but instead were filled with a spongy air-filled protein matrix; further, they communicated internally with an air-filled protein layer which, forming part of the shell, entirely enveloped the embryo. Although Leuckart's canals are usually sited at one pole of the egg, the oxygen diffusing through this porous " pneumatic " layer is sufficient to supply the requirements of the posterior regions of the embryo.

Researches on the structure and physical properties of the egg-shell have more than an academic interest. In combating orchard pests the aim is often to control the insect in the egg stage. It is now known that the shell material of many eggs is virtually impermeable to all ovicidal substances. In order to reach the living oöcyte the ovicide must penetrate Leuckart's canals and the pneumatic layer and also pass through the inner wax layer which waterproofs the egg.

J. J. Matthée's description of the egg of the South African brown locust, *Locustana pardalina*, was also an interesting contribution in this field in 1951. In the eggs of this insect, the absorption of water is a necessary preliminary to development. The evaporation or uptake of water can only occur through a specialized area of the chorion, the hydropyle. The deposition of a protein-like substance over the hydropyle surface plays an important role in preventing evaporation

in dry atmospheres while offering no resistance to absorption if water is present in a liquid state.

Matthée's observations on the water relations of the egg explained a puzzling feature of the ecology of this locust, namely the sudden appearance of hopper bands in localities where swarming adults had been absent for years. Eggs laid in the very dry soil of the natural habitat (the Karoo) probably survive by absorbing a little moisture during light rain showers. However, the full complement of water needed for development and hatching only becomes available after the rare periods of heavy rainfall.

Other Adaptations to Arid Environments. H. E. Hinton (Bristol) described a most unusual adaptation. Although most insects are protected against rapid evaporation by a waxy waterproofing layer at the surface of the cuticle, they are normally unable to survive excessive loss of water. The larva of the chironomid *Polypedilum vanderplanki* is exceptional and can tolerate almost complete dehydration for over 18 months. The insect has been found in small unshaded pools on granite rock masses in Nigeria. As the pools dry up completely from time to time, the free-swimming larvae are repeatedly subjected to severe desiccation and to high temperatures. It is interesting that the larvae, when brittle and desiccated, can withstand much higher temperatures (68°C.) than the active larvae (42°C.).

A further example of tolerance of extreme dehydration was given by K. R. Norris who worked on the biology of the red-legged earth mite, *Halotydeus destructor*, an important pasture pest in Western Australia. The "aestivating" eggs of this mite are usually retained in the dead body of the female, and can survive soil temperatures of 60°C. or more, sometimes remaining viable for over four years. When moistened by winter rains water is absorbed and hatching occurs. But the eggs fail to hatch unless the temperature is sufficiently low—a probable safeguard against premature hatching during occasional heavy summer rains.

The Ecology of Salt-Marsh Beetles. Several species of the staphylinid genus *Bledius* occur along the Jutland coast, where the insects may be found tunnelling in sandy soil between or above the tidemarks. Among the many aspects of their biology studied by Ellinor Bro Larsen (Copenhagen) may be mentioned their adaptations to the high salt content of the environment and their sub-social behaviour. The beetles feed on algae. Although some species avoid too high a concentration of salt in their diet by collecting the algae after rain, one species, *B. Spectrabilis*, cannot do so as its burrows are covered daily by the tide. However, the insect is physiologically adapted to this situation and is able to maintain the normal osmotic pressure of the blood by withdrawing water from the gut against a steep concentration gradient. Although in this respect a salt-laden medium is apparently unfavourable, *Bledius* chooses it in preference to a fresh one. In nature, this choice may possibly confer some degree of protection against parasitic wasps and fungi. The galleries of *Bledius* are partially ventilated by the tide movements. But the egg-chambers, which require extra oxygenation, are kept ventilated by the digging activities of the females—an interesting example of maternal care.

Host Plant Selection by Aphids. The selection of hosts by phytophagous insects was often thought to be dictated by their botanical affinities. This argument was based on the assumption that the significant "token" substances in the plant, perceived by the insect's sense of taste or smell, are more likely to occur in allied than in unrelated species. When applied to the aphids, however, this line of reasoning broke down, for in those species with alternate hosts, the winter and summer hosts are always quite unrelated botanically. Investigations of the black bean aphid, *Aphis fabae*, by J. S. Kennedy showed that a second factor, the physiological leaf age, was of great importance. On both the primary host, the spindle tree *Euonymus*, and on a secondary herbaceous host, such as sugar beet, aphids were found to prefer growing or senescing leaves to mature leaves. The summer migration to secondary hosts may indeed be provoked by the maturity of the spindle foliage which is unattractive in comparison with the complete range of leaf conditions to be found at this time on the secondary host. Under other conditions, however, token stimuli unconnected with the nutritional requirements of the insect may play a leading role in host selection. This "dual discrimination" theory, proposed by Kennedy, suggested that selection depends on the interplay of these two classes of stimuli.

A Rare Australian Aphid. E. O. Essig of Berkeley, California, published a short account of *Anomalaphis comperei*, which had again been found at the original locality of Albany, Western Australia. It was last collected in 1904. The aphid, which has many peculiar features, is interesting as being the only endemic species of Australian aphid. Its nearest ally was considered to be a newly discovered Chinese species taken from the "living fossil" *Metasequoia*.

Insect Fauna of Northern Europe and the Pleistocene Glaciation. Geological evidence has often been used in tracing the probable effects of past climatic changes on insect distribution. In contrast, studies by C. H. Lindroth of Djursholm, Sweden, on the distribution of ground beetles (*Carabidae*) led to some revision in the geological interpretation of the extent of the Pleistocene glaciation in Scandinavia. Certain carabid species, for example *Bembidion grapei*, exhibit a striking wing dimorphism, the short-winged character being a simple Mendelian dominant. In expanding populations of these insects the homozygous long-winged beetles spread in front of the short-winged forms. By mapping their distribution Lindroth was able to show (in agreement with the botanical evidence) that Scandinavia was not uniformly glaciated, as was once supposed, but contained warmer "refuges" on the Norwegian coastline from where the surviving relict populations radiated in post-Pleistocene times.

Insect Polyhedral Diseases. The researches of E. A. Steinhaus and his co-workers at Berkeley, California, demonstrated the possibilities of utilizing a naturally occurring virus disease as a practical means of controlling an insect pest—in this case the alfalfa caterpillar *Colias philodice*. The polyhedral bodies were extracted from diseased caterpillars and after suitable dilution were used as a spray material. Under natural conditions these "wilt" diseases often affect the insect too late in larval life to prevent damage to the crop. In field tests it was found possible both to infect young larvae and to initiate an epidemic in the population.

The nature of the polyhedral bodies, which in Lepidoptera develop in the cell nuclei of infected tissues, has not been fully understood. G. Bergold demonstrated in Canada that, although the polyhedra were not the virus, the latter could nevertheless be released from the polyhedra by suitable chemical treatment. New facts concerning their form and structure were also revealed by electron microscopy, an example being the paper by K. M. Smith and R. W. G. Wyckoff (see below). (A. D. Ls.)

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ENVOYS: *see* AMBASSADORS AND ENVOYS.

EPIDEMICS. Reports received by the World Health organization indicated that, in 1951, epidemics of plague were confined to southeast Asia, although a few cases were reported elsewhere. Central India was the chief sufferer but the incidence was not as heavy as in 1950. A small outbreak of 150 cases was reported from the Yemen in July, shortly before the annual pilgrimage to Mecca was due to start. Fortunately the outbreak did not spread to any place in Saudi Arabia near the pilgrims' route to the holy places and the pilgrimage was declared free from epidemic disease.

Cholera in epidemic form was present in Burma at the beginning of 1951 and continued throughout the year, declining gradually. The maximum number of cases in a week was 176. India suffered severely, particularly central India and West Bengal. In the latter, the port of Calcutta reached a peak in May with 337 cases and 111 deaths in one week. In Madras state, at the beginning of the year, over 2,000 cases were occurring weekly. By mid-March the incidence fell to about 1,000 a week, and then for some months to about 700 a week, diminishing towards the end of the year. A similar trend occurred in the other affected areas.

Smallpox was reported continuously throughout the tropical and subtropical countries of Africa and Asia. An epidemic was present in India at the beginning of the year affecting, in particular, the states of Madras, Madhya Pradesh, Bihar and West Bengal. The neighbouring Pakistan province of East Bengal was also severely affected. In the port of Calcutta the incidence reached a peak of 680 cases a week in mid-March, but within four months this had declined to less than ten cases a week. The port of Bombay was also affected but less severely. The presence of smallpox in busy ports was of great epidemiological importance since, owing to the 14-day incubation period of the disease, infected travellers might reach distant countries before showing any signs of smallpox. By air they might reach almost any part of the world. In Africa the main outbreaks were in Nigeria, French West Africa and the Belgian Congo.

Yellow fever gave rise to no epidemics of non-jungle type. Most of the sporadic cases reported were from the Gold Coast. There was, however, a serious outbreak of jungle yellow fever, which started late in 1950 in the inaccessible part of the state of Goiaz in Brazil and was brought under control in 1951 with the aid of mass immunization. There were 2,000 cases reported with an estimated 400 deaths. Small outbreaks of jungle yellow fever were reported from Ecuador, Costa Rica, and Panama.

No major epidemic of typhus occurred during 1950. Afghanistan, Ethiopia and Ecuador had small epidemics and minor outbreaks were reported from Yugoslavia and Portugal. Louse-borne typhus became much easier to control since new and efficient residual insecticides such as D.D.T. were readily available and easy to use.

Cerebro-spinal meningitis as a serious epidemic disease had, of recent years, chiefly affected Africa. In late 1950 the disease appeared in the west of the Anglo-Egyptian Sudan and in 1951 it spread across the northern half of the country, causing over 51,000 cases with 7,000 deaths. Modern methods of treatment with sulpha drugs and antibiotics greatly reduced the mortality rate for this disease but poor communications in Africa resulted in delayed treatment and raised the mortality rate in many areas.

An epidemic of influenza began in Scandinavia towards the end of 1950 and spread to many other countries in Europe early in 1951. A very sharp outbreak occurred in the United Kingdom, which reached a peak at the end of January and ended a month later. The disease was also reported in Canada and the United States with moderate outbreaks.

The World Influenza centre of W.H.O. was set up in London and certain influenza centres of other countries were engaged on the work of indentifying the causal virus or viruses from throat washings.

Early in the year measles was more prevalent than usual in most countries of Europe and in the United States. In most countries the incidence was higher than in any year since 1942. (*See* also BACTERIOLOGY.) (H. M. E.)

ERITREA. Former Italian colony on the Red sea bounded S. by Ethiopia and W. by Sudan, under temporary British administration from 1941. Area: 48,350 sq.mi. Pop. (1950 est.): 1,100,300 (incl. 18,000 Italians). Language: mainly Tigrinya and Tigré. Religion: *c.* 50% Christian (Coptic) and 50% Moslem. Capital, Asmara (pop. *c.* 117,000). British chief administrator, D. C. Cumming.

History. On Dec. 2, 1950, the U.N. general assembly passed a resolution providing for the federation of Eritrea with Ethiopia before Sept. 15, 1952. Eritrea was to be granted autonomy in domestic matters and the powers to be vested in the federal government were specified. The solution was accepted by all the states concerned. Whilst it did not satisfy the demands of the two major and opposing political factions in Eritrea, one of which, mainly Christian, wanted full union with Ethiopia, and the other of which, mainly Moslem, demanded full independence, it was well received locally. At a public meeting in Asmara all political parties agreed to accept the decision and to co-operate in making it effective. The United Nations commissioner, E. Anze Matienzo (Bolivia), reached Asmara in February, and both he and the British administration were preparing in their separate spheres the measures necessary for federation. These included framing a constitution for consideration by a representative assembly and forming an administration composed of Eritreans. No important visible results had appeared by the end of 1951, but many Eritreans had been brought into the administration to replace foreigners. The commissioner left for the U.N. general assembly in Paris in November. Although the political parties maintained their acceptance of the federal solution, their activities were directed towards shaping it to meet their respective original aims. The constitution on which this battle would be fought was still being drafted when the year ended.

For the first half of 1951 the state of public security in Eritrea gave cause for alarm. Numerous gangs of *shifta* (bandits) roamed the land and committed outrages and acts of lawlessness. All traffic by road and rail had to be controlled and restricted. The efforts of the forces of law and order were frustrated by the difficult terrain and by the unwillingness of the inhabitants to support them. It seemed likely that this state of insecurity would hamper the carrying out of federation. A new approach was inevitable and in June a general amnesty was proclaimed for all *shifta*, whatever their crimes; a proclamation giving the chief administrator stronger and more summary powers to combat lawlessness was enacted. These measures were successful. Some 1,300 *shifta*, including practically all the known leaders, surrendered and returned to a more settled life. The new security measures were vigorously applied and the inhabitants showed co-operation in enforcing them against subsequent offenders. The Ethiopian government gave full co-operation in frontier control to prevent "border-hopping" and brigandage was reduced to negligible proportions.

An agreement between the Ethiopian and Italian governments to resume diplomatic relations cleared the air and was well received. (F. E. S.)

Economy and Finance. Budget (July 1, 1949-March 31, 1950, actual) balanced by contribution from Great Britain as administering power at £2,950,597. Foreign trade (1950, recorded value): imports £4,089,620; exports £2,919,792. Roads (1950, maintained): 780 mi. Railways (1950): 193 mi. Ships entered at Massawa (1950): 773,828 N.R.T.

ESTONIA. From Feb. 24, 1918, to Aug. 6, 1940, when it was annexed by the U.S.S.R., Estonia, one of the Baltic states of northeastern Europe, was an independent republic. Area: 18,357 sq.mi. Pop.: (1939 est.) 1,134,000; (1950 est.) 1,200,000, but according to reliable estimates the purely Estonian population declined from 998,000 (88%) to 684,000 (57%) between 1940 and 1950. Language: Estonian and Russian. Religion: Lutheran and Greek-Orthodox. Chief towns (pop., 1939 est.): Tallinn (cap., 146,400), Tartu (60,100), Kohtla-Järve (1950 est., 30,000). Chairman of the presidium of the Supreme Soviet of the Estonian S.S.R., August M. Jakobson; chairman of the council of ministers, Arnold T. Veimer and (from March 29, 1951) Aleksey Müürisepp.

History. On Feb. 25 the citizens of Estonia elected a new Supreme Soviet. The country was divided into 115 constituencies having each an average of 10,000 inhabitants. Out of a possible poll of 814,682 votes the total cast was 813,777 (99·89%) and only 1,118 (0·14%) votes were said to have been recorded against the official candidates. At the previous election, in 1947, there were 804,172 electors and 28,003 (3·5%) opposition votes. Only 57 of the 115 members of the new Supreme Soviet were Estonians; 31 were Russians of Estonian extraction, 26 Russians and one was Georgian (Joseph Stalin). In seven constituencies for members of the armed forces there were elected Admiral N. M. Kharlamov, deputy chief of staff of the Soviet navy and Major General L. I. Vaghin, in command of Soviet land forces stationed in Estonia, which was included in the Leningrad military area. It became known during the year that the principal Soviet naval base in the Baltic had been transferred from Leningrad to Tallinn.

On March 29 the Supreme Soviet relieved of his duties the premier, A. T. Veimer, the only remaining native-born Estonian Communist in the government. His dismissal, however, apparently involved no disgrace, for on March 13 he was awarded the Order of Lenin; he was also elected member of the new presidium of the Supreme Soviet. Previously unknown in Estonia, Veimer's successor, A. Müürisepp, was first heard of in 1949 on his appointment as deputy prime minister. The annexation of Estonia by the Soviet Union was followed by unprecedented expansion of bureaucracy. From 9, the number of ministers had risen by 1951 to 28, of whom 22 were either Russians or Russified Estonians. Of 49 deputy ministers 19 were Russians. Of 146 managers of industrial undertakings 71 were Russians.

The 6th congress of the Estonian Communist party was held at Tallinn, April 11-14. Ivan Käbin, first secretary of the central committee, remarked that while on the date of the previous congress (Dec. 1948) only 4·6% of all farms was collectivized, at the beginning of 1951 the proportion was over 90%. The debates centred mainly on the damage the " bourgeois nationalists " had done to the country; many speakers emphasized that the liquidation of their hard core in 1950 had not broken their influence.

Jaan Kivit, pastor of Viru-Jaagupi, was appointed archbishop of the Estonian Lutheran Church. In the summer the church synod met in Tallinn to support a " peace appeal " by the Georgian and Armenian patriarchs of the U.S.S.R. Roman Tang was appointed metropolitan of the Greek Orthodox Church of Estonia.

The Estonian National council, a central organization of Estonians in the western world, presided over by August Rei, the last foreign minister of independent Estonia, held its 3rd congress in Stockholm, Sweden, on April 29. Oliver A. Peterson, attaché to the U.S. embassy, addressed the congress and said that the struggle of the Estonians in exile had the sympathies of the American people. On June 3 the Voice of America added to its programme broadcasts in Estonian.

Education. V. K. Oja, an Estonian deputy to the Soviet of Nationalities said in Moscow on March 9, 1951, that there were 20% more pupils in primary and secondary schools than before 1940, four and a half times more in the technical schools and twice as many in institutions of higher education.

Industry. In 1951 oil shale production was estimated at more than 3 million tons, as compared with 1·7 million tons in 1939. The postwar 5-yr. plan, however, had asked for 8 million tons.

Finance. Budget estimates (million roubles, 1950; 1951 in brackets): revenue 1,039·2 (1,104·5), expenditure 1,019·6 (1,094·5). (K. SM.)

ETCHING: *see* DRAWING AND ENGRAVING.

ETHIOPIA. Independent empire of northeastern Africa bounded N. by Italian Eritrea (from 1941 under British military administration), W. by the Anglo-Egyptian Sudan, S. by Kenya, S.E. by Italian Somaliland and E. by British and French Somaliland. Area: *c.* 350,000 sq.mi. Pop. (no census ever taken, 1949 est.): 16,700,000.* Language: Amharic, the official language; also Tigrinya, Tigré, Galla, Somali, etc. Religion: Christian (Alexandrine) 57%; Moslem 17%; pagan, etc., 26%. Chief towns: Addis Ababa (cap., *c.* 250,000); Harar (*c.* 45,000); Dessie (*c.* 35,000); Dire-Dawa (*c.* 30,000). Ruler, Emperor Haile Selassie I; prime minister, Bitwadded Makonnen Endalkachaw.

History. The preparations for the incorporation of Eritrea by Sept. 15, 1952, into Ethiopia under the terms of the decision reached by the U.N. general assembly on Dec. 2, 1950, were well advanced. E. Anze Matienzo (Bolivia), the U.N. commissioner, who established his offices at Asmara early in 1951, was at the end of the year in Geneva drafting the terms of the constitution which he would recommend to the constituent assembly of Eritrea.

The settlement of the future of Eritrea cleared the way for the resumption of diplomatic relations with Italy; and an agreement for this purpose was reached following the visit of the Italian under secretary of state, Giuseppe Brusasca, early in September, thus putting an end, to quote the emperor's speech from the throne at his coronation anniversary on Nov. 3, to long-standing hostility.

During the year direct relations were instituted with Yugoslavia, Spain accredited its Cairo minister to Addis Ababa and Ethiopian ministers took up residence in Brazil, Venezuela and Mexico. The diplomatic representatives to and from Great Britain were raised to the status of ambassadors.

The emperor's adherence to the principles underlying the United Nations was evidenced in practical fashion by the sending of an Ethiopian infantry battalion of 1,158 officers and men to fight in Korea. The battalion, under Colonel Kebbede Guebre, arrived at Pusan on May 6 and was in action in August.

The administration of the service of the loans granted by the International Bank for Reconstruction and Development in 1950—U.S.$ 7·5 million for road construction and maintenance, U.S.$ 3 million for the new Development Bank of Ethiopia, and U.S.$ 1·5 million for telecommunications—was organized. An Imperial Highways authority was constituted, and work began on the trunk road connecting the capital with the port of Assab and on the important

* The official Ethiopian estimate given by the *Demographic Yearbook 1949-50* of the United Nations appears high in the light of information from other sources. The Italian estimate on Jan. 1, 1940, for the so-called Italian East Africa (Ethiopia, Eritrea and Italian Somaliland) was 11,216,000 which would bring the population of Ethiopia to some 9,450,000.



Emperor Haile Selassie (left) inspecting Ethiopian troops bound for service with the United Nations in Korea.

road linking the rich province of Sidamo in the south with the railway. An Imperial Telecommunications authority was charged with the responsibility of re-conditioning the existing land lines, installing, where suitable, wireless telephones and creating telephone links with the outside world. The Development bank was in being under the direction of Leon Józef Barański, formerly a director of the Bank of Poland, who, with the assistance of an expert staff of industrial and agricultural engineers and a legal adviser, was feeling his way cautiously amongst the many problems that confronted him.

Early in 1951 the government decided to hold an Agricultural, Industrial and Commercial exhibition, which took place from Nov. 17 to Dec. 2. Livestock and farm produce were collected from all over the country and were judged, and prizes were given. Government-imported cattle were on show and there were suitable agricultural and animal husbandry demonstrations. Local industries were exhibited; and a wide range of imported foods displayed. There was in fact ample evidence of the increased interest taken all over the country in the improvement of agriculture and cattle-raising; and of the higher standard of living which was reached at least in the capital and principal towns. Some 250,000 people passed through the turnstiles.

The Ethiopian year 1943 (Sept. 11, 1950-Sept. 10, 1951) was good for trade. Compared with the preceding year exports of coffee passed from 21,152 to 27,503 metric tons (in value from Eth.$ 32·5 million to 56·5 million) and exports of hides from 6,576 to 10,857 tons (in value from Eth.$ 6·8 million to 20·1 million). Although imports increased too, there was a surplus of Eth.$ 16·4 million.

On July 26, a special tribunal in Addis Ababa sentenced eight men, including Bitwadded Negash, a former president of the parliament, to death for plotting to assassinate the emperor and set up a republican régime. Ras Hailu, who in 1917 led a revolt against Haile Selassie, died in Addis Ababa on May 15, aged about 99.

Bishop Basilios, elected archbishop and primate of Ethiopia by the All-Ethiopian synod on Jan. 8, was the first Ethiopian monk to hold this office. Until then, traditionally, the chief bishop (abuna) was an Egyptian monk appointed by the Coptic patriarch. He was consecrated in his new post in Cairo on Jan. 14.

The plans for the construction of a university at Addis Ababa were proceeding. Meanwhile the small university college, which opened its doors on Dec. 11, 1950, had 46 students in their second year and a similar number who began their first year. (*See* also ERITREA.) (X.)

Education. Schools (1949-50): elementary 540, pupils 60,043, teachers 2,008 (including 286 foreign); secondary (1948-49) 15, pupils 1,079 (including 804 in Addis Ababa). There were 228 students abroad, mostly supported by the government.

Agriculture. Coffee production ('000 metric tons, 1948; 1949 in brackets): 115 (115). Livestock ('000 head, 1949): horses 1,100; asses 3,000; mules 1,000; cattle 18,000; sheep 17,000; pigs 8; goats 11,000; camels 2,000; chickens 26,000.

Foreign Trade. (Million Eth.$ 1949-50; 1950-51 in brackets): imports 74·6 (95·3); exports 68·3 (111·7). Main sources of imports: India 25%; U.K. 13%; U.S. 12%; Italy 9%. Main destinations of exports: Aden 25%; Eritrea 19%; U.S. 13%; French Somaliland 11%. Main imports: cotton piece-goods, machinery, sugar and salt. Main exports (1950-51): coffee 50%; hides 18%; cereals and pulses 10%; oilseeds 10%.

Transport and Communications. Roads: 43,300 mi., of which 11,100 are suitable for motor traffic. Licensed motor vehicles (Dec. 1950): cars 2,500, commercial 1,750. Railways: 486 mi. Air transport (Ethiopian Air lines, 1951, 10 months): mi. flown 1,348,500; passenger-mi. 13,411,416; freight, ton-mi 934,371.

Finance and Banking. Budget (million Eth.$, 1949-50): revenue 63·3, expenditure 63·2. Monetary unit: Ethiopian *dollar*. Exchange rate £1 = Eth.$ 7·00.

EUROPE, COUNCIL OF: *see* COUNCIL OF EUROPE.

EUROPEAN COAL AND STEEL POOL.

The Schuman pact signed in Paris on April 18, 1951, was to establish a coal and steel pool of the production of France, Germany, Italy, Belgium, the Netherlands and Luxembourg. These countries had in 1950 a combined output of 217 million tons of coal, 45·2 million tons of iron ores and 31·8 million tons of crude steel. The pool was to be administered by a High authority of nine, eight nominated for a six-year period by the several governments and the ninth co-opted by the nominated members. The authority was to co-operate with a ministerial council of six, whose consent in certain matters was needed; and it was to be supported by an advisory committee of producers, distributors and consumers appointed by the council. The High authority was responsible to an assembly of 78 representatives, either delegated by national parliaments or elected by universal suffrage. Its members could be removed by a vote of no confidence. A high court of seven justices was to decide on the legality of the authority's orders or recommendations on appeal from governments, producers or consumers. The pact was to run for 50 years but could be amended.

The authority planned the formation of a single market to which all members would have free access on equal terms. It was to encourage expansion and technical progress, improve labour conditions, give financial help, supply non-members at fair prices and bring about qualitative improvement all round. Internal duties and internal discrimination of trade or transport, subsidies, restrictive measures (cartels) and regional divisions of markets were forbidden.

The authority aimed at achieving competitive prices through the publishing of offers from private firms. It would exercise control over all associations of coal, ore, scrap or steel producers and dissolve or re-organize the syndicalized coal-selling agency of the Ruhr mines. It could fix maximum and minimum prices for the home markets and for exports. It could restrict output by imposing quotas and fine firms for

exceeding them; during scarcity, it could ration distribution by priorities and allocations.

In its purely economic aspect, the pact was a coal plan; in politics it spelled steel. In the absence of exports from Great Britain and the Soviet satellites, the pool's output had to satisfy its members' growing needs and provide a surplus for export. The only regular surplus producer among them was Western Germany; having to export about 20% of its production under the Ruhr statute, it had had, however, to import U.S. coal to keep its industries going.

A single market, not cut by tariffs or nationally fixed prices, would neither automatically increase output nor decrease consumption. Since prices ranged from 368 Belgian francs in the Netherlands to B.Fr. 400 in Germany, B.Fr. 500 in France and B.Fr. 685 in Belgium, free prices during scarcity would rise to the higher levels and profit low-cost producers. To offset this, the latter would have to pay a levy to be used for subsidizing high-cost producers in Belgium and France and to close submarginal mines in these countries.

In the first year Germany would pay £5,600,000 and the Netherlands £550,000. During this transition period (five to seven years), Belgium retained its tariff system. By these measures, a levelling of costs was expected though labour costs varied from Belgian Fr. 435 in Belgium to B.Fr. 295 in France and B.Fr. 192 in Germany. Larger coal supplies without which prices could not fall had to come almost exclusively from Germany where coal and coke were slowly gaining over the prewar output. But further production increases depended on more and better equipment and on more miners who would have to be housed. The capital required had either to be derived from self-financing, which meant higher prices, or from abroad. The necessary capital might amount to £225 million over 25 years.

As long as Great Britain and Poland did not resume exports, western Europe was more or less dependent on the Ruhr; Germany, besides, needed foreign exchange from exports outside the pool. In these circumstances, neither prices nor distribution would be left to free competition while allocations would necessarily raise political issues, especially where steel was concerned.

France produced 60% (30 million tons) of Europe's iron ores, and wanted to convert them at home; its ore exports to Germany declined from 5,800,000 tons in 1937 to a little more than 100,000 tons. It imported in addition a million tons from the Saar, 3·5 million tons of coal and 2 million tons of coke from the Ruhr, and produced 8·7 million tons of steel in plants remodelled in part with E.C.A. money; its target under the Monnet plan was 11 million, 3 million for export.

Germany was limited to 11·1 million tons by the Potsdam agreement and the Ruhr statute and was indirectly restricted by compulsory coal deliveries, mainly to France. Its home needs were about 15 million tons. Many of its plants were obsolescent, requiring about £200 million of new capital for a 12 million-ton output. To reduce "excessive economic power," they had been regrouped and deprived of the advantages of the ownership of captive mines. A number might buy at competitive prices 75% of their fuel from captive mines set up as separate enterprises. Once the Schuman part had been ratified all restrictions would cease, France being evidently convinced that its modernized plants using national ore and getting coal and coke at cheap German prices could outstrip its rival who had to import about 30% of its ore; France had never previously turned out more than 9·7 million tons of steel.

The pact camouflaged rather than abolished intense political and economic rivalries. It could succeed only by providing sufficient capital and labour to the Ruhr to raise enough cheap coal and coke to make them go all round. The dearth of skilled miners and steel workers was to be met by immigration on liberal terms which might in the long run roughly equalize wage levels in the participating countries. The entire concept of a single united market was, however, vitiated by the absence of any guarantee of stable currencies; members were free to inflate, devaluate or revaluate and upset the pool's price levels.

Once the shortages existing in 1951 had been overcome, distribution at reasonable prices would not be beyond the authority's power; but there was no proof that it could assure plenty. Until it had done so the question of who would go short during scarcity and which groups of workers would be laid off in a depression would agitate labour.

The launching of the plan was greeted with enthusiasm in France and Germany; by the end of the year public opinion was more critical. The French might be accepting it in the hope of securing the coveted ascendancy in the steel trade, the Germans seeing in it the quickest way to get rid of hampering restrictions.

By the end of 1951 the treaty had been ratified by the Netherlands and ratification had been approved by the French National assembly; just after the end of the year the Western German Bundestag also approved ratification. The British government announced that it would maintain permanent representation with the High authority when it was set up. (M. J. B.)

EUROPEAN RECOVERY PROGRAMME. Although U.S. economic aid to western Europe, which since 1948 had been dispensed under the European Recovery programme (E.R.P.) or Marshall plan, would continue till June 30, 1952, and probably beyond, the European Recovery programme proper came to an end, one year before its appointed time, in 1951. The event that marked its end was the passing of the U.S. Mutual Security act on Oct. 10, 1951, which changed the conditions, purposes and qualifications for U.S. aid to western European countries. Before surveying the events of 1951 in detail, it seems therefore proper to summarize the history of E.R.P. which led up to these events.

The idea of E.R.P., outlined by the then U.S. secretary of state, George C. Marshall, in a speech at Harvard on June 5, 1947, was that the United States, through an unprecedented act of inter-governmental peacetime generosity, should finance a co-operative effort of war-devastated Europe to put itself economically back on its feet. The United States offered to the countries of Europe very large loans and grants, asking nothing in return but a joint plan and effort to achieve independence from outside aid within a stated time. In a sense, it might be said that through the offer of E.R.P. the United States undertook to bear the European reparations burden of World War II.

Underlying this unprecedented offer, though not embodied in the diplomatic instruments finally exchanged, were several political purposes. The offer was made at a time when the wartime alliance between the United States, Great Britain and the U.S.S.R. had given way to definite antagonism between the U.S.S.R. and the West, and when the U.S.S.R. had, through the Iron Curtain, split Europe in half. It was originally made to all European countries, on both sides of the Iron Curtain, and even to the U.S.S.R. itself, and it might in this form have been intended as a last attempt to change Soviet Russia's mind, remove the Iron Curtain and re-establish an undivided Europe. After the Soviet government had rejected the offer for itself and forced its reluctant satellites also to reject it, E.R.P. became in the first place the means to stop the economic decline in war-shattered and insolvent western Europe, which exposed it to the increasing danger of Communist subversion and Soviet domination.

A second purpose was, in the minds of many of the U.S. sponsors and some of the European recipients of E.R.P.,

coupled with this primary one: namely, to provide an incentive for European economic and political union. The U.S. government, tactfully anxious not to appear to use economic pressure for political ends, limited the expression of this wish to an insistence on a joint and co-operative European recovery effort, and on mutal aid as well as self-help. The first U.S. aid administrator, Paul G. Hoffman, however, made it clear that he expected an effective European joint recovery to take the form of a merger of Europe's national economies in a large free trade area within a customs union, implying in all probability also a political union. However, while these ideas were enthusiastically shared by some continental governments —especially the French, the Italian, and later the Western German government—they were rejected by the British and by the Scandinavian governments, who insisted on keeping European economic co-operation on a strictly voluntary inter-governmental basis, leaving economic and political national sovereignty unimpaired. As a consequence, E.R.P. and the movement towards European union never joined company. The Organization for European Economic Co-operation (O.E.E.C.), which dealt with the distribution of Marshall aid and the freeing of inter-European trade, never tried to become a supra-national authority, and the movement towards European union proceeded through other, narrower channels. There was no doubt that this development somewhat cooled the U.S. enthusiasm for E.R.P., although it did not prevent the very large annual aid appropriations from passing congress on a slowly decreasing scale.

A second international development to affect the course of E.R.P. was the increasing tension between the West and the Soviet Union, which gradually added to the danger of economic collapse and internal subversion in western Europe, which had seemed paramount at the inception of E.R.P., the danger of military aggression. Of the 18 countries participating in E.R.P., 10 joined, in 1949, with the United States and Canada in the North Atlantic treaty to guard against this danger in a defensive alliance. These countries became eligible for separately administered military assistance. This military assistance was at first conceived on a smaller scale than economic aid under E.R.P., but after the outbreak of the Korean war in June 1950 many Americans began naturally to attach greater importance to military assistance to their allies than to economic aid given to allies and neutrals alike.

A third factor making for the premature end of E.R.P. was its own extraordinary success, which surpassed all expectations. Scheduled to last for four years, during which the European economy was to attain the conditions for internal prosperity and external solvency—especially *vis-à-vis* the dollar area—it had already within two years enabled Europe to surpass its prewar production on an average by 30%. A specific dollar problem remained, and economic forecasters expected it to remain even after E.R.P. would have run its full course till June 1952. But the outbreak of the Korean war and the extraordinary increase in the U.S. buying which followed it made even this dollar gap temporarily disappear, thus proving that the existence or non-existence of a dollar gap depended on many other factors besides European production and could not by itself be regarded as a yardstick of completeness in European recovery. The situation following the Korean war confronted Europe with several new economic problems, especially those of a serious world raw materials shortage, a change for the worse in terms of trade with primary producers, and the economic demands of rearmament. But these were not the problems with which E.R.P. had been designed to cope.

As a consequence, few of the original ideas underlying E.R.P. remained operative in the beginning of 1951. Its direct economic purposes—the restoration of western European production and the elimination of western Europe's dollar deficit—had been largely fulfilled ahead of expectation, the first permanently, the second at least temporarily. The danger of Communist subversion in western Europe had receded. The new danger of Soviet aggression had to be dealt with by other means and in another context—that of the North Atlantic Treaty organization (*q.v.*), only partly overlapping with the organs of E.R.P. So had the aspirations towards European union, now embodied in the plans for a European Coal and Steel Pool (*q.v.*) and a European Defence community, whose membership comprised only 6 of the 18 E.R.P. countries. E.R.P. itself had long ceased to be a vehicle of European unification, had never been a vehicle of European military defence and had largely fulfilled its purpose as the instrument of European political defence and economic rehabilitation.

By the beginning of 1951, therefore, the structure of the U.S. aid under E.R.P. had begun to crumble. The largest recipient, Great Britain, had agreed to a suspension of aid as from Jan. 1, 1951. Ireland followed on May 2, 1951, and Sweden and Portugal on July 31, 1951. Though the other recipients continued to draw aid, few exhausted their allocations, so that by July 1, 1951, a sum of $818 million (of an original annual appropriation of $2,526 million for 1950-51) remained unspent. William C. Foster, head of the U.S. Economic Co-operation agency (E.C.A.), which administered the E.R.P. aid, announced on July 31 that the progress of recovery in western Europe was such that it would become possible to limit dollar assistance to a few special cases were it not for the Soviet design to subvert and subjugate the European allies of the United States.

Accordingly, the U.S. congress passed on Oct. 10, 1951, the Mutual Security act, which abolished E.C.A. and merged all U.S. aid dispensations abroad under a new Mutual Security agency (M.S.A.). The Mutual Security agency was to continue the activities of E.C.A. but make effective rearmament rather than economic recovery the purpose of further aid. After June 30, 1952, by which time the liquidation of E.C.A. would be completed, M.S.A. would develop and administer aid programmes designed to sustain and increase military effort, including production of equipment and material in each country, or in groups of countries, which received U.S. military assistance. It would also provide such equipment, materials, commodities, services, financial or other assistance as might be found necessary for carrying out mutual defence programmes.

In other words, while financial assistance of a general economic character, as apart from direct delivery of arms and military equipment, was not excluded, the criterion would be its contribution to the recipient country's rearmament effort, and it would be restricted to countries which also received direct military assistance. This group of countries, though not necessarily confined to members of the North Atlantic treaty (Spain, Yugoslavia and Western Germany might also qualify for U.S. military assistance), was not entirely identical with the E.R.P. countries, which included neutrals like Sweden, Switzerland and Ireland. To make its meaning even clearer, congress appropriated to Europe for the year July 1951-June 1952 $4,818 million of direct military aid and only $1,022 million of general economic aid, though with several mitigating qualifications: the president was empowered to transfer at his discretion 10% of military aid funds to economic aid, to allocate the $818 million appropriated but unspent in the preceding year and to help Europe solve its dollar problem by placing defence orders for the U.S. armed forces in Europe. On Oct. 31, W. Averell Harriman was appointed director of the new Mutual Security agency.

While this act meant the end of E.R.P. in the exact form in which it was conceived in 1947-48 and operated in the following years, it extended, in a different form, the type of

intimate economic co-operation between the United States and most of western Europe that E.R.P. had established for a limited time, into an indefinite future. For the rest, E.R.P. left the monument of its success, and an invaluable precedent. It also left two more tangible institutions which survived the conditions that called them to life and might still have important functions to fulfil.

The first of these was the European Payments union (E.P.U.)—the intergovernmental European clearing bank which was established in 1950 with a reserve largely provided by E.R.P. funds, and which enabled the western European countries to resume free multilateral trade among themselves and with the countries of the sterling area. Whether E.P.U. could yet withstand the stresses of economic changes and uncertainties without any further dollar injections was not quite certain. It had a vital permanent function to fulfil, and if it should come to be endangered this would be the most serious consequence of the cessation of E.R.P.

The second surviving institution was O.E.E.C., hitherto the organ for allocating E.R.P. aid among the European recipients. Although no longer able to discharge this basic function, it was unlikely to disappear and might yet prove valuable as a negotiating platform for the economic policies of the various western European governments as an instrument of international economic planning in specific fields. How much real work it would have left to itself by the side of the organs of the closer European coal, steel and defence community and the ones of the wider North Atlantic Treaty organization was, however, hard to predict. Its most important effort in 1951 was a 22-point declaration, issued on Aug. 29, which called in general terms for a 25% increase in European production during the next five years and for continuing co-operation between the member countries to reduce obstacles to trade and develop their association with E.P.U. It was, however, notable that the target of a general 25% increase in production over five years was not elaborated or broken down into details, in striking contrast with the four-year programme worked out by the E.R.P. countries, through the Paris conference which proved to be the forerunner of O.E.E.C., in Sept. 1947, in response to the U.S. aid offer of that year. How effective O.E.E.C. could be as a planning organ without the stimulus of U.S. aid depended entirely on the intentions of the member governments which had to determine O.E.E.C.'s new functions and powers.

(S. HR.)

EXCHANGE CONTROL AND EXCHANGE RATES. From about the middle of 1951, quite apart from seasonal influences and the decline in stockpiling purchases in the United States, some fall in raw material prices and the impact of rising expenditures on armaments in some countries of western Europe brought a considerable shift in the ownership of gold and dollar assets. The sterling area, which had shown the greatest increases up to that point, showed the heaviest losses, while French reserves also declined substantially. Unlike 1949, however, when practically all the movement of gold and dollar assets had been in favour of the United States, the disequilibrium in international transactions was not confined to those between that country and the rest of the world. In fact, up to the end of the third quarter of the year, the rise in U.S. gold reserves was equivalent to only half the loss sustained by the sterling area alone. Among other countries whose reserve position improved, Germany, Belgium and the Scandinavian countries in Europe, and Japan and Indonesia were perhaps the most important.

In the sphere of exchange restrictions the ending of exchange control in Canada was almost the sole bright spot in a picture that became increasingly sombre as the year drew to a close. Import restrictions were relaxed in various Latin-American countries, mainly in an effort to obtain supplies of imports that threatened to become scarcer. The freeing of forward sterling in December was also a striking development. On the other hand, the more severe restrictions imposed in France and the U.K. as a result of renewed exchange difficulties, together with the mounting rearmament expenditures throughout western Europe, gave the impression that the predominant tendency was towards more rather than less strict exchange controls.

North America. *United States.* Towards the end of 1950 the disequilibrium in transactions between the United States and the rest of the world had almost disappeared. Less than a year later, however, it had again become considerable, and the "dollar gap" had again become a serious problem for some countries. United States exports rose more sharply than imports in the first half of the year, and thereafter fell less rapidly when the post-Korean buying wave appeared to have run its course. Influenced both by seasonal and temporary factors, the surplus on current account (goods and services), which had shrunk to an annual rate of only $300 million in the third quarter of 1950, increased steadily to reach an annual rate of almost $4,500 million in the corresponding period of 1951. In the first half of the year the surplus totalled about $1,800 million. In this period U.S. government economic and military aid amounted to almost $2,300 million with the latter taking an increasingly larger share of the total.

Canada. Already in 1950 the Canadian government had allowed the exchange rate for U.S. dollars to fluctuate in accordance with free market forces. Because of the continued strength of the Canadian international economic position, influenced by a steady inflow of capital from the United States, the Canadian dollar continued to appreciate, reaching 1·036 to the U.S. dollar at the end of Nov. 1950, as compared with the par value of 1·10 established in 1949. In these circumstances the Canadian authorities took a step without precedent since the end of World War II and amended the Foreign Exchange Control regulations on Dec. 14, 1951, to remove all existing restrictions on payments or on receipts of foreign currencies. In the last days of the year the exchange rate for the Canadian dollar was steady at about 1·025 to the U.S. dollar.

Latin America. In general the economic position of Latin America was strong in 1951, mainly as a result of continued favourable terms of trade, and there were relatively few changes in exchange rates or regulations in that area. Of those that did occur, the steps taken to unify the rate structures in Colombia and Paraguay were the most significant.

Argentina. The Argentine peso continued to show signs of weakness in 1951. The curb rate was P. 29 to the U.S. dollar at the end of September, as compared with P. 19·50 at the end of 1950, and in October the Argentine Central bank suspended the issue of prior exchange permits for the import of goods to be paid for with foreign exchange obtained in the free market. Thereafter the curb rate strengthened appreciably.

Brazil. Minor changes were made in the exchange regulations. Compensation or barter transactions in certain commodities, which had been permitted prior to Feb. 8, 1951, were suspended after that date. In order to legalize dealings in notes and coins and to encourage the inflow of new foreign capital, preparations were also made to create a special free exchange market. In anticipation that the curb market would be legalized, the curb rate, which had fallen as low as 32·50 cruzeiros per U.S. dollar in the summer, hardened somewhat and stood at Cr.$ 29·20 to the U.S. dollar at the end of November.

Chile. In the course of 1951 some modifications, particularly the application of mixed rates to certain agricultural exports,

were made in the Chilean multiple-rate structure in effect since Dec. 1950. In addition, the scope of the free market was substantially restricted. The rate for the U.S. dollar in this market had appreciated steadily in 1950 to about 70 pesos to the U.S. dollar. Because of increasing inflationary tendencies within the country, however, it had weakened to more than P. 90 by July 1951. To meet this situation the National Foreign Trade council adopted several measures to restrict dollar imports. After July 18 the purchase of various goods previously imported from the dollar area with exchange obtainable in the free market was permitted only in countries with which Chile had payments agreements. Exchange transactions for all imports still permitted from the dollar area with exchange obtainable in the free market were not permitted until after the arrival of the shipping documents in Chile and had to be completed at the exchange rate then prevailing. Free market exchange transactions connected with trade had to be carried on only through authorized banks, which were forbidden to purchase free market exchange for their own account and were required to post exchange rates and report both these and the volume of transactions daily to the National Foreign Trade council.

Colombia. On March 20 the Colombian government took an important step to simplify the complicated multiple-rate structure hitherto in effect and to reduce restrictions on imports. A new rate of 2·50 pesos to the U.S. dollar was made applicable to all foreign exchange transactions except coffee exports. A total of 25% of the exchange proceeds from the latter received the new rate, while the old buying rate of P. 1·95 to the dollar was applied to the remaining 75%, thus giving an effective rate of 2·0875 for coffee exports. Apart from the prohibition of specified luxury imports, all licensing restrictions were progressively removed, as were the exchange certificate system and all mixed rate arrangements. Most of the differential exchange taxes were also abolished, and a uniform stamp tax of 3% on practically all foreign exchange sales took their place. The new system did not involve any change in the existing par value of P. 1·94998 to the U.S. dollar, but the International Monetary fund approved it as a step toward the eventual declaration of a new par value.

Paraguay. At the beginning of March, after prolonged consultation with the International Monetary fund, the government of Paraguay declared a new par value for its currency of 6 guaranies to the U.S. dollar. At the same time sweeping changes were made in the exchange rate structure, reducing the number of rates for both imports and exports, narrowing the spread between the higher and lower rates and thus simplifying a very complicated multiple-currency system. Free market rate quotations began at 20 guaranies to the dollar but weakened substantially in subsequent months, standing at 33 to the dollar in October.

The Sterling Area. In 1951 the weakening in the position of the sterling area, and particularly of the United Kingdom, was almost as spectacular as the improvement had been in the previous year. Because of an increased trade deficit arising mainly from an adverse movement in terms of trade, the United Kingdom had an over-all current account deficit equivalent to $342 million in the first half of the year, as compared with surpluses equivalent to $118 million in the first half and more than $500 million in the second half of 1950.

At $305 million, the United Kingdom dollar deficit was as large as it had been in the whole of 1950, and a current account deficit equivalent to $73 million was recorded with the Organization for European Economic Co-operation (O.E.E.C.) countries, as compared with a surplus equivalent to $342 million in the previous year. Current transactions with the rest of the sterling area resulted in a surplus equivalent

WORLD EXCHANGE RATES, DEC. 31, 1951.

Country	Currency Unit	Rate per £ sterling	Rate per U.S.$
Albania	Lek	139·25	49·60
Argentina (free rate)	Peso	40·00	14·32
Australia	£A	1·25	0·45
Austria	Schilling	59·81	21·36
Belgium	Franc	140·00	50·00
Bolivia	Boliviano	168·00	60·00
,, (free rate)	,,	281·40	100·50
Brazil	Cruzeiro	51·80	18·50
British Honduras	B.H.$	4·00	1·43
Bulgaria	Lev	804·58	287·35
Burma	Rupee	13·33	4·76
Canada (free rate)	Can.$	2·86	1·024
Ceylon	Rupee	13·33	4·76
Chile	Peso	86·80	31·00
,, (free rate)	,,	260·00	92·60
Colombia	Peso	7·00	2·50
Costa Rica	Colón	15·74	5·62
Cuba	Peso	2·80	1·00
Czechoslovakia	Koruna	140·00	50·00
Denmark	Krone	19·34	6·91
Dominican Republic	Peso	2·80	1·00
Ecuador	Sucre	42·00	15·00
,, (free rate)	,,	49·00	17·40
Egypt	£E	0·975	0·35
Ethiopia	E.$	6·94	2·48
Finland	Markka	645·00	230·00
France	Franc	980·00	350·00
Germany (Fed. Rep.)	D.Mark	11·75	4·20
Greece	Drachma	42,000	15,000
Guatemala	Quetzal	2·80	1·00
Haiti	Gourde	14·00	5·00
Hong Kong	H.K.$	16·00	5·71
Hungary	Forint	32·87	11·74
Iceland	Króna	45·61	16·29
India	Rupee	13·33	4·76
Indonesia	Rupiah	10·64	3·80
,, (free rate)	,,	26·13	9·33
Iraq	Dinar	1·00	0·36
Irish Republic	£	1·00	0·36
Israel	£I	1·00	0·36
Italy	Lira	1,750	625
Japan	Yen	1,008	360
Jordan	Dinar	1·00	0·36
Lebanon	£L	6·13	2·19
Liberia	L.$	2·80	1·00
Mexico	Peso	24·20	8·65
Netherlands	Florin	10·64	3·80
Netherlands West Indies	Florin	5·28	1·90
New Zealand	£NZ	1·00	0·36
Norway	Krone	20·00	7·14
Pakistan	P.Rupee	9·27	3·31
Panama	Balboa	2·80	1·00
Paraguay	Guarani	16·80	6·00
,, (free rate)	,,	91·00	32·50
Persia	Rial	90·30	32·25
Philippines	Peso	5·60	2·00
Poland	Zloty	11·20	4·00
Portugal	Escudo	80·50	28·78
Rumania	Leu	424·20	151·50
Salvador, El	Colón	7·00	2·50
Singapore	M.$	8·57	3·06
South Africa	£SA	1·00	0·36
Spain	Peseta	30·66	10·95
,, (free rate)	,,	110·00	39·65
Sweden	Krona	14·49	5·17
Switzerland	Franc	12·25	4·36
Syria	£S	6·13	2·19
Thailand	Baht	35·00	12·50
Turkey	Lira	7·84	2·80
United Kingdom	£	—	0·36
United States	U.S.$	2·80	—
Uruguay	Peso	4·80	1·71
,, (free rate)	,,	6·50	2·40
U.S.S.R.	Rouble	11·20	4·00
Venezuela	Bolivar	9·38	3·35
Yugoslavia	Dinar	840·00	300·00

The table shows official par values agreed with the International Monetary Fund or average of buying and selling rates.

to only $129 million or less than half the 1950 rate, and was accompanied by an export of capital from the United Kingdom at an accelerated pace. Despite some deterioration in the terms of trade resulting from declining raw material prices, the position of the rest of the sterling area remained strong, and its surplus with the dollar area, at $415 million, was almost as large as for the whole of 1950. Substantial amounts of hard currency were also earned from transactions with the European Payments union, from gold sales by sterling area countries to the U.K. and from capital transactions, so that for the first half year the sterling area had a gold and dollar surplus of $414 million equal to the rate for the previous year. Receipts from the Economic Co-operation administration (E.C.A.) for goods in the " pipe line " brought the increase in the central reserves of gold and dollars up to $568 million so that at the end of June they stood at their postwar peak of $3,867 million.

In the second half of the year, however, the gold and dollar reserves of the sterling area fell by no less than $1,532 million bringing them down to the lowest level since the middle of 1950. In the last quarter changes in the timing of payments resulting from a certain loss of confidence in sterling were obviously important. In this period the sterling area's position in the European Payments union deteriorated markedly so that by the end of October the United Kingdom had not only repaid all the gold it had received from the E.P.U., but had also received from it credits amounting to the equivalent of $356 million and had made net gold payments to it of $36 million.

To halt the drain on the reserves new restrictions were imposed in November on payments to non-sterling countries. Imports were to be cut sharply, a step which involved the reimposition of quota restrictions on imports from other countries of western Europe, a reduction in the rate of stockpiling and in tourist allowances. These cuts were estimated to yield total savings equivalent to about $1,000 million in 1952.

As a further step aimed at restoring confidence in sterling, the Bank of England, on Dec. 15, ceased to quote official exchange rates for forward exchange and restored freedom to the commercial banks to deal in forward sterling at market rates. Banks were permitted to deal in U.S. dollars only with banks in the American account area. At the same time, although spot sterling remained fixed at $2·80 to the pound, the spread between the buying and selling rates was widened to allow sterling to fluctuate between $2·77 and 2·83, depending on supply and demand. These relaxations in the British exchange control system were of limited scope. Sterling remained inconvertible, and import restrictions were tighter than before. The measures were significant in that they were the first important moves made since 1939 towards a free market in foreign exchange. In the following days there was a significant recovery in forward sterling in New York, while the Federal Reserve bank of New York, as agent for the Bank of England, did not have to buy spot sterling for support purposes. There had been no changes in exchange rates in the sterling area in 1950, but in 1951 the controversy surrounding the Pakistan rupee, the only sterling area currency not devalued in Sept. 1949, ceased after the International Monetary fund announcement, in March, of the establishment of the initial par value for the Pakistan rupee at Rs. 3·30852 to the U.S. dollar, the rate proposed by the government of Pakistan and corresponding to the existing effective rates.

Continental Europe. In Europe the most striking developments in 1951 were the shifts in payments relations among western European countries and the tightening or relaxation of import and exchange controls which resulted from them. These changes were reflected clearly in the transactions of the European Payments union. At the beginning of the year the United Kingdom and France had built up large surpluses and were receiving substantial gold payments from the E.P.U., the Belgium-Luxembourg Economic union was more or less in balance with the E.P.U., and Denmark, the Netherlands and in particular Germany had run up very large deficits. At the end of November the British and French cumulative surpluses had disappeared, and they were running substantial deficits with the E.P.U. The Netherlands and Denmark were improving their positions, while Portugal, Sweden, Switzerland and particularly Italy and Belgium had large surpluses.

Unlike 1950, when its currency had weakened slightly, the international economic position of Belgium became progressively stronger in the course of 1951. Mainly as a result of increased steel exports, the country's monetary reserves exceeded $1,000 million equivalent at the end of November, having risen by more than $250 million equivalent since the end of 1950. In these circumstances various measures were taken by the Belgian monetary authorities to reduce the payments surplus with other European countries and thereby the need to extend them additional credit. On the one hand, for instance, complete freedom was given to Belgian capital for investment in all E.P.U. countries except Switzerland. On the other hand, however, in order to restrain Belgian exports, and also the inflow of hot money, the import of Belgian bank notes into the E.P.U. was further restricted, and Belgian banks' purchases of E.P.U. currencies were subjected to a tighter control by the monetary authorities.

In Finland, on June 28, 1951, after consultations with the International Monetary fund, an initial par value of FM. 230 to the U.S. dollar was established. This step was made possible by the greater degree of internal financial stability in Finland and by the sharp improvement in the country's balance of payments resulting from the rise in timber and pulp prices.

The second half of the year saw a significant deterioration in the French foreign exchange position. This was mainly caused by an outflow of capital from France. At the end of November the curb rate in Paris stood at Fr. 445 to the U.S. dollar, as compared with about 380 at the end of 1950. To prevent further capital flight and reduce the pressure on reserves the government took various measures in October and November. The issue of dollar import licences was cut sharply, while importers of goods entirely or partially freed from quantitative import restrictions, coming mainly from other E.P.U. countries, were permitted to pay for the imports only after they had been delivered in France. Furthermore, French commercial banks were obliged to transfer to accounts of the Stabilization fund with foreign central banks any balances in excess of those held on June 6, 1951.

The position of Western Germany changed radically in 1951, particularly in relation to other European countries. In the spring its deficit with other E.P.U. countries had become so large that not only had Western Germany to be granted a special gold loan from the European Payments union, but was also unable to adhere to the O.E.E.C. programme of liberalizing intra-European trade and payments, and had to impose special restrictions on imports from these countries. By the end of the year, however, Western Germany was recording substantial surpluses with the European Payments union, had recovered all the gold and dollars paid to E.P.U. in the latter part of 1950 and had more than doubled its foreign exchange assets.

An important technical change was made in the Greek foreign exchange system on June 1. Hitherto persons offering foreign exchange to the central bank for sale received certificates of exchange, while those wishing to purchase exchange had to present such certificates. The prices of these certificates, which had been maintained by the Bank of Greece at Dr. 10,000 to the U.S. dollar and Dr. 22,000 to the pound sterling, were

henceforth incorporated in the official exchange rates and the certificate system abolished. This step, however, did not entail any change in the effective official exchange rates.

Spain simplified its multiple-exchange rate structure further in 1951. The various export rates previously in effect, which had ranged from 10·95 pesetas to the U.S. dollar to the free rate, were replaced from Nov. 1 by a single rate of P. 21·90 to the dollar. This rate was applicable to 100% of most export proceeds, including those from fruit exports, but certain exports were encouraged by the fact that exporters of them were entitled to sell from 10% to 90% of their proceeds on the free market. Import rates remained unchanged.

On Aug. 31 Sweden became the 50th member of the International Monetary fund, and on Nov. 5 the initial par value for the krona was established at Kr. 5·17321 to the U.S. dollar. Effective exchange rates thus remained unchanged.

Late in December the Yugoslav government announced a change in the exchange rate of its currency from 50 to 300 dinars to the U.S. dollar to take effect from Jan. 1, 1952. This step, which had the approval of the International Monetary fund, was much more than a devaluation. Hitherto the exchange rate, like others in eastern Europe, had had little influence on the volume or direction of the country's foreign trade which was conducted by state-owned agencies in accordance with the plan of the central government and was not determined by relative prices in Yugoslavia and foreign countries. Under the new system independent industrial units would remain state-owned but would be permitted to trade with foreign countries. The exchange rate would exercise its normal function of determining what would be exported and imported.

Middle East. Only minor modifications were made in exchange control systems in the middle east. In Egypt changes in the exchange regulations were made which had the effect of increasing the freedom of exporters to use their foreign exchange proceeds. For instance, exporters selling cotton to the U.S. in excess of the quota were allowed to retain 30% of the dollar proceeds to pay for their own imports of specified goods. Partly as a result of these steps, the value of the Egyptian pound in the free exchange market slipped somewhat lower throughout the year.

On June 25, Iraq took certain steps to eliminate exchange losses and to move towards the unification of its multiple-rate structure. By buying exchange from exporters at 48·50 rials* to the U.S. dollar and selling part of it to importers of essential goods at the rate of Ri. 40, the government had incurred substantial losses. Under the new system the rate at which export proceeds were sold to the monetary authorities was reduced to Ri. 47 while the rate for essential imports was raised to Ri. 41·50 and that for non-essentials lowered from Ri. 48·50 to Ri. 47 to the dollar. At the same time certain imports were shifted from the essential to the non-essential group. By this means the government aimed at equalizing purchases of exchange from exporters and sales to importers of non-essentials at the same rate of Ri. 47 to the dollar. In the latter half of the year Persia's foreign exchange position worsened as a result of the government's dispute with the Anglo-Iranian Oil company and the consequent stoppage of oil production and exports.

In Syria the scope of the free market was widened in September when the government revoked the regulation requiring foreign tourists and receivers of remittances from emigrants to surrender 10% of their exchange holdings to the exchange office at the official rate. In the Beirut (Lebanon) free market the most noteworthy feature in 1951 was the tendency for sterling and particularly French francs to be traded at an increasing discount in the latter half of the year.

* 5 rials = 1 dinar.

Far East. In the far east significant changes in exchange rates and regulations resulted from the consolidation of Communist control on the Chinese mainland. On Jan. 20 the Peking government announced a new exchange rate for the People's yuan of 3,880 yuan to one Hong Kong dollar. Thereafter, the special currencies previously issued by the Communist régime in Manchuria and Inner Mongolia were abolished, and the People's yuan was made the sole legal tender in those areas also. There were signs of an outflow of capital from China. The demand for gold and dollars was steady in Hong Kong where the People's yuan was quoted at a substantial discount in the open market. The volume of transactions was small, however, particularly after controls on trade with China were tightened in the summer.

In an effort to control imports more effectively, the Philippine government imposed, on March 28, a 17% tax on sales of foreign exchange except those to be used to import specified essential commodities, mainly foodstuffs and drugs, and for designated nontrade payments, primarily insurance. This raised the selling rate from 2·015 to 2·358 pesos to the dollar, and after its imposition the spread between the free rate and the official rate (with tax) shrank further, the former falling from about 3·80 to less than 3 pesos to the U.S. dollar. (*See* also INTERNATIONAL MONETARY FUND.)

(A. STN.)

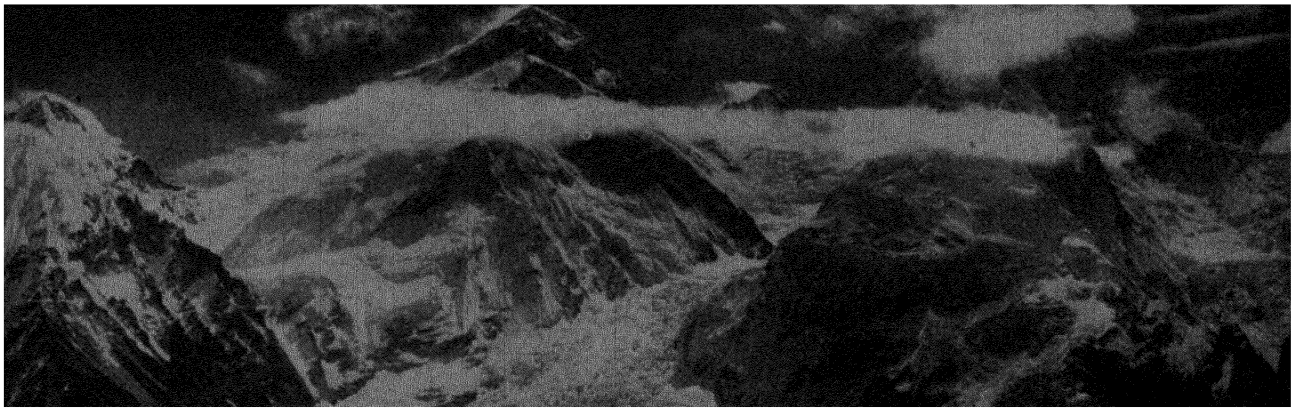
EXHIBITIONS: *see* FAIRS, SHOWS AND EXHIBITIONS.

EXPLORATION AND DISCOVERY. The exploration of Antarctica (*q.v.*) continued to attract the largest and most elaborately equipped expeditions; the Norwegian-British-Swedish expedition continued its operations throughout the year and the "Norsel" sailed for Queen Maud Land again in Oct. 1951, this time to bring the expedition home in 1952. The French expedition in Adélie Land also returned in 1951 and a new venture, under the leadership of Duncan Carse, sailed for South Georgia in Oct. 1951. The stations in the Falkland Islands dependencies were maintained throughout the year.

In the Arctic, a new expedition of considerable magnitude was being organized in Great Britain for the exploration of Queen Louise Land in northeast Greenland. The expedition, which would be recruited largely from officers of the Royal Navy under the leadership of Commander C. J. W. Simpson, was completing its plans to sail in 1952. The leader visited and reconnoitred the proposed area of operations with a small advance party during the summer of 1951. The lake to which they were flown, within two days' march of the proposed base, was the "furthest north" landing to date for an R.A.F. flying boat.

A very different topic of investigation took Miss Marjorie Findlay to the southern extremity of Greenland for eight weeks in the summer. She travelled among the Eskimo sheep farms of the Julianehab district to observe the changing way of life of a community that had substituted sheep farming for the traditional employments of fishing and hunting; one of the complications was that Greenland sledge dogs do not agree with sheep. Yet this was where the Viking farmers had settled and gave Greenland its name; the Viking colony persisted into the middle ages and was then lost sight of.

In Iceland a party from Durham university made meticulous measurements of the variations in air temperature near the surface of the Breidamerkurjökull glacier and mapped this and other adjacent glaciers on a large scale so that its recession in the changing climate could be recorded. Peter Scott and James Fisher also travelled in Iceland to observe the breeding grounds of the pink-footed goose; this was in connection with the ringing of these birds at the Severn Wildfowl trust. In Norway a succession of parties of Cambridge



*A panoramic view, taken from 20,000 ft. on Pumori, showing, **left to right**, the North Peak, the North Col, Mount Everest, the ice-fall (foreground) leading to the West Cwm, with Lhotse (centre background) and Nuptse. The photograph was taken by the Mount Everest Reconnaissance party led by Eric Shipton in late 1951.*

undergraduates spent a week or more on the Skauthobreein glacier in the Jotunheimen, strenuously working by shifts to drive a tunnel from the face of this steep corrie glacier to the bedrock below. The subsequent study by Cambridge glaciologists of the cross-section revealed by the 400-ft. long tunnel was expected to shed a good deal of light on the mechanics of glacier movement.

Signs were not wanting of a renewed interest in the conquest of Mount Everest. H. W. Tilman published an account of his explorations in the Nepal Himalayas during the summer of 1950, in the course of which he had approached and viewed the mountain from the south. The political situation in Tibet rendered the familiar approach from the Rongbuk glacier to the north more difficult than the penetration of Nepal used to be before the war, and, although the southern face of the mountain appeared to be the steeper of the two and human transport would have to take the place of pack animals, there were certain advantages in having one's base in the more agreeable Alpine valleys of the Nepal Himalayas.

The Mount Everest Reconnaissance expedition, 1951, under the joint auspices of the Alpine club and the Royal Geographical society and with the permission and encouragement of the Nepali government, left Great Britain under the leadership of Eric Shipton, himself a distinguished Himalayan mountaineer who had attempted Everest from the other side. There was on this occasion no intention of attempting the summit, but experience was obtained of the weather and snow conditions on this hitherto unvisited face of the mountain and the party penetrated the West Cwm which lies below it to examine the approaches at close range. Shipton's finding of footprints on a glacier revived the old controversy concerning the " abominable snowmen " of the Himalayas, but scientific opinion inclined to attribute them to a race of the langur monkey (*Presbytis entellus*). Another controversy revived by this expedition was the exact height of Everest. An authoritative statement still placed it at 29,002 ft. and observation by modern methods from nearer points would be needed to establish a more reliable figure; though there were indeed indications that the old value had been underestimated by as much as 100 ft.

Richard Goodchild, of the British school in Rome, continued his archaeological exploration of Cyrenaica, establishing the limits of the Roman occupation of that country in collecting material for a map of Roman Cyrenaica, and studying the geographical environment in which the Roman colonies flourished in what is now almost or quite a desert.

An expedition organized by the Oxford University Exploration club went to the Kiunga archipelago on the east African coast, principally to study birds, but the U.S. geographer Walter W. Deshler who accompanied the expedition sought out the lost Arabian settlements which flourished here before the advent of the Portuguese. H. St. J. B. Philby, the veteran explorer of Arabia, was in the Najran country on the borders of Yemen at the close of the year, looking for Himyaritic inscriptions.

In 1925 Colonel P. W. Fawcett set out in search of a lost city in the forests of the Matto Grosso, Brazil, never to be certainly heard of again, though hardly a year has passed without some strange account of his survival there, either free or in captivity, being brought back to civilization. In 1951 it was reported that his remains had been found and brought back to England. But the epic was not at an end for an examination of the bones failed to establish their identity with the lost explorer. Another quest which would continue was that for Captain Kidd's lost treasure, for the yacht that sailed to seek it in the China sea was wrecked off the Isle of Wight. (*See* also ANTARCTICA.) (F. GE.)

See H. W. Tilman, " Explorations in the Nepal Himalayas," *Geographical Journal*, 117: 263-74 (London, 1951).

EXPORT-IMPORT BANK OF WASHINGTON. In Oct. 1951 congress increased the lending authority of the Export-Import bank from $3,500 million to $4,500 million to carry out its purpose of facilitating the export and import trade of the United States. During the calendar year 1951, in close co-operation with the defence agencies, the bank established credits to finance the expansion of capacity and the production and treatment abroad of essential materials for the U.S. stockpile and for use by industry in the U.S. and the free world. The total amount of loans authorized by the bank from the time of its establishment in 1934 to the end of 1951 was about $5,300 million. Disbursements during 1951 were about $204·1 million and repayments during the year were about $134·6 million. Outstanding loans of the bank totalled $2,300 million at the end of 1951. (S. SD.)

EX-SERVICEMEN'S ORGANIZATIONS. The International Federation of War Veterans' Organizations (Fédération Internationale des Organisations d'Anciens Combattants) founded in Paris in Nov. 1950 by associations from Belgium, France, Italy, Turkey, the United States and Yugoslavia held its second annual conference at Belgrade during Nov. 27-30. With the accession of associations from Canada, Denmark, Greece, Israel, Luxembourg, the Netherlands and the Philippines the federation in 1951 had a total membership of 75 associations grouping some 12·5 million ex-servicemen in 13 countries.

The largest membership was that of France, represented by the Union Française des Associations des Combattants (U.F.A.C.), a federation of 48 associations, some of them Communist-controlled, with altogether more than 2 million members, most of whom were combatants of World War I. Unattached to this union was the Rhine and Danube association grouping ex-servicemen of General Jean de Lattre de Tassigny's First French army.

The United States was represented in the federation by the American Veterans of World War II or "Amvets," the American Veterans' committee, the Disabled American Veterans and the Blinded Veterans association, but the two largest organizations—the American Legion and the Veterans of Foreign Wars—refused to join. Nor were the British Legion or any of the Commonwealth organizations affiliated to the British Empire Service league members of the International federation.

Addressing the conference, Marshal Tito said that the Soviet Union offered the greatest threat to world peace, and resistance to Soviet-Russian imperialism should not be confused with any anti-Communist or anti-Socialist crusade. Albert Morel (France) and Elliot H. Newcomb (United States) were respectively re-elected president and secretary general of the federation.

Great Britain. A parade of 5,000 men and women before the king and the queen in Hyde park on May 12 preceded the annual conference of the British Legion which was attended by 1,440 delegates at the Albert hall, London, May 13-15, in the proportion of five ex-servicemen of World War I to four of World War II. The most important resolution, carried unanimously, was a motion of urgency on pensions put forward by the national executive committee. While expressing thanks to the government for improvements in supplementary allowances to disability pensioners, the resolution indicated that the improvements benefited only some 41,000 war pensioners, and conditions regarding the remaining 665,000 continued to be most unsatisfactory: it accordingly asked for the basic rate of 45*s.* a week to be doubled and necessary adjustments to be made for pensioners receiving supplementary allowances. (*See* also WAR PENSIONS.) Sir Ian Fraser, Major General Sir Richard Howard-Vyse and Lord Cromwell were respectively re-elected president, national chairman and national treasurer of the British Legion.

At its annual conference at Glasgow on June 1 the British Legion (Scotland) adopted a resolution calling for a national war memorial for the fallen in World War II to be put up without delay and incorporated in the National Memorial for the Fallen of World War I in Edinburgh castle. General Sir Thomas Riddell-Webster and Major General Sir James Syme Drew were respectively re-elected president and chairman for the Scottish area.

France. At its session in Paris on July 8, the administrative council of the U.F.A.C., contending that development of armed forces created a danger for all nations, regretted that nothing was done to promote simultaneous, progressive and controlled disarmament. On Nov. 4 it adopted a resolution indignantly protesting against the formation of an ex-servicemen's organization in Germany.

In December a Comité National des Associations d'Anciens Combattants (C.N.A.C.) was formed in Paris by the Union Nationale des Combattants (U.N.C.), a member of U.F.A.C., the Rhine and Danube association and others. The C.N.A.C. decided to launch nation-wide propaganda for efficient national defence.

Germany. On Sept. 8 a Verband Deutscher Soldaten (V.D.S.) was instituted at Bonn and planned as a co-ordinating organization for the two existing welfare associations, the Bund Versorgungsberechtiger Wehrmachtangehöriger (Union of Members of the Armed Forces Entitled to Pension) and Schutzbund Deutscher Soldaten, as well as for many associations of "old comrades" such as from the Afrika Korps, Panzerkorps Gross-Deutschland and the "Green Devils" or paratroopers. A provisional executive committee of 24 members, all former generals, was formed with Colonel General Hans Friessner as chairman. He was received by Theodor Heuss, president of the republic, and Konrad Adenauer, the chancellor, whom he assured that the V.D.S. would support the federal republic and the ideals of parliamentary democracy.

That he was scarcely the man to speak on behalf of 13 million ex-servicemen and to inspire the confidence of the west was soon apparent for when explaining the aims of the V.D.S. to the Foreign Press association at Bonn on Sept. 21 he said that the reason for German aggression against Poland



King George VI taking the salute at a march past of the British Legion in Hyde Park, London, May 12, 1951. The parade was led by the band of the Welch regiment.

in 1939 was that " the red flood had to be stopped and that the border population had to be protected from the squabbling and chicanery of the Poles." He cited the half-hearted support of Germany's unwilling wartime allies, Hungary and Rumania, as " a classic example of national demoralization." His description of the 1944 plot against Hitler as " an attempt to murder the supreme commander behind the front line " evoked protest from many officers of the former Wehrmacht. He resigned on Dec. 10 and by the end of the year the German ex-servicemen's movement was still far from achieving unity. (X.)

United States. In 1951 all the U.S. ex-servicemen's organizations had amended their constitutions so that they might accept veterans of the Korean war for membership.

American Legion. In 1951 the legion had a membership of 2·8 million. The national convention held in Miami, Florida, elected Donald Wilson of Clarksburg, West Virginia, as its national commander. Highlight of the convention was an address by General Douglas MacArthur (*q.v.*) who heavily attacked the foreign policy of the administration of President Harry S. Truman. The platforms of the legion also attacked the far eastern policy of the government and of Secretary of State Dean Acheson. It urged immediate adoption of universal military training and extension of benefits to veterans of Korea.

Veterans of Foreign Wars. This organization had a membership of 1 million at the end of 1951. The national convention, in New York, elected Frank C. Hilton of Reading, Pennsylvania, as its national commander. The outstanding event of the convention was the failure of a resolution favouring a bonus for World War II veterans. Among the resolutions passed were: an attack on Secretary of State Dean Acheson; a request for a congressional investigation of the World Federalist movement; a demand that the U.N. boycott Communist China; the banning of Communist meetings; and universal military training.

Disabled American Veterans. This organization had a membership of 125,000 in 1951. The national convention, held at Milwaukee, Wisconsin, elected Ewing W. Mays of Little Rock, Arkansas, as its national commander. The convention attacked the Hoover committee recommendations, urged an increase in disability compensations and asked for benefits for veterans of the Korean war.

American Veterans of World War II. With a membership of 75,000 this was the largest of the organizations for veterans of World War II. The national convention, held in Boston, Massachusetts, elected John Smith of Ohio as its commander. The programme adopted at the convention urged: the ousting of Carl Gray as head of the veterans administration; a G.I. bill of rights for Korean veterans; and a peace and preparedness programme based on co-operation with the United Nations.

American Veterans' Committee. This organization, with a membership of 20,000 in 1951, was the second largest World War II veterans' group. The national convention re-elected Michael Straight of Washington, as national commander. The convention adopted resolutions urging the ousting of veterans administrator Carl Gray, the extension of Korean veterans of the G.I. Bill of Rights, and universal military training. (R. I. Ab.)

EYE, DISEASES OF THE. Further experience in 1951 with the use of cortisone and ACTH in a variety of diseases of the eye made possible evaluation of the effectiveness of the hormones and revealed certain contra-indications as to their use. The most beneficial results were observed in acute inflammatory disturbances of the anterior segment. Administration of cortisone and ACTH in tuberculous animals and in animals with induced tuberculous eye lesions resulted in reactions that indicated the drugs should be used in such cases with caution, if at all. ACTH and cortisone, given by injection into the muscles, were shown to inhibit the mechanism by which a focal tuberculous lesion is walled off by fibrous tissues. The tubercle bacilli were found to be more numerous and were more rapidly and widely disseminated in the cortisone-treated animals.

A new technique in an old and accepted treatment of certain stages and types of chronic glaucoma promised better results, with less risk, according to findings in a small series of clinical cases. The procedure was called cycloelectrolysis because electrolysis was used instead of diathermy to cause destruction of the ciliary body within the eye. In cycloelectrolysis a chemical reaction occurred between sodium hydroxide, formed at the cathode, and the tissues, causing liquefaction of the adjacent cells. In cyclodiathermy the strong current produced enough heat to cause tissue destruction. The new technique of treating all types and stages of glaucoma by cycloelectrolysis was advocated for persons of deeply pigmented skin because of the keloid reaction following conventional surgical operations for glaucoma. With cycloelectrolysis there was a minimal proliferative reaction and hence less probability of a tissue reaction that reversed the anticipated result.

The mechanism of glaucoma was somewhat elucidated by a carefully controlled series of measurements of the rate of flow of aqueous humour in the human eye by a method of tonography. W. Morton Grant demonstrated, by means of statistical analysis of data obtained by measuring the intraocular pressure with a tonometer, that the rate of aqueous formation and its outflow averaged 2·4 cu.mm. a minute. He measured the rate of flow of aqueous in many eyes with different types of glaucoma, and in none of them could he demonstrate an overproduction of aqueous. He concluded that in glaucoma there was an impediment to the outflow of aqueous, which accounts for the rise in intraocular pressure. In those cases of glaucoma which had been successfully operated on, a return to normal, or even subnormal, rate of flow of aqueous was found. The results of investigations by others confirmed Grant's conclusions. (W. L. Be.)

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FAEROE ISLANDS (Faeröerne). Self-governing part of the kingdom of Denmark in the north Atlantic situated between Iceland and the Shetland Islands, about 200 mi. N.W. of the latter. Area: 540 sq.mi.; there are 21 islands, of which 18 are inhabited. Pop.: (1935 census) 25,744; (1945 census) 29,198. Language: Faeroese, akin to Icelandic rather than to Danish. Religion: Lutheran. The capital is Thorshavn, on the island of Strömö (pop. 1945, 4,390). Governor general, C. A. Vagn-Hansen.

History. During 1951 the Faeroese terms of trade deteriorated, due to rising import prices and stable or decreasing export prices on fish and fish products. The result was a grave crisis in July and August for the Sjovinnu bank which, with a share capital of Kr. 2·4 million had invested in postwar years Kr. 28·7 million, principally to modernize the trawler fleet. Most of the share capital was lost, but the crisis was overcome by the subscription of new shares in the islands and by a Kr. 2 million loan from the Danish government. The bank crisis had political consequences, since the former manager of the bank, Thorstein Petersen, the leader of the Folkeflokkurin, favouring Faeroese independence, had to leave the Landsstyre (the local government).

Fisheries. Export (1950, metric tons): iced fish 3,355; salted and

dried fish 36,000; salted herring 1,000; whale oil 2,454; whale meat 304; liver oil 1,835; herring oil 110; canned fish 49.

Foreign Trade. Exports (1950): Kr. 74·2 million, including Kr. 20 million to Italy, Kr. 9 million to Denmark and Kr. 5 million to Britain. Imports (1950): Kr. 65·6 million, including Kr. 52 million from Denmark and Kr. 11 million from Great Britain. (H. LN.)

FAIRS, SHOWS AND EXHIBITIONS. The outstanding exhibitions of 1951 were those of the Festival of Britain—the South Bank exhibition, London, a land travelling exhibition which visited Manchester, Leeds, Birmingham and Nottingham and a seaborne exhibition in the converted aircraft-carrier "Campania" which visited Southampton, Dundee, Newcastle-upon-Tyne, Hull, Plymouth, Bristol, Cardiff, Belfast, Birkenhead and Glasgow. In Scotland there was an exhibition of industrial power at Kelvin hall, Glasgow, and in Northern Ireland a farm and factory exhibition. From May 4 to Sept. 30, 8,455,863 persons visited South Bank, 462,289 the land travelling exhibition and 889,792 the "Campania." (*See* FESTIVAL OF BRITAIN 1951).

Associated with the Festival of Britain were many exhibitions throughout the country. Among these were the bicentenary exhibitions of Worcester porcelain in London and at Worcester (May-September), an Anglo-Jewish exhibition at University college, London (July 9-Aug. 3), the Royal Society of Arts "Exhibition of Exhibitions" (May-October), a photographic display by *The Times* covering the period 1921-51 (May 7-29) and a Regency exhibition at Royal Pavilion, Brighton (July 16-Aug. 26) which attracted over 120,000 visitors. Some of the City of London guilds held exhibitions telling their history.

The National Book league sponsored more than 50 exhibitions of books outside London. These included displays at Plymouth, Lichfield, York, Belfast, Glasgow, Edinburgh and in the library of Glanllyn, Llanywchyllyn, Merionethshire.

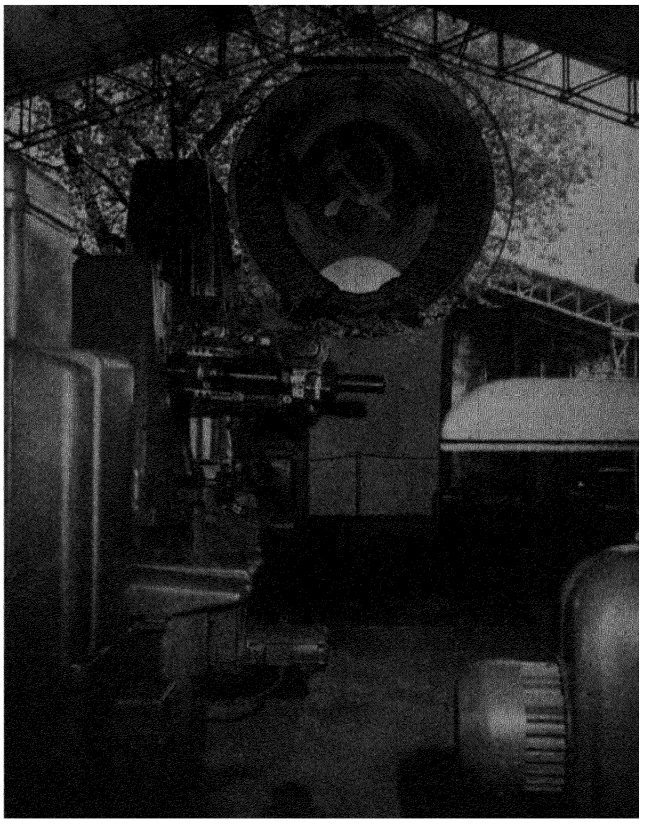
The 30th British Industries fair was again held at Olympia and Earls Court, London, and at Castle Bromwich, Birmingham (April 30-May 11). There were nearly 3,000 exhibitors—of which 1,246 were at the heavy section at Castle Bromwich—19,266 overseas buyers and 99,455 home buyers. The king and queen visited Earls Court; Queen Mary visited Earls Court and Olympia, and Princess Margaret went to Castle Bromwich. A Welsh Industries fair was held at Cardiff (June 4-14).

The total attendance of 373,129 at the 36th Motor show at Earls Court (Oct. 17-27) was 102,197 fewer than in 1950. The Motor Cycle and Cycle show—not held in 1950—took place in 1951 at Earls Court.

The Radio show (Aug. 28-Sept. 9), held for the first time at Earls Court, attracted 232,752 visitors. The first national packaging exhibition to be held in London opened at Olympia on Jan. 30. It was sponsored by the Institute of Packaging and was prompted by the success of a similar event in Manchester in 1949.

Agricultural Shows. The show of the Royal Agricultural Society of England was held at Trumpington, Cambridge (July 3-6); the show covered 150 ac. and the total attendance was 131,333. The livestock entry was 4,697 head.

Gloucester was the site of the Three Counties show (June 12-14) and Dorchester, for the first time since 1928, that of the Bath, West and Southern Counties show (May 30-June 2). The total attendance at the "Bath and West" was 89,329, over 17,000 more than at Birmingham in 1950. The Great Yorkshire show at Harrogate (July 10-12), received more entries, 3,308, than in any of the 104 years of the show's existence. For the first time, only animals from attested herds were accepted. The Royal Counties show was held at Stoneham, near Southampton (June 20-23). An idea of the success of this show can be gauged from the fact that during the period 1883-1950 over 2,297,000 people paid for admission.



An exhibit from the Soviet Union at the 1951 Milan fair (April 12-29). This was the first time for 17 years that the Soviet Union had exhibited at Milan.

The 1951 attendance was nearly 51,000. The Royal Highland show was held at Hazelhead, Aberdeen (June 19-22), and the Royal Welsh show at Llandrindod Wells (July 25-27). The Royal Lancashire show was held at Witton Park, Blackburn (Aug. 1-4).

The 65th annual Dairy show was held at Olympia (Oct. 23-26); the attendance was 66,679, compared with 96,867 in 1950 and 103,341 in 1949. The Smithfield show and Agricultural Machinery exhibition at Earls Court (Dec. 3-7) was marred by restrictions on the movement of animals following outbreaks of foot and mouth disease and swine fever. Despite these restrictions, more than 650 animals were on display. All animals had to be slaughtered in the London area after the show. The attendance of 66,003 was the largest for 48 years.

A record entry of 1,500 was received for the International Horse show at the White City, London (July 23-28); Spain, Italy and Ireland entered official teams in the show-jumping events. The Royal Dublin society's horse show was again held at Ballsbridge, Dublin, in August. The Horse of the Year show was held indoors at the Harringay Arena, London (Oct. 3-6).

Canada. At the fourth international trade fair at Toronto (May 28-June 8) 20 countries were represented, Canada and Great Britain again having the biggest displays. A British motor show, the third in three years, was held in Montreal in March.

Czechoslovakia. At the 52nd Prague International fair (May 20-June 3) the largest display was that of the U.S.S.R. There were state exhibits from the people's democracies and Eastern Germany, Egypt, Pakistan and Turkey, and commercial exhibits from eight other countries, including Great Britain.

Germany. The annual shows were again held at Leipzig in Eastern Germany (March 4-11; Sept. 2-7) and at Frankfurt in Western Germany (March 11-16; Sept. 2-6). The German Industries fair was held at Hanover in two sections, light industry (Feb. 27-March 4) and heavy industry (April 29-May 8). Started by the British authorities in 1947 as the Hanover fair, it had by 1951 become the German Industries fair. There were 8,352 exhibitors from Germany and 16 other countries at the Leipzig spring fair. The largest overseas exhibit was the pavilion of the U.S.S.R. which attracted 100,000 visitors in the first two days. China was represented for the first time. Great Britain was the largest overseas exhibitor at the Frankfurt spring fair.

Greece. For the first time since before World War II, the Salonika international fair was again held (Sept. 16-Oct. 3). There were 5,800 exhibitors including 350 foreign firms.

United States. A small trade fair with exhibits from ten countries was held in Washington during "World Trade week," May 21-26; similar shows were held in 80 other cities throughout the United States.

FALKLAND ISLANDS. British colony and two groups of dependencies in the South Atlantic. The colony consists of East and West Falkland and adjacent islands. Dependencies: (1) South Georgia (four whaling stations) with South Orkney and South Sandwich and (2) South Shetland and Graham land. Area of colony 4,618 sq.mi.; pop. (1949) 2,267, almost all of British descent, mainly Protestant. Capital and only town Stanley (*c.* 1,200). Administration: governor; executive council; legislative council. Governor, Sir Miles Clifford.

History. A further measure of constitutional reform was in preparation at the end of 1951. The 1949 constitution provided for a legislative council of six unofficial members, four elected and two nominated, and six official members, the governor, as president having a casting vote. The casting vote had to be used too often, and it was proposed to provide for an unofficial majority by reducing the number of official members to five. The Colonial Development corporation's seal-oil project came into production during the year and the construction of the corporation's freezing plant at Port Stanley to handle 1,000 beef and 30,000 mutton carcases a year was due to start production early in 1952.

Argentina maintained its claim to the Falklands and their dependencies at the Conference of American Foreign Ministers in Washington and sought to reinforce it by establishing another (and this time a naval) base in the dependencies. Chile also established a third base, and the British government continued to propose, without success, that the dispute be submitted to the International Court of Justice. The work of the Falkland Islands survey proceeded without interruption.

Education. 1 school in Stanley, 10 "settlement" schools on sheep ranches and travelling teachers; in 1948 total pupils 338.

Finance and Trade. Currency: sterling, with local notes. Budget (1950-51 est. for 15 mo.): *Colony*, revenue £194,000; expenditure £191,000; *Dependencies*, revenue £129,806; expenditure £102,864. Foreign trade (1950): imports £6,600,000; exports £6,200,000. Principal exports: wool, whale-oil. (K. G. B.)

See E. E. Hunter Christie, *The Antarctic Problem* (London, 1951).

FANFANI, AMINTORE, Italian politician and economist (b. Pieve San Stefano, Feb. 6, 1908), became in 1936 professor of economic history at the Catholic university of Milan. He published many books, including *Le origini dello spirito capitalistico in Italia* (Milan, 1933) and *Storia delle dottrine economiche* (Como, 1943-45); one of his books, *Catholicism, Protestantism and Capitalism*, appeared in English translation (London, 1939). After World War II he joined the Christian Democratic party, was elected, in June 1946, to the Constituent Assembly and, in April 1948, to the Chamber of Deputies. On June 1, 1947, he became minister of labour and social welfare and kept his portfolio in the fourth, fifth and sixth De Gasperi cabinets. In July 1948 he proposed a plan for the completion, within the following seven years, of some 300,000 much-needed houses for workers at a cost of L.350,000 million and the act was passed by the parliament in December of the same year. In Sept. 1949 he reported that L.20,000 million had been invested for the purpose. In Jan. 1950 Fanfani refused to join the seventh De Gasperi cabinet after the premier had declined to strengthen the Christian Democratic left-wing representation in the government. On July 26, 1951, he returned to power in the eighth De Gasperi cabinet as minister of agriculture and forests.

FASHION AND DRESS. During 1951, questions were posed about the waistline, which seemed likely to be answered in 1952. Several designers—but especially Dior—developed a whole series of devices for carrying the eye to a higher level. The natural waistline remained fitted, sometimes in an unbelted princess style, but attention was focused at a point several inches higher by means of short boleros, little rib-hugging spencers knotted between the breasts, high martingales, deep corselette belts and breast-high bows. These devices made clothes look longer, by altering the proportions; in point of fact skirts only lengthened in some houses by about an inch. Dior then asked us persuasively if we would like our waists to rise to Empire level. Balenciaga did just the opposite, offering us a middy line, straight and loose through the waist, fitted round the hips. He tacitly inquired if we would like our waists to sink to the '20s level; but the '20s did not yet seem to have acquired sufficient distance to lend enchantment to the fashions with which they were associated.

Another move was towards something very like the famous postwar "New Look," though in a less exaggerated form. Some very wide skirts were seen, for tailored suits as well as for day and afternoon dresses—the width being achieved by all-round pleating or by flares, usually from a hip yoke. This fullness was emphasized by stiff crinoline petticoats, sometimes two or three at a time. It was significant that this fashion was first seen in ready-to-wear clothes in the United States and was only later reflected at the Paris couture collections. This was a topsy-turvy state of affairs, for fashion had, traditionally, begun at the top and percolated downward. But the fact was that in 1951, for a number of reasons, the U.S. was setting fashion in some fields; partly because some of the leading Paris houses had established ready-to-wear houses in New York which exercised considerable authority; partly because the U.S. clothing industry was geared to high-speed changes and needed to effect them faster than the rest of the world; and partly because there had come to be a definitely recognizable "American Look" which appealed to the young, especially, in other countries. The full skirts, for example, had great charm, and if they were only seen in England in limited numbers and in a modified form, it was because the price of fabrics made them cost more than most women could afford.

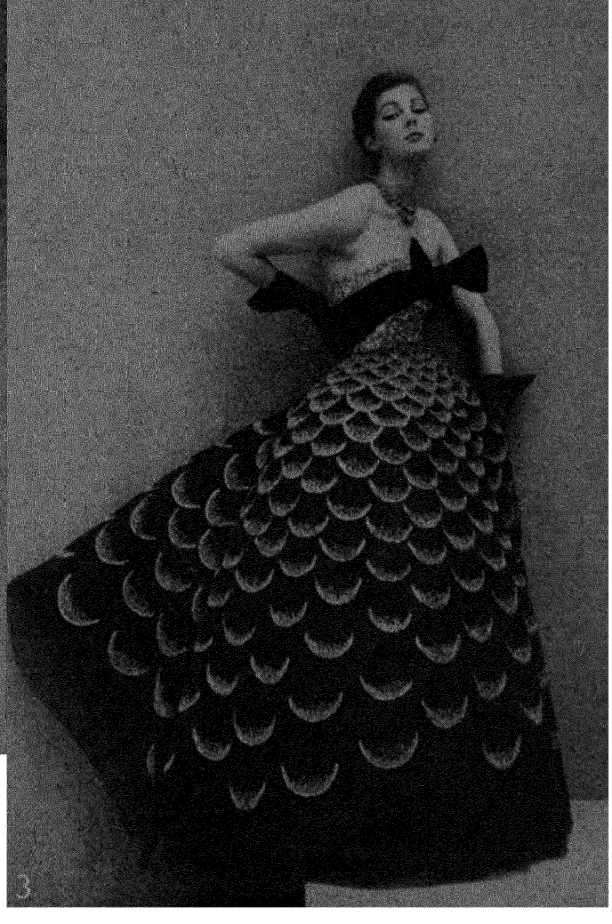
The designers poured all their ingenuity into sleeves in 1951. Shoulders were always smooth and sloping, but some sleeves swelled out to leg of mutton fullness, giving soft bulk just below the shoulders; others sprang out in stiff fans or tiered pagoda ruffles. Otherwise, classic suits had three-quarter bell sleeves, arc sleeves cut in a semi-circle with the inside seam much shorter than the outside, or ultra-long sleeves which covered a woman's hands—as if she were wearing her husband's pyjama jacket.

After years of tent coats there was a return of the redingote

Examples of Women's Fashions in 1951. (1) Stone llama wool coat with fur facing and fur muff of black Persian lamb by Hartnell. (2) Suit in speckled blond wool, with unpressed pleated skirt, relentlessly carved jacket with full diamond set sleeve, dominated by an astrakhan jabot by Fath. (3) Dior strapless evening gown in creamy brown net; gilt crescent moons carry the eye to the bodice with its brown velvet ribbon bow.







—the fitted coat with flared skirt. And since this type of coat looked well over dresses rather than suits, there was also a great feeling for the coat-and-dress ensemble as an alternative to the suit. Tailored dresses in tweeds and worsteds were much seen, especially at the London collections; they suited English life and the chill of English houses. Fur trimmings came back in strength, Persian lamb and nutria being the favourites, with spectacular furs such as ocelot and civet cat used for muffs and linings.

The short decolleté dress, with cover-up jacket or bolero, established itself as the perfect answer to all those 6 o'clock-onward occasions that began with a cocktail party or theatre and finished with a restaurant dinner. They were made in velvet, satin, taffeta and metal-thread brocades. This type of dress, however, ended the attempt to meet the formal evening occasion. It was never popular in this role in England where women, when they " dress," like to do the thing in style and are romantics at heart. The shortest evening dresses in Paris were a few in the ballerina length, which had a young prettiness.

One welcome return for Englishwomen was the dinner dress—that covered-up type of dress, with skirt to the ankles or floor. In dark or rich colours, and often in fine woollen or jersey, it was an elegant comfortable dress for evenings at home. Another important evening trend was towards two or three subdued colours mixed and blended in one dress. After many seasons, shoulder straps began to reappear for full evening dress, sometimes one, sometimes two and sometimes with the variations of a halter neck or an off-shoulder neckline.

The great day-time fabric successes were the shaggy fleecy cloths, and curly poodle cloths for overcoats. Tweeds made a hit after some seasons of eclipse; coarse-grained tweeds and knobbly Donegal tweeds were much seen. This feeling for marked texture was carried into the lighter-weight fabrics. Corded, ribbed surfaces were seen in woollens and worsteds; slub-weaves in silks and rayon. Shantung and dupion were summer favourites, and metal-thread fabrics were of special importance in late-day ensembles. Street velvet—a spot-proof cotton velvet—acquired great popularity; its practical virtues made it appropriate for suits and raincoats, and its handsome looks also caused it to be chosen for late-day dresses and coat-linings.

The most striking success among daytime colours was that of the dark greys (gunmetal and charcoal), which often replaced black, and there was a whole gamut of greens, from sage through emerald to dark fir. Blues, gradually returning to favour, scored successes principally in the turquoise and peacock ranges, and in royal blue teamed with black. Purple and lavender gained a limited popularity and reds had an undertone of blue rather than yellow. In the evening subdued greys, greens, yellows, purples and some orchid-pink were seen; there were few bright colours, but two or three different colours or tones were often used together, including some beautiful all-blue effects.

The summer's wide-brimmed, shallow-crowned hats became the winter's big formal hats for late-day, worn straight on the head. Daytime hats became small: tiny side-dipping caps, straight toques, bonnets curved over the brow. The smaller the hat, the bigger the jewel pinned into it.

Jewels, indeed, became bigger, but retained a lightness of workmanship which made them far removed from the chunkiness of prewar jewels. Pairs of brooches were worn high on one shoulder; or, with one on a shoulder, the other under the opposite breast. Huge single brooches were worn on the shoulder, at the waist, or pinned in the chignon—for, with the continuance of short hair styles, chignons were often added in the evening.

The most startling development in shoes were Dior's pumps with inch-high Cuban heels, made by Perugia, for day and evening. At the other end of the scale were Fath's slender tapering heels, widening towards the base to the size of a sixpence.

An important event of 1951 was the re-entry of Italy as an influence in fashion. Long famous for her textiles, her leather accessories and the beauty and elegance of her women, Italy staged, in Florence, her first fashion shows combining designers from Rome, Florence, Milan and Turin. Their outstanding contribution was in the field of sportswear.

(A. Ws.)

Men's Fashions. Although the trend towards Edwardian styles, which was so apparent during 1950, continued to exert itself in 1951 in the more fashionable spheres, there was no appreciable large-scale following for the style from the wholesale trade or from the public generally. It is true that some of the features of the revived fashion, such as vents in the back of jackets, waistcoats in contrasting materials to suits, and the bowler hat, were more widely adopted, but the style as such was not.

In earlier years, innovations which aimed at novel and more colourful styles were regarded as " spivvy " and were boycotted by the average man. Quite a remarkable change in this respect was seen in 1951. There was a definite veering away from traditional conservatism in men's dress: not only were brighter ties, shirts and socks to be seen everywhere, but there was a widespread adoption of the suit with a mildly draped cut and long lapels.

While this minor style revolution was taking place in one section of the trade, the elaboration of the Edwardian theme continued in another. The stylists here favoured the longer single-breasted jacket, with centre-back vent, turned back cuffs and a ticket pocket, waistcoats with step collars and flaps on the lower pockets, and " drainpipe " trousers.

The highlight of a style exhibition staged in Edinburgh, in October, in connection with a joint conference of English and Scottish tailors' federations, was the return of the velvet collar on overcoats. One model featuring this revived embellishment had flapped breast pockets and outside ticket pockets, turned-back cuffs and a short centre-slit at the back. Another had a narrow edging of velvet to its turned back cuffs, as well as on the collar.

The roll-collar, single-breasted dinner jacket was much in evidence during 1951, but the double-breasted style remained more popular. A new version of the double-breasted jacket was flared and vented and had slant side pockets. White gloves were increasingly worn with full evening dress at receptions.

(R. J. My.)

FATS: *see* Vegetable Oils and Animal Fats.

FEDERAL RESERVE SYSTEM. United States. During 1951 the federal reserve system and the financing institutions of the nation worked out a voluntary credit restraint programme to curtail loans for non-essential purposes. Late in the year the federal open market committee greatly curtailed its support of the Treasury bill market in the face of strong money market pressures and forced banks to borrow if they wanted more funds. Early in December member bank borrowing set an 18-year record in reaching a level of almost $1,000 million.

The Defence Production act amendments of 1951 reduced the administrative discretion of the board of governors in control of consumer credit. In accordance with this legislation, the board amended regulation W, effective July 31, so that (1) the maximum maturity applicable to instalment credit for motor cars, household appliances, radio and television sets and furniture was lengthened from 15 to 18 months, and for home repair and improvements from 30 to 36 months;

(2) the down payment requirements for household appliances and for radio and television sets were reduced from 25% to 15%; and (3) the down payments required by the regulation might be made in cash, trade-in or a combination of trade-in and cash.

Several changes were made during the year in the coverage and terms of regulation X relating to real estate construction credit. As from Jan. 12, the scope of the regulation was broadened by making it applicable to credit in connection with three- and four-unit residences and multi-unit residential property. On Feb. 15, the regulation was further broadened to include most new non-residential construction, with maximum loans on such structures limited to 50% of the value of the property, maturities limited to 25 years, and amortization required. From March 5, terms different from those prescribed by the regulation were permitted to apply to specific new construction necessary to the national defence. On Sept. 1, the regulation was amended so as to bring it into conformity with the provisions of the new Defence Housing and Community Facilities and Services act of 1951. This legislation provided, among other things, for (1) the suspension and relaxation of restrictions in critical defence housing areas; (2) minimum down payments for veterans' loans on houses having a sales price of less than $12,000; and (3) maximum down payments in connection with conventional or Federal Housing authority financing of homes where the transaction price was $12,000 or less.

A general increase in reserve requirements during January raised the required reserves of member banks by a total of about $2,000 million and left reserve requirements at their existing statutory maximum levels except for an additional two percentage points against net demand deposits in central reserve city member banks. (J. K. L.)

FENCING. The world championships were held at Stockholm in May 1951 and produced very keen competition and the highest technical standard seen since World War II. France won the ladies' and men's foil team titles by narrow margins and fielded a young épée team which decisively beat their more experienced Italian and Swedish rivals. Illona Elek (Hungary), the 1936 and 1948 Olympic champion, won the ladies' individual title and Manlio di Rosa and Edoardo Mangiarotti of Italy won the men's foil and épée individuals respectively. Hungary made their first appearance in these championships since the war and, by winning both the sabre titles, showed that their supremacy at this weapon remained unimpaired. Aldar Gerevich, the 1948 Olympic sabre champion, won the individual title.

In Great Britain fencers once again increased in numbers and there was a further expansion in the county organization of the Amateur Fencing association, as well as in the number of holders of the leaders' (amateur instructors) certificate. The season was marked by a Festival of Britain International Open Foil competition which attracted entries from the leading British and European professors and amateurs. The final was held during a brilliant gala at the Chelsea town hall, London, in the presence of Princess Elizabeth and the Duke of Edinburgh. The competition was won by Jehan Buhan, the 1948 Olympic foil champion.

The British amateur champions were: Gillian Sheen (ladies' foil), H. Cooke (men's foil), A. E. Pelling (épée) and P. M. Turquet (sabre). (C.-L. de B.)

FERTILIZERS. The consumption of fertilizers in the United Kingdom fell slightly in 1950-51 as compared with the 1949-50 period. Both sets of figures were undoubtedly influenced, however, by an excess of buying prior to the removal of 50% of the fertilizer subsidy in July 1950 and its complete withdrawal in July 1951. Consequently, it was not possible to say whether the upward trend in fertilizer consumption would persist (*see* Table I).

TABLE I. CONSUMPTION OF FERTILIZERS IN THE UNITED KINGDOM (in tons of plant food)

	Nitrogen (N)	Phosphoric Acid (P_2O_5)	Potash (K_2O)
1939-40 . .	77,100	195,500	85,000
1945-46 . .	164,600	358,700	123,000
1947-48 . .	185,000	396,400	179,800
1949-50 . .	225,100	460,600	234,000
1950-51 . .	216,000	423,000	226,000

With the final removal of the subsidy fertilizer prices rose steeply (*see* Table II). The price increases for phosphatic fertilizers in 1951 were considerably greater than in 1950, and were due not only to removal of the subsidy and to increased costs but also to a production charge on home-produced phosphatic fertilizers. These fertilizers were then sold at the same price as the imported materials. No maximum price was fixed for triple superphosphate, first produced in Great Britain in 1951.

TABLE II. FERTILIZER PRICES IN THE UNITED KINGDOM*

	June 1951 £ s. d.	July 1951 £ s. d.	% increase
Nitrate of Soda (16% N) . .	19 17 6	29 15 0	50
Sulphate of Ammonia (20·6% N)	13 1 6	15 3 6	16
Nitro-chalk (15·5% N) . .	12 13 0	14 11 0	15
Muriate of Potash (60% K_2O) .	16 3 0	20 4 0	25
Sulphate of Potash (48% K_2O) .	19 3 0	21 11 0	13
Basic Slag (15% P_2O_5) . .	5 5 0	8 0 0	52
Superphosphate (18% P_2O_5) .	8 0 9	14 13 6	83
Ground rock phosphate (29% P_2O_5)	7 1 9	12 2 0	71

* Prices per ton (including early delivery rebates where applicable) for six-ton lots delivered to nearest station; potash fertilizers quoted at importer's stores.

The fertilizer subsidy amounted to £9,200,000, as compared with £15 million in 1949-50. The U.K. would no longer have the same advantage as in 1949-50 regarding fertilizer costs compared with almost all European countries. The acreage grant, introduced in 1950 to encourage the use of fertilizers on grassland and rough grazing, was withdrawn in July 1951. The contribution of two-thirds towards the cost of fertilizers for such land on ploughing up was continued, the maximum grant being raised from £3 to £4 an ac.

Details were made known of findings from boreholes to the potash deposits in northeast Yorkshire and further developments were awaited with interest.

The shortage of sulphur (brimstone) exerted a world-wide influence on the fertilizer industry, the biggest consumer of sulphuric acid. Sulphuric acid, used especially in the manufacture of superphosphate and ammonium sulphate, is made chiefly from brimstone, supplies of which had latterly come almost entirely (*e.g.*, in 1947, 92·5%) from the U.S. deposits in Louisiana and Texas. World demand for this sulphur had risen and, at the 1950 rate of consumption, it was estimated that supplies might be exhausted in 11 years. Consequently, exports were restricted in 1951 and supplies for home use reduced. In the United Kingdom, sulphuric acid for fertilizer manufacture was reduced to two-thirds of capacity and imports of superphosphate from Europe were increased. A new range of compound fertilizers containing more ground rock phosphate was introduced in July thus saving 15% in superphosphate content. New sulphuric acid plant, designed so that pyrites or anhydrite could be used instead of sulphur, was planned. The biological production of sulphur by sulphate-reducing organisms was also investigated.

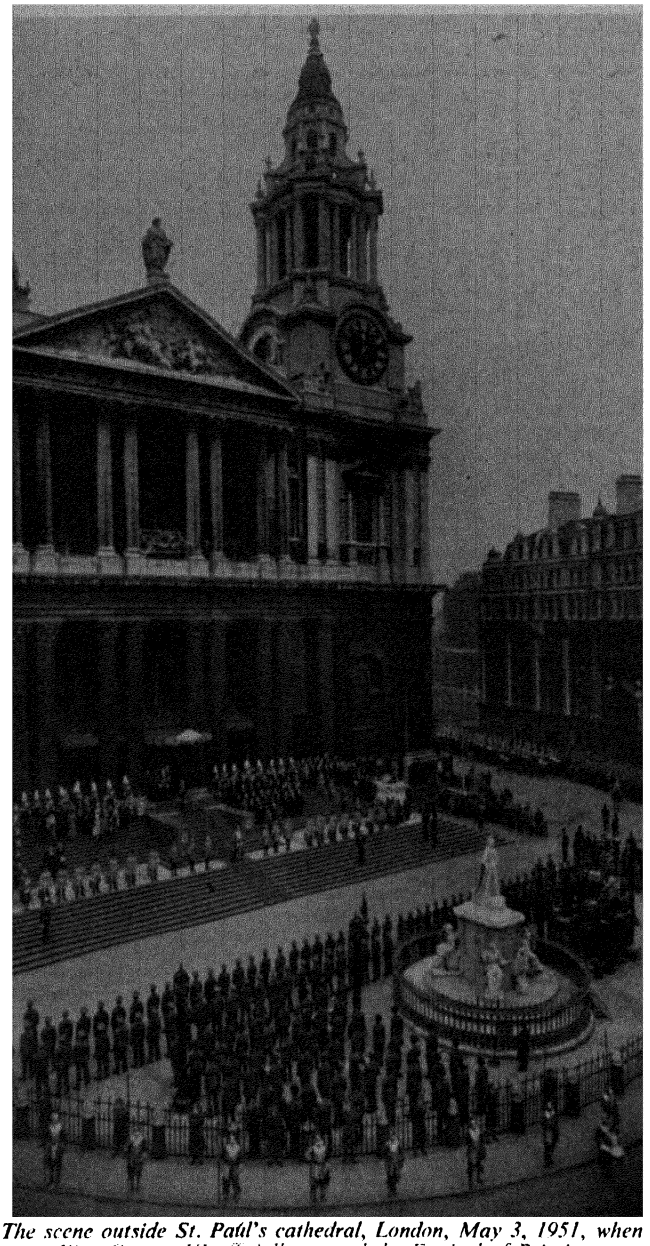
The shortage of sulphur presented serious problems in Australia, New Zealand and South Africa, where superphosphate was very widely used. New Zealand and South Africa adopted the expedient of mixing superphosphate with fillers such as ground rock phosphate or ground serpentine rock. Australia, with extensive pyrites deposits, turned attention to their greater development.

In the United Kingdom, the National Agricultural Advisory service carried out further field trials on "nitrophosphate," in the manufacture of which sulphuric acid was replaced or partly replaced by nitric acid in treatment of rock phosphate.

In Australia and New Zealand, aircraft were used more widely for fertilizer application (see *N.Z. Journ. of Agric.*, p. 315, 1951). In the U.S., aircraft were used in reafforestation and distributed seed coated with fertilizer, insect repellant and fungicide. A commercial firm in the U.K. sprayed 1,000 ac. of marshland with a mixture of fertilizer and selective weed-killer.

More blower type distributors were used in New Zealand for top-dressing hill country. (e.g., see *N.Z. Journ. of Agric.*, p. 49, 1951.) (M. S. SH.)

FESTIVAL OF BRITAIN, 1951. In Dec. 1947 it was announced that the government had decided to mark the centenary of the Great Exhibition of 1851 by a nation-wide celebration in the summer of 1951. The director general of the organization formed to plan and to implement the festival projects was the author of the conception, Gerald Barry (*q.v.*), who was knighted in the 1951 Birthday Honours. For the earlier history of the Festival see also *Britannica Book of the Year 1951*.



The scene outside St. Paul's cathedral, London, May 3, 1951, when King George VI officially opened the Festival of Britain.

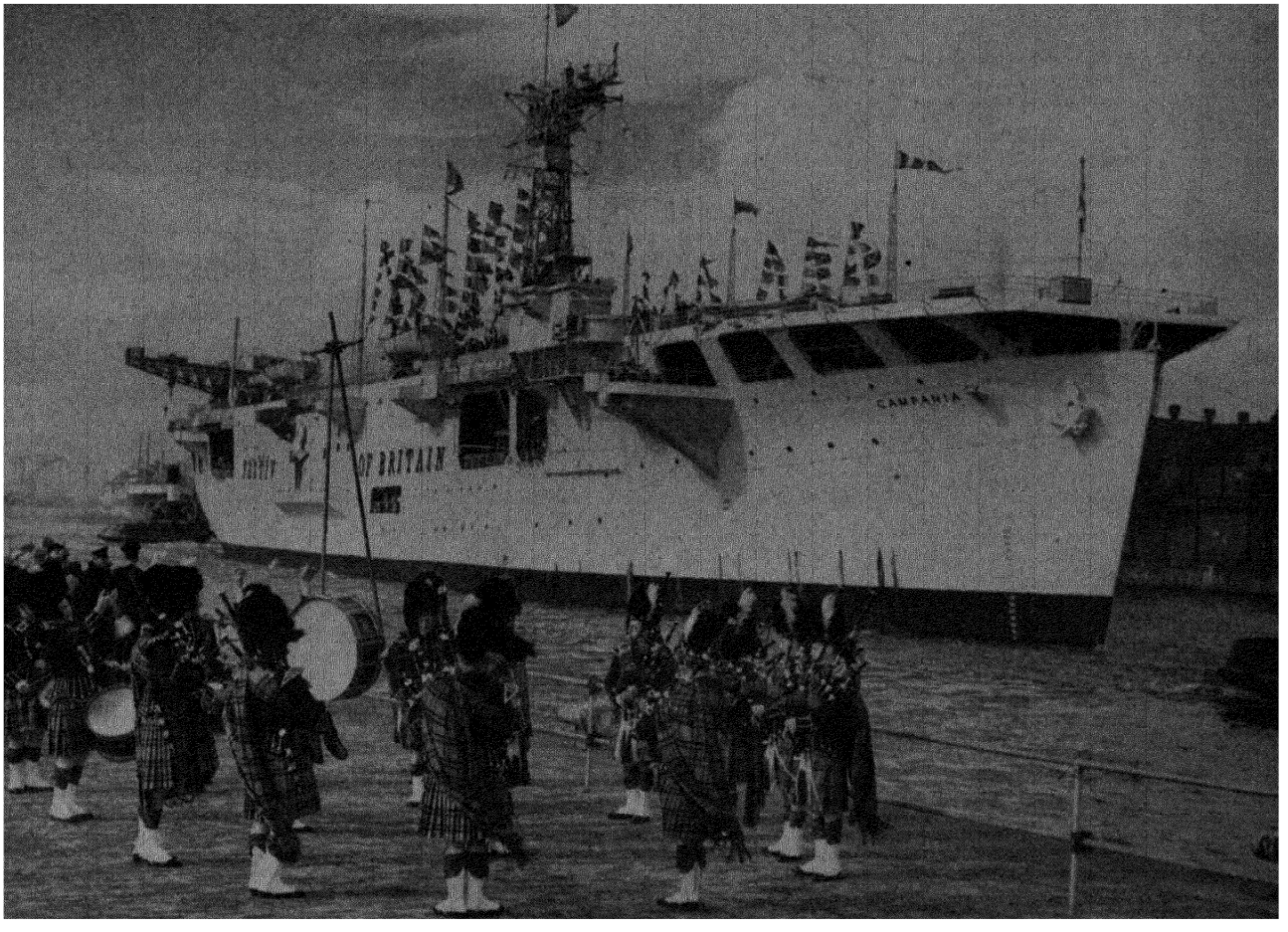
To a gathering of heads of local government at the Guildhall, London, in June 1949, the king sent this message of good wishes:

> "The Queen and I trust that every family in all parts of the country will share in this great Festival so that all of us may join in showing that Britain lives on, now as ever, taking her rightful place among the nations of the world."

It has to be admitted that the two preparatory years were plentifully strewn with lapses from this high idealism, though the Festival office worked strenuously and gallantly on. The festival became a subject on which feelings ran high in parliament and in the press. Probably a majority of the public had still to be convinced that the times were right for festival or that, if they were, the money was being spent in the right way. As the date of opening came nearer, criticism became concentrated on the South Bank and its complement of "fun and games" (to quote Gerald Barry's label) up river at the Battersea park pleasure gardens. Materials were short; more money had to be raised; labourers downed tools. Those who declared that even if the exhibition were eventually completed no-one would go joined pessimistic forces with others who believed there would be unparalleled scenes of congestion, preventing London from going about its everyday business. The international skies darkened; tourist agencies reported substantial cancellations, especially from the dollar areas. Yet these circumstances and conditions made all the more appropriate the words used by the king from the steps of St. Paul's cathedral after the service of dedication on May 3, 1951: when he had declared the festival open he described it as a "symbol of Britain's abiding courage and vitality."

South Bank Exhibition. The "national centrepiece" of the festival was confined to an area of 27 ac., bounded by Waterloo bridge, Waterloo station and County hall. Not the least of the achievements of Hugh Casson, the director of architecture, was a brilliant contrivance of spaciousness which prevented the visitor from feeling that he was being presented, as in fact he was, with a quart in a pint pot. The river assisted in the illusion, so did the skilful use of different levels in the pavilions, and the upthrust of the charmingly nonsensical Skylon and of the Shot Tower, an ancient landmark disguised as a lighthouse. The pavilions, most notably the Dome of Discovery with its 365-ft. span of aluminium supported only by steel girders, were, by general consent alike of the public and of such experts in modern architecture as Walter Gropius, considered to exploit with great effect the use of glass, steel and concrete. The prodigal use of colour externally was less universally approved at first but, it was agreed, improved upon acquaintance. There were few visitors who did not find enchantment at night in the lighting scheme. The only permanent building, the Royal Festival hall, gained few admirers of its exterior, but more, perhaps, of the concert hall itself, though controversy still continued at the end of the year about its acoustic quality.

The South Bank story was a narrative in three parts. In the upstream pavilions, the theme was "the Land of Britain"—an account of how the islands were formed, how agriculture made them fertile, how mineral resources were converted by industry into the implements of daily use and how these products in their great variety were distributed at home and overseas. Downstream, the theme was "the People of Britain." Here, the story was told of how their forebears came to the islands; how their evolving ideas, beliefs, traditions and eccentricities shaped their social history; how they now lived, designed their homes and



The festival ship "Campania" arriving at Glasgow, Sept. 1951. The ship—a former aircraft carrier—was converted into a travelling exhibition which visited Southampton, Dundee, Newcastle-upon-Tyne, Hull, Plymouth, Bristol, Cardiff, Belfast, Birkenhead and Glasgow.

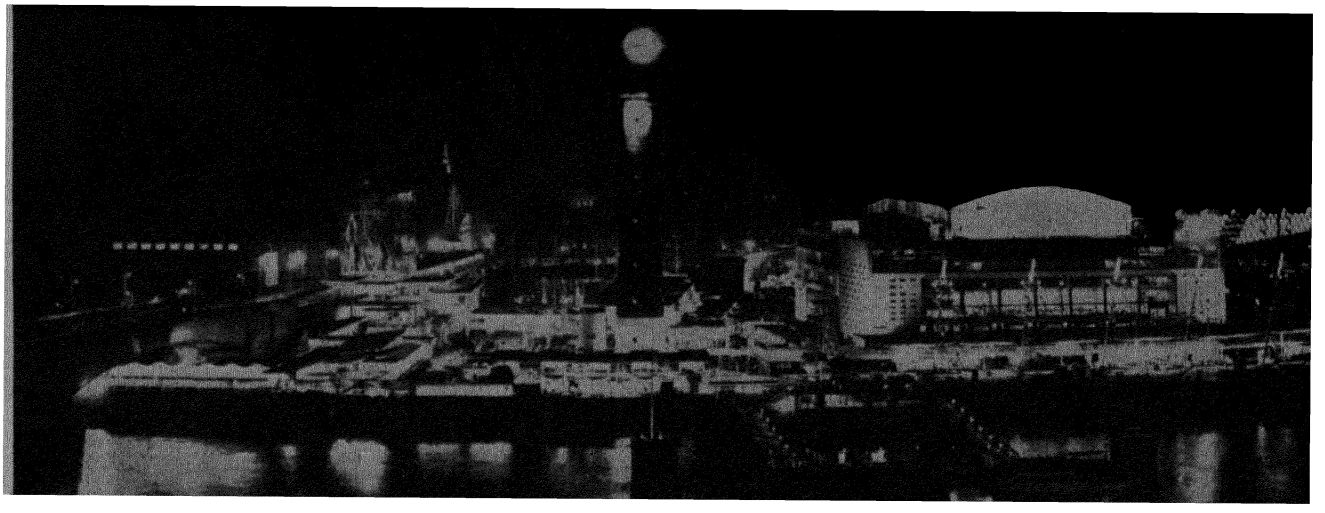
cultivated their gardens; how their schools were being made at once more efficient and more beautiful; how they contributed to medical science; how they evolved and played many of the world's popular sports; and how, as an island people, they made use, both for work and play, of their long coastline. The third part of the story was told in the Dome of Discovery, which housed the tale of Britain's contribution to the exploration of the earth's surface and the discovery of the minerals below that surface, and to meterology, radio communication, astronomy, physics and biology.

If the application necessary to make a detailed journey from theme to theme was only to be found in a minority of the visitors, there were hundreds of thousands who found their greatest pleasure in the pavilion which dealt with the subject nearest to their own experience, and a very large number more who were content to wander idly past the "wave-making machine" or "watermobile," to sit on the little platforms which jutted out over the Thames, to sit startled in the cinema with its stereoscopic films or to watch a team of huskies pull a sledge over artificial ice. Complaints were most generally heard of the difficulty of understanding the exhibits in the Dome of Discovery, of the absence of any mention of the history of British arms, or of the British contributions to social sciences, and of the indifferent catering arrangements.

Attendance at the South Bank after a slow and anxious start, and despite poor weather, was in the end only half a million short of the 9 million estimated by the festival authorities. The main disappointments were the apparent poor attendance of foreign visitors and the poor numbers after nightfall. The entrance fee after 9 p.m. was cut from four shillings to two, and this had an appreciable effect on the number of latecomers. Another attraction was the season tickets which, for 25*s.* a week or £4 a month, entitled the holder to admission to the South Kensington and Poplar exhibitions as well. There is little doubt that the South Bank made a profound impression on the foreigners who did come—a full coverage in the Scandinavian press brought last-minute visitors from those nearby countries. The busiest day of the whole exhibition was Saturday, Sept. 22, when there were 158,365 visitors.

On Saturday, Sept. 29, the day before the exhibition closed, vast crowds remained inside the grounds until closing time, dancing on the Fairway (the open space outside the Dome of Discovery) with searchlights for illumination and singing popular songs with Gracie Fields to lead them. The following night, the archbishop of Canterbury, in the absence of the king, broadcast a message, after which the massed bands, drums and pipes of the Brigade of Guards beat tattoo. Then came community singing and the impressive striking of flags, in darkness except for spotlights, from masts below the Skylon. The whole gathering joined in the singing of "Abide with Me," "Auld Lang Syne" and the national anthem, then dispersed in silence, leaving the exhibition buildings to the breakers, and the future of South Bank to the London County council and the government.

Exhibition of Science. The design of the Exhibition of Science was the work of a team of young scientists and mathematicians working under the general counsel of a committee of scientific "elder statesmen," and under the specific guidance



A view of the South Bank exhibition at night, from Waterloo Bridge on the left to County hall on the right—

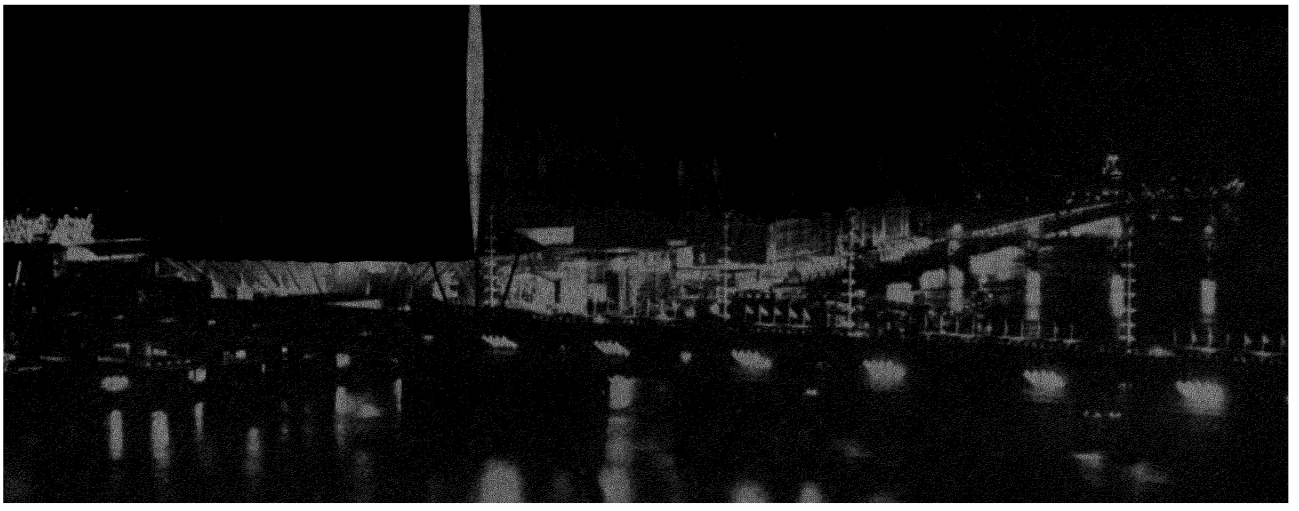
of the festival's director of science, Ian Cox. It was housed on the ground floor of the new west wing of the Science museum, South Kensington, work on which was hastened to make it available in the summer of 1951. Insufficiently, and unimaginatively publicized, the exhibition attracted hardly more visitors during the whole five months during which it was open than did the South Bank exhibition on its most successful day. The South Kensington exhibition presented pure science, as opposed to its practical application, displayed in the Dome of Discovery. The story was told in three parts, these parts displaying, first, the physical and chemical nature of matter, second, the structure of living things, and third, under the title "Stop Press," the most recent topics of scientific research. A long hall was dominated by a vast, whirling diagram, setting out the elements kaleidoscopically. The entrance was a gigantic simulation of a lead pencil, and a voice persuaded the visitor he was that size. Soon, by cleverly arranged models, he found himself no bigger than a grain of graphite in the pencil. The scale was further diminished to that of the atom, until the spectator finally came face to face, on equal terms in point of size, with atomic patterns. The magnification at this point was 10,000 million times and disembodied voices invited the spectator to contemplate the architecture of crystals. The combination of a fairground assault on the emotions with an intellectual demand was daring and strikingly successful. From the caverns of the atom itself, the visitor passed to a brilliantly lit hall where diagrams and moving models displayed atoms in chemical reaction. The second part of the exhibition, making use of translucent models in vivid colours, showed how cells divide, specialize and reproduce, and how man's action can affect cell life. The secret of plant growth, and the relation of man to his plant and soil environment were revealed in the simplest of models and without the use of jargon. The captions, written by J. Bronowski, the well-known broadcaster, were a triumphant if rare example of the scientist's ability to describe his knowledge for the layman. The climax of the exhibition was an exhibit of cosmic rays, and a demonstration, rather like an indoor firework display, of the hypothesis that astronomical phenomena are part of a gigantic and eternal cycle.

Outside the main stream of the exhibition were a number of contributing displays and demonstrations. One was a chemical laboratory showing the methods and the pilot apparatus first used to produce the variant of vitamin B which is now believed to be a cure for pernicious anaemia. Another was a cinema whose programmes illustrated three main applications of cinematography in science—as a research tool, as a method for teaching and as a medium through which the findings of science might be clearly shown to the public generally.

Exhibition of Architecture. The County of London plan, 1943, placed first among development works to be undertaken after World War II the reconstruction of an area of 1,500 ac. in eight boroughs, of which Poplar was one. Of the three neighbourhoods into which Poplar was divided, one of 124 ac. was named Lansbury, after the great humanitarian and Labour leader, and a quarter of Lansbury was completed for the festival, while building continued on the remaining three-quarters of the site (Lansbury as a whole was to be completed in 1955). The district completed for the festival lay north of the East India Dock road, a varied collection of domestic dwellings very much on traditional lines, built of honey-coloured London brick and very far from the modernistic conceptions of Le Corbusier, Walter Gropius or the architects of South Bank. Foreigners who visited the area strongly criticized the insistence on traditional design, and particularly the lowness of the buildings, one reason why only 9,500 people were eventually to be housed on the 124 ac. which before the war accommodated, albeit miserably, 22,500. Visitors were able to inspect the new houses, some of which were furnished with hire-purchase chairs, tables, beds and labour-saving devices obtainable at modest prices in the East End.

One school was already in use during the festival. Lightly constructed and informally planned, it was both handsome to look at and, clearly, agreeable to learn in. The market-place and shopping centre seemed likely to provide a model for London development, since they were largely covered-in and confined to pedestrians, two amenities in which the capital had long lagged behind other British cities. A long-established street market was accommodated within the plan, new, hygienically enclosed and well-lit stalls being provided for the traders. Trinity Congregational church, built as a memorial to the work of William Dick, a former minister, seemed to be the most "modernistic" building in the area, with its bold use of colour and of glass and copper. Two church halls, one with a full stage, were incorportated in the general design.

Closely linked to the "live exhibition" was the festival's own series of exhibits, dealing with building research and town planning generally. The entrance to these temporary buildings was marked by a giant crane, the counterpart of the Skylon at South Bank. There were two pavilions, one



—*Other landmarks are the shot tower, the Royal Festival hall, the Dome of Discovery, the Skylon and Hungerford bridge.*

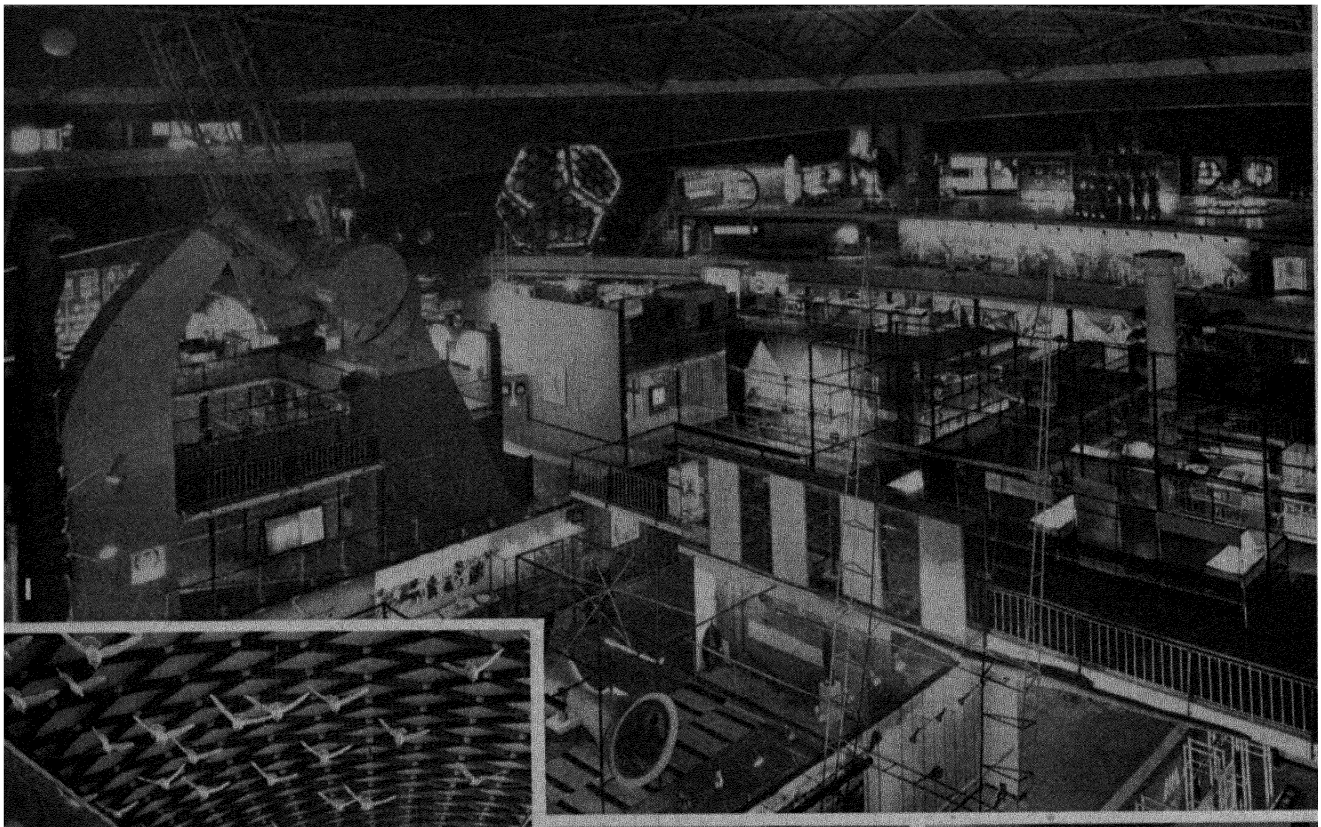
showing how science had contributed to more economical building, the other describing the efforts of contemporary planners to avoid the mistakes of earlier town-builders. Both were ingenious and themselves a pattern of good planning. The popular success of the exhibition was undoubtedly a villa called " Gremlin Grange," in which were graphically portrayed the mistakes of which builders of the past (including the most recent past) had been guilty. And the leg-weary and conscientious visitor, who might have come ill-prepared for the strenuous time which the complete tour of Lansbury involved, doubtless found rest and comfort in the new Festival inn.

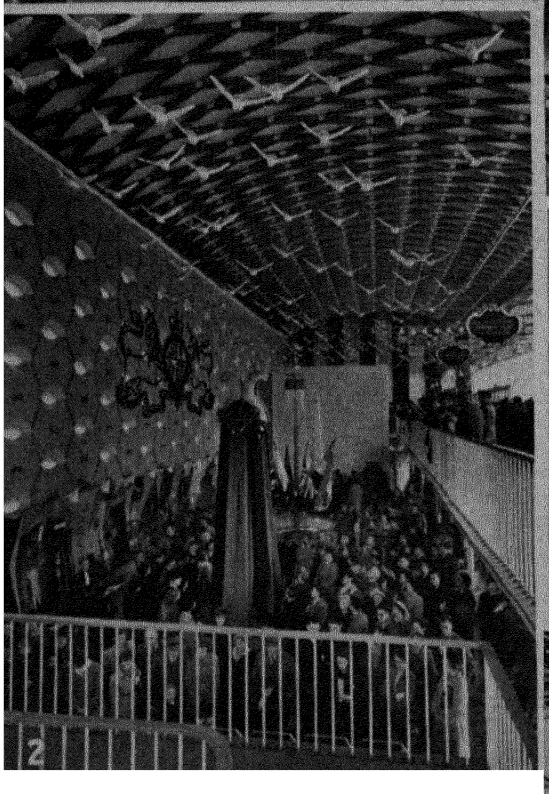
Battersea Pleasure Gardens. After delays, labour troubles, controversial expenditure and a last-minute change of direction, not to mention a sea of mud due to the wet spring, the 37-ac. pleasure gardens and fun fair opened at the end of May instead of at the beginning of that month. They soon became very popular with the citizens of London, many of whom arrived by river. The " diversions," including the open-air and summer theatres, the beer and wine gardens, the grottos, the avenues of booths, the lake and the lighting, which were provided in the gardens proper, were as much liked for their unusualness, as was the fun fair (which, incidentally, opened on time) for its familiarity. The joint force of John Piper and Osbert Lancaster as designers of the Grand Vista produced some exotic constructions which not only charmed the eye, but also caused a good deal of amusement. Eight million people enjoyed the " Battersea Wonder," as it became known, between May and November, and not a few of them were delighted to learn later in the last month that the pleasure gardens would be open again in 1952.

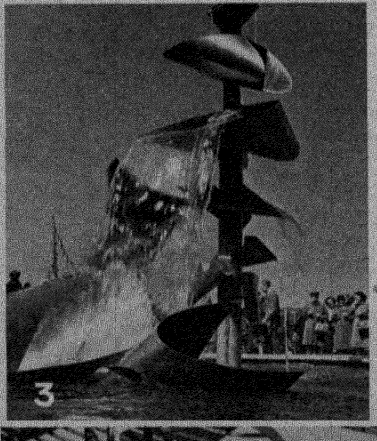
Festival Ship " Campania." Starting at Southampton on May 4 and going by way of Dundee, Newcastle, Hull, Plymouth, Bristol, Cardiff, Belfast and Birkenhead to Glasgow, her last port of call in September, the converted aircraft carrier " Campania " (16,408 tons) carried the story of the South Bank in miniature to large sections of the population who were unable to make the journey to London. The number of visitors to the ship totalled 888,786, and if it had been possible to open the exhibition on Sundays, the million mark would certainly have been passed. From the point of view of attendance, this was therefore one of the most successful of the ancillary exhibitions, and there were those who, having been both to South Bank and aboard the Festival ship, declared the simpler and more compact exposition of the same theme to be found in the latter a more satisfying experience.

The Campania's hangar deck, 300 ft. long, was high enough for galleries to be built to increase the exhibition area. Visitors passed from this deck, with its galleries, to the flight deck, so that the studied changes of level, and the carefully contrived alternations of concealment and disclosure, which were characteristic of the South Bank exhibition, were also reproduced in the floating miniature. Conversion to an exhibition ship was planned by the director of naval construction, Sir Charles Lillicrap, and James Holland, one of the chief designers of the festival, and carried out by Cammell Laird. During her five months as Festival ship, " Campania " flew the red ensign and was manned by a merchant navy crew under Capt. F. S. Thornton. The festival staff and maintenance party occupied a hundred cabins. Perhaps the most effective section of the exhibition in " Campania " was that devoted to homes and gardens, where the solutions offered to the problems of using space economically and of saving time and labour gained emphasis from being housed in a ship, where room is always more constricted than it is ashore. Another detail of the exhibition which was much commented on was the striking series of pictorial panels, the work of Richard Negus and Philip Sharland, on the gallery deck, which portrayed the cycle of the British seasons. On the flight deck was an exhibition of small boats, and amidships a large covered space was used for entertainments and demonstrations. Throughout the summer, " Campania " herself was also on show and all her normal equipment on view to the public.

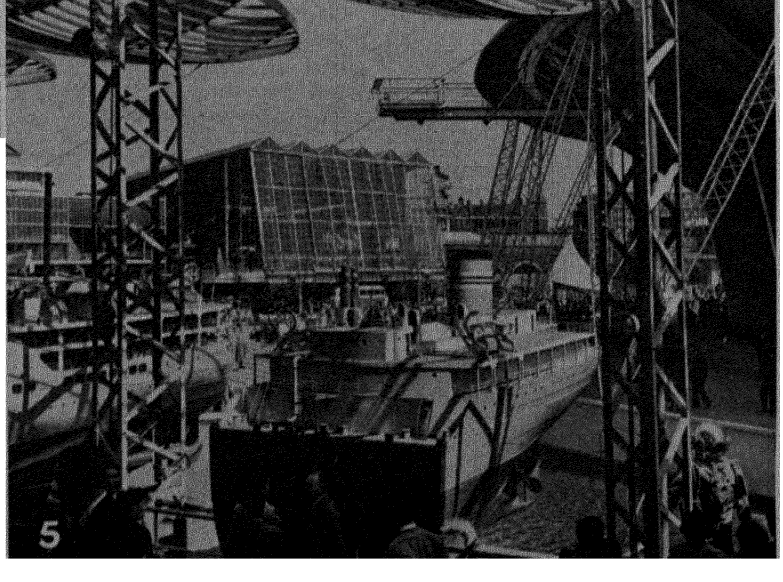
Land Travelling Exhibition. This, the largest travelling exhibition ever conceived, brought to four inland cities and centres of industry, Manchester, Leeds, Birmingham and Nottingham, a story closely related to that part of the South Bank exhibition which dealt with industrial design and production. It covered an area of 35,000 sq.ft., and the problem of transporting it was a formidable one. The time-schedule between showings in the four centres was tight, and three of the four buildings demanded some rearrangement of the display units. The problem was ingeniously solved: the units were made as large as possible, to save time in re-erection, and were placed on adjustable footings to take up the varying levels of the four sites. Besides the units of the exhibition structure, 3,000 exhibits, ranging from aircraft engines to brooches, had to be dismantled, packed, crated and re-erected at each move. The whole exhibition was conveyed by road on 60-ft. trailers and in specially built vans, the largest four-wheeled vehicles permitted by the road transport regulations. Ten round











The South Bank exhibition of the Festival of Britain which told the story of British achievements. The exhibition covered an area of 27½ ac. and was open from May 3 to Sept. 30. (1) The interior of the Dome of Discovery, architect, R. Tubbs. (2) The Lion and the Unicorn pavilion, architects R. Y. Goodden and R. D. Russell. (3) A fountain designed by Richard Huws. (4) The monumental group "The Islanders" by Siegfried Charoux. (5) Some of the exhibits at the Sea and Ships pavilion, architects, Basil Spence and Partners.

trips by each of nearly 100 vehicles were necessary between sites.

The "shock tactics" of the designer, Richard Levin, an able exponent of the *avant-garde* in exhibition technique, began with the entrance foyer itself, which contained a remarkable sculpture by Fiore de Henriquez "portraying the skill of the British people," and with the Corridor of Time, where 40-ft. mirrors at each end, and 16 giant pendulums swinging overhead combined to symbolize, with dream-like effect, the endless progression of man and his skills. The corridor led to the arena, where the roof mosaic was carried out in the same style as the earlier sculptured displays and where a practical note was struck by the provision of an information desk and a special room for the answering of industrial enquiries. From the arena, entrances led to the five main sections of the exhibition, which dealt with discovery and design, people at home, people at play, people at work and people travelling.

Women visitors were especially interested in examples of how various things in everyday use in the home had developed and changed over the years. The altering shape and materials of such articles as the domestic iron, the child's drinking mug, the hot water bottle, the hairbrush, the pen, clothes pegs and spectacles were amusingly portrayed. Humour, indeed, was one of the outstanding features of the "land traveller" and was seen at its most popular in the representation of the Victorian parlour and its transformation into the "best room" of today. One of the most realizable of the ideals set forth by the designers was for comfortable and well-disposed bed-sitting rooms for the grown-up and the older child. Sport, which many people felt was inadequately dealt with at South Bank, was one of the most important sections of the travelling exhibition.

A theatre was included in the exhibition, and fashion shows given, not in the conventional way, but disguised as elaborate (and, again, amusing) mimes. "People at Work" struck a more serious note, with its emphasis on jet propulsion and the gas turbine engine and the development of production engineering techniques; but the last section, "People Travel," included such amusements as a full-scale model of a designer's idea for a passenger "lounge-car" of the railway of the future, and an inspired guess at the road car of the years to come. The vast majority of the exhibits in this and all other sections were not, however, imaginary prototypes, but articles in actual production.

Criticism of the exhibition as a whole tended to emphasize the absence of regional characteristics in what was shown. Something was done to counteract this by inviting the co-operation of local organizations in certain demonstrations. In Birmingham, for instance, members of the Royal Birmingham Society of Artists and Students of the College of Art painted pictures in full view of the public.

Exhibition of Industrial Power, Glasgow. The northern centrepoint of the Festival of Britain was the Exhibition of Industrial Power in the Kelvin hall, Glasgow. Princess Elizabeth performed the opening ceremony on May 28, declaring the choice of Glasgow to be "a well-deserved compliment to the land of so many engineers and inventors." The story of the exhibition began in the Hall of Power, where a blazing sun signified the source of all power, a vast sculptured mural by the Scottish artist, Tom Whalen, reaching from floor to roof in a giant black crescent hewn into forms and figures, represented coal, and 20,000 gal. of water breaking every minute on the roof of a brightly lit glass tunnel demonstrated hydro-electric power. From the Hall of Power staircases led to the detailed story of coal and water, which in turn joined again in the Hall of Shipbuilding and Railways. In the coal section a pit cage took visitors down to a "mine" in the alcoves of which were scenes of mines at different periods. Though the exhibition as a whole had its grim and noisy side, it was not lacking in colour and delicacy, notably in a vast engineering mural which revived the 15th-century Venetian technique of covering tempera with an oil glaze, giving a luminous effect, and in a huge panorama of the Nile valley project. In the Hall of the Future stood a tall cone, ringed with wires, beneath a roof painted to represent a night sky. In the darkness a crackle would begin and a long, brilliant blue spark would jump to the ceiling and hang there, half-blinding and deafening the spectators—a dramatic symbol of power. The £200,000 Glasgow exhibition was the most poorly attended of any of the large exhibitions, the reason being advanced, too late for anything to be done about it, that Glasgow was the wrong city in which to mount a display, however impressive, of heavy engineering. The natives, being themselves too close to its subject, stayed away, and it was a long way for the casual traveller to go. The authorities had hoped for 25,000 visitors a day, but had to content themselves with a mere 5,000.

Farm and Factory Exhibition, Belfast. In June the queen opened the Ulster showpiece of the festival, which was housed in a new model factory on the government trading estate at Castlereagh, the grounds of which were laid out with temporary buildings and gardens. On the roof of the administrative block was a "vertical feature," a tapering metal tower, 50 ft. high, recalling in its design the Skylon of South Bank. The purpose of the exhibition was to trace the growth of the remarkable industrial tradition that had been built up in Ulster from so little, a tradition encompassing linen, shipbuilding, distilling, shirtmaking, tobacco, rope, pottery, aircraft and light engineering. Agriculture, however, as the largest industry, occupied one-third of the indoor display and two-thirds of the open-air display. The former showed the development since the 1870s of the land-tenure system, which had transformed the agricultural community from tenants into owners, and the development also of agricultural education. A section covering rural amenities showed the changes in the farmers' way of living in the previous 100 years. In the open air a replica of a farmhouse of 1851 was furnished with genuine pieces and tools of the period. Set beside it, and in astonishing contrast to it, was the "Ulster farm of the future," a 40-ac. working farm, with a grade A herd and incorporating every modern convenience, especially in the magnificent living-room which, like all the living accommodation, was set on the first floor. This living room, with an outside veranda or platform on two sides, was intended to be a conning-tower from which the farmer could watch all the operations on his land.

Within the factory building the main emphasis was on textiles. The Hall of Textiles indicated in graphic form the history of the manufacture of linen, its present-day production processes and the prospects for the future. The ten-year-old rayon industry was described, as was the hundred-year-old shirtmaking industry of Londonderry. The making of poplins, woollens and cottons was also described. The Hall of Industry drew special attention to the existence in Belfast of the largest single shipyard in the world, the largest ropeworks (developed in one man's lifetime), the Belleek works of fine china and pottery, and plants for processing tea.

A festival of the arts was mounted side-by-side with the industrial exhibition. Under the artistic direction of Tyrone Guthrie, a repertoire of Ulster plays was presented, some specially commissioned. An unusual contribution to the general scene of pageants and exhibitions was a cavalcade of nursing staged by the Royal College of Nursing in Belfast and produced and played entirely by nurses.

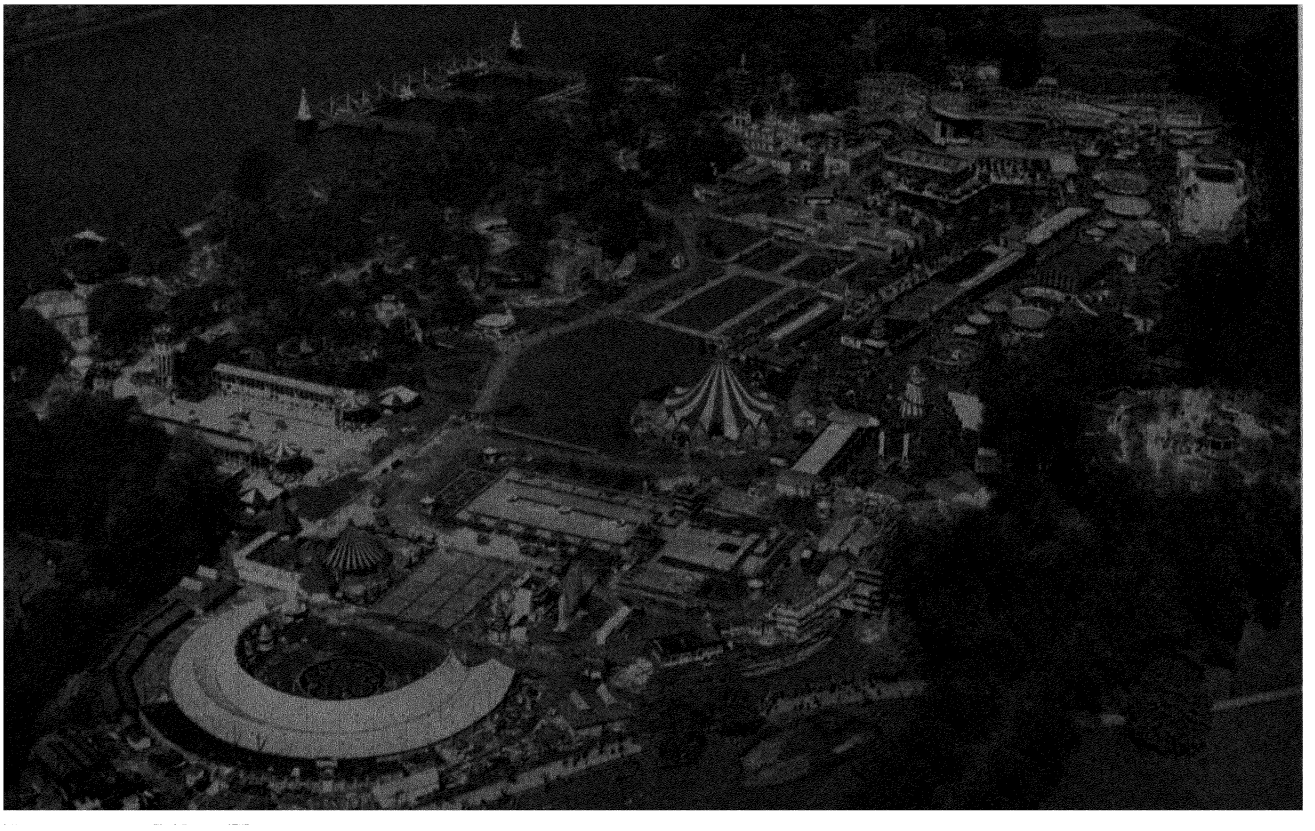
Liverpool Festival. In size and scope, this festival was next to London's. For three weeks, the ribbons decorating the

necks of the railway horses and the coloured sails which turned every lamp-post into a ship's mast, and the more solidly artistic achievements of opera companies, ballets and orchestras, gave to the city a cheerfully exhibitionist atmosphere. The character and aspirations of Liverpool were most originally presented in three gigantic processions, in which, on each occasion, 10,000 persons, with a choir of 2,000 voices, were engaged. The theme of the first of the spectacles was " Merseyside and Youth," of the second, fittingly for so great a port, " Merseyside and the World," and of the third " Resurgence," a declaration of faith in the city's future.

Small craft of the Royal Navy and the merchant navy gave remarkable demonstrations on the Mersey of skill and control in handling and manoeuvre; these were followed by rocket-laden barges converging from both sides of the harbourage and meeting to discharge their fireworks in a sky show on a scale never before attempted in the British Isles. The present-day industry of Liverpool was displayed with models and machines in Lord street, its past in Exchange station, where old locomotives were on view, and the classical bulk of St. George's hall housed a conspectus of the history of the area from the earliest riverside settlements. After ten years of occupation by the government, the Walker Art gallery had been transformed almost beyond recognition, with rooms re-designed and fluorescent lighting installed. Collections bequeathed by Liverpool benefactors were added to by loan or purchase. This was one of the outstanding art events of the Festival year—and an appropriate one for a city which had produced George Stubbs (whose work had a showing of its own), Augustus John, Wilson Steer and Walter Richard Sickert. The local school of architecture also staged a notable exhibition.

Orchestras which played included the Liverpool Philharmonic, the Royal Philharmonic, the London Philharmonic, the Hallé and the Boyd Neel; conductors included Leopold Stokowski and Sir Thomas Beecham. In the course of the concert schedule the works of 16 British composers were presented. The Covent Garden Opera company visited the city, with Kirsten Flagstad (as Isolde) among its stars. The English Opera group presented a new production of *The Bohemian Girl.* The Sadler's Wells ballet came north for a fortnight. The famous Liverpool Playhouse staged plays both new and old, and the Old Vic company produced *Henry V* there. On this programme as a whole the city spent £75,000, the equivalent of a threepenny rate.

The Festival in Wales. Appropriately, Wales celebrated the Festival of Britain with song, both national and international. The eisteddfod at Llanrwst, Denbighshire, honoured a literature older than any in Europe save the Greek and Roman, and for one week Llangollen became a concert hall and a dancing platform for the world. Many teams—one from as far afield as Turkey—each in its national costume, competed in the international eisteddfod, giving informal folk-songs and dances in the village streets as well as in the giant marquee holding 10,000 people. Swansea also mounted a festival of music, which attracted the people from the " singing valleys " behind. St. David's cathedral, at the westernmost tip of Wales, one of the earliest foundations of Christendom, was the setting for a Festival of Worship. For four days in July there were special services conducted and sung with full cathedral ceremonial, a rare event in a country where the episcopal church is disestablished and the majority of the inhabitants " chapelgoers." Choirs were drawn from churches and colleges in Llandaff, Monmouth and Carmarthen, and among the orchestras heard were the B.B.C. Welsh orchestra and the Boyd Neel. The programme included a new work by Arwel Hughes, cantatas



An aerial view of the festival pleasure gardens at Battersea Park, London, which were open from May to Nov. 1951. The fun fair can be seen in the right background and the pier for river steamers in the left background. The white semi-circular area in the foreground was the main restaurant.



The Bath Bach choir giving a concert at the Roman baths during the 1951 Bath assembly (May 20-June 2).

and the B Minor Mass of Bach and very early church music. A Welsh play and an English one, specially commissioned for the festival, were presented on the altar steps, the first on the life of St. David, the second on Giraldus Cambrensis, the historian, who was closely associated with the cathedral.

A unique Welsh contribution to the Festival of Britain was a hill farm improvement scheme at Dolhendre, near Lake Bala, which was opened in June by the Minister of Agriculture. Sixty square miles of the Glanllyn estate had been transferred to the government in satisfaction of death duties in 1948, and were the largest area of publicly owned farmland in the British Isles. Three typically impoverished farms in these uplands were chosen for rehabilitation. They were sufficiently compact to be dealt with as a unit. The capital equipment came from the landlords, and the farmers assisted with draining, fencing and re-seeding. Derelict buildings were demolished and replaced by a model block, including dairies and calf-rearing sheds. Elsewhere buildings were repaired as well as new ones built. Peaty fields were re-seeded, pasture limed and oats sown where before were detached sheep walks. All these farmhouses were given modern cooking-ranges, electricity from private generating plants, a piped water supply and indoor lavatories and bathrooms. The Forestry commission played its part in the scheme by preparing and re-planting two belts of woodland with hard woods and conifers. The Festival plan, which laid open to inspection these farms and lands throughout the summer, was itself only a part of the larger development scheme which was announced as aiming at similar improvements for 80 of the 138 farms on the estate within the next few years.

Envoi. By the end of the year, though only the lights of the Royal Festival hall remained to illumine a South Bank that had returned to gloomy anonymity, and though the great exhibitions up and down the country had been dismantled and many a building became its prosaic self again, there were nevertheless a number of permanent reminders of Festival year and its achievements. The "tidying up" of both urban and rural areas seemed likely to produce lasting results, though the first reaction to this suggestion from the Festival office had been one of resentment. All in all, however, the people of Britain had reason to be satisfied with their "act of national autobiography"; they had had their "fun and games" and had demonstrated not unworthily the description of them given by the archbishop of York at the service in Liverpool cathedral which opened the festival there: "We have," he said, "inventive genius, a surpassing gift of poetry, a deep respect for honesty and thoughtfulness, a natural kindliness and humour, combined with a spirit of adventure and courage." (K. Am.)

FESTIVALS. Though in their several ways they enriched the Festival of Britain scene, the well-established summer festivals stuck close to their proven formulae in 1951, and tended to rely for patronage on the type of visitor which had been drawn to them in previous years. Stratford-on-Avon opened its season in chill March weather, its theatre having been redecorated, and reconstructed so as to bridge the gulf that had separated audience and players and, incidentally, to provide 135 more seats. A sequence of Shakespeare's historical plays, *Richard II*, *Henry IV*, *Part I* and *Henry IV*, *Part II*, and *Henry V*, was the main offering of a distinguished company which included Michael Redgrave, Hugh Griffith, Richard Burton (a young actor from Wales who made a profound impression) and Anthony Quayle, who was again the director of the festival. The intention was to emphasize the continuity of Shakespeare's philosophical and political thought on kingship. Many critics, while applauding the conscientious approach to this historical cycle, found magic only in the production of *The Tempest* and in Redgrave's performance as Prospero, generally agreed to have been superb. The Bath assembly was next on the calendar; the assembly also suffered from bad weather (and, in outside events, from bad sound-amplification). The outstanding contribution to a miscellaneous programme was a new ballet, *Fate's Revenge*, based on a local satire of an ambitious dancing-master, danced by the Ballet Rambert, for which David Paltenghi was choreographer. The Aldeburgh festival, in June, displayed even more noticeably than in previous years the special tastes of Benjamin Britten and his friends. The pattern of the entertainment therefore had a unity which was much to the liking of a mainly upper-class audience, augmented, on the open occasions, by the townsfolk, taking a pride in the accomplishment of their talented son. Choral performances, by local choirs, ranged from Handel's last oratorio, *Jephtha*, to Britten's own *Albert Herring* and *Saint Nicolas*. Britten himself displayed his versatility as a performer in Mozart's *Miniature Concerto for Glass Harmonica* (played on the dulcitone) and, on the pianoforte, the same composer's *F Major Concerto*. Local associations being a characteristic of this festival, madrigals and original music were given in

the panelled dining-hall at Brandeston, 17 mi. from Aldeburgh, and a new Britten work for solo oboe from a punt on Thorpeness mere. However, the most original contribution was perhaps that of E. M. Forster, who read for the first, and it was understood last, time extracts from his novel *Arctic Summer* which was not to be finished or published.

Cheltenham, in July, once more devoting itself to contemporary music, notably presented, through the Hallé orchestra, symphonies by the British composers Maurice Jacobsen, Malcolm Arnold and John Gardner, and the South African Arnold van Wyk. Of these, Gardner's was hailed as one of the most remarkable first works for many years, its craftmanship and power of musical invention suggesting the maturity of a master. The English Opera group performed two new operas, Gustav Holst's *The Wandering Scholar* and Brian Easdale's *The Sleeping Children.* Unhappily the future of the Cheltenham festival in its existing form was stated to be uncertain. The Edinburgh festival, an openly declared international event, went its own majestic way in 1951. The artistic triumphs belonged mainly to foreign artists: to Bruno Walter, "one of the supreme interpretative artists of our age" (as he was described when presented for an honorary doctorate of music at the University of Edinburgh), and Dimitri Mitropoulos, and to the New York Philharmonic orchestra which they conducted on its first visit to Great Britain for 20 years; to the Théâtre de l'Atelier, in their production of two plays by Jean Anouilh; to the Yugoslav ballet; and to the Dutch documentary films. A new symphony by William Wordsworth was, however, given a good reception when played by the London Philharmonic orchestra under Sir Adrian Boult, and the Hallé orchestra with Sir John Barbirolli brought the festival to a fitting and dramatic close in a performance, by candlelight, of Haydn's *Farewell Symphony.* Subsidiary displays of art, books, heraldry, pottery, netmaking, spinning and handweaving, and new plays put on by enterprising companies outside the festival proper, maintained the Scottish tradition which might otherwise have been overlaid. (*See* also MUSIC.) (K. AM.)

FIELD SPORTS. A harsh winter and a long, cold spring in 1951 left their mark on all forms of field sport. Hunting was interrupted for weeks at a time and even when hounds and horses could go out the weather was often wet, cold or frosty; there was some foot-and-mouth disease and more than one outbreak of distemper and hard pad. Yet the level of sport was surprisingly high, and several outstanding days were enjoyed in all parts of the country. The number of foxes accounted for by many packs was the highest since World War II. In the shires, scent, save with the Cottesmore, was not good. In the north of England the weather was consistently bad, and perpetual snow and ice in the Lake district made fell hunting extremely dangerous. Sport in the south, the west and in Wales was generally good, and many excellent days were enjoyed in Ireland, despite only fair scenting conditions. Nevertheless, most hunts had more followers and children turned out in strength during the school holidays. Harriers and beagles experienced conditions similar to the foxhounds, and in the 1950 otterhunting season, though there was much good sport, heavy rainfall often resulted in there being too much water.

Shooting also suffered, for after the hard winter of 1950-51 and a late and difficult nesting season, grouse were backward, and in Yorkshire, especially, bags were disappointing. A few cases of disease were observed. On a number of moors the heather crop was inferior, although it was reported to be good in the north of Scotland. A notable feature of the 1951 season was a record bag of ptarmigan, 134 being shot in one day at Coignafearn, Inverness-shire, by six guns. The previous record for one day was 122 to one gun in 1886. Partridges were generally fewer than in 1950, being patchy but improving in northern England and southern Scotland, and although a few more pheasants were reared many coverts were still not properly stocked.



John Peel's hunting horn held by W. N. Johns-Powell of Cardiff who bought it for £600 at an auction at Sotheby's, London, in Dec. 1951.

Among salmon and trout anglers, early hopes were dashed as the spring developed into one of the worst on record. Low water temperatures discouraged salmon from running and hatches of fly were scarce in most trout streams. Summer brought a change, but not always for the better, since rivers became rapidly low and foul and, in some, many fish died. Although the end of the season brought a period of pleasant weather, it came too late to save the season, which ended early nearly everywhere. (*See* also ANGLING.) (W. Ss.)

FIJI. British colony. About 250 islands, rocks and reefs in the Pacific ocean, the main islands being Viti Levu (4,011 sq.mi.) and Vanua Levu (2,137 sq.mi.). Pop.: (1946 census) 259,638; (1948 est.) 284,955, incl. 126,650 Fijians, 133,941 Indians and 6,126 Europeans. Religion: Fijians are Christian (mainly Methodist); Indians, 88% Hindu and 12% Moslem. Capital: Suva, on Viti Levu (European pop. 2,266 in 1946). Administration: governor; executive council; legislative council. Governor, Sir Leslie Brian Freeston.

History. John Dugdale, minister of state for the colonies, visited Fiji during Aug. 1951. While he was there it was announced that the arrangement by which the governorship of Fiji and the high commissionership of the western Pacific had generally been held by one individual would not be continued after the next change of governor. The headquarters of the high commission were expected to move, when that change took place, from Suva to Honiara, in the Solomon islands. Later it was announced that Sir Brian

Freeston, the governor, was to be appointed secretary-general of the South Pacific commission.

Fijian soldiers had played a fine part in World War II in the Pacific and in October it was announced that the 1st battalion, the Fiji Infantry regiment would go to Malaya early in 1952 to help with the war against the Communist terrorists. The colony's development plan and a community development project progressed well, and high prices for raw materials ensured continued prosperity.

Education. Schools (1949): 427 primary (48,000 pupils), 2 secondary, 2 technical (2,000 pupils); teacher training college and central medical school.

Finance and Trade. Currency: the Fiji pound (£F 111 = £100 sterling). Budget (1951 est.): revenue £3,250,000; expenditure £3,400,000. Foreign trade (1950): imports £6,300,000; exports £7,700,000. Principal exports: coconut products, gold, silver. Production (1950): rice 24,000 tons; sugar 116,000 tons; coconuts 28,000 tons; gold 103,000 oz.; silver 38,000 oz. (K. G. B.)

FINLAND. Republic of northeastern Europe bounded N. by Norway, E. by the U.S.S.R., S. by the Gulf of Finland and W. by the Gulf of Bothnia and Sweden. Area: 130,161 sq.mi., including Ahvenanmaa or Åland Islands (581 sq.mi.) and inland waters (12,190 sq.mi.) but excluding territory ceded or leased to the U.S.S.R. in 1944. Pop.: (1940 census) 3,710,800; (Jan. 1951 est.) 4,076,000. Language (1940 census): Finnish 3,327,534 (87·5%), Swedish 353,985 (9·3%), Russian 7,210, Lappish 2,345. Religion: Lutheran 96%, Greek Orthodox 1·8%, other 2·2%. Chief towns (Jan. 1951 est.): Helsinki or Helsingfors (cap. 376,000); Turku or Åbo (104,000); Tampere or Tammerfors (103,000). President, Juho Kusti Paasikivi; prime minister, Urho Kaleva Kekkonen.

History. By the beginning of the year 1951 it was obvious that the inflation from which Finland was suffering could be checked only by agreement between workers in town and country. The government led by Kekkonen, the leader of the Agrarian party, was a minority government consisting of Agrarians together with a few members of the small Swedish and Progressive parties and was unable to command the agreement of the town workers. In January Kekkonen came to terms with the Social Democratic party and widened his government into a four-party coalition: it now included 7 Agrarians, 7 Social Democrats, 2 representatives of the Swedish party and 2 Progressives. This meant risking difficulties with the Soviet Union (*Pravda* was castigating the Social Democrats as "paid agents of the Anglo-American warmongers") but was a necessary first step towards dealing with the economic situation.

The second step was to obtain agreement between employers, trade unions and farmers for an "economic truce." Agreement was reached on May 2 for a truce to last until Sept. 30: during these five months the trade unions would not press for wage increases and the employers and farmers would call a halt to the rise in prices. Meanwhile the government would set up a special committee to draw up a long-term programme for economic stabilization.

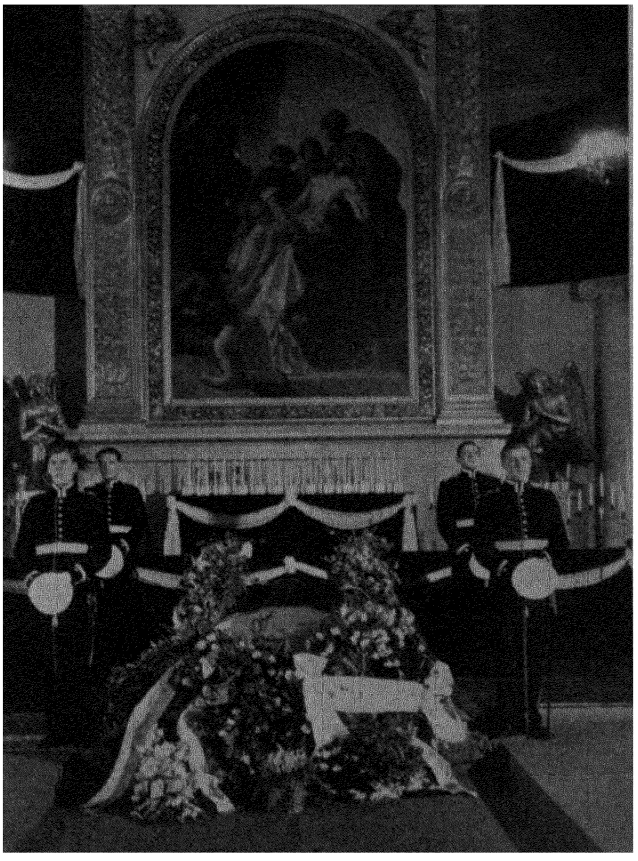
In mid-summer the progress of economic planning was held up by preparations for a general election. The results of the July election were as follows: the Social Democratic party won 53 seats (as against 54 in the 1948 elections), the Agrarian party 51 (56), the S.K.D.L. (Communists and fellow-travellers) 43 (38), the National Union (Conservative) party 28 (33), the Swedish People's party 15 (14) and the new Liberal party 10 (5 seats had been won in 1948 by the Progressive party, dissolved in 1951).

There was nothing striking about these results. The Communists had won five more seats, but their increase in votes had been very slight. All the other parties had been weakened by abstentions: only 73% of the electorate voted in 1951, whereas nearly 80% had gone to the polls in 1948. (*See* ELECTIONS.) The Communist gains were mostly in the sparsely-inhabited north; in several southern constituencies they lost, particularly in Uusimaa, where Väinö Tanner was standing. Tanner, the Social Democratic leader who was foreign minister during the last war against the Soviet Union, and who had been tried and sentenced in a Finnish court on Soviet insistence, had now completed his prison sentence; he was returned to parliament with a large majority.

The Communists were vociferous in demanding seats in the new government, but in September Kekkonen reformed his ministry on much the same lines as before. Again it included 7 Agrarians and 7 Social Democrats. The only notable change was the appointment as foreign minister of a non-party man, the comparatively young and vigorous Sakari Tuomioja who had been managing director of the Bank of Finland.

When autumn came Finland's preoccupation was again with economic planning. The special committee announced its programme for stabilization. The proposal of most interest to the ordinary people was that a new cost of living index be drawn up on a basis which would not include income taxes or family allowances and that wages should be based on this index of October prices, which would be adjustable at intervals of three months. Meanwhile an attempt to reduce prices was made, beginning with a government decision to reduce textile prices by 20% and those of footwear by 15%. Butter, the consumption of which had been increasing in spite of soaring prices, was put on a ration of 6 kg. per person per month.

Whether the attempt to stop wage increases would succeed or fail depended largely on whether Communist influence in the trade unions could be arrested. In the trade union elections of April they won 90,000 of the 200,000 votes, but they were still only a small minority in the Finnish Trade Union congress which in July decided by 146 votes to 63 to



The body of Marshal Mannerheim (1867-Jan. 27, 1951) lying in state in the Great Church, Helsinki. He was president of Finland, 1944-46.

resign from the Communist-controlled World Federation of Trade Unions.

Relations between Finland and the Soviet Union remained harmonious throughout 1951, in spite of attacks in the Moscow press. Announcing its programme on Sept. 21, the new government declared:

> The government will, like its predecessors, take particular care to keep up and extend the relations of confidence between Finland and the Soviet Union on the basis of the peace treaty, the Finno-Soviet pact of friendship and mutual assistance and the five-year trade treaty. Thereby the government wishes to keep Finland outside all conflicts between the great powers.

A difficult situation arose over the question of a new autonomy act for Ahvenanmaa (the Åland islands). The Soviet press attacked the proposed increase of autonomy on the far-fetched ground that Finland wanted the Ålands to share the fate of Greenland and Iceland, but the Finnish parliament passed the bill with little modification and the islanders, most of whom are Swedes, thereby received a greater degree of control over their own affairs, for which they had been asking continuously since 1946.

On the whole 1951 was a good year for most Finns. The long-term economic prospect might be alarming, but the immediate situation was eased by the fortunate fact of boom prices for Finland's exports. (J. H. JN.)

Education. Schools (1950): elementary 6,108, pupils 481,468; secondary 336, pupils 91,677, teachers 5,417; technical, commercial and special (1949) 458, pupils 24,578; for adults (1949) 76, pupils 3,993, teachers 707. Teachers' training colleges (1950) 9, pupils 1,597, teachers 118. Universities (1950) 3, students 9,440, professors and lecturers 632. Institutions of higher education 5, students 3,528, professors and lecturers 403.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): wheat 323 (291); rye 218 (254); barley 181 (187); oats 723 (722); sugar, raw value 23 (26); potatoes 1,157 (1,210); flax fibre 3 (1). Livestock ('000 head, June 1950): cattle 1,844; sheep 1,330; pigs 470; horses 382. Fisheries: total catch (metric tons, 1948; 1949 in brackets): 46,100 (65,700).

Industry. Industrial establishments (1947): 5,999; persons employed 249,936. Electricity production (million kwh., 1950; 1951, six months, in brackets): 4,164 (2,250). Raw materials ('000 metric tons, 1950): pig iron 64·3; crude steel 112·4; copper, smelter production 1·75. Forest products (1949; 1950 in brackets): sawn softwood ('000 standards) 850 (875); sawn hardwood ('000 cu. m.) 51·4 (46·7); pitprops ('000 cu. m.) 1,134 (869); plywood ('000 cu. m.) 231 (215); cellulose ('000 metric tons) 1,015, (1,194); mechanical pulp ('000 metric tons) 598 (719); newsprint ('000 metric tons) 384 (421); other paper and paper board ('000 metric tons) 287 (350).

Foreign Trade. (Million markkaa, 1950; 1951, six months, in brackets); imports 89,112 (62,479); exports 81,420 (64,769), excluding reparations 7,850 (5,950). Main sources of imports (1950): U.K. 16%; Poland 7%; Netherlands 7%; Denmark 7%. Main destinations of exports: U.K. 20%; U.S.S.R. 16%; U.S. 9%; Netherlands 7%. Main imports (1949): metals and manufactures 18%; textiles 18%; fuel and oils 9%; machinery and apparatus 8%. Main exports: wood and wooden goods 47%; woodpulp 22%; cardboard and paper 19%.

Transport and Communications. Roads (1950): 36,518 mi. Motor vehicles licensed (Dec. 1950): cars 26,780, commercial 34,469. Railways (1950): 3,533 mi.; passengers 43 million; goods net ton-mi. 2,120 million. Shipping (vessels of 100 gross tons and over, July 1950): 335; gross tonnage 514,751. Air transport (1950): passenger-mi. 16·6 million; cargo net ton-mi. 335,000. Telephones (1950): 313,975. Wireless licences (1950): 721,500.

Finance and Banking. (Million markkaa) Budget: (1950 est.) revenue 134,800, expenditure 127,800. National debt (Dec. 1950; May 1951 in brackets): 122,100 (115,400). Currency circulation (Sept. 1950; Sept. 1951 in brackets): 34,500 (42,800). Gold and foreign exchange (million U.S. dollars, Sept. 1950; Sept. 1951 in brackets): 73·4 (165·5). Bank deposits (Sept. 1950; Sept. 1951 in brackets): 30,000 (34,200). Monetary unit: *markka* with an exchange rate of Fmk. 645 to the pound and Fmk. 231 to the U.S. dollar.

FISHERIES. The year 1951 saw, in the fisheries, a continuation of the trends of 1950 and was not marked by any particularly outstanding events. The problems of the major established fisheries were chiefly economic, in some cases aggravated by overfishing. Costs of gear and of operating fishing vessels increased and the building of large long-range trawlers continued. In the under-exploited fishing areas development schemes were drawn up and some put into effect.

World Production. The publication of *Yearbook of Fisheries Statistics 1948-49* (Rome, 1950) by the Food and Agriculture organization of the United Nations (F.A.O.) marked great progress in the collection, compilation and presentation of statistics relating to fisheries production, trade and the utilization of fishery products; it became generally obtainable in 1951 and contained information available as of April 1, 1950. Only the more advanced publications concerning certain countries' fishing activities in the year 1950 were available at the end of 1951 so that world production in 1951 could not then be assessed. Even as late as in 1951 in many parts of the world where fishing was actively carried on, no statistics were compiled and the countries that did publish records did not compile them on a uniform plan. The F.A.O. yearbook brought together for the first time, in a standardized form and with standardized units, the compiled statistics of all the nations that had published them and included fairly reliable estimates of the fisheries production in those countries not publishing statistics. In the absence of other evidence the admittedly none-too-reliable estimates of world production at about 17 million metric tons in 1938, made by the United States Department of the Interior and F.A.O., had been generally accepted and it was assumed that by 1949 the annual postwar production was not greatly different to that of the immediately prewar years. The accompanying table, taken from *Yearbook of Fisheries Statistics 1948-49*, shows that, on revision, the figure for world total fisheries production was increased considerably to 25 million metric tons. The current F.A.O. estimates refer generally to the catch on a round fresh weight basis whereby fresh unmutilated fish and dried or otherwise processed fish could be included together.

WORLD FISH LANDINGS
(Estimated annual totals, metric tons)

Continent	F.A.O. Interim Estimate 1929-39	Current F.A.O. estimate Accounted 1945-49	Current F.A.O. estimate Revised 1945-49
Africa	179,000	532,700	600,000
N. and Central America	2,690,500	3,692,500	3,750,000
South America	212,500	426,400	500,000
Asia (excl. U.S.S.R.)	7,237,800	10,975,800	12,000,000
Europe (excl. U.S.S.R.)	4,750,300	5,908,800	6,000,000
Oceania	56,200	96,200	150,000
U.S.S.R.	1,556,700	1,560,000	2,000,000
World Total	16,683,000	23,192,400	25,000,000

SOURCE. *Yearbook of Fisheries Statistics 1948-49* (F.A.O., Rome, 1951).

In earlier years fisheries production in any one country did not usually show sudden considerable changes from year to year unless the normal operation of that country's fishing industry was affected by war or unless some major natural catastrophe befell the fish stocks; thus the figures for production in various countries in 1949 given in the F.A.O. yearbook were an indication of the relative importance of the fisheries of individual countries. Japan, producing almost 3 million metric tons of fish, was the premier fishing country in 1949 despite the restrictions upon the range of her fleets' activities, and there was no evidence to suggest that Japanese catches in the two succeeding years were either reduced or superseded by those of another nation. In 1949, the other major fish producing countries were, with their yields in order of magnitude, the United States 2,546,500 metric tons, China an estimated 2,500,000, the U.S.S.R. an estimated 2 million, Norway 1,165,700, Great Britain 1,152,400 and Canada and Newfoundland 870,400 metric tons. It was interesting to note that the pre-World War II landings in northern Korea were estimated at 1,300,000 metric tons; the figure for 1951 must have been considerably lower because of the Korean war.

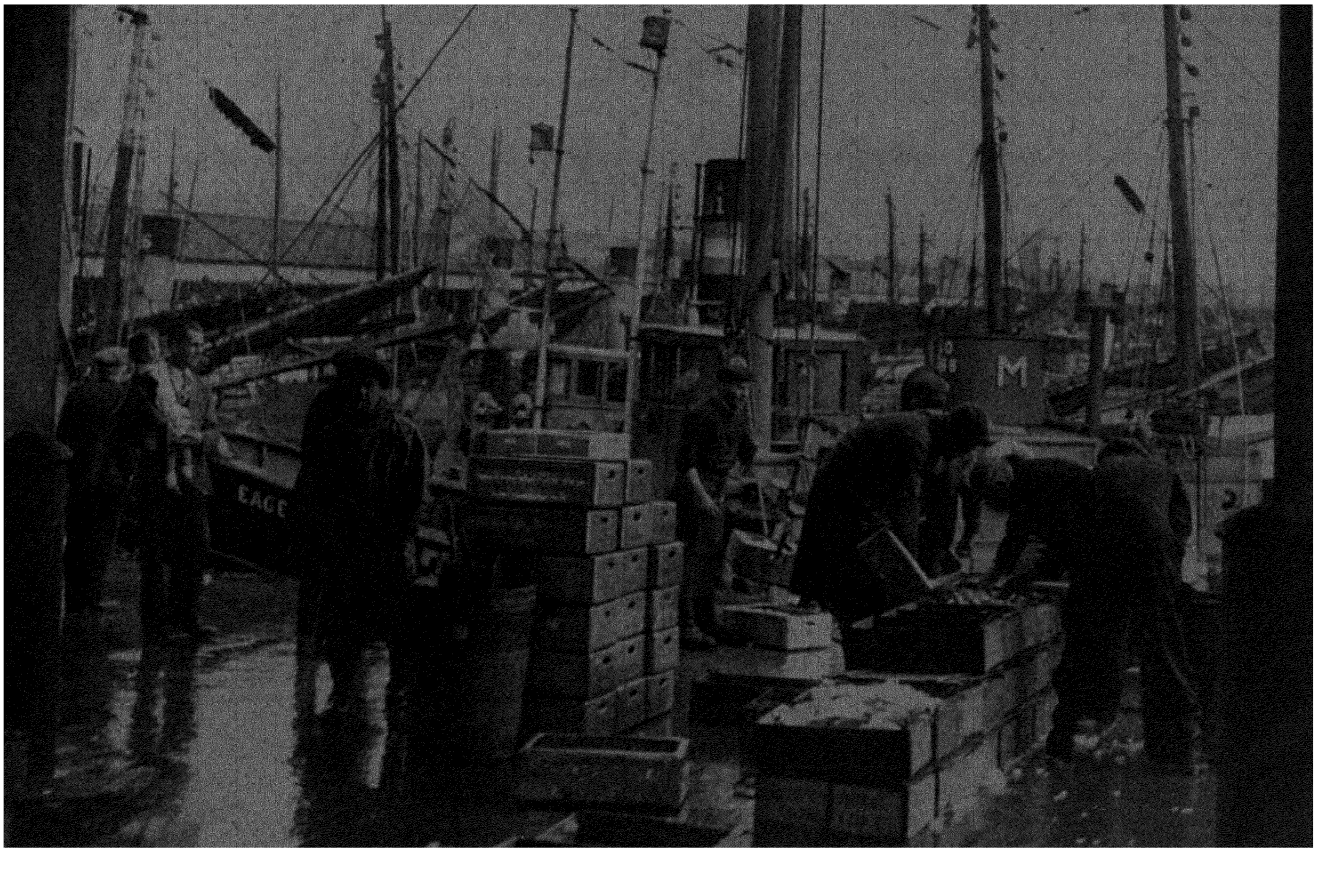
The *Yearbook of Fisheries Statistics 1948-49* also contained a table illustrating the annual average consumption of fish per head throughout the world. The highest consumption (over 20 kg.) was in southeast Asia (Japan and Burma) and in northern Europe (Iceland, Norway and Sweden); between 10 kg. and 20 kg. a head a year was consumed in other countries of southeast Asia, the other northwest European countries including Great Britain and in the West Indies; in the United States, Canada, Ceylon, China, Australia, New Zealand and France consumption was between 5 kg. and 10 kg. per head; it was less than 5 kg. per head in most parts of Africa including the Union of South Africa, central America, central Europe, the principal countries of South America and in India and Pakistan.

Although the U.S. catch of fish in 1949 was not far short of the Japanese, the amount of it utilized as fresh was only about half of the quantity utilized fresh in both Japan and Great Britain, but the amount of fish canned, frozen or reduced to meal and oil in the United States was far larger than in any other country in the world. The United States and Norway produced 49,600 and 26,600 metric tons of herring oil respectively, while of cod-liver oil the United Kingdom produced 10,000, Iceland 8,500, Norway 7,800 and Newfoundland 3,654 metric tons. The figures for 1951 were not widely different.

Great Britain. The demand for fish in Great Britain, stimulated by the rationing of meat, was fairly keen throughout 1951. The prices paid for fish maintained a comparatively steady level after the rapid fluctuations following the dropping of price control in 1950 and were appreciably higher than in 1949. The subsidizing by the government of the catching of fish in inshore, near and mid-waters, started in 1950 as a temporary measure, was continued throughout 1951. The total quantity of wet fish landed in Great Britain in 1951 was 17,726,000 cwt., worth £35,704,000, as compared with 17,654,000 cwt., worth £35,702,000, in 1950. The near-water trawling grounds, especially the North sea, continued to show all the signs of being overfished. More than usual of the bigger long-range trawlers fished at Iceland and Greenland where they made good catches. The spring and summer herring fisheries, chiefly in Scotland and northern England, yielded 391,500 crans, worth £1,500,000, the quantity being similar to that in 1950 but the value being up by about £300,000. The East Anglian herring season was successful; about the same number of drifters took part as in 1950, and in October and November the landings at Yarmouth and Lowestoft totalled 302,000 crans, worth £1,092,000—that is 30,000 crans less fish realized £80,000 more than in 1950. In the course of the season one drifter made the highest single night's catch (303½ crans) since records were kept. An event which may have been of great significance was the re-opening, on a small scale, of the Soviet market for British cured herring; it was the decline of that market after World War I which caused a great decline in the British herring fisheries.

The construction of 41 trawlers in British shipyards for British owners was either in hand or had been licensed in September; of those 20 were near-water vessels and 21 distant-water vessels of over 140 ft. in length. All the near-water and seven of the larger trawlers were diesel-powered.

The Sea Fish Industry bill was introduced in parliament in January. It was summarized as "a bill to make provision for the re-organization, development and regulation of the white fish industry; to amend the law relating to fishery harbours, the catching and landing of sea fish and other matters affecting or connected with the sea fishing industry; to abolish the Scottish Fishery Advisory council; and for purposes connected therewith." An advisory council which the bill provided for to assist the White Fish authority was



Herring drifters seen at Lowestoft in Oct. 1951 during the herring fishing season.

later set up. A herring industry scheme was also drawn up to give additional powers to, without altering the constitution of, the Herring Industry board.

Norway. The two main Norwegian fisheries, those in the winter and early spring for herring and cod, were both outstandingly successful in the season 1950-51. The herring fishery on the west coast yielded over 9 million hectolitres worth Kr. 145 million, as compared with the previous record year of 1948 when 8,800,000 hectolitres were landed: some 7 million hectolitres of the catch was processed to meal and oil. The quantity of cod caught by mid-April was 115,339 metric tons, as compared with 71,839 metric tons in 1950. The cod fishery had previously been almost exclusively a line fishery, but in 1951 purse-seines, operated extensively for the first time, accounted for a large proportion of the total catch.

United States. Preliminary figures for the total catch of Pacific sardines in the 1950-51 season gave the total as 317,530 short tons, which was rather less than the previous season but about double that of the 1948-49 season. Thus the recovery of the fishery after its failure in 1947-48 was not maintained. The first progress report on the scientific investigations into the sardine fishery did not suggest any reason for the fluctuations. Meanwhile the tuna fishery was expanding, the yields for 1948, 1949 and 1950 being 156,000 160,000 and 191,000 short tons respectively; the amount of the catch canned increased annually.

Iceland. The trawler-building contract between Iceland and Great Britain was fulfilled during the year, bringing the strength of the Icelandic trawler fleet up to 43 postwar and 16 older vessels. The trawlers caught large quantities of redfish, much of which was frozen for export to America.

International Administration. The 39th meeting of the International Council for the Exploration of the Sea was held in Amsterdam. The first meeting of the International Commission for the Northwest Atlantic Fisheries, whose aim was to investigate, protect and conserve the fisheries of the north Atlantic ocean, was held in Washington in April. Panels on which interested countries were represented were set up for each of the five sub-areas into which the region was divided, and preliminary programmes of investigation were arranged. The question of whether the Georges Bank haddock stock was overfished was one of the more urgent problems discussed. United States, Canadian and Japanese delegates met to negotiate a North Pacific Fisheries agreement on the conservation of fishery resources in that area. The United States proposal to close the area to countries without already established fisheries within it was opposed.

At the International Court of Justice at The Hague the dispute between Great Britain and Norway was heard. The dispute arose when Norway enforced her 1935 decree claiming sovereign right to waters within four miles of her coast as measured from straight base lines connecting 47 extreme points. Some of the points were up to 40 mi. apart and most were situated along the outer fringes of coastal islands. Great Britian maintained that the four-mile limit should be measured from the line of low-watermark along the entire Norwegian coast, despite the extremely indented nature of the coastline. The effect of the Norwegian claim was to close certain bays and stretches of coastal waters to foreign fishing. As the U.S.S.R. was enforcing a Soviet decree claiming a 12-mi. belt of coastal waters against Danish and Swedish fishing vessels, and Iceland had issued a decree similar to the Norwegian one of 1935 which would considerably restrict her fishing grounds to international exploitation, the Anglo-Norwegian dispute was something of a test case. Judgment was given at the end of the year. The court, by 10 votes to 2, upheld, as not contrary to international law, the Norwegian decree of 1935. It deemed that the method of measuring territorial waters used in the 1935 decree had been established and consolidated in the Norwegian system by constant and sufficiently long practice. The decision was of significance and importance to all marine fishing nations.

Development and Research. Initial steps were taken towards developing fisheries, especially in some tropical countries where the native fishermen were unfamiliar with modern techniques and machinery and had little capital to finance new methods of fishing. Ceylon sent men to Australia for technical training and to Japan with a view to reorganizing the Ceylon fishing industry by the adoption of Japanese methods. A large Japanese trawler was also engaged in the development of Indian fisheries off the Bombay and Saurashtra coasts. In Nigeria, the Colonial Development corporation formed the nucleus of a trawl fishing industry by operating two steam trawlers. In Kenya, a Mombasa firm began trawling and lining off the Seychelles. Egypt adopted a plan to increase the annual fish yield of 55,000 metric tons by about 20% within three years by organizing the fishing industry on the basis of modern techniques and by the expansion of fish culture. One development project, the Atlantic Fisheries scheme of the British Colonial Development corporation, failed and operations were discontinued, the factory ship "Africa Queen" being offered for sale. The aim of the scheme had been to process the produce of shark and tuna fisheries, but high operating costs prohibited profitable working. In the major trawl fisheries of the world the trend towards building motor driven vessels rather than steam vessels continued. The first diesel-electric trawler ever built, the "Freiburg-im-Breisach," of 169 ft. overall length and 449 gross registered metric tons, was completed in Germany in 1951. In the United States, fish pumps were successfully employed for unloading sardines from the holds of ships and also for sucking fish out of purse-seines into ships. The method reduced handling of fish and facilitated the salvage of scales which were a valuable fisheries by-product.

Some of the more notable achievements in fisheries research in 1951 concerned the study of the movements of herring in north Atlantic and European waters by the method of tagging live fish. The interchange of fish between several local fisheries around the North sea and, more remarkably, between Icelandic and Norwegian coastal fisheries, was demonstrated. Following information from the Norwegian research ship "G.O. Sars" observing the movements of herring shoals between Faroe and Norway in association with water movements, some Norwegian fishermen made very heavy catches of herring before the shoals arrived on the usual fishing grounds. The work of the English research vessel "Ernest Holt" on the Arctic cod fishing grounds suggested that concentration or dispersal of fish was, under certain circumstances, affected by the temperature of water masses. (*See* also MARINE BIOLOGY.) (A. R. M.)

FIVES. *Rugby Fives.* A. D. R. Dawes, the open singles holder, retained his title, defeating E. R. Conradi (schools champion, 1938) in the final. Dawes and Conradi won the open doubles beating the Oxford pair, J. T. Rogers and J. T. Burton in the final.

Thirty-five schools were represented in the schools competition; 64 competitors were entered for the singles and 40 pairs for the doubles. The singles holder, J. F. Pretlove (Alleyn's), again defeated S. M. Pickard (Oundle) in the final. Alleyn's was also successful in the doubles, J. F. Pretlove and J. S. T. Fletcher beating the Oundle pair, S. M. Pickard and M. P. Skliros, in the final. In the university match Cambridge beat Oxford by 285 points to 150. R. A. Colville was elected honorary secretary of the Rugby Fives association, John Armitage having resigned after 17 years'

service. Armitage, V. E. A. Bowley, K. W. Millage and J. J. Spragg became vice presidents. (G. R. Rr.)

Eton Fives. P. B. H. May and J. W. H. May defeated A. R. Kittermaster and A. R. B. Moulsdale by three games to none in the final of the amateur championship (Kinnaird cup), for which 30 pairs again entered. The winners had not entered the championship together before and were the first holders of the cup to come from the postwar generation of players.

In the final of the public schools' handicap competition, Eton (A. C. Ingleby-Mackenzie and N. F. Robinson) beat Uppingham (D. S. W. Lee and R. M. Corner). Cambridge defeated Oxford by three matches to none. (H. L. B.)

FLAGSTAD, KIRSTEN, Norwegian operatic singer (b. Harmar, Norway, July 12, 1895), made her first public appearance in Oslo in 1913. During the first few years of her career she sang not only in opera but also in operetta and musical comedy in Oslo. In 1930, after her second marriage, she decided to retire, but because the opera house at Gothenburg, Sweden, needed a soprano, she resumed her career a few months later. In 1932 in Oslo she sang Isolde in *Tristan und Isolde* for the first time. The following year she was engaged to sing at the Festspielhaus, Bayreuth, and on Feb. 2, 1935, made a successful first appearance at the Metropolitan Opera house, New York, as Sieglinde in *Die Walküre.* In the following year she was equally well received at the Royal Opera house, Covent Garden, London, and in Vienna. In 1938 she toured Australia. Meanwhile, she remained principal Wagnerian soprano in New York until 1941 when she returned to Norway. From that year until 1947 she sang only four times but then she once more gave concerts all over Europe and the U.S. Flagstad reappeared as Isolde at Covent Garden on Feb. 19, 1949, before an enthusiastic audience. Every year after that she sang all the principal Wagnerian roles there, but on June 25, 1951, by her own wish, she sang Isolde in England for the last time. However, in September, she took the part of Dido in Purcell's *Dido and Aeneas* at the Mermaid theatre, London (a playhouse of the Shakespearian type established in St. John's Wood by the actor Bernard Miles in 1951). During the autumn she gave recitals at the Mermaid theatre, the Wimbledon town hall, the Royal Festival hall, London, and in Paris, and also took part in the memorial performance, *Salute to Ivor Novello.* Flagstad also made records of opera and Norwegian songs.

FLAX: *see* Linen and Flax.

FLOODS AND FLOOD CONTROL. In Great Britain the year 1951 opened in most parts of the country with extremely heavy snowfall, and the thaw was immediately followed by prolonged and severe rainstorms. As a result, considerable flooding occurred over a period of several weeks, and in many places roads became blocked and bridges were impassable. Rivers rose very rapidly, and much damage was done in the north of England and in Scotland. Thick snow fell again in February, and the rainfall in the south, particularly in the Thames valley, was the highest ever recorded. At Kew observatory 4·21 in. of rain fell in the course of three weeks; the previous highest total for the whole month of February was 4·13 in., in 1879. In the Thames basin the rainfall for the month of February was 5·23 in., which exceeded the previous highest total of 4·96 in. recorded in Feb. 1900. Flood warnings were issued on ten consecutive days. In November, heavy rainfall was again experienced in most parts, and more extensive flooding occurred over large areas. Compared with the normal amount of 2·7 in. for the month, the rainfall in the Thames basin reached about 7 in.

In Surrey, a conference of local authorities was convened to consider a £600,000 flood prevention scheme, and the Bala Lake scheme of the Dee and Clwyd River board, which had the dual purpose of flood prevention and the provision of compensation water to the River Dee, estimated to cost £273,000, was approved.

Extensive new land drainage powers for river boards were proposed in a comprehensive report of a subcommittee of the Central Advisory Water committee, published by H.M.S.O. in April 1951. The report recommended the control of watercourses for which no drainage authority was responsible; methods of raising additional revenue; and further financial assistance to river boards and other drainage authorities with limited local resources.

The Rhine overflowed its banks at Bonn on Jan. 23, and at Cologne and other places the basements of houses near the river were flooded. In March, the rivers Guadalquivir and Guadaira in Spain overflowed as the result of heavy rains, and 4,000 people were rendered temporarily homeless in Seville, when the rivers flooded the low-lying districts on the city's outskirts. Great damage was caused in Granada in September by a cloudburst, unparalleled for 60 years, and the River Darro, which traverses the city in a covered channel, burst through the masonry.

As a result of heavy rains in May, the Inn river in the Engadine overflowed its banks near Sanaden, where four square miles of the plain were inundated. In July, melting snows, heavy rainstorms and strong winds combined to swell the River Rhône throughout its course in Switzerland, and raised the level of Lake Geneva to an unusual height. The mountain torrents brought down masses of rock, stones and earth, causing damage to fruit gardens and farms. At the western end, the Geneva lakeside promenades were awash, and the valley road to the Simplon pass at the eastern end was impassable. Three weeks later, further tremendous rains over eastern and southern Switzerland caused widespread floods, swept away railway bridges and blocked roads with landslides. The River Maggia, near Locarno, rose 7 ft. in half-an-hour, and the Cassarate river overflowed and flooded parts of Lugano at the height of the holiday season. The Sanaden river overflowed its banks again and large areas of land were inundated near St. Moritz. Similar storms occurred in cantons Ticino and Grisons; many towns were completely isolated, and the railway line linking Switzerland and Italy was blocked. Landslides occurred and much damage was done.

In the Lake Como area of Italy it was necessary to use explosives to clear river beds of obstacles brought down by flood waters, and many persons were buried under the mud.

On Aug. 8, in the vicinity of Paris and Amsterdam, over a month's rainfall fell in a few hours, causing flooding and dislocation of gas and water supplies in places.

In southern Italy, violent storms caused severe flooding in October, and many places in Sardinia and Calabria were isolated; road and railway bridges collapsed, and the supply of drinking water was interrupted by the destruction of 14 aqueducts. Over 70 deaths were reported. An abnormal rainfall of 16 in. in 19 days occurred in Malta in October, resulting in the flooding of large areas and the loss of lives and property.

Extensive flooding of the Po and Adige rivers in northern Italy in November, the worst for more than half a century, caused about 150,000 people to flee from their homes in villages near Ferrara, and the dykes surrounding Rovigo were destroyed. A death roll of about 100 was reported. British amphibious troops from Trieste rescued marooned villagers, and United States transport planes assisted in the rescue work. Over 150,000 ac. of agricultural land were under as much as 12 ft. of water, and there was widespread dislocation of road and rail traffic out of Turin and Milan. The main lines



Flood waters in northern Italy in Nov. 1951. Following heavy rains the Po and Adige rivers overflowed their banks causing the worst floods in northern Italy in modern times.

through the Simplon and St. Gotthard passes were under water. Lake Como overflowed and Lake Maggiore rose 7 ft. in 36 hr. In Venice, most of the squares and streets were under 5 ft. of water, and many of the city's population of 300,000 were stranded in their homes. On the Riviera more than 6 in. of rain fell in a week and the Charles Albert bridge across the Var at St. Martin, 6 mi. from Nice, collapsed. At Avignon the river rose 20 ft. above normal level.

In January, four-fifths of the state of Queensland, Australia, suffered from the effects of torrential rain and flooding, and rivers in the central, western and northern parts of the state broke their banks. Hundreds of square miles were submerged, causing many roads to be completely out of use and resulting in dozens of breaks in the railway lines. At about the same time, Johannesburg, South Africa, experienced the heaviest rainfall ever recorded, when 8·7 in. were registered in 40 min. During the storm, whirlwinds and gales lifted roofs and tore down trees.

Flooding of the Brahmaputra, in Upper Assam, India, was reported, in September, to have caused the complete washing away of the Assam saw mills and factory, which produced 500,000 tea chests a year, about one-fifth of the country's total production. In October, it was reported that the worst seasonal rains for 50 years had washed away bridges and buildings in the Yemen, and in one area 40 deaths occurred. Across the Red sea, Eritrea also suffered, and great damage was caused in the Keren valley.

In China, extensive work was carried out in the provinces of Shangtung and Kiangsu on the River Shu-ho in order to avert the danger of flooding. A system of dams and several big weirs was built along the river over a distance of 140 km., and the flow was to be diverted through a new course, made considerably deeper and wider, through a mountain ravine 14 km. long, direct to the sea. It was claimed that this would prevent flooding resulting from the merging of the rivers Shu-ho and I-ho. In Korea the heaviest floods for 60 years occurred in August, destroying crops and causing great material loss to the population. (J. KD.)

United States. The U.S. flood control act, approved Oct. 24, 1951, provided $388,544,100 for flood control work during the fiscal year ending June 30, 1952. Apart from the lower Mississippi river and the Sacramento river, flood control construction was continued or begun on 78 projects in 32 states. The $60·5 million funds allotted to the lower Mississippi river project were designated for work in seven states: Kentucky, Illinois, Tennessee, Louisiana, Missouri, Arkansas and Mississippi. Congress also passed a supplementary appropriation act, providing a total of $12·9 million. Another $12 million was allotted for additional emergency work during the Kansas river flood. This fund was additional to special funds appropriated by congress for flood relief in Kansas handled by the particular relief agency set up by the president.

At the end of June 1951, approximately 334 flood control projects were in operation. The three largest multi-purpose projects placed in operation during the fiscal year were Fort Gibson reservoir, Oklahoma, Bull Shoals reservoir, Arkansas, and Hulah reservoir, Oklahoma.

Channel improvement of the Mississippi river proper was continued during 1951 at a number of places below Cairo, Illinois. Additional levee construction authorized by congress brought the total system to about 3,000 mi. of levees. Completed levee construction totalled about 1,650 mi. of main-stem levees, extending from near Head of Passes, Louisiana, to Rock Island, Illinois. Co-ordinated with the main-stem levees were 1,400 mi. of tributary levees, about half-complete in 1951. Below Cairo work continued on river bank protection. Revetment in place totalled about 225 mi. of river bank.

The rapid melting of excessive snow cover in the Minnesota river basin caused the river to flood in April, causing damage exceeding $10 million. Other big floods occurred in Washington and Oregon from the Columbia river and tributaries; on the Arkansas river in Arkansas and Oklahoma; the upper Cumberland in Kentucky; the Missouri river in Nebraska and Iowa; and the Warrior system in Alabama.

Between May and July a record rainfall over about 1,000 sq.mi. with Kansas in the centre caused rivers of the region to rise to unprecedented heights. The Missouri, the Kaw (Kansas), and the upstream tributaries, the Republican, Saline, Smoky Hill, Solomon, Blue and the Little Blue flooded, causing the greatest flood damage on record: $1,000 million in property was lost and an equal amount in farm crops and wages. The Kaw (Kansas) river broke its banks above Kansas City, Missouri, and, descending on the city from the unprotected rear, flooded the industrial section. In Kansas, the tributaries flooded Lawrence, Topeka, Saline and about 100,000 ac. of cropland. (*See* also METEOROLOGY; SOIL CONSERVATION.) (G. HB.)

FLOUR: *see* BREAD AND BAKERY PRODUCTS.

FOOD RESEARCH: *see* NUTRITION.

FOOTBALL. Association. England's association football team once more in 1950 resisted every attempt to inflict a first home defeat by a side from outside the British Isles, but her supporters had an anxious time before she drew 2-2 with Yugoslavia and France and beat Argentina 2-1.

Again there was great argument as to whether it was the foreigners' improvement or the Englishmen's decline which was responsible for the closeness of the struggles; many held that both these factors contributed but that the main reason was the length of the Football league season and its cut-throat competition—there were, however, just as many league matches when England was sweeping all before her.

No doubt the English team of 1951 was not so good as that which did so well just after World War II, but there was a notable improvement in the standard of play produced by many league teams. Tottenham Hotspur, who had been the most attractive side in the country while winning the second division title in 1950, went straight on in the first division to win the championship, a feat previously achieved only by Everton and Liverpool; they did so with the same side, the same neat ground passing and the same admirable teamwork. Portsmouth, the previous holders of the first division championship, were unbeaten in their last 12 games but a bad start kept them down to seventh place. For the fourth time in five years the runners-up were Manchester United, still under the managership of M. Busby, who had been a great Scottish half-back. They still had a fine defence and at times still produced form against which none could stand. Blackpool, Newcastle United and Arsenal were the next three in the table. All these six clubs, except Newcastle, had concentrated for many years on training their own young players and made few entries into the transfer market; their players were, indeed, true club members and nine of Tottenham's first eleven had never played for any other league club. Sheffield Wednesday (promoted in 1950) and Everton were relegated from the first division and were replaced by Preston North End and Manchester City (relegated at the end of the 1949-50 season). Rotherham and Nottingham Forest were promoted from the third division to the second in place of Grimsby Town, whose fall from the first division had been catastrophic, and Chesterfield. Workington moved to the third division in place of New Brighton.

Newcastle United won the Football association cup, beating Blackpool, including the evergreen S. Matthews, by 2-0 in the final. At one time they were thought to have a great chance of achieving the elusive double, but between the semi-final and the final they won only one of 11 league games. Like the other successful sides of the year they had strength at half-back, with F. Brennan a solid "stopper" in midfield; J. Milburn was a good leader in attack and scored in every round. They had one nasty shock when they were held to a draw at home in the sixth round by third division Bristol Rovers, but won the replay convincingly. Wolverhampton Wanderers and Birmingham City were the beaten semi-finalists and Manchester United again reached the sixth round, after beating the holders, Arsenal, by 1-0 at Old Trafford. Pegasus, a combination of past and present undergraduates of Oxford and Cambridge, achieved fame in their third season by winning the Football association amateur cup with 2-1 against Bishop Auckland in the final. They never played a home game in the competition and five out of seven times faced almost certain defeat near time, but a gallant defence and fast methodical attack triumphed. Their coach was V. Buckingham, of Tottenham Hotspur. The final at Wembley attracted a world record crowd, for an amateur match, of 100,000.

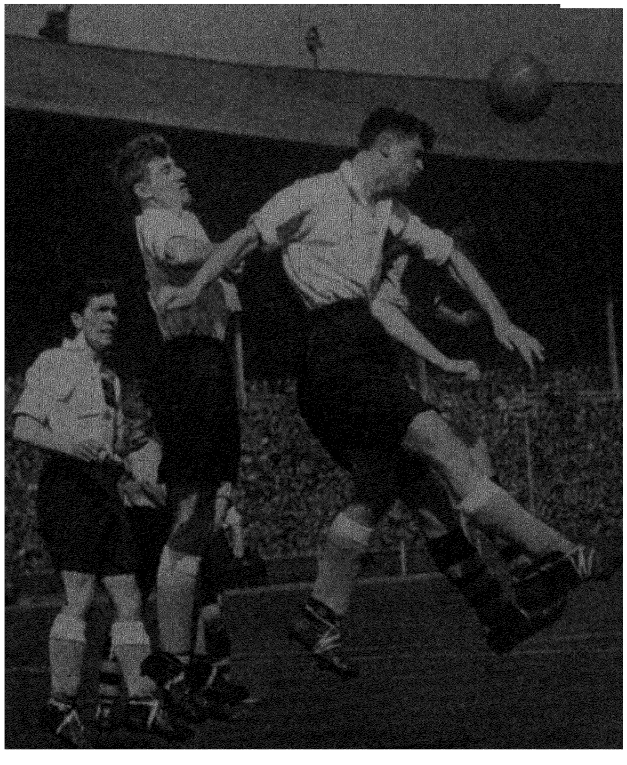
In Scotland a young Hibernian side was outstanding, finishing ten points ahead of Glasgow Rangers, the league and cup title-holders, in the league and beating them in a second round cup-tie before losing to Motherwell in a semi-final. Celtic won the cup final 1-0. Rangers still had a fine defence but their attack was erratic, whereas Hibernian were well-balanced and had a splendid attacker at centre or outside forward in L. Reilly, who shot 37 goals in cup and league games. Clyde and Falkirk were relegated from Division A and Queen of the South and Stirling Albion returned at the first attempt.

Scotland won the home international title, beating Wales 3-1 at Cardiff, Ireland 6-1 at Hampden Park and England 3-2 at Wembley, and also defeated Belgium 5-0, France 1-0, and Denmark 3-1, but lost 0-1 and 0-4 to Austria, perhaps the best of the European teams. England beat Wales 4-2 at Sunderland and Ireland 4-1 in Belfast; Wales won 2-1 in Belfast.

The transfer system was under heavy fire during the season from many quarters, not least the Players' union, which desired to have contracts between players and clubs for a fixed number of years with the player completely free at the end of the contract.

At the start of the 1951-52 season the Football league clubs became so alarmed by what they believed was the adverse effect of broadcast commentaries on attendances that they banned broadcasts during play; this aroused loud and angry remonstrances from newspapers and members of parliament, and the football league eventually agreed to the broadcasting of matches provided the public was not informed in advance which match was to be broadcast; the Football association continued to allow broadcasts of certain matches arranged by it to be publicized in advance.

Rugby Union. During the first years after World War II much Rugby union play in all countries was disfigured by bad scrummaging, scrum-halves often being unable to insert the ball properly and some hookers developing great cunning at collapsing a scrum when a delay was to their advantage. The international board met in London in March and made important alterations in the rules. The front row forwards were ordered to bind together firmly and continuously while the ball was in a scrummage and the wilful collapsing of a



Three of the Pegasus team jumping to head the ball in the final of the F.A. Amateur cup at Wembley, April 21, 1951. Pegasus beat Bishop Auckland by 2 goals to 1.

scrum was made punishable with a penalty kick; this change was reported to have proved satisfactory during the New Zealand and South African seasons. The board also made it clear that the method of heeling the ball in scrummages adopted in South Africa in recent years was illegal; the relevant paragraph in the rules was altered so that it was clear that the ball must be put into the scrummage again if it passed between the feet of the near outside man of the front row on its way out. Minor alterations included a decision that a knock-on should not be recognized as such if the ball is knocked-on by a player in the act of charging down an opponent's kick.

That there was still work for the board to do became clear at the start of the South African tour of the British Isles and France in Oct. 1951. The South Africans were taken aback by finding that in England packs were allowed to shove before the ball was inserted into a scrummage, and that the scrum-half was allowed to show the ball to the front row forwards and then withdraw it before inserting it; in South Africa premature shoving had been punished with a penalty kick and so had been a scrum-half who withdrew the ball after showing it and misleading the front row men into premature striking.

The South Africans had great strength forward, where they were big, fast, and well-combined; B. Kenyon, the touring captain, H. Muller, captain of Transvaal, the Currie cup winners, J. Pickard, W. H. M. Barnard and C. J. Van Wyk were outstanding all-round players. A. Geffin was a remarkable place-kicker on his day. Apart from the scrum-halves and J. D. Brewis, the first stand-off half, the backs were disappointing in early games, however, and this led to some close struggles. The side won 21 games, losing only one, to London Counties by 9-11, by the end of 1951.

Ireland won the championship in the 1950-51 season to the general surprise, and to the particular discomfiture of Wales. The Welsh began with a 23-5 win over England at Swansea, but lost 0-19 to a young and inexperienced Scottish team in Edinburgh after the Scots had lost 12-14 in Paris. The Welsh were over-confident at the start, were painfully surprised by the speed and fury of the Scottish pack and collapsed utterly in the last ten minutes after a dropped goal by P. W. Kininmonth from the touch line made it 6-0. Ireland got home by 9-8 and 3-0 against France and England in Dublin, owing everything to her forwards and J. W. Kyle. Scottish hopes were high when Ireland visited Murrayfield, and when G. Norton, the Irish full-back and place-kicker, had to retire after 15 minutes all seemed over. Scotland quickly led 5-0, but the Irish forwards, especially P. J. Lawler, a newcomer, rose to great heights, and with Kyle dominating the back divisions Ireland won with a dropped goal and a try in spite of missing easy place kicks. Wales dropped Lewis Jones because of his poor defence at Murrayfield; unfortunately this so weakened her attack that she could only draw 3-3 with Ireland at Cardiff, thanks to a monstrous penalty goal by B. Edwards; she was beaten 8-3 in Paris. France won her first victory at Twickenham by 11-3, but England won the Calcutta cup by beating Scotland 5-3; the Scots were clearly suffering a reaction forward from the hammering inflicted by the Irish, and their scrum-half had a horrid day. In this match England had at half-back D. W. Shuttleworth and E. M. P. Hardy, both of Yorkshire and the army, who had fought a duel for the job all season with G. Rimmer and J. Regan, of Lancashire. Rimmer played in the first three internationals, but was clearly worn out by having to play all season behind beaten club, county and national forwards; Regan was picked to play against Ireland but had to scratch because of an injury.

East Midlands, runners-up in 1950, won the county championship, beating Middlesex in the final. Gloucestershire and Yorkshire were the beaten semi-finalists. Oxford beat Cambridge 8-0 in the 1950-51 season, their fourth win since 1946.

Rugby League. There were two notable features of the year in Rugby league football. France won the home international championship on points average, and then on her first visit to Australasia beat Australia in the tests and only just lost to New Zealand in a rough match at Auckland. The French team received almost a national welcome on its return to Marseilles, but some of the gilt vanished when a few weeks later the side was beaten 17-14 at Hull by Other Nationalities in another rough match in which the mixed side rarely had more than 11 effectives.

Workington Town won the Northern Rugby league championship after only six seasons as a senior club and became the first club from outside Lancashire and Yorkshire ever to win the title. They were in every sense a good team and were finely led on the field and shrewdly managed off it by A. J. Risman, who had now played in first-class football for 23 years and first reached the final, for Salford, as far back as 1933. In their last three matches of the 1950-51 season, Workington won at Wigan in an ordinary league



The South African Rugby touring team (dark jerseys), the Springboks, in the first game of their tour against Hampshire and Sussex at Bournemouth, Oct. 10, 1951. The Springboks won by 31 points to 6.

game, won at Wigan in a semi-final and beat Warrington in the final on Manchester City ground. Wigan were beaten fair and square, but Warrington were unlucky to lose A. Johnson, a test wing-threequarter, early in the game before being defeated 26-11. Leigh were the other beaten semi-finalists. In spite of their defeat in the league semi-final, Wigan once more were the outstanding side of the year. They reached the Rugby league challenge cup final at Wembley for the fourth time and won there for the third time, beating Barrow 10-0, and retained the Lancashire cup for a sixth year; they were narrowly beaten into third place in the Lancashire league by Warrington and Workington. Leeds won the Yorkshire league and Wakefield the Yorkshire cup. Cumberland took the county title on points average. Cardiff and Doncaster were admitted to the Northern Rugby league for the 1951-52 season.

The New Zealand team which arrived in Britain in the autumn had been delayed and had to play its first match within 48 hours of landing. After a shaky start the New Zealanders settled down well and beat Workington Town, Warrington, Wigan, Leigh and Huddersfield in the first two months. They were unlucky to lose the first two tests 15-21 and 19-20, after having the better of the game in each case. (L. M.)

United States. The 1951 season was rather unhappy for inter-collegiate football in the United States. The game came under the severest criticism for many years. The lengths to which some colleges went to field a winning team—" doctoring " student high school transcripts, giving athletic scholarships in quantities and permitting players to take useless courses towards degrees—awakened the country to the need for reform (*see* EDUCATION).

The end of the playing season found Tennessee ranked as the number one team of the country. The Volunteers had a perfect record for the first time since 1940 and were awarded the Father O'Donnell trophy, given annually to the team that finishes at the top in the final Association Press poll. Then followed, in that poll, Michigan State, Maryland, Illinois, Georgia Tech., Princeton, Stanford, Wisconsin, Baylor and Oklahoma.

Princeton won the Big Three honours for the fifth year in succession and also won the Lambert trophy, and the Ivy league championship for the second successive year.

The sectional champions were as follows: Eastern, Princeton; Big Ten, Illinois; Pacific Coast, Stanford; Big Seven, Oklahoma (fourth year in succession); Southwestern, Texas Christian; Southeastern, tie between Tennessee and Georgia Tech.; Southern, tie between Maryland and Virginia Military Institute; Missouri Valley, Tulsa.

In professional football, the Los Angeles Rams ended the Cleveland Browns' five-year record of invincibility to win the championship of the National Football league. Finishing top of the National conference division, they defeated the Browns, champions of the American conference in the play-off.

Canada. A record Canadian football crowd of 27,326 saw the Ottawa Rough Riders win the Dominion championship. In the East-West final for the Grey cup they defeated the Saskatchewan Roughriders, 21-14. The college championship was won by the University of Toronto Blues who defeated the McGill Redmen, 11-7. (A. DA.)

FORAGE CROPS. Pastures and root tops provided ample feedingstuffs in the early part of the winter, but by Feb. 1951 many farmers, especially those in upland areas, foresaw that they would be short of fodder if the rest of the winter was severe. The winter was not especially cold but the spring was cool and wet, so that fodder stocks on many farms were used before there was a satisfactory growth of grass. Some farmers had to buy fodder crops, and livestock had to be turned into many fields while the soil was still sodden. In consequence, damage to pastures by trampling was widespread. Haymaking began later than usual but some spells of good weather allowed most of the main crop to be gathered in good condition. The yield per ac. of seeds hay was rather above average but that of meadow hay rather below. The practice of baling hay in the field was increasing.

FORAGE CROPS IN THE UNITED KINGDOM

	Acreage (thousand acres)			Production (thousand tons)		
	1939	1950	1951	1939	1950	1951
Beans (for fodder)	135	117	107	111	103	89
Peas (for fodder)	37	37	33	23	25	23
Turnips and swedes	712	599	601	10,084	9,216	9,769
Mangolds	216	277	263	4,069	6,498	5,943
Other fodder crops (kale, cabbage, etc.)	258	481	475	—	—	—
Temporary grassland*						
for mowing†	1,902	2,828	3,076	2,588	3,552‡	—
for grazing	2,191	2,777	2,819	—	—	—
Permanent grassland:						
for mowing†	5,009	3,074	3,123	5,202	2,799‡	—
for grazing	13,764	9,696	9,960	—	—	—
Rough grazing	16,539	17,103	—	—	—	—

* Lucerne, clover and rotation grasses.
† For hay, silage, drying or seed production.
‡ Excludes grass mown for silage, drying or seed in England and Wales.
SOURCE: *Monthly Digest of Statistics*, Sept. 1951.

In spite of the wet winter, pulses for stockfeed grew well, though peas and spring sown beans were later than usual. Farmers were delayed almost everywhere in preparing the spring seed beds so that roots and kale crops were sown late. They grew slowly but damage by pests was not serious. Yields of turnips, swedes and mangolds were similar to those of 1950.

The government continued to urge farmers to maintain the largest possible area under the plough and to get the most out of grassland, arguing that the prospects for supplies of imported feedingstuffs were uncertain and the only feedingstuffs farmers could rely on were those they grew themselves. The price of purchased feedingstuffs, some four times the prewar level, reinforced this argument, but many farmers were impressed by the risks of heavy harvest losses of cereals in wet years. Certainly the area under grassland increased by about 600,000 ac. between 1950 and 1951. (K. E. H.)

FORESTRY. One of the most important events during 1951 was the transfer to Rome of the headquarters of the United Nations Food and Agriculture organization, including the Forests and Forest Products division. It was chiefly due to this move to Europe that a number of forest officers with experience of European forestry methods were sent on missions to various parts of the world under the Expanded Technical Assistance scheme. As a result new forest policies were adopted in several countries where scientific forestry had been unknown.

Great Britain. Publication in April of a summary report of the census of woodlands of 1947-49 resulted in a general appreciation of the paucity of homegrown timber sources and the need for tighter control of fellings. It also showed the full extent of wartime fellings; 800,000 ac. needed complete restocking. Up to 1951 only about 82,000 ac. was replanted or restocked, about half by the Forestry commission and half by private owners. This great replanting task was being further increased by about 22,000 ac. of new fellings each year, and it was obvious that the rate of rehabilitation of Britain's woodlands continued to be much too slow.

The planting up of new ground, usually a simpler task than rehabilitation, made good progress, particularly in Scotland where forest villages were built to house those who would be employed on the new woodlands. Mechanization

of forestry work increased both in nursery operations and in the extraction of timber, but planting continued to be done by hand, the British soil and climate being unsuitable for tractor-hauled planting machines. The thinning of large areas of young coniferous plantations absorbed even more labour than in previous years, and the 1950-51 financial returns showed that the disposal and use of the resulting small timber had now become an important industry.

The scheme of dedication of privately owned woodlands to permanent forest management, which had made slow progress in the previous four years, at last made better headway and about 250,000 ac. were in process of dedication during 1951. Silvicultural research included a study of the history and present condition of the Yorkshire moors in relation to forest potentialities. Research was continued by the Forestry commission on the effects of drainage of peatlands and in the planting of upland heaths.

Commonwealth. The progress made during previous years in both aerial and ground surveys of the forests of Australia made possible the compilation of maps of the commercial and reserved forest areas throughout the country. These were completed and printed during 1951, and plans for a national inventory of forests were agreed upon at an interstate conference and work began in June. Australia celebrated its jubilee year with a great tree-planting drive. In Queensland large quantities of nursery transplants were issued free to schools, and at a cheap rate to farmers. The Australian public was becoming tree-conscious and this greatly helped in undertaking new measures to suppress bush fires, the Australian forester's greatest problem. New fire-fighting equipment included two-way radio installations to connect the fire lookout towers with the fire-fighting crews and helicopters to take men to fires in remote areas. The opening up of the Dorrigo area forests in New South Wales made Wauchope the state's largest source of timber.

In Canada one of the chief effects of the Canada Forestry act was to give federal assistance to the provincial governments. A nationwide inventory was to be completed as quickly as possible and the rate of reafforestation was to be greatly increased with federal help. British Columbia suffered from severe forest fires and, because of dry inflammable conditions for several months during the summer, logging operations were suspended over large areas.

In South Africa the long-disputed question of logging and sawmilling by the state was settled on lines that gave the private sawmiller a fair share in the out-turn from state plantations. Extraction of timber from mountain slopes by cable was further developed and a new type of Swiss cableway was installed in two forests. Extensive new plantations of conifers were started in Swaziland by the Colonial Development corporation and this entailed important road and bridge construction to open up the country.

The West African colonies found a greatly increased demand for tropical timbers, and the lesser-known timbers had a readier market. Difficulties in the conversion and seasoning of some of these timbers showed the need for further research, and the prevention of damage by sap-stain and wood-borers was also a difficult problem. Qualified forestry staff was still very short.

The East African Agriculture and Forest Research organization centre in Kenya opened its new headquarters building in April. The appointment of a number of senior forest officers to the organization ensured co-ordination of forestry research in Kenya, Tanganyika and Uganda on sound lines. In Northern Rhodesia and Nyasaland declarations of forest policy were made which were expected to lead to a better understanding of the needs of forestry in these countries. The heavy fellings of timber in Northern Rhodesia to meet the fuel and constructional needs of the copper mines resulted in forming what was probably the largest single area of newly exploited forest in Africa. The Forest department was doing all that was possible to obtain a satisfactory regrowth on the cleared areas, and it was expected that more coal might be available to reduce the heavy demands for wood fuel. An important development was the opening up of forests on high plateaux, formerly considered to be commercially inaccessible. The Rondo plateau in Tanganyika and the Mlanje plateau in Nyasaland were both exploited for the first time on a commercial scale, and similar development on the slopes of Kilimanjaro, Tanganyika, was under consideration.

In British Guiana the exploitation of the forests, not long started by the Colonial Development corporation and a number of private firms, led to some public criticism of the methods employed to ensure future replacement. Reports of the good natural regeneration which followed the heavy fellings were, however, more reassuring.

Europe. In France good progress was made in the regeneration of the large pine forests in the Landes which were destroyed by fire in 1945 and 1947. The burnt timber had been removed and the sowing of maritime pine was supplemented by planting protective strips of other species. In Switzerland the great avalanches in the early months of 1951 devastated about 2,000 ac. of forest and destroyed over 100,000 cu.m. of standing timber. In spite of a shortage of timber, which kept sawmills from full production, the fellings in both communal and cantonal forests were not allowed to exceed the annual normal growth increment, and timber-using industries were maintained by larger imports.

(A. H. LD.)

United States. Forest products plant expansions, proposed under the provisions of the Defence Production act, 1950, were expected to cause a substantial increase in the drain on the timber resources of the United States. Many of the proposed expansions of plant capacity, however, would involve the increased use of mill or woods waste, or of hitherto little-used tree species. Others were in places where an increase in timber growth was in prospect, because of fire protection, reafforestation and improved forest management.

The report of the president's Water Resources Policy commission recommended the control of the deterioration of certain watershed forest lands within a reasonable period of time. Forestry agencies assisted federal inter-agency river basin committees in the preparation of comprehensive plans for the development, utilization and conservation of the water resources of the Arkansas-White-Red river basin and of the New England-New York region. In the Columbia and Missouri river basins the department of agriculture was engaged in the development of comprehensive forestry programmes.

The area of national forests and other conservation lands under the administration of the U.S. forest service on June 30, 1951, was 181,034,882 ac. The properties included 151 national forests, 33 purchase units established in pursuance of the Weeks law of 1911, 16 experimental areas and 9 land utilization projects. During the fiscal year, 25,451 timber sales were made. The volume of timber cut from the national forests totalled 4,688 million bd. ft., the highest for any year since the national forests were established.

The largest timber sale of the year made by the forest service—of 1,500 million cu. ft. to the Ketchikan Pulp and Paper company—was in the Tongass National forest in Alaska. The sale contract provided for the handling of the timber on a sustained-yield cutting plan. (*See* also NATIONAL PARKS; SOIL CONSERVATION; TIMBER.) (C. E. R.)

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FORMOSA (TAIWAN). Large island in the western Pacific separated from China by the 90 mi.-wide Straits of Formosa. Area: 13,906 sq.mi., including Pescadores and 75 neighbouring islands. Pop.: (1940 census) 5,872,084; (mid-1951 est.) 10,000,000, including Chinese Nationalist troops and refugees from the mainland. Language: mainly Chinese. Religion: Buddhist, Confucian and Taoist. Chief towns (pop., 1950 est.): Taipei (formerly Taihoku, cap., 450,800); Kaohsiung (Takao, 275,600); Tainan (229,500); Taichung (Taichu, 207,000); and Chilung (Keelung or Kiirun, 145,200). Governor, Wu Kuo-cheng (K. C. Wu).

History. Formosa, the only territory remaining in the control of the Chinese Nationalist government, was converted into a Nationalist military stronghold in 1949 and 1950. The capital of the Nationalist government was moved to Taipei, on Dec. 8, 1949. During the year Generalissimo Chiang Kai-shek continued to act as president of the republic and General Chen Chang as prime minister. There was also a Legislative Assembly of 702 elected members presided over by Liu Chien-chiu.

To assist the Nationalist government in the defence of Formosa, the United States established the U.S. military assistance advisory group on May 1, 1951, under the command of Major General William C. Chase.

Education. Schools (1949): primary 1,199, pupils 900,648; intermediate 206, pupils 114,616; higher education: 1 university and 5 colleges with 5,905 students. Illiteracy (1951 est.): 40%.

Agriculture. Main crops (1950-51, '000 metric tons): rice (brown) 1,421·8; sugar, raw value 362·9; tea 6·7; pineapples 26; bananas 128; citrus fruit 28·8; tobacco 9·6; jute 5; sweet potatoes 1,420; peanuts 65; wheat 12; barley 2. Fisheries (1950-51): total catch, 64,500 tons.

Industry. Production in the year ending June 30, 1951 ('000 metric tons): coal 1,414; cement 361; paper 19; chemical fertilizers 77; sulphur 4·5; salt 202; cotton yarn 2·2; cotton cloth 22 million metres. About 4,000 troy ounces of gold were mined monthly.

Foreign Trade. Formosa's chief exports in 1950 were sugar, coal, salt, camphor, tea, rice and fruits. Chief imports were fertilizers, raw cotton and machinery. Japan and the U.S. were Formosa's important trading countries. In 1950 exports amounted to the equivalent of U.S. $72·4 million, of which sugar represented $54 million, while imports totalled U.S. $91·6 million, excluding E.C.A. aid. During the first six months of 1951, exports totalled U.S. $54 million and imports totalled U.S. $44·3 million.

Finance. A dual exchange-rate system was instituted on April 10, 1951, providing for a foreign exchange certificate rate and an official exchange of N.T.Y. 15·95 and N.T.Y. 10·30 respectively to U.S. dollar. Certain transactions on government account, as well as certain specified private transactions, were accorded preferential treatment. On Sept. 30, 1951, the total note issue was about 450 million new Taiwan yuans. Total revenues of the central, provincial and local governments in 1951 were estimated at N.T.Y. 1,385 million and expenditures at N.T.Y. 2,350 million. The deficit was made up from continued liquidation of the government's gold and other assets and from the sale of E.C.A.-financed goods. The E.C.A. programme provided for the expenditure of U.S. $98 million in the year ending June 30, 1951. About $80 million was made available in 1950-51 for military assistance. (S. NR.)

FRANCE. Republic of western Europe bounded N. by the English channel, N.E. by Belgium and Luxembourg, E. by Germany and Switzerland, S.E. by Italy, S. by the Mediterranean sea, S.W. by Spain and W. by the Atlantic ocean. Area: 213,010 sq.mi., including the Mediterranean island of Corsica (3,367 sq.mi.) and small Alpine territories ceded by Italy in 1947 (273 sq.mi.). Pop.: (1946 census) 40,502,513; (Dec. 1951 est.) 42,400,000. Language: French is almost universally spoken but there are also other regional languages or dialects: German in Alsace and part of Lorraine; Breton in Brittany; Flemish in the northern corner of the Nord *département*; Provençal in the Alpes Maritimes, Basses-Alpes, Var and Bouches-du-Rhône *départements*; Catalan in Rous-



Prime ministers in 1951: René Pleven (left), July 11, 1950-Feb. 28, 1951, and from Aug. 8; Henri Queuille (right), March 9-July 10.

sillon (Pyrénées Orientales); Basque south of Bayonne, and Italian in Corsica. Religion: mainly Roman Catholic with *c.* a million Protestants and over 230,000 Jews. Chief towns (pop., 1946 census): Paris (cap., 2,725,374); Marseilles (636,264); Lyons (460,748); Toulouse (264,411); Bordeaux (253,751); Nice (211,165); Nantes (200,265). President of the republic, Vincent Auriol (*q.v.*); prime ministers in 1951, René Pleven, Henri Queuille (from March 9 to July 10) and again René Pleven.

History. During 1951 France had three governments. René Pleven (Union Démocratique et Socialiste de la Résistance), who had come into office on July 11, 1950, resigned on Feb. 28, 1951; Henri Queuille (Radical) was elected on March 9 and resigned on July 10 as soon as the new National Assembly, elected on June 17, had re-elected Edouard Herriot as its president. After an exceptionally long interregnum René Pleven was again elected prime minister on Aug. 8 and brought his government before the assembly on Aug. 12. Robert Schuman (Mouvement Républicain Populaire) was foreign minister throughout the year. Queuille was minister of the interior both in the first Pleven cabinet and in his own; Charles Brune (Radical) became minister of the interior under Pleven. Maurice Petsche (Independent) was minister of finance in Pleven's first government and in Queuille's and was succeeded by René Mayer (Radical). Jules Moch (Socialist) was minister of national defence in the first Pleven government and in Queuille's and was succeeded by Georges Bidault (M.R.P.).

There was a certain similarity between the beginning and the end of the year. Pleven was at both times in office and his government was on both occasions coaxing the assembly into passing additional taxation. At either end of the year the police, mobilized in strength, prevented a Communist demonstration in the Avenue des Champs Elysées. But these similarities were deceptive. The victory won over Communist violence in 1950 was maintained in 1951. The only serious outbreak of strikes was at Easter time in both Paris municipal and national transport; there was no degeneration into disorder. The main theme of the year was the attempt to prevent the rise of prices in face of constant inflationary pressure. In this the French government was less successful than those of other member states of Organization for European Economic Co-operation. A report on inflation issued by the council of that body (Nov. 27, 1951) noted that price increases were 50% higher in France than in other west European countries. The weak position of the successive governments faced with very divided assemblies was no doubt partly responsible for this. René Mayer on Nov. 14 had to paint a grim picture to the assembly of a budget in prospective deficit, of an adverse trade balance and a still graver deficit in dollars. But with the U.S. aid increased by $250 million and



The French council of ministers seen with President Vincent Auriol (centre) at Rambouillet, the president's summer residence, Aug. 1951. The prime minister, René Pleven, is seen on the president's right shaking hands with René Mayer, minister of finance. On left, holding papers, is Robert Schuman, foreign minister.

an energetic attitude on the part of the government the situation looked somewhat more favourable at the beginning of December. The assembly was at least much further advanced with the next year's budget than had been its predecessor which had passed only the national defence section by the New Year and did not get the whole budget for 1951 into law till the night of May 24-25, when it was about to disperse for ever. The 1952 budget was also presented in a new form, much clearer and more succinct.

The Fall of the First Pleven Cabinet. Pleven began the year with some successes which might ordinarily have been expected to foreshadow continuance in office. On Dec. 29, 1950, the assembly had approved national defence credits at the new total of Fr. 740,000 million by 416 votes to 180 and on Dec. 31 new taxes for national defence amounting to Fr. 140,000 million by 331 votes to 135. On Jan. 17 Pleven was able to announce his visit to Washington. This was at a time when French public opinion was particularly anxious about relations with the United States, being divided between fear of an extension of the war in the far east and that of diverging so far from the U.S. views on the question of German rearmament as to lose some of the benefits of the U.S. assistance. The results of the visit to Washington (Jan. 29 and 30) were considered reassuring and more particularly a personal success for Pleven. On Feb. 14 the five-power conference to prepare a plan for a European army as proposed by Pleven in the previous year began to sit in Paris. But in internal politics Pleven was faced with the extremely difficult problem of preparing a new electoral law for elections to be held at the latest in October. This was described by Paul Reynaud, not without good reason, as a necessary measure of national defence. The proportional representation adopted for the elections of 1945 and maintained in 1946 was the system most favourable to a widely scattered party like the Communists and another election on this basis was likely to produce a parliament in which the parties of the republican coalition would be in a minority, as well as the Communists and the Gaullists—in which there would in fact be no majority at all and no possibility of forming a government.

That the country needed an electoral system less favourable to the Communists and more likely to produce a majority was common ground to all the parties of the majority, but there was no agreement as to what that system should be. The Radicals wished for the return of the prewar system, that is, single member constituencies with a second ballot if no candidate obtained an absolute majority at the first, thus enabling voters to support a second preference if their preference had obviously no chance. The M.R.P. complained that this system too often ended in an anti-clerical alliance. They wanted a system with only one ballot and if possible a form of proportional representation. This was comprehensible since the existing system was as favourable to them as to the Communists. Now the M.R.P. and the Communists had together a majority in the assembly. Pleven proposed on behalf of the government to accept as the government's policy any electoral reform scheme approved by the majority of the majority, but unfortunately owing to the division between the M.R.P. and the Radicals, the majority of the majority was only a minority of the assembly. Pleven resigned on Feb. 28 when it became evident that his plan for getting agreement on electoral reform was only splitting the coalition more and more deeply.

The Second Queuille Cabinet. After ten days' negotiation Queuille was elected prime minister on March 9 with a programme to form a "hundred days' government" and hold elections early in June. The two cabinets were practically identical. The reason for holding elections at this date was first of all to wind up the assembly elected on Nov. 10, 1946, which was already so hag-ridden by the prospect of elections that it could do no useful work, and secondly to give the new assembly time to get into its stride early enough for the budget of 1952 to be voted by the end of 1951. It was not till May 7 that a compromise bill finally became law. The battle had been so severe that the prime minister's health gave serious ground for anxiety. The new law provided for the maintenance of the multi-member constituencies and voting for lists of candidates. In the Paris area pure proportional representation was maintained; elsewhere it was maintained only if neither one list of candidates, nor a group of lists, which had declared themselves to be in association (*apparentement*), gained an absolute majority. The list or group of associated lists which gained an absolute majority took all the seats, in the latter case dividing them proportionally amongst the jointly victorious lists. The point of this arrangement was that nowhere had the Communists allies with whom to enter into association, and that the Gaullists, owing to the nature of their programme, could only do so in a small number of departments. This left the advantage of "association" with its hope of an absolute majority (and therefore all the seats in a given constituency) to the parties of the republican majority. The disadvantage of the system was that the ordinary Frenchman expects to compromise in parliament rather than at the polls and was shocked to see anti-clerical Socialists, Catholic M.R.P. and Independents (Conservatives) appealing for his vote under a

system that was mutually advantageous, even though they maintained their identity and had separate lists. It also seemed odd that a party gaining only 20% of the votes, but forming part of a victorious "association" might win two or three seats whereas an isolated opponent winning 40% of votes might receive none.

Meanwhile the government was faced with one serious outbreak of strikes in the year, which began and ended with Paris passenger transport (19 days from March 16 to April 3) but which affected for a few days a large part of the French railways, gas and electricity and some other corporations. In the course of these strikes and threats of strikes the national minimum wage was raised from 78 to 87 francs an hour and the miners received an increase of about 12%.

After a last fortnight of embittered parliamentary business in which Queuille had to fight hard to keep vote-catching items off the agenda the budget in its final form nearly failed to be passed owing to a dispute between the M.R.P. and the Socialists as to whether it should include tax relief for Catholic schools (which received no public subsidy).

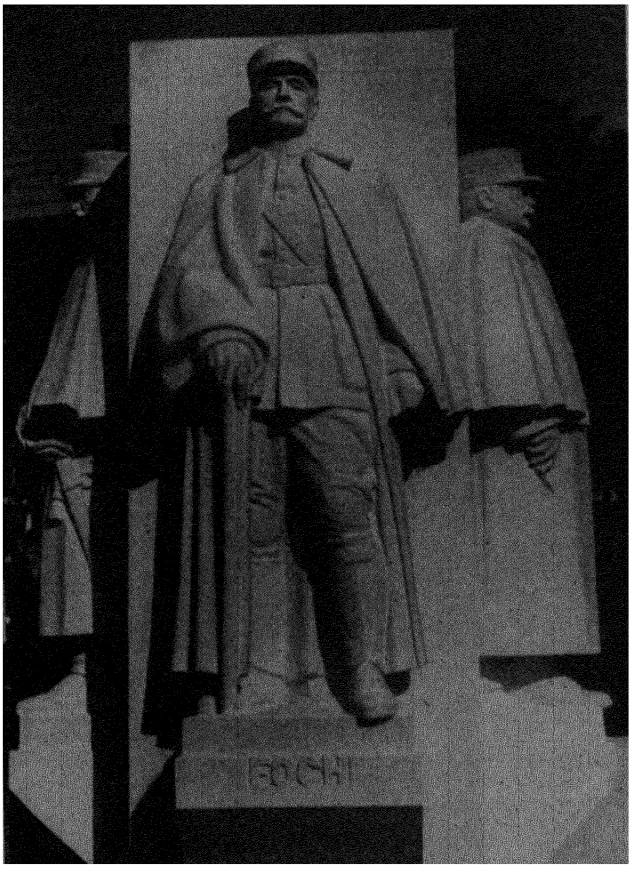
Meanwhile after long negotiations and in face of much scepticism in France itself as well as elsewhere an agreement had been reached on the basis of the Schuman plan with Belgium, the Netherlands, Luxembourg, Italy and Germany for the creation of a European steel and coal "community." In order that the Saar might be included and Germany also participate, the French signature was held to bind the Saar also and France agreed that the Saar should be represented on the assembly by 3 of its 18 seats. The treaty was signed on April 18.

The election campaign was calm but the polling was about 78%. The electoral law played strongly in favour of the "associated" parties so that the Socialists and the combined lists of Radicals and U.D.S.R. both lost votes and gained seats. Opinion had changed so profoundly that the election results were compared less with the results of 1946 than with intervening expectations. Thus the M.R.P. was thought to have done well because it did not lose even more to the Gaullists as it would have done in 1947 or 1948 and the Gaullists to have done not so well because they did not sweep 30% of the voters into their net as in the municipal elections three years earlier. (*See* ELECTIONS.)

The Second Pleven Cabinet. The elections gave 380 seats to members of the parties which had formed coalitions in the old assembly as against 224 to the two incompatible oppositions, Gaullist and Communist, but there were also 313 deputies from Gaullists to M.R.P. in favour of at last giving some financial assistance to Catholic schools, a proposal bitterly opposed by the Socialists and most of the Radicals as well as the Communists. The friends of the Catholic schools, already deeply committed, insisted that though theirs was not a majority that could govern, since on most other questions it was divided, it must be allowed to express itself in this one issue. The Socialists on the other hand insisted that any government they joined must prevent any breach of the lay school principle. The first consequence of this was that no government could be formed for 29 days after Queuille had resigned and that when Pleven was elected he had to form his government on a minority basis and stand by while the parties he wished to unite behind him tore themselves to pieces over a private member's bill giving about Fr. 12,000 million additional appropriation to the state schools in order also to give Fr. 4,000 million to the Catholic schools by a system so complicated (so that it might be arguably not a breach of the lay principle) that an administrative formula for putting it into effect had not yet been found in the first week of December.

When this had been voted on Sept. 10 the Socialists avenged themselves with an automatic sliding scale bill which they got through the assembly with the help of Communists and Gaullists. Pleven's cabinet felt too weak to oppose it at this stage and continued the practice of government by self-effacement, hoping to modify it when it returned from the Council of the Republic (upper house) in December. It was not till the end of September that the new assembly, which had begun so inauspiciously, could be persuaded to go on holiday.

These weary wrangles were not all France's history at this time. General Alphonse Juin was at last released from his task as resident general of Morocco to assume the post of commander in chief of the North Atlantic Treaty forces in the central sector of the European theatre. The government meanwhile had to fight price increases and adjust wages to them. For the second time in the year the basic minimum wage was raised, this time from Fr. 86 an hour to Fr. 100—four points above the level required by a rigid interpretation of the index figure. War was opened on butchers, who tried closing their shops in protest against price-fixing but finally yielded to the government's policy. The government was at least successful in avoiding strikes which had been expected in the autumn, but the franc was seriously weakened on the free market. On Nov. 8 the bank rate which had been raised from 2½ to 3% on Oct. 11 went up to 4%. Meanwhile the government had taken the unpopular measure of raising the price of both petrol and tobacco by 20% to provide some immediate revenue for the treasury—a measure that would bring in about Fr. 70,000 million in a full year. On Nov. 16 the finance minister, René Mayer, told a depressed assembly that another Fr. 200,000 million taxes would be needed and that for lack of dollars the import programme from the



A memorial to three marshals of France, Ferdinand Foch (1851-1929), Joseph Jacques Césaire Joffre (1852-1931) and Joseph Simon Galliéni (1849-1916), which was unveiled by President Vincent Auriol at Saint-Gaudens, near Tarbes, France, in Oct. 1951.

dollar zone would have to be cut from $850 million to $500 million. This cut meant reduced import of coal, petrol and a number of other raw materials. The whole foreign trade position had been reversed so that exports covered only 64% of imports in the third quarter of the year instead of 81% in the first. A programme of austerity to meet the crisis did not gain the government votes. On Nov. 20 it had to be content with a majority of only 247 to 229 with the Socialists and half of the Peasant party abstaining. The latter party split a few days later, 20 of its members adopting a new name and passing into the wake of the Gaullist French People's rally. By the end of the month Mayer was able to announce that the United States had guaranteed an additional $250 million in the U.S. budget year, $130 million being probably available for Indochina but also at least $120 million to increase the import programme especially of coal and petrol. The favourable vote of the assembly foreign affairs commission on the ratification of the Schuman plan, by 26 votes to 18, gave hope of a consolidation of the government majority.

There was naturally a good deal of speculation in the second half of the year as to whether a centre-right majority could not be formed including the Gaullists and without the Socialists. Although the general referred to other parties with greater cordiality than usual at the Nancy congress of his party in November, his claims to leadership, his ungracious references to the U.S. policy and his sharp opposition to both the Schuman and the Pleven plans were felt in most of the non-Gaullist right to make political co-operation still impossible.

On July 23, Philippe Pétain, the ex-marshal, died aged 95, still legally a prisoner but no longer in a fortress (*see* OBITUARIES). Permission to live in an annex to a military hospital (in fact a private house so labelled) was given as soon as the elections were over. The treatment to be accorded to this very old man continued to cause bitter dissension till the end and even four months after his death a requiem mass in Notre Dame provoked a counter-demonstration. He was buried wearing his marshal's uniform in the churchyard of the Ile d'Yeu, where he had been imprisoned.

(D. R. GI.)



René Pleven (right) greeting Winston Churchill during the latter's visit to Paris, Dec. 17-18, 1951.

Education. (1949-50) Elementary schools: state infant 3,726, pupils 446,947; private infant 188, pupils 23,116; state elementary 69,843, pupils 3,775,775; private elementary 11,028, pupils 886,948; state higher elementary, pupils 192,801; private higher elementary, pupils 58,916; total elementary 84,785, pupils 5,384,503. Secondary schools: boys' 588, pupils 225,000; girls' 395, pupils 187,000; total 983, pupils 412,000. Lower technical and vocational schools numbered more than 220 with over 200,000 pupils in 1949. Higher education: state universities 17, students (July 31, 1950) 136,744, including 39,056 in the law faculties. There were 10 other state institutions of higher education, 6 free (Catholic) universities and more than 80 state and private institutions of higher technical education.

Agriculture. Tables I, II and III show respectively the production of main crops, the amount of livestock, and the production of certain foodstuffs.

TABLE I. AGRICULTURAL PRODUCTION ('000 metric tons)

	1934-38 av.	1946	1948	1949	1950	1951
Wheat	8,143	6,759	7,634	8,082	7,701	7,028
Rye	769	462	638	650	606	504
Barley	1,074	1,063	1,273	1,431	1,572	1,667
Oats	4,572	3,771	3,380	3,225	3,305	3,602
Maize	541	211	461	194	404	612
Potatoes	17,158	9,882	17,544	10,976	14,431	12,093

1951 was a somewhat poor year for agriculture. Wheat production was 15% less and that of potatoes 30% less than the average of 1934-38.

TABLE II. LIVESTOCK ('000 head)

	Nov. 1938	Nov. 1945	Sept. 1949	Sept. 1950
Cattle	15,622	14,272	15,434	15,432
Pigs	7,127	4,386	6,424	6,760
Sheep	9,872	6,700	7,511	7,480
Goats	1,416	1,146	1,236	1,283
Horses	2,692	2,258	2,418	2,414

TABLE III. FOODSTUFFS ('000 metric tons)

	1934-38 av.	1946	1948	1949	1950
Meat	1,660	1,250	1,500	1,805	1,901
Milk ('000 hl.)	141,000	106,000	112,000	125,000	—
Butter	202	152	160	183	225
Cheese	270	160	190	—	—
Sugar, raw value	971	765	960	881	1,434

France is the world's largest producer and consumer of wine. In 1938 its share in world wine production was about 40%, immediately after World War II 25%, and in 1950 again reached 40%.

TABLE IV. WINE: PRODUCTION, IMPORT AND EXPORT ('000 hl.)

	1938	1946	1948	1949	1950	1951
Produced	60,332	36,160	47,437	42,935	65,132	47,329
Imported*	16,257	9,273	9,894	10,302	12,028	11,000
Exported†	1,032	729	620	743	982	632

* Mainly from Algeria. † Mainly champagnes, clarets and Burgundies.

In the years 1934-38 the average consumption of wine per head was about 160 litres; in 1945-48 it decreased to approximately 110 l., and in 1950 amounted to about 130 l. The yearly consumption of pure alcohol per person in every form (*apéritifs*, wine, liqueurs, brandy, etc.) was in 1950 22·5 l., compared with 4·1 l. in Britain and 3·3 l. in

TABLE V. INDUSTRIAL PRODUCTION*
('000 metric tons if not otherwise stated)

	1938	1946	1950	1951†
Coal	47,600	47,200	53,884	55,000
Gas (million cu.m.)	1,692	2,448	2,424	2,400
Electricity (million kwh.)	20,800	23,000	33,390	37,900
Iron ore (33% metal content)	33,180	16,212	29,988	33,600
Pig iron	6,012	3,444	7,764	8,640
Steel ingots and castings	6,216	4,404	8,652	9,832
Cement	4,106	3,864	7,416	8,100
Motor vehicles: Cars	182,400	30,120	257,280	313,900
Motor vehicles: Commercial	39,360	62,520	99,360	132,000
Woven cotton fabrics	158·4	100·8	168·0	171
Cotton yarn	249·6	171·6	250·8	260
Wool yarn	117·6	92·4	127·2	132
Rayon filament yarn	27·9	30·9	45·2	56
Rayon staple fibre	5·6	17·3	38·6	50

* Excluding the Saar. † Annual estimates based on first nine months.

the United States. By the end of 1950 there were in France 284,142 licensed premises (*débits de boisson*): one per 148 inhabitants.

Industry. According to the 1946 census, there were 6,184,000 persons employed in industry as against 6,295,000 in 1936. The 1948 index number of employment in manufacturing was 98 (1937 = 100), the mid-1951 index number stood at 117 compared with 151 in the United States. The index number of industrial production rose between 1946 and 1950 from 73 to 113 and in mid-1951 stood at 131 compared with 197 in the United States.

In 1950 the number of dwelling units built amounted to 68,050, including 30,120 repaired. From Jan. 1945 to Dec. 1950 only 174,900 dwelling units, including 64,655 repaired, were built. The index number of housing (number of dwellings built per year per 1,000 inhabitants) in 1950 was 1·7 compared with 5·0 for the United Kingdom and 6·7 for the United States.

Foreign Trade. In Table VI imports and exports are given in actual values (million current francs) and, in brackets, in the index numbers of quantum, that is, after allowing for changes in prices which had occurred since the base year (1949 = 100).

TABLE VI. FOREIGN TRADE* (Fr. million)

	1949	1950	1951
Imports	921,794 (100)	1,072,728 (103)	1,599,000 (115)
Exports	782,022 (100)	1,072,644 (133)	1,480,000 (161)
Adverse balance	139,772	84	119,000

* Including the Saar.

Main sources of imports (1950; 1951, six months, in brackets): French Union 26·2%, U.S. 12·3% (13·7%), Western Germany 6·6% (6·7%), Australia and New Zealand 5% (7·8%), Belgium-Luxembourg 4·6% (5·4%), U.K. 3·7% (4·4%). Main destinations of exports: French Union 36·2%, U.K. 9·2% (15·6%), Western Germany 7·9% (8%), Belgium-Luxembourg 6·4% (9·7%), Switzerland 5·1% (9·2%), U.S. 4% (13·7%).

Transport and Communications. Railways (1950): 41,272 km. including 4,026 electrified. Railway traffic (monthly average, 1950; 1949 in brackets): passenger-km. 2,200 (2,456) million; goods ton-km. 3,244 (3,420) million; goods transported 12·7 (13·4) million metric tons. Roads (1950): 715,696 km. including 80,231 km. of first class national roads. Motor vehicles licensed (Jan. 1950): 2,295,000 including 572,800 commercial. Navigable inland waterways (1948): 8,488 km.; cargo (monthly average, '000 metric tons, 1950; 1949 in brackets): loaded 2,986 (2,794), unloaded 2,865 (2,852). Shipping (Jan. 1951; Sept. 1939 in brackets): merchant vessels 733 (670), gross tonnage 3,080,000 (2,733,633). The total included 75 emergency "Liberty" ships and 188 ships more than 20 years old. Ships entered (monthly average, '000 NRT, 1950; 1949 in brackets): 2,857 (3,043); cargo in external trade (monthly average, '000 metric tons, 1950; 1949 in brackets): loaded 1,562 (1,234), unloaded 2,586 (2,969). Civil aviation traffic, Air France only (monthly average, 1950; 1949 in brackets): passenger-km. 93·2 (82·1) million; cargo ton-km. 3·9 (3·3) million. Telephones (Jan. 1950): 2,318,673 including 1,411,678 (60·9%) automatic. Wireless receiving set licences (1947): 5,728,000.

Finance and Banking. Table VII gives the postwar budget figures with the last prewar budget as a measure of comparison.

TABLE VII. REVENUE AND EXPENDITURE (Fr. '000 million)

	1938*	1946*	1949†	1950†	1951†	1952†
Revenue	53·8	815·6	1,440·0	2,218·0	2,104·0	3,500·0
Expenditure	52·2‡	1,286·9	1,870·0	2,217·5	2,648·0	3,473·0
Deficit or surplus	+1·6	—471·3	—430·0	+0·5	—544·0	

* Actual. † Estimates. ‡ Excluding extraordinary expenditure for defence.

National income ('000 million, 1950; 1949 in brackets): 7,395 (6,530). Public debt ('000 million): internal (Sept. 1, 1939) 432·6, (Sept. 30, 1949) 2,662·9; external (Sept. 30, 1949) 1,181·9. Currency circulation ('000 million, end of the year): (1938) 112, (1950) 1,590, (1951) 1,842. Deposit money ('000 million, end of the year): (1938) 80, (1950) 1,530, (Oct. 31, 1951) 1,723. Official exchange rates: £1 = Fr. 980; $1 = Fr. 350.

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(K. SM.)

FRANCO-BAHAMONDE, FRANCISCO,

Spanish army officer and statesman (b. El Ferrol, Galicia, Dec. 4, 1892), head of the Spanish state since 1939. For earlier career see *Britannica Book of the Year, 1951*. In a Columbia Broadcasting system interview on Dec. 31, 1950, Franco asked that Spain be included in the West's plans for containing Communism, and in March he told Stanton Griffis, the newly appointed U.S. ambassador, that Spain was ready to send troops to serve under General Dwight D. Eisenhower, supreme commander, Europe. Despite opposition from Great Britain and France to Spain's inclusion in the North Atlantic Treaty organization, these approaches led in July to the exploratory mission to Franco of the late Admiral Forrest Sherman, U.S. chief of naval operations. In an interview in the *New York Times* on Aug. 6 Franco showed that he was acutely aware of the British and French attitude, but declared that when the common danger caused strategic values to conquer political hesitations, Spain was ready to send an expeditionary force to take part in the common defence against any Communist thrust in Europe. "There is no neutralism in Spain," he said. He had to deal in the spring of 1951 with strikes and riots in various parts of Spain caused by seasonal unemployment and rising living costs; penalties imposed on the strikers were remitted by Franco in October. Four bullet-proof cars on Rolls-Royce chassis were built in London for Franco in 1951.

FREEMASONRY. Following the death of the grand master, the Duke of Devonshire, the deputy grand master, the Earl of Scarbrough, was elected to the vacant position at the March quarterly communication, and he chose the Earl of Derby as deputy grand master. King George VI, the only past grand master in Europe, announced his intention of performing the installation ceremony, which was fixed to take place at the Albert hall, London, on Nov. 6. Six weeks before this date the King was operated upon for lung resection and, by his command, the Earl of Derby acted in his stead.

Nearly 8,000 saw the ceremony, among them being 26 reigning masters of grand lodges in Europe, the Commonwealth and the United States; and, to mark the occasion, the newly installed grand master announced the conferment of honours additional to those provided by the book of constitutions. Five grand masters gave an address to Lord Scarbrough after he had taken his place on the great gilt throne that had been used since 1791. They included Rudolph R. Cooke, of the Grand Lodge of Virginia, who, speaking on behalf of 3·5 million freemasons in the United States, said that the two countries had a common language, a common law, a common heritage and, among other things, a common respect for freedom and justice.

At the June quarterly communication, Grand Lodge adopted a recommendation that no ritual of any grand lodge which worked in a language other than English be demonstrated in any lodge (in England) without express permission of the Board of General Purposes. (E. BA.)

FRENCH EQUATORIAL AFRICA. Federation of four colonies, described from 1946 as overseas territories of the French Union, situated in central Africa and bounded W. by the Atlantic ocean, Nigeria and French West Africa, N. by Libya, E. by the Anglo-Egyptian Sudan and S.E. by the Belgian Congo. The southeastern part of the former German colony of Kamerun (Cameroun), under French trusteeship, is administered with the A.E.F. (Afrique Equatoriale Française). Areas and populations are:

	Area (sq.mi.)	Population (1936 census)	Population (1946 census)
Gabon	103,089	409,700	422,904
Middle Congo	132,046	746,800	631,151
Ubanghi-Shari	238,224	833,900	1,065,390
Chad	495,752	1,432,600	2,011,494
	969,111	3,423,000	4,130,939
Cameroun	170,231	2,389,500	2,819,800

Total pop. (1950 est.) 4,346,000 incl. 17,440 Europeans

(5,825 French); Cameroun pop. est. 3,006,000, incl. 7,536 French. Natives mainly Bantu, but semi-Hamitic semi-Negroid pastoralists in northern savannah districts. Religion: animism; Chad, Moslem 46%; *c.* 280,000 Christians in the Gabon and the Middle Congo. Chief towns: Brazzaville, capital of the A.E.F. (pop., mid-1949 est., 83,579, incl. 4,353 Europeans); Bangui (1948 est., 41,000); Fort Lamy (18,300); Libreville (12,600); Yaoundé, capital of the Cameroun (1946 est., 50,000). High commissioner in the A.E.F., Governor General Paul Chauvet. Governors: Gabon, Pierre Pellieu; Middle Congo, Hippolyte Le Layec; Ubanghi-Shari, Louis Grimald; Chad, Ignace Colombani. High commissioner in the Cameroun, André Soucadaux.

History. The elections of June 17, 1951, brought no important changes in A.E.F. representation in the French National Assembly, except that the Chad sent three Gaullist members. The double-college system was kept, with eight deputies for the natives and three for the Europeans.

The financial situation of A.E.F. was thought so precarious as to require a limitation of expenditure. The balance of trade showed a large deficit. Gold production tended to fall because of low prices throughout the world. Cotton, constituting 40% of exports, suffered from the instability of prices; the yield was low, and cultivation impoverished the soil. Output of diamonds, sisal, coffee and tobacco increased. Fisheries provided 1,402 whales in 1950. In the Gabon 221,000 metric tons of *okoumé* (light mahogany) came from the forests, and traces of petrol were found on the Middle Ogooué; but there was a shortage of labour in this territory, and the introduction of workers from Nigeria was still far from proving a success. The road-building programme called for revision, as being too ambitious for so vast and so thinly populated a country (in 1950 the density was only 4·5 per sq.mi.). Meat from the Chad for the Middle Congo had to be transported by air (450 metric tons in 1951).

The Cameroun was smaller, and development better concentrated—around the ports, so that the territory seemed markedly more prosperous. It was decided to link the western and central regions by a 1,800-m. bridge across the Vouri. At the same time work was begun on a heavy-traffic road to link Douala and Yaoundé via Edéa; "Douala," declared High Commissioner Soucadaux, "will no longer be an island." The two railways were to be modernized. The Edéa dam on the Sanaga progressed. The port of Douala handled 500,000 metric tons in 1950; it was hoped, with the new quays under construction, to provide seven berths for ships and to handle 1 million metric tons of merchandise.

Education. Schools (1950). *A.E.F.*: pupils, primary 67,000, secondary 1,200, technical 2,350, bursaries in France 181. *Cameroun:* pupils, primary 128,000, secondary 1,060, bursaries in France 142.

Foreign Trade. (1950, million Fr. C.F.A.). *A.E.F.* Imports 13,393, including 9,080 from the French Union; exports 7,277, including 5,340 to the French Union. Principal exports: cotton 2,755; timber 1,974; coffee 574; gold 346; diamonds 223; almonds and palm oil 320; cocoa 110. *Cameroun.* Imports 10,564, including 8,950 from the French Union; exports 8,190, including 4,969 to the French Union. Principal exports: cocoa 3,977; coffee 1,082; bananas 1,022; almonds and palm oil 986; timber 410; rubber 126.

Transport and Communications. (1950). *A.E.F.:* railways 512 km.; roads 9,000; tracks 29,000; motor vehicles 10,300; ships entered (all ports) 700; aircraft landed 1,026. *Cameroun:* railways 505 km.; roads 8,000; motor vehicles 7,000; ships entered 683; aircraft landed 1,072.

Finance. *A.E.F.:* budget (1952 est.), balanced at Fr. C.F.A. 8,700 million. *Cameroun:* budget (1951 est.), balanced at Fr. C.F.A. 4,682 million. Franc C.F.A. (Colonies Françaises d'Afrique) = metropolitan Fr. 2.

See *Encyclopédie Maritime et Coloniale: Afrique Equatoriale Française* (Paris, 1951). (HU. DE.)

FRENCH GUIANA. Former colony on the N.E. coast of South America, the status of which was changed in 1946 to that of an overseas *département*. Area, incl. territory of Inini (30,301 sq.mi.): 34,740 sq.mi. Pop. (1936 census): 23,828, excl. Inini; (1946 census) 28,506, incl. Inini (4,993). The coastal lowland population is Negro or mixed; Inini, aboriginal Indians; Europeans *c.* 5%. Religion: mainly Roman Catholic. Capital and chief port, Cayenne (pop., 1948 est., 10,961). Prefect, Robert Vignon.

History. The *département* was divided into two *arrondissements:* that of Cayenne, comprising all the coastal communes; and that of Inini, covering the whole forest of the hinterland, which is almost uninhabited and requires special organization. In the elections to the National Assembly in Paris the deputy going out, a Socialist, was replaced by a Gaullist. Three Gaullists, three Radicals and one Independent were elected to the local general council. Efforts were made by France towards lifting the *département* out of its stagnation. An Institute of Tropical America was set up at Cayenne. Prospecting for gold and bauxite went on. A wharf was to be constructed. Displaced persons were established at Saint-Laurent-du-Maroni, as well as an ethnographic and medical service responsible for the Indians. Several missions reached the Tumuc Humac region. A geological map was drawn up.

Education. One school per commune; a college at Cayenne.

Transport and Communications. Roads 36 km.; motor vehicles 250. Movement is almost all by sea and by river.

Foreign Trade (1950, million metropolitan Fr.): imports 1,393, including 1,070 from the French Union; exports 210 (incl. gold 160, timber 24). (HU. DE.)

FRENCH INDIA. Group of four settlements in India with a total area of 193 sq.mi. Pop. (1948 est.): 317,000. The Bengali-speaking Chandernagore (4 sq.mi.; pop. 44,800) was transferred to India on May 2, 1950. The four Tamil-speaking southern settlements are:

	Area (sq.mi.)	Population (1938 est.)	Population (1948 est.)
Pondicherry	112	181,000	222,600
Karikal	52	62,500	70,500
Mahé	23	13,400	18,300
Yanaon	6	5,400	5,900

Chief town and seat of administration, Pondicherry (pop., 1948 est., 22,572). Commissioner, André Ménard.

History. The treaty yielding Chandernagore to India was ratified on Feb. 2. Neutral observers sent by the International Court of Justice came to inspect the conditions under which the future referendum would be held in the four settlements. They reported favourably on the French administration.

In the elections of June 17, 1951, a member who had stood for reunion with India was replaced as deputy to the French National Assembly by a supporter of the policy of remaining within the French Union.

Thanks to imports of rice from Indochina, French India did not suffer from food shortages as independent India did. Its balance of trade showed a surplus. The textile industry provided its exports. A new electricity generating station, the construction of which was subsidized by France, was opened at Pondicherry.

Education. Schools (1950): pupils, primary 15,892; secondary 894; higher 79; bursaries in France 21.

Finance. Budget (1951 est.): balanced at Rs. 9 million. Monetary unit: *rupee* = metropolitan Fr. 73·50. (HU. DE.)

FRENCH LITERATURE. The gradual drift away from the Sartrian school of "engaged" or committed literature, which began to be noticeable just before 1950, found the French literary bark of 1951 headed for the open sea, well outside the comfortable waters of dogma and schools, with no clearly defined currents in sight.

In the domain of the novel, an occasional breaker, such as Julien Gracq's Chirico-like political allegory *Le Rivage des Syrtes* (Prix Goncourt), or Pieyre André de Mandriargue's collection of *nouvelles*, *Soleil des loups* (Prix des Critiques),

seemed to augur a resurgence of surrealism; and the excited rediscovery of Victor Hugo by a number of younger critics was accompanied by such echoes of 19th-century romanticism as Anne de Tourville's *Jabadao* (Prix Fémina) or Marcel Schneider's *La Première Ile*. Quite unexpectedly (his own translation of an earlier work, *Murphy*, having attracted little attention when it appeared a few years back), the Irishman Samuel Beckett, long a French resident, leaving well behind him the relatively indulgent " blackness " of his immediate progenitors James Joyce, Franz Kafka and Jean-Paul Sartre, made a considerable stir with two books written in French, *Malloy* and *Malone meurt* which, by means of a brilliantly directed technique of assertion and retraction, expressed human personality in terms of a stream of semi-conscious and frequently cloacal babble. There was little indication, however, despite the high praise accorded in certain critical circles to both these works, that they would attract disciples among native French writers. Robert Margerit's *Le Dieu nu* (Prix Théophraste Renaudot) offered a purely psychological analysis in the 18th-century tradition, and Louise de Vilmorin's two popular little tales, *Julietta* and *Madame de*, the latter high on several prize lists, were finely executed vignettes of the contemporary Parisian *mondaine*. It was, in fact, generally conceded, even by the most exacting critics, that, although the important literary renaissance predicted by many just after World War II could not be said to have taken place, there was evidence of greater attention to style, increased variety of theme and treatment and, above all, a more abundant output of well-written novels than at any time since 1945. Among more than 30 that received favourable critical attention may be mentioned: *Cherchant qui dévorer*, by the Catholic Luc Estang; *Rage blanche*, the second volume of Jean Hougron's Indochinese trilogy; *Les Fruits du Congo*, a story of childhood fantasy by Alexandre Vialatte, the French translator of Franz Kafka; *Fin*, an emotional analysis somewhat in the manner of Virginia Woolf, by Gilbert Sigaux; and *La Clé*, by Yassu Gauclère. It should not be forgotten, either, that 1951 saw the appearance of new novels by a number of representative older writers—Claude Farrère, Pierre Benoit, André Maurois, François Mauriac, Jules Romains, Georges Duhamel, Paul Morand, and others—also the publication of the " complete works " of Colette, Valery Larbaud, François Mauriac, André Maurois, Jacques Chardonne and Jean Genêt. A review entitled *Roman*, entirely devoted to the problems of the novel, was being edited from Vence. In other words: " *roman pas mort*," despite the very evident passing of the so-called " *roman noir*."

For the poets, despite the unusual event of a poets' congress (held in Belgium under the auspices of the *Journal des Poètes*, with Jean Cassou presiding), the year was more one of probing recapitulation than inspiration. In addition to a collection of his own prewar poems, Paul Eluard published an original *Première Anthologie vivante de la poésie du passé*; Jules Supervielle in *Naissances* and René Char in *A une Sérénité crispée* sought to penetrate the secrets of poetic creation; finally, Pierre Reverdy and Pierre MacOrlan were intelligently enshrined in volumes 25 and 26 of Pierre Seghers' excellent series *Poètes d'aujourd'hui*. Under the title *Poètes contemporains*, Léon-Gabriel Gros published a volume of essays on the work of some 15 poets who may be said to have marked the second quarter of the century. Among works by the much younger poets, *Air*, by André du Bouchet, and *Langue morte*, by Alain Bosquet, revealed authentic talents of distinction.

In the French theatre, 1951 seemed likely to be remembered as the year of Jean-Paul Sartre's *Le Diable et le Bon Dieu* and Jean Cocteau's *Bacchus*, both set in the Germany of the Reformation and both presenting, in dramatic form, the essence of these authors' philosophy. This was also true of Georges Schéhadé's tenderly poetic *Monsieur Bob'le*, with the difference that the latter play was set against a background and in a period that, although more approaching our own, were still purely imaginary. *Colombe*, by Jean Anouilh, and *Lorsque l'Enfant paraît*, by André Roussin, were among the better new plays of the year which, from the literary point of view, was considered by many to be exceptionally meagre.

The list of essays was not so long as in preceding years. It contained, however, a number of important titles: *Petite Préface à toute critique*, by Jean Paulhan; *Les Voix du silence*, by André Malraux (a greatly revised version of his *Musée imaginaire*); Albert Camus' much-discussed *L'Homme révolté*; and a posthumous study by Simone Weil, *La Condition ouvrière*. Among the philosophers, Jean Wahl published a volume of his Sorbonne lectures on *La Pensée de l'existence*; Gaston Bachelard discussed *L'Activité rationaliste de la physique contemporaine*; Louis Lavelle (who died in September) discussed sainthood in a volume entitled *Quatre Saints;* and the German-born Eric Weil brought out an authoritative volume, *Hegel et l'état*, in addition to his doctor's thesis entitled *Logique de la philosophie*. In the related fields of aesthetics, psychology, sociology, ethnology, history and the sciences, the activity was so great as to render impossible anything other than the mention of this fact. There were, also, a number of works of immediate, topical interest that were much discussed: *Visa pour Moscou*, by Michel Gordey; *Réflexions politiques (1932-1952)*, by Hubert Beuve-Méry, editor of *Le Monde;* *La Guerre en question*, by Jules Monnerot; *Les Guerres en chaine*, by Raymond Aron; *Où va le peuple américain?* (vol. II), by Daniel Guérin; and *La Chine*, by Jean-Jacques Brieux.

The death of André Gide at 82 (*see* OBITUARIES) was marked by a special memorial issue of the former *Nouvelle Revue Française* (of which he was a founder), and by several other volumes of appreciation and reminiscences. His intimates could only deplore the fact that an unauthorized commercial distribution of the fragment of his *Journal* that touched upon his marriage (under the title *Nunc manet in te*) should have surrounded his death with much the same atmosphere of scandal and dissension that had so frequently surrounded him in life. Others who died during the year were: the philosopher Alain (*see* OBITUARIES), the dramatists Henri-René Lenormand (*see* OBITUARIES) and Robert de Traz, the novelist Maxime van der Meersch and the poet and literary historian Léo Larguier.

More than a dozen well-edited literary reviews and weekly newspapers continued to promote discussion and criticism. (*See* also LITERARY PRIZES.) (M. JOL.)

FRENCH SOMALILAND. Former colony situated in the Gulf of Aden the status of which was changed in 1946 to that of overseas territory, bounded N. by Eritrea, N.W. and S.W. by Ethiopia and S.E. by British Somaliland. Area: 8,376 sq.mi. Pop.: (1936 census) 46,391; (1948 est.) 56,000. Natives included 21,000 Danakilis, 15,700 Somalilis and 5,600 Arabs. Europeans 2,000, incl. 1,260 French. Capital, Jibuti (pop., 1949 est., 22,000). Governor, Numa Sadoul.

History. In the elections of June 17, 1951, for the National assembly in Paris, the deputy going out, a Socialist, was replaced by a Gaullist. Work on the port and on the street-plan of Jibuti was continued. Steps were taken towards establishing centres of cultivation in the hinterland, with a view to settling nomads. The new local assembly, based on a better distribution of seats amongst the various peoples, seemed to have given satisfaction. There were no reports of disturbances.

Education. Schools (1950): primary 7, pupils 870.

Foreign Trade. (1950, million Jibuti francs): imports 2,720; exports 1,383 (coffee treated on the spot and re-exported, 963; sea salt 91).
Transport and Communications. (1950) Roads 400 km.; motor vehicles 500. Traffic handled by the port of Jibuti, 460,000 metric tons.
Finance. Budget (1951 est.): balanced at J.Fr. 539 million. Jibuti franc = metropolitan Fr. 1·64. (HU. DE.)

FRENCH UNION. With the establishment, by the constitution of 1946, of the French Union, in which are comprised both the mother country and the former empire, the old colonial terminology was abolished and for the colonies were substituted four categories of overseas regions. The older, completely assimilated colonies claimed recognition as French *départements* administered as in the mother country; the others became overseas territories (*territoires d'outre-mer*) which henceforward would elect representatives to parliament and would have their own local assemblies possessed of wide powers; the trust territories, to be known in future as *territoires associés*, were similar in structure to the overseas territories and had the same electoral privileges; lastly, there were the former protectorates, now styled *états associés*, which could belong to the union only by an act of voluntary accession. Total area of the overseas territories of the French Union: approximately 4,593,085 sq.mi.; total population (1948 est.): 78·7 million. Certain essential information on the component parts of the French Union is given in the table. (*See* also separate articles).

History. The constitutional organs that cover at the same time the French Republic and the associated states were by 1951 set up. On Nov. 29 the High Council met for the first time in Paris, with Vietnam, Cambodia and Laos taking part. The Assembly of the Union continued to demand real powers instead of the purely consultative function that it in fact had. Albert Sarraut, a former prime minister and colonial minister, became president of this assembly in the place of Jacques Fourcade, who had been elected deputy.

Tunisia and Morocco still refused to take part in these institutions, which they thought prejudicial to their independence. In Tunisia the Neo-Destour party joined the government in order to obtain reforms tending towards autonomy. In Morocco the intransigence of the Istiqlal led to conflict with the resident general, and the sultan had to disown the Nationalists.

On May 24 the French National Assembly (for France and the overseas *départements* and territories) voted an electoral law giving the territories the right to 43 deputies (1 for every 800,000 inhabitants) and enlarging the number

Country	*Area* (sq.mi.)	*Population** ('000)	*Capital*	*Status*	*Rulers and Governors*
AFRICA					
ALGERIA	851,078	8,676	Algiers	Group of three départements	Governor General, Roger Léonard
MOROCCO	153,870	9,200†	Rabat	Protectorate	Sultan, Mohammed ben Yussef Resident General, Gen. Augustin Guillaume
TUNISIA	48,332	3,231‡	Tunis	Protectorate	Bey, Mohammed el-Amin Resident General, Louis Périllier
FRENCH WEST AFRICA	1,805,287	16,375	Dakar	Group of territories	High Commissioner, Governor General, Bernard Cornut-Gentile
MAURITANIA	364,092	524	Saint-Louis	Overseas territory	Governor, Marie Rogué
SENEGAL	81,081	1,994	Saint-Louis	Overseas territory	Governor, Camille Bailly
SUDAN	461,389	3,137	Bamako	Overseas territory	Governor, Edmond Louveau
UPPER VOLTA	121,892	3,044	Ouagadougou	Overseas territory	Governor, Albert Mouragues
IVORY COAST	493,822	2,031	Abidjan	Overseas territory	Governor, Lucien Gay
FRENCH GUINEA	129,807	2,130	Conakry	Overseas territory	Governor, Paul Siriex
NIGER	108,455	2,041	Niamey	Overseas territory	Governor, Jean Toby
DAHOMEY	44,749	1,474	Porto Novo	Overseas territory	Governor, Charles Bonfils
TOGOLAND	20,463	953	Lomé	Trust territory	Commissioner, Yves Digo
FRENCH EQUATORIAL AFRICA	969,111	4,131‡	Brazzaville	Group of territories	High Commissioner, Governor General, Paul Chauvet
GABON	103,089	423	Libreville	Overseas territory	Governor, Pierre Pellieu
MIDDLE CONGO	132,046	631	Brazzaville	Overseas territory	Governor, Hippolyte Le Layec
UBANGUI SHARI	238,224	1,065	Bangui	Overseas territory	Governor, Louis Grimald
CHAD	495,752	2,011	Fort Lamy	Overseas territory	Governor, Ignace Colombani
CAMEROUN	169,436	2,902	Yaoundé	Trust territory	High Commissioner, André Soucadaux
FRENCH SOMALILAND	8,376	56	Jibuti	Overseas territory	Governor, Numa Sadoul
MADAGASCAR AND DEPENDENCIES	228,589	4,160	Antananarivo	Overseas territory	High Commissioner, Governor General, Robert Bargues
COMORO ARCHIPELAGO	849	142	Dzaoudzi	Dependency	Administrator, Pierre Coudert
RÉUNION	970	242‡	Saint-Denis	Overseas département	Prefect, Roland Béchoff
AMERICA					
SAINT-PIERRE AND MIQUELON	93	4‡	Saint-Pierre	Overseas territory	Administrator, Alain Alaniou
FRENCH GUIANA	34,740	27	Cayenne	Overseas département	Prefect, Robert Vignon
GUADELOUPE	686	278‡	Basse-Terre	Overseas département	Prefect, Maurice Philipson
MARTINIQUE	427	262‡	Fort-de-France	Overseas département	Prefect, Christian Laigret
ASIA					
FRENCH INDIA	193	317	Pondicherry	Overseas territory	Commissioner, André Ménard
STATE OF VIETNAM	126,608	22,663	Saigon	Associated state	Ruler, Bao Dai High Commissioner and C.-in-C., General Jean de Lattre de Tassigny
CAMBODIA	69,866	3,748	Pnom-Penh	Associated state	King, Norodom Sihanouk Commissioner, vacant
LAOS	89,320	1,169	Vientiane	Associated state	King, Sisavang Vong Commissioner, Miguel de Pereira
OCEANIA					
NEW CALEDONIA AND DEPENDENCIES	7,654	61‡	Nouméa	Overseas territory	High Commissioner for the Pacific Islands, Raoul Angammare
NEW HEBRIDES	5,700	47	Vila	Franco-British condominium	High Commissioner, Pierre Anthonioz
FRENCH PACIFIC ISLANDS	1,545	56‡	Papeete	Overseas territory	Governor, René Petitbon

* 1948 estimate if not otherwise stated. † 1949 estimate. ‡ 1946 census.

of electors by admitting heads of families who pay taxes and mothers of two children. Including Algeria and the *départements*, overseas deputies in 1951 numbered 80. The elections of June 17 resulted in a strengthening of the parties of the centre and the right, as in France. The Algerian elections were contested by the Nationalist parties. In French West Africa the Rassemblement Démocratique Africain lost seats and renounced its Communist affiliation.

Administration was still divided between the Ministry of the Interior (Algeria and the overseas *départements*), the Ministry of Foreign Affairs (Tunisia and Morocco), the Ministry of France Overseas (the territories) and the Ministry for Associated States (Vietnam, Cambodia and Laos).

Considerable sums of money were assigned to industrialization and development in overseas countries, whether under the Monnet plan in the case of North Africa or by the Investment Fund for Economic and Social Development (F.I.D.E.S. or Fond d'Investissement pour le Développement Économique et Social). The latter, which was devoted to the territories, had by 1951 invested Fr. 250,000 million, of which a large proportion was derived from France and the remainder from the territories themselves or from the European Recovery programme. Two-thirds of this money went to installations: harbours (notably that at Abidjan, inaugurated in 1951), roads, railways, electricity, town-planning. A new tendency towards limiting credits for roads so as to be able to increase production was remarked. Expenditure on social services (education and health) accounted for 10% of the investments.

See H. Deschamps, *L'Union Française: histoire, institutions, réalités* (Paris, 1951-52); Ministère de la France d'Outremer, *L'Equipment des territoires français d'outremer* (Paris, 1951). (HU. DE.)

FRENCH WEST AFRICA. Group of eight colonies, described from 1946 as overseas territories of the French Union, situated in western Africa and bounded W. and S. by the Atlantic ocean, N. by the Spanish Sahara, the Southern territories of Algeria and the Fezzan, and E. by Chad and Nigeria. The group is administered by a high commissioner assisted by a council of government composed of civil and military leaders and a Grand Council consisting of metropolitan members and Africans elected by the territorial assemblies in the proportion of five per territory. The eastern part of the former German colony of Togo, under French trusteeship, is administered with the A.O.F. (Afrique Occidentale Française). Areas and populations are:

	(Area) (sq.mi.)	Population (1936 census)	(1948 est.)
Mauritania	364,092	383,000	524,000
Senegal	81,081	1,791,000	1,994,000
Sudan	461,389	3,569,000	3,137,000
Upper Volta*	121,892	—	3,044,000
Niger	493,822	1,747,000	2,041,000
Ivory Coast	129,807	3,850,000	2,031,000
French Guinea	108,455	2,011,000	2,130,000
Dahomey	44,749	1,351,000	1,474,000
	1,805,287	14,702,000	16,375,000
Togoland	20,463	781,000	953,000

* Territory of Upper Volta was formed on Jan. 4, 1947, from parts of Sudan, Ivory Coast and Niger.

Population: mainly Negro, but in the savannah lands there is some Arab and Berber admixture; European (1948), 51,760 (including about 40,000 French) in the A.O.F., 841 in Togoland. Religion: animists estimated at 53·4%, Moslems 44·2% and Christians 2·4%. Chief towns (pop., 1948 est. if not otherwise stated): Dakar, capital of the A.O.F. (1951 est. 330,000); Saint-Louis (62,900); Bamako (70,492); Conakry (38,000); Abidjan (36,000); Porto Novo (31,000); Lomé, capital of Togoland (30,100). High commissioner in the A.O.F., Governor General Bernard Cornut-Gentile. Governors: Mauritania, Marie Rogué; Senegal, Camille Bailly; Sudan, Edmond Louveau; Upper Volta, Albert Mouragues; Niger, Jean Toby; Ivory Coast, Lucien Gay; French Guinea, Paul Siriex; Dahomey, Charles Bonfils; Togoland, Yves Digo.

History. The elections on June 17, 1951, to the French National Assembly in Paris were notable for an advance made by the moderate elements. Out of 21 seats, the extremists of the Rassemblement Démocratique Africain (which shortly before had renounced its Communist affiliation) got only 2; their leader, Félix Houphouet-Boigny, was re-elected in the Ivory Coast. Lamine Gueye, a Socialist deputy and the president of the French West African Grand Council, was thoroughly beaten in Senegal by Sedar Senghor's list (overseas independent). All the deputies were natives.

In Togoland the Parti Togolais du Progrès was clearly ahead of the Comité de l'Union Togolaise, which supported Ewe autonomy. In the permanent consultative commission for Togo affairs all the delegates from French Togoland opposed the setting-up of an Ewe state and the unification of the two Togolands.

On his being elected deputy, High Commissioner Paul Béchard was succeeded by Cornut-Gentile.

On Feb. 5 the harbour of Abidjan, capital of the Ivory Coast, was inaugurated. A canal 2,700 m. long, 300 m. wide and from 10 to 20 m. deep leads from the sea to the inner lagoon, where ships can find depths of 12-26 m. Abidjan is the terminus of the Ivory Coast and Upper Volta railway and is also the centre of the coastal lagoons which, on completion of the two canals, would connect 300 km. of coast.

Town-planning operations (avenues, squares, skyscrapers and water supply) changed the appearance of Dakar and prepared for the extension of the Grand Dakar. In 1951 there were 330,000 inhabitants (*cf.* 131,000 in 1939), including 30,000 Europeans. Reckoned by the number of ships entering, Dakar was the third port of the French Union, after Marseilles and Le Havre. Nine ships could refuel there at once, and 25 aircraft land every day at the airport at Yoff.

In Casamance experiments were made on the mechanized cultivation of groundnuts. The Ziguinchor-Bathurst road was opened. On the lower Senegal, in the Richard Toll area, a vast lacustrine depression (the Lac de Guiers) was to be adapted for rice-growing.

New mineral deposits were found: copper at Akjoujt (Mauritania); high-grade iron at Fort Gouraud (Mauritanian Sahara); and tin in the Aïr (a Saharan region of the Niger).

Education. Schools (1950): *A.O.F.*, state, primary 827, pupils 99,000; secondary 66, pupils 6,610; technical, pupils 1,200; private 237, pupils 33,000; higher, Institut des Hautes Etudes de Dakar; bursaries in France, 900. *Togo*, pupils, elementary 37,000, secondary 700, technical 200.

Foreign Trade. (1950, million Fr. C.F.A.): *A.O.F.*: imports 42,400, including 31,930 from the French Union; exports 31,000, including 24,540 to the French Union. Principal exports (million Fr. C.F.A.): groundnuts, oil-cake and groundnut oil 11,550; palm kernels and palm oil 3,000; coffee 7,000; cocoa 4,600; bananas 1,000; timber 650. *Togo*: imports 1,600, incl. 1,070 from the F.U.; exports 1,500, incl. 860 to the F.U.

Transport and Communications. (*A.O.F.* and *Togo*, 1950): Railways 4,370 km.; roads 79,000 km., including only 25,000 km. passable to vehicles in all weathers. Ships entered (all ports), 3,944.

Finance. Budget (1951 est.): *A.O.F.*, balanced at Fr. C.F.A. 27,234 million; *Togo*, balanced at Fr. C.F.A. 650 million. Franc C.F.A. (Colonies Françaises d'Afrique) = metropolitan Fr. 2. (HU. DE.)

FRIENDS, THE RELIGIOUS SOCIETY OF. Membership in London Yearly meeting, which includes Friends in Great Britain, Australia and New Zealand, increased by 19 to 21,988 in 1951. Of this number 20,795 were in Great Britain. Friends in Ireland Yearly meeting (the republic and Northern Ireland) increased by 13 to 1,977, and there were about 250 Friends in India and 180 in

South Africa. In Europe, the largest group of Friends was that in Germany, which numbered over 500 members, besides others known as " friends of the Friends."

Quakers in Britain, the United States and Europe gave much attention to the problem of east-west tension and, while a group in America produced proposals for U.S. foreign policy, called " Steps to Peace," British Friends sent a mission of seven to the U.S.S.R. in July. During a fortnight's stay the visitors talked with leaders of the Russian Orthodox Church and Baptist Evangelicals, and with editors, scientists and public men. In a three-hour interview with Yakov Malik, a deputy foreign minister of the U.S.S.R., they asked the Soviet government to take the initiative in easing the tension. The mission was followed with great interest in the world's press. As in 1950, British and U.S. Friends sent observers to the United Nations assembly.

Among Friends all over the world much preparatory work was done for the Friends World conference, planned for the society's tercentenary year (1952) at Oxford. The Christian basis of the Quaker testimony against war was restated in a document presented to the secretary of the World Council of Churches. Many meetings advocating an early peace in Korea and protesting against rearmament were held by British Friends. During the Festival of Britain, Friends house, London, the headquarters of the Society of Friends in Great Britain, was thrown open to visitors and the manuscript of the journal of George Fox, founder of the society, was lent to the Festival of Britain Book exhibition.

The Friends allotments scheme, which helped many unemployed and others in Great Britain to obtain seeds, fertilizers and tools at low prices, came formally to an end in 1951, after 25 years, and the residue of its work was handed over to the National Allotments and Gardens society. (B. CA.)

United States. In 1951 there were almost 180,000 Friends, of whom considerably more than half were in the United States (117,000 in the U.S., Canada and Alaska). According to the American Friends Fellowship council report of 1951, 100 new meetings had been established in the U.S. in the previous 14 years. During 1951 there were increasing evidences of a feeling of unity among all Friends, shown particularly by the enthusiastic preparation for a world conference of Friends to be held in Oxford in 1952.

In May there was published an official report of a mission of four U.S. Quakers to Yugoslavia, which had taken place in Sept. and Oct. 1950. Also early in May, the American Friends Service committee published a 64-page pamphlet, *Steps to Peace; A Quaker View of U.S. Foreign Policy*, prepared by a working committee of 15. There were 95,000 copies printed and distributed. The pamphlet offered a critical analysis of U.S. foreign policy and recommended methods other than armaments and force to resolve the east-west conflict.

During the year the Ford foundation gave the American Friends Service committee two substantial grants for use in its world-wide programme of education and reconciliation. The Technical Co-operation administration of the U.S. Department of State contributed $150,000 to help finance a "pilot project" in social and technical assistance in the state of Orissa, India. (L. W. R.)

FRUIT. During 1951 prices of fruit failed to keep in step with prices of other foods and raw materials and fruit growers as a body were less favourably situated than in 1950. The total world production of fruit was slightly less than in 1950, but the reduction was largely due to cyclical changes in the yield of cider fruit. Final expectations for deciduous fruits were: all apples, 575 million bu., table apples 405 million bu., all pears 156 million bu., table pears 131 million bu. The global citrus crop was 5%-10% more than that for 1950 and 25% above the prewar figure. Banana crops made some recovery and world exports were on a 90% level as compared with prewar. Stone fruits, too, were produced in 8% greater quantity than in 1950, aggregate production being estimated at 7,170 short tons. The global fruit crop in 1951 was thus about one-third higher than the prewar average.

Export outlets for the main centres of production remained almost closed, and pressure upon internal markets was severe. Increased attention was given to processing, but adjustment in the traditionally exporting countries was slow. The long-term downward trend in the deciduous fruit acreage in the United States had been offset by higher yield per tree and per ac., and even in Canada, at a time when the seaboard provinces were finding exceptional difficulty in disposing of their apple crops and the whole structure for co-operation in marketing was in jeopardy, planting-out continued in districts near the main consuming centres.

Great Britain. The orchard area for England and Wales as returned at June 4, 1951, was 276,500 ac., 3,000 ac. higher than in 1950. As the acreage in Kent alone increased by 3,000 ac., it was probable that the relatively low national increase was due to more extensive grubbing-out of old trees in other areas. Fruit crops were generally abundant. Official Ministry of Agriculture estimates of table fruit production as at Aug. 1 were (in imperial tons): apples 560,000 (dessert 180,000, culinary 380,000), pears 27,000, plums 117,000, cherries 14,000. Weights of all crops except cherries exceeded those of 1950. The total available crop of table apples was expected to equal the 1947 record, though a less active market subsequently led to a commercial crop probably lower than in 1947. Dessert apples, however, were harvested in unprecedented quantities. The estimated production of 10 million bu. of dessert sorts was equal to 80% of average 1935-39 dessert imports. This sustained production was quite a new feature in British fruit growing; there had been no crop failure since 1941. Plums were the most disappointing crop financially. As a result of the very late season, marketings of the fresh fruit were unusually concentrated, and neither sugar nor tinplate was available in adequate quantities for the supplies of fruit for processing; on balance, processors gave preference to soft fruit rather than to plums.

An apple and pear marketing scheme, sponsored by the National Farmers union and prepared in accordance with the Agricultural Marketing acts of 1931 and 1933, was submitted to the minister of agriculture. Growers of dessert fruit were by no means unanimous in support of the scheme. Investment in storage and in packing facilities progressed and both growers and market men shared in the movement. By the end of the season storage capacity was some 15% of a normal commercial crop.

Imports of apples in the early part of the year were the highest since 1945, Denmark and Argentina being notable suppliers.

United States. Production of most orchard fruits was higher in 1951 than in the previous year, the chief exception being apples, which were 4 million bu. down on the year, but still 3% above 1947-51 average. The effect of higher taxation and higher earnings on consumer income was watched with some trepidation, for not only were there large new crops to be cleared, but also an abnormal carryover of both fresh and processed fruit at the beginning of the year. Stocks of apples were 26% more than usual, grapefruit and pear holdings were up, while frozen fruits and juices were held over in 49% above normal quantities. Seasonal prices for apples were not so favourable after January, although 446,000 bu. were bought under the surplus removal

programme, and more than 1 million bu. had been either earmarked or handled for export programme outlets. Exports to the United Kingdom were resumed on a small scale (500,000 bu.). More than 2 million bu. were reported to be still in store on May 31, and on June 6 the Department of Agriculture instituted export programme aid for dried apples at the rate of 10 cents a lb. dry weight.

Citrus fruit production was estimated to be higher than in 1950 by 8% for oranges and tangerines, and 25% for grapefruit. Californian production diminished, but gains in Florida and Texas more than offset the loss. Some 60% of the Florida crop went for processing into canned juice. Programme-aided exports of canned juice, at 723,000 gal. were four times greater than in 1950. As from Nov. 15, 1950, export aid had been available to grapefruit and grapefruit products. Packs of frozen apple concentrate were reported from both eastern and western producing areas. Official estimates of production of the principal crops were: oranges 111,550,000 boxes (California 44,800,000, Florida 62,300,000), tangerines 4,600,000 boxes, grapefruit 44,370,000 boxes, lemons 13,000,000 boxes; apples 119,892,000 bu., pears 31,397,000 bu., peaches 67,772,000 bu., grapes 3,244,600 tons, cherries 232,210 tons, plums 102,000 tons.

(R. R. W. F.)

FURNITURE INDUSTRY. Heavy buying of furniture by the public, which had begun in the previous autumn, continued during the first half of 1951. Fear of shortages resulting from the rearmament programme and a belief that prices would soon rise persuaded householders to buy furniture probably in excess of their current needs. During the second quarter of the year manufacturers' sales of utility furniture were more than £30 million; because of increasing financial stringency, however, a very high proportion of this was bought by the public on hire purchase terms, with the result that the large credit firms now had outstanding debts of many millions of pounds.

Suddenly the picture changed. Following, but not necessarily because of, an interim increase in the permitted prices of utility furniture in the middle of the year, public demand slowed down and in some areas came almost to a standstill. The probable reasons for this were the increased cost of living, over-buying in the earlier months and a general feeling of uncertainty. The result was the operation of short time in nearly all furniture factories, with some working as few as three days a week. Following the election in October, however, a slight improvement began to be felt, and the target of 300,000 houses a year which the new government had set itself in the building programme gave hope of a gradual return to normal trading conditions.

The industry's embarrassment, caused by alternating periods of strong and weak buying, was increased by the rapid rise in production costs. Raw material costs leaped alarmingly throughout the year, wages were increased by 2*d.* an hour through an increase in the cost-of-living bonus, and the new carriage charges for transporting furniture from factory to shop issued by Road Haulage executive (to which the handling of furniture by road had been given as a monopoly) showed increases amounting in some instances to more than 100%. For these reasons manufacturers found that it was becoming impossible to produce the higher qualities of utility furniture within the maximum prices permitted by the Board of Trade. Urgent representations were made for higher ceiling prices for many models and, following the completion of the Board of Trade's investigation into furniture production costs, these were granted in December.

One of the first productivity teams to go to the United States was sent by the British furniture industry. The team's preliminary report showed that much information had been gathered, and it was hoped that their final report would eventually provide manufacturers with many improved processes that would decrease production costs, offset to some extent the increases in raw material and labour costs, as well as in transport charges, and result in lower retail prices.

(L. L.)

United States. The 4,000 factories in the United States making wooden and upholstered furniture during 1951 recorded a total dollar output for the year of about $1,525 million, as compared with the 1950 production of $1,500 million, the highest volume ever before attained. The 1951 unit volume, however, was 9% smaller than the 1950 output. The high production during 1951 was the result of scare buying following the outbreak of the Korean war. This created a buying lull during the spring and early summer season; autumn and holiday buying during the balance of the year, however, brought the total dollar volume above the previous year's total.

Furniture prices rose 12% at the manufacturers' level in 1951. Some factories received small price increases from the Office of Price Administration upon proof of higher production costs, but the majority asked for no relief, in order to remain competitive.

French Provincial furniture was the favourite style in the U.S. in 1951, especially in the costlier range. Although modern furniture still accounted for the largest number of units produced and sold, French Provincial was rapidly approaching it and was second in demand. (*See* also INTERIOR DECORATION.)

(J. A. G.)

FURS. The British fur trade's contribution to the Festival of Britain 1951 was an exhibition staged at Beaver hall, London—the headquarters of the Hudson's Bay company—at which the whole story of the British fur industry was portrayed.

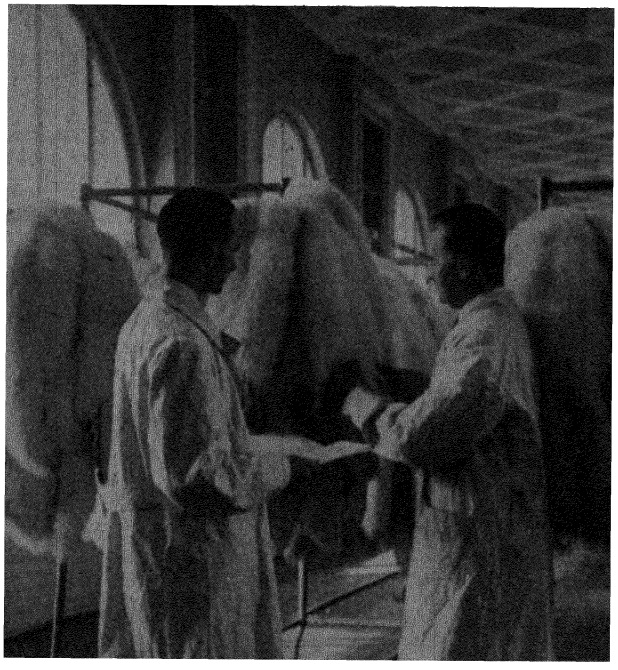
Some of the special features were: a collection of about 250 different varieties of skins from all over the world; a section showing the various stages in the dressing and dyeing of skins; the manufacture of fur garments by skilled operatives; and a fine display of model garments by some of the leading firms in the industry. Queen Mary and other distinguished visitors saw the exhibition, and there was an attendance of about 50,000, including many visitors from overseas.

The International Fur Trade federation met in London on several occasions during the year, and many important problems of interest to the world's fur trade were discussed. The promotion of a world fur propaganda and publicity campaign met with the approval of all the delegates, but measures to raise the necessary funds were not decided on. Sir Patrick Ashley-Cooper (Great Britain) was re-elected president, R. H. Papernow (U.S.) vice president; Leopold Swiners (France), chairman; Gordon Blyth (Great Britain), vice chairman; and M. Mousson-Mallien (Brussels), hon. treasurer.

British fur breeders held their first postwar pelt show in Jan. 1951. A large number of mink and fox pelts were exhibited, and it was noted that the mink pelts, in particular, could be favourably compared with any bred elsewhere. This branch of the industry was making rapid progress. The number of breeders was increasing and it seemed likely that within a few years the volume of pelts produced would make an important contribution to the export trade.

The British home trade did good business during the first six months of the year, but the second half of the year was most disappointing. This could partly be attributed to the exceptionally mild and rainy autumn.

On the other hand, the year showed record figures for



Two British dealers examining furs at the international fur auctions held in Leningrad in Aug. 1951.

fur imports and exports. In the ten months ending Oct. 31, 1951, imports amounted to £21,882,311, as compared with £13,288,662 in 1950. Exports were £19,416,453 (1951), as compared with £13,367,639 (1950). (S. L. L.)

United States. Retail sales of furs in the United States continued to be satisfactory through the first quarter of 1951, but thereafter steadily declined, and from June onward a period of confusion and difficulty was experienced in the trade. Production of ranch and mutation mink continued to increase. The total world crop was estimated at 3·5 million to 4 million skins, as compared with about 3 million to 3·5 million in 1950. The U.S. produced about 2 million to 2·5 million skins, Canada about 800,000 and the Scandinavian countries about 500,000. The new mutation "Sapphire," a clear, light blue, introduced in 1950, fetched up to $350 a skin, a record for any mink.

Early in 1951, when business was unusually good, raw fur prices shot upward to levels 25% to 30% above those prevailing in late 1950. When manufacturers made up their new lines in May and June, they found prices higher than the consumer would pay. After months of gradual downward price adjustments, mink again began to move, especially in the mutation family of pastels, silver blues, Aleutians and others. Persian lamb also encountered price difficulty, but managed to continue among the better sellers, along with sheared raccoon, Alsaka seal, mouton, muskrat, beaver, squirrel and marmot.

A feature of the year was the further development of blonde dye colour on many furs. Introduced on otter a few years earlier it was expanded to nutria, beaver, sheared raccoon and Australian opossum, and was well received in many sections of the country. Styles followed the modified pyramid, with natural shoulders and mostly small collars and turn-back, cocktail cuffs. Small fur pieces—capes, jackets, capelets, and especially stoles—proved more popular than ever, one reason being the high prices of full-length coats during the first half of the year.

According to government tax collections, total sales for the year would be from $250 million to $260 million, or about the same as 1950, which was also a subnormal year. Four or five years earlier the total volume had been between $400 million and $450 million. (E. SN.)

FYFE, SIR DAVID MAXWELL, British politician (b. Edinburgh, May 29, 1900), was educated at George Watson's college, Edinburgh, and Balliol college, Oxford, and was called to the bar by Gray's Inn in 1922. He practised on the northern circuit and became a K.C. at 33, the youngest barrister to do so since 1668. He was made a bencher of Gray's Inn and a member of the general council of the bar in 1936. He was returned to parliament unopposed in a by-election in 1935 in the West Derby division of Liverpool, which he continued to represent. Fyfe was solicitor general in Winston Churchill's wartime coalition from 1942 to 1945 and attorney general in the caretaker government in 1945. He was recorder of Oldham from 1936 to 1942. At the Nuremberg war crimes trials he was deputy chief British prosecutor. In Winston Churchill's government of 1951 he was appointed secretary of state for home affairs and given special responsibility for Welsh affairs.

GABON: *see* FRENCH EQUATORIAL AFRICA.

GAMBIA. British colony and protectorate on the west coast of Africa surrounded by the French territory of Senegal. Area: 4,033 sq.mi., incl. 69 sq.mi. for the colony. Pop.: (1931 census) 199,520; (1949 est.) 276,000, almost entirely African with Arab admixture. Capital, Bathurst (1944 est. 21,152). Language: many tribal dialects, Hausa. Religion: predominantly Moslem, some pagan, *c.* 5,000 Christians. Administration: governor; executive council, 1 *ex-officio* member, 5 official and 4 unofficial; legislative council, 3 *ex-officio* members, 4 nominated official, 5 nominated unofficial (4 from the protectorate and 1 for commercial interests) and 3 elected. Governor, Percy Wyn Harris.

History. The new constitution came into operation in 1951, and elections in Bathurst for three members of the legislative council took place on Oct. 25. It was also announced that the number of unofficial members of the executive council would be increased to four, to be selected from the eight unofficial members of the legislative council, and that two of them would be members of government without portfolio and receive remuneration.

Early in the year, it was announced that modifications would have to be made in the scheme undertaken by the Colonial Development corporation in 1948 for the production near Bathurst of dressed poultry and eggs for the British market, as it had proved impossible to grow feeding stuffs locally. Later, after a serious outbreak of poultry disease, it was decided to abandon the scheme altogether. The total expenditure on the scheme up to Dec. 31, 1950, was £832,645. An experimental farm was established on part of the land cleared for this scheme to test the possibility of growing cotton and tobacco.

Education. School enrolment (1948) 3,770.

Finance and Trade. Currency: West African pound (£WA=£1 sterling). Budget (1950): revenue £999,216; expenditure £1,062,311. Foreign trade (1950): imports £2,752,000; exports £1,743,000. Principal export: groundnuts (65,000 tons). (K. E. R.)

GAMBLING: *see* BETTING AND GAMBLING.

GAS. The first report and accounts of the Gas council since nationalization were published during 1951 and covered the period July 1948 to March 1950. They gave a comprehensive picture of the industry under public ownership, but much of the information was of necessity out of date. It was intended to reduce the time lag in 1951 by publishing the accounts for the period April 1950 to March 1951 on Dec. 10.

The production of gas during the year showed a steady increase of over 5%; both coal gas and water gas contributed

to the increase. There was also an increase of about 5% in the amount of gas bought from coke ovens. The production of coke also increased, but stocks during the year fell considerably. In Jan. 1950, for example, the total stocks were 2,317,000 tons, and in Jan. 1951 1,245,000 tons; in June 1950 they were 2,211,000 tons, and in June 1951 1,263,000 tons. This meant that coke had to be rationed again.

The year was again one of large capital extensions, and there was news of new plant going up in many parts of the country. In spite of this the demand for gas still exceeded the supply, and the rearmament programme made severe calls on the industry, particularly in the midlands.

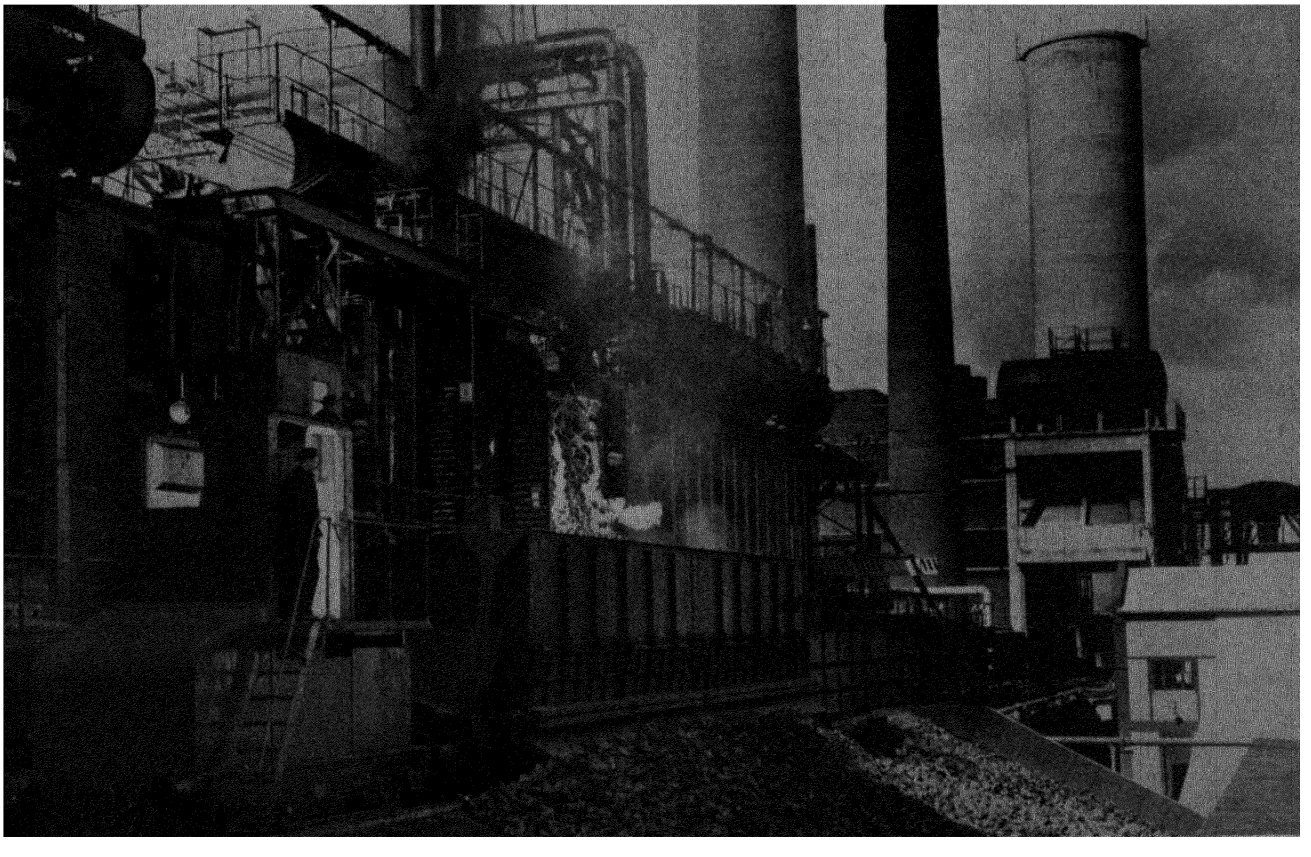
On the distribution side, plans for gas grids were announced by various gas boards, the most ambitious being those of the North-Western Gas board and the Wales Gas board. Some of these would take several years to complete, but their progress would be marked by improved efficiency as the smaller and less efficient gas works closed down.

The high production of gas cookers achieved in 1950 was almost maintained in 1951, in spite of the growing scarcity of materials. The production of gas wash boilers, however, increased from about 400,000 to about 450,000, and that for gas water heaters also increased slightly. Gas meter production was about the same. Much preliminary work was done during the year on gas research, but the former Gas Research board, which included representatives of the gas undertakings, the gas plant manufacturers and the Department of Scientific and Industrial Research, was being wound up, and the Gas council was undertaking the organization of research, in accordance with the nationalization act. A new research council was set up and included a number of distinguished scientists, and in addition to the existing London Research centre a new centre was proposed for the midlands, at which the problems of complete gasification would be carefully studied. Interesting experiments in the midlands in underground gasification of coal, although conducted by the Ministry of Fuel and the Coal board, were being watched with great interest by the gas industry.

It was a year practically free from strikes and labour troubles, but the rising cost of living resulted in a number of increases in wages and salaries, which combined with increasing costs of coal, transport, oil, etc., to increase the prices of gas throughout the country. Nevertheless, the price of gas was still less than twice its prewar price in most areas. In one area, the North Thames Gas board's, uniform prices of gas were introduced throughout the area—probably the first instance of its kind in the world. Requests were received from consumers in other areas for a similar scheme, but it seemed possible that they were not sufficiently concentrated for this to be easily achieved. Most area boards succeeded in arriving at uniform prices for gas appliances, and there were requests for uniform prices throughout the country, but these were not found to be possible. Concerning staff, there was considerable progress towards standard terms and conditions, and machinery for salary negotiations was beginning to take shape.

In view of the general shortage of gas, coke and appliances, gas publicity was on a restricted scale. Advertising, having been completely stopped in the winter months at the request of the minister of fuel, was resumed on the smaller scale of advising consumers about the care and maintenance of their equipment. The production of educational films and film strips, however, continued as before, and every quarter the number of showings to schools, associations, clubs and other bodies increased.

The industry had always taken a large part in exhibitions, and this continued during 1951, the Gas council being responsible for displays at national exhibitions, such as the



Coke being discharged from the coke-oven at Nantgarw, Glamorganshire, which was opened on Sept. 20, 1951. The basic daily output of the plant included 1,100 tons of coke and 16,500,000 cu.ft. of gas.

Ideal Home and the British Industries fair, and the area boards for local exhibitions, civic weeks and similar efforts. In March, a new exhibition hall was opened at Watson house, Fulham, containing a comprehensive series of displays of the production, distribution and utilization of gas in industry, commerce and the home. This exhibition hall was to be used for visits of local authorities, commercial and industrial bodies, and selected parties from the general public. During the year Watson house research, development and training departments, which were formally owned by the Gas Light and Coke company and later the North Thames Gas board, became a national centre subscribed to by all the area gas boards.

The Gas Consultative councils were very active during the year, and numbers of problems concerning price increases, charges for equipment and meters were discussed with the area boards and solved to the satisfaction of both sides.

In Europe, there was a similar record of steady progress in 1951. In France, in the fourth year of nationalization of the gas industry, there were increases in gas plant and coke ovens, and in the distribution network. In the Netherlands, too, there was news of extension of existing works and erection of new centres of production. In the Netherlands, Belgium and Germany there was an increasing tendency to set up distribution companies which purchased gas from large manufacturing centres, distributed it by high pressure network and then resold it to local undertakings. (L. HDN.)

GASCOIGNE, SIR ALVARY DOUGLAS FREDERICK, British diplomat (b. Aug. 6, 1893), was educated at Eton college and served in World War I, when he was mentioned in dispatches. He joined the Foreign Office in 1919 and after a number of appointments abroad was consul general in Tangier (1939-44), British political representative in Hungary (1945-46) and United Kingdom political representative in Japan (1946-51). He went to Moscow in Oct. 1951 to succeed Sir David Kelly as ambassador. He was created K.C.M.G. in Jan. 1948.

GAS TURBINES: *see* JET PROPULSION AND GAS TURBINES.

GEMS. An otherwise uneventful year was marked by the discovery of a further gemstone. Yet, since only two cut specimens had been known to exist, this could be regarded as of academic interest only. The discovery was made while a Dublin collector was examining a parcel of spinels, when slight birefringence was noticed. Its hardness was found to be the same as spinel, and the refractive index and specific gravity were also very close to those of that species. As its general appearance was similar to that of spinel and the double refraction was so small, it was suggested that other specimens might have been identified incorrectly as spinel.

Another noteworthy event was the publication of the fifth edition of *Gem Testing* by B. W. Anderson (London, 1951), in which were recorded all the recent developments in the production of synthetic stones, the latest results of Anderson's research work in spectrology as applied to gemstones, and a full description of the "distant vision" method of using the refractometer. (*See* also DIAMONDS; MINERALOGY.) (F. E. LK.)

See Francis J. Sperisen, *The Art of the Lepidary* (Milwaukee, Wisconsin, 1951).

GENETICS. The 16th annual symposium on quantitative biology at Cold Spring Harbor, Long Island, New York, was in 1951, as in 1941, devoted to the subject "Genes and Mutations." The most remarkable difference between the two meetings was the displacement of the classical genetical objects *Drosophila* and maize by micro-organisms, such as fungi, protozoa, bacteria, viruses and the *pneumococcus* transforming principle. This change resulted in drastic revisions of current conceptions of the gene, which was seen to be neither so uninfluenced by the surrounding medium, nor so individually distinct from its neighbours, as was formerly thought. Nevertheless, the fundamental notion of the gene as a self-reproducing unit, retaining its specificity unchanged through innumerable replications, seemed as well established as ever. No western geneticist would concede that induced genic changes of an adaptive nature occurred. Moreover, though the role of the cytoplasm in the expression of hereditory traits became increasingly recognized, especially as a result of studies with the ciliate protozoon *Paramecium*, the chromosomal gene was still regarded as the essential and most fundamental unit of heredity.

Apart from the reports on micro-organisms, great interest was shown in the work of Barbara McClintock with maize. It was found that small pieces of chromosome could frequently be transposed from one region of the chromosomes to another (such transposition being itself under genic control) and, as a result, often caused striking alterations in the properties of genes near to the disturbed regions.

Irregularities in Chromosome Number. It had long been assumed that every cell of an organism, with few exceptions, contained the same number of chromosomes. Since the addition or subtraction of a chromosome in *Drosophila* could lead to the death of the affected individual, an exact and even distribution of chromosomes to every cell seemed essential for the satisfactory functioning of the genic system. Recent observations of somatic cells (especially of differentiated cells) in higher animals and plants showed the falsity of this assumption. Thus, Eeva Therman and Sakari Timonen found, with human material, that irregular chromosome numbers occurred in both adult (uterine epithelium) and embryo (skin, liver, connective tissue, intestine, etc.) tissues. Outside the germ line the diploid number of 48 was rarely found, and the numbers ranged from 20 to 50.

Therman also examined differentiated cells of the plant *Allium cepa*. By treating the roots with indole-3-acetic acid, cells which had ceased dividing were induced to divide once more, and then revealed the presence of a large number of chromosomes, often many times the normal diploid number. Soviet workers, studying various somatic tissues—the epithelial cells of the skin and gut in the chick, pig and sheep—also found very irregular chromosome numbers, and concluded that such results were inconsistent with the postulates of classical genetics. Therman and Timonen, however, saw no such inconsistency. They assumed that each of the 48 chromosomes present in the human fertilized egg divided the same number of times, but that in differentiated somatic tissues, the daughter chromosomes might be unevenly distributed among the individual cells. Because of the intimate physiological interaction between neighbouring cells in higher animals, a lack of a chromosome in one cell could easily be compensated for by an extra chromosome in a neighbouring cell. The tissue as a whole would have a satisfactory balance of genes. The chromosome theory of heredity would be seriously challenged only if such irregular numbers were to be found in the germ cells, and that was never observed.

Genetics of Influenza Virus. F. M. Burnet, working with human influenza virus, found that he could get a recombination of two or more hereditary traits previously present only in separate strains. He did this by injecting into mice two strains of virus simultaneously, one of which produced encephalitis, while the other formed an extremely heat-resistant haemaglutinin. He was then able to extract from the infected mice a new strain of virus exhibiting both traits. Such a strain had never been encountered previously, and

was assumed to arise through some kind of reassortment of gene-like particles in the virus while the latter was developing in the mice cells. This kind of recombination process had been previously found also with bacteriophages, and could be of great importance in the sudden production of new, highly virulent strains of virus in nature.

Reproduction of Bacteriophage. Experiments had been attempted to distinguish between parental and assimilated atoms in the growth of bacteriophage. Thus F. Putman and L. Kozloff grew bacteriophage in bacteria "labelled" with radioactive phosphorus P^{32}. The labelled bacteriophage thus obtained was then grown in unlabelled bacteria, and a second generation of bacteriophage obtained. It was found that this second-generation bacteriophage contained only 30% of the radioactivity of the parental bacteriophage, and Putman and Kozloff considered that this might indicate that the bacteriophage consisted of two parts, a genetic and a non-genetic one. Only the radioactive phosphorus in the genetic part would be transmitted to the next generation. O. Maaløe and J. D. Watson then continued the experiment a further generation and found that once again only 30% of radioactive phosphorus was recovered in the third generation. Consequently, the distinction into genetic and non-genetic parts was seen to be unreal, and the problem of distinguishing parental from assimilated atoms remained intractable. (G. H. Be.)

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GEOGRAPHY. The annual meeting of the Institute of British Geographers was held in Oxford in Jan. 1951, under the presidency of Professor A. G. Ogilvie, of the University of Edinburgh, the members residing for the week in Jesus and Lincoln colleges. The papers covered a wide and representative range of subjects of research in British universities but the item of most general interest was perhaps the evening discourse by A. F. Martin on metaphysical problems which confront the geographer; he considered the implications of determinism and its validity as a working hypothesis.

The British Association for the Advancement of Science met in Edinburgh in August under the presidency of the Duke of Edinburgh, and its geography section celebrated its centenary. The presidential address to the section, by O. J. R. Howarth, appropriately reviewed the advance in the subject for which the section had ever been a focus and in which Howarth had played an active part in the great days of Sir Halford Mackinder and A. J. Herbertson. Two of Mackinder's most famous papers were reprinted in 1951 by the Royal Geographical society *The Scope and Method of Geography* (first published in 1887) and *The Geographical Pivot of History* (first published in 1904). As might be expected from the venue of the meeting, it dwelt largely on the geography of Scotland but one whole day was devoted to papers on the survey of the world's under-developed areas, towards which the World Land Use survey has a special contribution to make; pilot survey sheets from many lands were on exhibition. The first fruits of the British Association Geographical Glossary committee were published this year in the *Geographical Journal* (147, 445-46) under the title "Some Definitions in the Vocabulary of Geography."

The Commonwealth Survey Officers' conference, last held in 1947, took place in July at the Royal Institution of Chartered Surveyors in London. The techniques of air survey and the recent considerable progress in the mapping of British territories in Africa were among the principal subjects discussed. The diverse triangulation systems of Europe had recently been recomputed on a uniform basis and the conference approved a system of transverse Mercator projections, each belt to cover six degrees of longitude, which would provide a basis for survey computations of world-wide application. The observation of solar eclipses with photo-electric instruments was proposed as a means of effecting measurements between the continents, for if the rate of advance of the moon's shadow through space is known with sufficient accuracy the interval between the eclipses observed at two stations will determine their distance apart.

The International Union of Geodesy and Geophysics met in Brussels in August. Its constituent associations cover a wide range of subjects—geodesy, seismology, meteorology, magnetism, oceanography, vulcanology and hydrology—these are special studies in themselves and the scientific backbone of physical geography. The most notable papers were perhaps on the recent advances in oceanography and climatology.

An international congress on Columbus studies was held in Genoa in March as part of the celebrations extending over a year by which that city marked the 500th anniversary of the birth of Columbus; maps, pictures and relics were on exhibition at the Palazzo San Giorgio and the foundation of the Civico Istituto Columbiano in Genoa was announced.

The Royal Geographical Society of Egypt celebrated its diamond jubilee and ceremonies were held simultaneously to commemorate the silver jubilee of the Fuad I university in Cairo and the inauguration of the Fuad I Desert institute.

The gold medals of the Royal Geographical Society of London were, with the king's approval, awarded to V. E. Fuchs, leader of the Falkland Islands Dependencies survey in the Antarctic during the years 1948-50 and to Donald Thomson of Melbourne university for his geographical and anthropological work on the little-known northern coasts of Australia. The society's Victoria medal was awarded to C. A. Cotton of Victoria University college, New Zealand, for his contributions to the science of geomorphology.

The World Land Use survey which had been mooted at the International Geographical congress in Lisbon in 1949 came into being with the establishment in January of the headquarters of the Old World division at the house of the Royal Geographical society in London. A number of pilot sheets of the survey were immediately taken in hand, both to test methods of compilation from existing materials and also the suitability of the proposed scheme of classification, and to demonstrate the diversity of land use in different parts of the world. These were exhibited at the British association meeting in Edinburgh. With the increasing importance of international plans for the development of under-developed areas this was a most promising field of geographical research, and one in which remarkably little had been done on a scale which would admit a world-wide assessment of the present use of land.

The picture of land use is one that is changing rapidly; but few projects for development can be as ambitious as that which was outlined in the newspapers of the U.S.S.R. for the diversion of the major rivers of Siberia. Yet it had points of considerable interest; the Ob, Yenisei and Lena carry an abundance of water to the frozen and uninhabited wastes of the north. The watershed between the Ob and the Aral sea is relatively low and, to the south, lands now desert lie in a latitude more promising for development. A dam less than 300 ft. high would effect the diversion, but the canal to carry this immense volume of water would be 900 km. long. It was claimed that the consequences of the diversion

would be unparalleled; apart from a vast area under irrigation, the Aral sea would become a fresh water lake and the coastal waters of the Arctic ocean more salt than they are now. Far-reaching plans were already understood to be in hand for the irrigation of a part of these southern deserts from the Amu Darya, which was being diverted into its old channel to the Gulf of Kara Bogaz on the Caspian sea.

The year was notable for the publication of a number of books which attempted to set out the scope of geography as a science. S. W. Wooldridge's and W. G. East's *The Spirit and Purpose of Geography* (London) did not perhaps entirely fulfil the promise of its title but made it clear enough that the physical and human branches of the subject are not separate studies, but parts of a whole. Griffiths Taylor's *Geography in the Twentieth Century* (London) was a collection of essays, some dealing with special topics, but many of them displaying the wider views of American and British geographers of the highest standing. L. D. Stamp's and S. W. Wooldridge's *London Essays in Geography* was a somewhat similar collection, the essays being contributed by the pupils and colleagues of the late Professor L. Rodwell Jones of the London School of Economics; the emphasis was on economic geography, the dominant interest of Rodwell Jones himself. Two interesting papers on the general subject of climatic change were on "The Range of Variation of the British Climate" by Gordon Manley (*Geographical Journal*, 117, 43-68, London), which set out to reconstruct the weather conditions that must have obtained after the recession of the glaciers of the Ice Age, and "The Climate of Egypt: an Historical Outline" by G. W. Murray (*Geog. J.*, 117, 419-31), which interpreted the modern desert landscapes in terms of the corresponding changes in rainfall in that country. (*See* also ANTARCTICA; EXPLORATION AND DISCOVERY.)

(F. GE.)

GEOLOGY. Physical Geology. A statistical analysis was applied to the problem of recognition of ancient erosion surfaces by O. T. Jones in his presidential address to the Geological Society of London. The need for objective methods to check subjective impressions had long been clear but rarely attempted.

In Nordaustlandet, Spitsbergen, an Oxford party, in the summer of 1951, in the course of thermal drilling through ice, discovered minimum temperatures of approximately —9°C at a depth of about 50 ft. Glaciers, in temperate latitudes, approximate to 0°C.

In the Arctic basin large floating islands of ice up to 1,000 ft. thick and 25 mi. in diameter, were observed by the United States Air Force.

Professor Blackett developed an instrument for rapid determination of direction of palaeomagnetism in sediments. Basalts in Iceland showed several cases of reversed polarization, which consistently correlated with stratigraphically distinguishable phases of eruption.

Mineralogy. Two systematic indexes appeared for the identification of minerals and crystals each after many years of preparation: *An Index of Mineral Species and Varieties arranged Chemically* by Max H. Hey (British Museum, Natural History, London, 1950) and *The Barker Index of Crystals* by M. W. Porter and R. C. Spiller (Cambridge, 1951).

The study of feldspars, the largest group of rock-forming minerals, had achieved the status almost of a separate science. A special number of the *Journal of Geology* (vol. 58, no. 5, Chicago, 1950) was devoted to some recent advances in this field.

Petrology and Tectonics. Sill intrusions showing a number of remarkable contact structures were described by O. Tweto in "Form and Structure of Sills near Pando, Colorado" (*Bull. Geol. Soc. Amer.*, vol. 62, pp. 507-532, New York, 1951). The margins showed faulting, folding, and *b*-lineation of crystals, in contrast to *a*-lineation found in the body of the sill. It appeared that magmas of greater viscosity formed regular widespread sills and, conversely, more fluid magmas produced irregular swellings, possibly due to contemporaneous arching.

Marine Geology, by Ph. W. Kuenen (New York, 1951), covered a wide range of sedimentary problems in the field of sedimentary petrogenesis. *Stratigraphy and Sedimentation*, by Krumbein and Sloss (San Francisco, 1951), epitomized this outlook, already suggested 40 years earlier by Grabau. The palaeogeographical and tectonic approach to sedimentary environments marked an emphasis developed during the intervening years.

Practical applications of sedimentary petrology were emphasized in two important publications: *Technische Gesteinskunde*, by von Moss and F. de Quervain (Basle, 1948), and *Applied Sedimentation*, edited by P. D. Trask (New York, 1950), with 35 contributions by different authors on the interrelation between fundamental problems of geology and engineering practice.

After years of steady expansion of the oil industry, 1951 was marked by the sudden appearance of several general works including: E. N. Tiratsoo, *Petroleum Geology* (London, 1951) and K. K. Landes, *Petroleum Geology* (New York, 1951). A valuable symposium in a similar but wider field was Le Roy's *Subsurface Geologic Methods* (Colorado School of Mines, 1950).

Palaeoclimatology. It was shown (Epstein *et. al.*, "Carbonate-water Isotopic Temperature Scale," *Bull. Geol. Soc. Amer.*, vol. 62, pp. 417-426, New York, 1951) that the proportion of the O^{18} isotope in calcium carbonate, as formed in marine shells, varied with temperature. When the relative abundance of O^{18} in sea water was known the temperature of formation could be deduced to an accuracy of $\pm$ 1°C.

This was applied to the measurement of palaeotemperatures. Preliminary results were given for the Upper Cretaceous of England, Denmark and the southeast United States, which indicated a uniform temperature of 15°-17°C (H. C. Urey *et. al.*, "Measurement of Palaeotemperatures and Temperatures of the Upper Cretaceous of England, Denmark and the S.E. United States," *Bull. Geol. Soc. Amer.*, vol. 62, pp. 399-416, New York, 1951).

A thorough review of Molluscan faunas reproduced the orthodox conclusion that, in the Pacific during the Palaeocene and Eocene, the 20°C marine isotherm was north of 49°N. Thereafter, successive cooling brought temperatures down to their present level in mid-Pliocene. The present arrangement of coastlines was thought to be adequate to explain these distributions ("Cenozoic Marine Climates of the Pacific Coast," by J. W. Durham, *Bull. Geol. Soc. Amer.*, vol. 51, pp. 1243-64, New York, 1950).

Ernst Mayr argued against parts of Wegener's and DuToit's hypotheses ("Bearing of some Biological Data on Geology," *Bull. Geol. Soc. Amer.*, vol. 62, pp. 537-546, New York, 1951). According to his analysis, the distribution of birds in the southern hemisphere favoured the present distribution of the continents since late Mesozoic time.

The Oceans. Rapidly increasing facilities for echo-sounding enabled Tolstoy to outline the "Submarine Topography of the North Atlantic" (*Bull. Geol. Soc. Amer.*, vol. 62, pp. 441-450, New York, 1950). In places, the shape of the mid-Atlantic ridge was shown to suggest faulting and folding. (*See* also OCEANOGRAPHY.)

Gutenberg's revised seismic analysis of "Crustal Layers of the Continents and Oceans" (*Bull. Geol. Soc. Amer.*, vol. 62, pp. 427-440, New York, 1950) continued to contrast the Pacific (no distinguishable sial) with the Atlantic (possibly with a little sial). (*See* SEISMOLOGY.)

W. H. Bucher argued (" Megatectonics and Geophysics," *Amer. Geophys. Union Trans.*, vol. 31, p. 495) that, from an initial basaltic layer, sial grew in orogenic zones by addition of potash brought up from below in the waters forming the hydrosphere.

The idea of slow accumulation of the oceans fitted determinations of the atmospheric content of $A.^{40}$. Assuming this to have derived from $K.^{40}$, J. L. Kulp argued (" Origin of the Hydrosphere," *Bull. Geol. Soc. Amer.*, vol. 62, pp. 326-329, N.Y., 1951) that the sial, hydrosphere and atmosphere might turn out to be a gradual accretion from below.

Regional Geology. *Britain.* The D'Arcy Exploration company reported on the progress made between 1945 and 1949 in the search for carboniferous rocks with suitable anticlinical structures in southern England. Over a large area systematic gravity and magnetic surveys were carried out. This was summarized on several maps (*see* " The Gravitational and Magnetic Exploration of Parts of the Mesozoic Covered Areas of South Central England," *Quart. Journ. Geol. Soc.*, vol. 106, pp. 141-170, London, 1951).

Research on the concealed coalfields, carried out by the Geological Survey in collaboration with the National Coal board, gave specially valuable results: extensions of the South Derby and Leicestershire and the Bristol and Somerset and the South Lancashire coalfields were proved. A bore near Northleach, Gloucestershire, was carried to 4,500 ft. through Jurassic and Triassic rocks. The survey also took part in a search for new sources of sulphur, including the investigation of extensive reserves of anhydrite in the St. Bees area of Cumberland.

Caledonides. Holtedahl, Wollaston medallist, gave the William Smith lecture to the Geological Society of London on the tectonic history of Scandinavia. Speculations on the relations of his structures to Scotland and Spitsbergen were attempted. Attention was drawn to the suggestive contribution by J. S. Turner, " The Deeper Structure of Central and Northern England " (*Proc. Yorks. Geol. Soc.*, vol. 27, pp. 280-297, 1949). Holtedahl and his Norwegian colleagues had long worked in Spitsbergen. In 1951, three British university expeditions from Birmingham, Cambridge and London continued studies in the structure and stratigraphy of the Hecla Hoek rocks, supposed by many to represent a northern continuation of the Caledonian orogen.

European Alps. Continuing a tradition of comprehensive alpine syntheses, E. Kraus published a further work, " Baugeschichte der Alpen " (*Akad. Verlag, Berlin*, vol. 1, 1951), which dealt with the succession of strata and tectonic events to the end of the Cretaceous.

F. X. Schaffer, (editor, *Geologie von Österreich*, 2nd ed., Vienna, 1951), continued a notable work in which leading geologists presented a thorough account of the geology of Austria.

Mediterranean Region. New ideas regarding the structure of Italy involved important concepts which, if proved, would have general influence on tectonic theory. A school of geologists regards much of Italy, as comprising, for instance, the Argille Scagliose, as allochthonous; moreover, the structures showed a fluid gravitative mode of deformation riding on erosion thrusts. E. Beneo gave a description and tectonic sketch map of Italy on this basis (" Tentativo di sintesi tettonica dell'Italia peninsulare ed insulare," *Boll. Geol. Soc. Ital.*, 68, pp. 1-15, Rome, 1949). These ideas were applied to economic possibilities in his paper " Le possibilità petrolifere della Sicilia nel quandro di una più realistica interpretazione della tettonica Italiana " (*Boll. Servizio geoligico d'Italia*, vol. 72, Rome, 1951), and extended to an interpretation of north Morocco, " Sull' Identità tettonica esistente fra la Sicilia e il Rif " (*Boll. Serv. geol. d'Ital.*, vol. 72, Rome, 1951).

Preliminary results of further gravity surveys in one of H.M. submarines in the eastern Mediterranean showed negative belts of anomalies south of the main Dinaric and Taurus mountain arcs.

India. The third edition, revised by Sir Edwin Pascoe, of the *Manual of the Geology of India and Burma* (in 4 vols., vol. 1 [pre-Cambian], 1950, Calcutta), marked the end of one stage in Indian geology and provided for the future a valuable source of well-organized detail.

Africa. Furon's *Géologie de l'Afrique* (Paris, 1950) provided another comprehensive view of a Gondwana continent, in this case with emphasis on Mesozoic and Tertiary deposits. *A Mineral Map of Southern Rhodesia*, 1: 500,000, (Salisbury, 1951) summarized the distribution and total production to date of economic minerals.

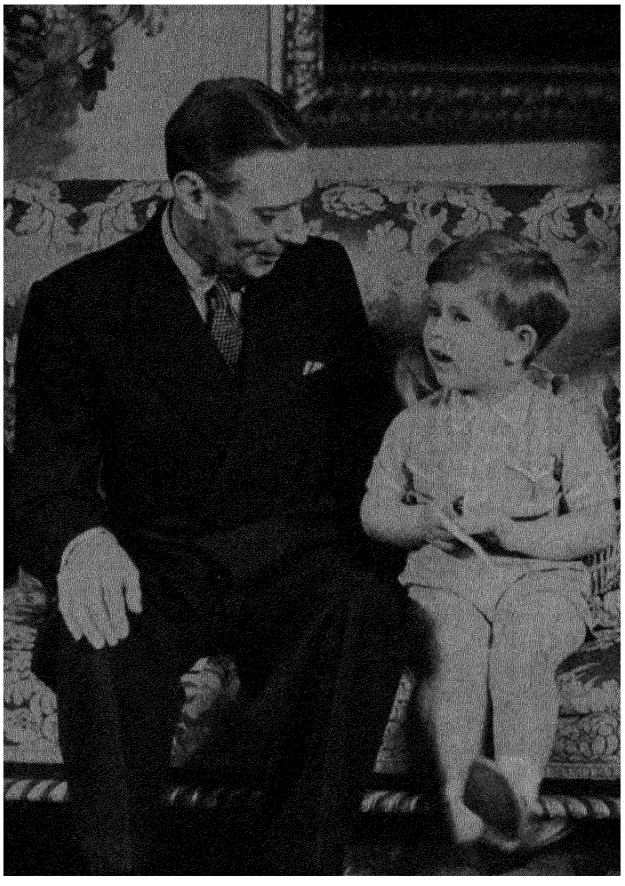
North America. Perhaps the most important general publication was A. J. Eardley's *Structural Geology of N. America* (New York, 1951). This treatise, designed for students, summarized for the first time the structural characteristics of each of the major tectonic elements which make up the continent and provided a convenient summary of published material with references. The *Tectonic Map of Canada*, 1: 3,801,600, (Geological Association of Canada, 1950) was a valuable summary at a time of active exploration.

South America. Two important maps were published by the Geological Society of America in 1950. The *Geological Map of S. America*, 1: 5,000,000, was compiled by G. W. Stose and followed the style and scale of the earlier revised map of the northern continent. A *Geologic-Tectonic Map of the United States of Venezuela*, 1: 1,000,000, was compiled by W. A. Bucher and made available much of the data previously known only to oil companies. (*See* also MINERALOGY; OCEANOGRAPHY; PALAEONTOLOGY; SEISMOLOGY.)

(W. B. HD.)

GEORGE VI (ALBERT FREDERICK ARTHUR GEORGE), king of Great Britain, Ireland and the British dominions (b. York cottage, Sandringham, Norfolk, Dec. 14, 1895); for his earlier career see *Encyclopædia Britannica* and *Britannica Book of the Year 1951*. On Jan. 1, 1951, he broadcast to Australia on the opening of the jubilee year of the Commonwealth. But his proposed tour of Australia and New Zealand in 1952 had to be cancelled after his operation in September and it was announced that Princess Elizabeth, accompanied by the Duke of Edinburgh, would carry it out in his stead. He received the commonwealth prime ministers for luncheon at Buckingham palace on Jan. 4 and held a Privy Council meeting in which they took part. In February Clement Attlee, in reply to a question in the House of Commons by Winston S. Churchill, announced that, to help to meet the higher cost of running the royal households, the king would in future receive free telephone and telegraph services from the Post Office and that the cost of fuel and power would be met by the Ministry of Works, making a total relief of about £40,000 a year; the king had also indicated his desire to make certain economies which would save £20,000.

The first report in 1951 of the king's being unwell was when he had a feverish chill in March. He fulfilled a number of engagements that month and in April, and on May 3 attended the service of dedication and opened the Festival of Britain at St. Paul's cathedral. He received King Frederik and Queen Ingrid of Denmark on their state visit, May 8-11. Later in May he had influenza and early in June suffered from catarrhal inflammation of the lung and was ordered a complete rest. His speech at the state dinner at Buckingham palace for King Haakon of Norway on June 5 was read by Princess Elizabeth. On Sept. 1, he was visited at Balmoral by Dr. George Cordiner, a radiologist, and Dr. Geoffrey Marshall, an authority on respiratory diseases. He visited London on



King George VI with his grandson, Prince Charles. This photograph —the first after the king's operation on Sept. 23—was taken on Prince Charles's third birthday, Nov. 14.

Sept. 8-9 to permit further clinical investigations to be carried out and on Sept. 15 returned to London from Balmoral; three days later a bulletin stated that certain structural changes had developed in the lung and that he had been advised to remain in London for further treatment. On Sept. 22 a bulletin said that he had been advised to undergo an operation. This operation, for lung resection, was performed at Buckingham palace, on Sept. 23, by Clement Price Thomas, with seven other doctors assisting.

The king appointed, on Sept. 27, five counsellors of state to relieve him of formal constitutional duties; they were Queen Elizabeth, Princesses Elizabeth and Margaret, the Duke of Gloucester and the Princess Royal. On Oct. 6 a bulletin said that the post-operative stage had passed without complication but that progress towards the convalescent stage "must necessarily be slow and gradual." After the general election he received personally, on Oct. 26, Clement Attlee and Winston S. Churchill, although this duty could have been performed by the counsellors of state. His recovery proceeded satisfactorily and on Nov. 30 he made his first journey after the operation and went with the queen to Royal lodge, Windsor, for the weekend. He cancelled the appointment of the counsellors of state on Dec. 10 and on Dec. 14 he knighted Dr. Price Thomas and Dr. Marshall, the only two of the eight doctors present at his operation, apart from the anaesthetist, who had not previously been knighted. Because his voice had not regained its normal strength, he recorded the message that was broadcast to the peoples of the Commonwealth on Christmas Day.

GERMAN LITERATURE. A visit to the Frankfurt Book fair, the representative show of the year's production, showed that in 1951 the market in Western Germany was still overflowing with translations of foreign books and that important works of purely native origin were again few and far between.

There were a few new figures in the German literary world, most of whom seemed to be occupied with the interpretation of recent events, or rather of what was taking shape in their wake. *Zero* was a remarkable first novel by Karl August Horst: its scene was laid in Greece, agonized and rent by political faction after World War II, with a most unheroic hero trying to strike new roots. Another outstanding first novel was Siegfried Lenz's *Es waren Habichte in der Luft*, as sad and gloomy as the dark Karelian forests that provided its setting. Gerd Gaiser's *Eine Stimme hebt an* was a step further in a promising literary career: it was a tale of a soldier's return, told with an epic breadth of vision capable of overcoming darkness and despair. *In der Mitte des Lebens*, Luise Rinser's latest and most mature work, was a brilliantly painted, sympathetic picture of a modern woman determined to be mistress of her fate. In *Die Arche*, the second volume of his "Deluge" trilogy, Stefan Andres told of "the deeds and sufferings of certain citizens—selfless conspirators and lovers—who, in the face of an omnipresent tyranny, try to live like human beings"; the interwoven Noah legends once again proved this writer's mastery of the short story.

Under the pressure of the times, lyric poetry, always cherished in Germany, diminished in volume though not in quality. Wilhelm Lehmann, a prose writer who in his later years had turned to poetry, published *Noch nicht genug*, beautifully turned poems in which a feeling for nature was combined with spirituality. Werner Bergengruen's poems, some of which were collected in *Die heile Welt*, were permeated by the spirit of Christianity. From Marie Luise Kaschnitz, whose verse was musically beyond reproach, came *Zukunftsmusik*, her finest and ripest work to date. In characteristic free rhythm she saluted the future that would emerge from the ills of her time.

The essay still held its own in 1951, and many of Germany's thinkers and writers continued to look upon it as the form most congenial to the restless and fitful times. Dolf Sternberger's *Figuren der Fabel* were praised as worthy to be set beside the work of the classical French essayists. Ernst Jünger's *Über die Linie* was a concept of a coming world; it was the prelude to a later work, *Der Waldgang*, that defined the position of the strong individualist in the approaching era. *Minima Moralia*, by Professor T. W. Adorno, were highly intelligent "reflections on a damaged life," which in turn amused, intrigued and even startled their readers. The *Frühe Prosa und Reden* of Gottfried Benn dated back to his expressionist beginnings, including as they did his prose from 1914 to 1925 and his speeches and lectures between 1928 and 1950. Hermann Hesse's *Späte Prosa* and his *Briefe*, written after 1927, showed his views on life and the modern world and his broad-minded humanity. *Ungleiche Welten* was Hans Carossa's modest but deeply convincing account of his life in the "Thousand-Year Reich," written with a rare insight into human frailty and strength and confirming this author's outstanding personal position. Walter Benjamin in his *Berliner Kindheit um 1900* conjured up the ghosts of the shattered city in conclusive, unforgettable pictures. The *Nachmittag* of Reinhard Piper was a remarkable book by a remarkable personality. (X.)

GERMANY. Country of central Europe, bounded N. by the North sea, Denmark and the Baltic sea, E. by Poland, S. by Czechoslovakia, Austria and Switzerland, and W. by France, Luxembourg, Belgium and the Netherlands. According to a declaration signed in Berlin on June 5, 1945, the country was under the supreme authority of the four

Allied powers—the United States, Great Britain, the U.S.S.R. and France—and divided into the four following zones together with Berlin (*q.v.*):

Zone	Area (sq.mi.)	Population (1939 census)	Population (1946 census)
British	37,723	19,785,500	22,344,900
United States	41,506	14,257,600	17,174,400
French	15,405*	6,088,900	5,044,000*
Soviet	41,623	15,157,100	17,332,900
Berlin	344	4,321,500	3,179,200
	136,601†	59,610,600	65,035,400

* Excluding the Saar (area, 734 sq.mi.; pop., 874,400).
† Including some small German frontier areas which, as agreed upon under the six-power agreement of March 26, 1949, were taken over by Belgium, Luxembourg, the Netherlands and the Saar respectively (total area, 52·1 sq.mi.; total pop., about 13,500).

Before the *Anschluss* of Austria the area of Germany was 181,742 sq.mi. with a population (1939 census) of 69,317,000. The British, Soviet and U.S. zones contained larger populations than in 1939; by 1946 the zonal increases were: British zone 12·9%, Soviet 14·4%, U.S. 20·5%. The additional inhabitants were mainly Germans evacuated or transferred from Poland and Czechoslovakia. Only the population of the French zone was less (3·5%) than in 1938. Language (1946 est.): German with small admixture of Lusatian (260,000 in Kottbus-Bautzen area), Polish (150,000, mainly in Westphalia) and Danish (17,000). Religion (1938 est.): Protestant 62·7%; Roman Catholic 32·5%; Jewish 0·7%; others 4·1%. Chief cities (first figure, 1939 census; second, 1946 census): Berlin (4,332,242; 3,179,200); Hamburg (1,711,877; 1,406,158); Munich (829,318; 738,018); Cologne (772,221; 489,812); Leipzig (707,365; 608,111); Essen (666,743; 520,592); Dresden (630,216; 463,032); Frankfurt-on-Main (553,464; 389,097); Düsseldorf (541,410; 421,506); Dortmund (542,261; 436,198); Hanover (470,950; 347,040).

During the year Germany remained partitioned into two states with a special provisional régime for Berlin.

WESTERN GERMANY. Area, 94,634 sq.mi. Pop. (Sept. 13, 1950, census): 47,557,926 (incl. 25,259,619 women) which indicated an increase of 3,034,626 since Oct. 29, 1946. Religion (1950 census): Protestant 51·2%, Roman Catholic 45·2%. Capital: Bonn (pop., Dec. 1949 est., 110,000). President of the German Federal republic, Theodor Heuss; federal chancellor, Konrad Adenauer (*q.v.*). Allied high commissioners: British, Sir Ivone Kirkpatrick; French, André François-Pincet; U.S., John J. McCloy. Allied commanders in chief in Western Germany (Dec. 31, 1951): British, General Sir John Harding; U.S., Lieut. General Manton S. Eddy; French, Lieut. General Roger Noiret.

EASTERN GERMANY. Capital: Berlin-Pankow. President of the German Democratic republic, Wilhelm Pieck; prime minister, Otto Grotewohl. Soviet Control commission: Army General Vasily Ivanovich Chuykov, chairman; Ivan Fedorovich Semichastnov, deputy chairman; Vladimir Semenovich Semenov, political adviser.

History. *International.* Unification of Germany was still the goal for both Eastern and Western Germans, but no great advance in that direction was made during 1951. Grotewohl's letter of Nov. 20, 1950, proposing conversations between the two governments on the formation of an all-German Constituent council, was answered by Adenauer in a broadcast on Jan. 15, in which he laid down conditions for free, secret, direct and truly democratic all-German elections. In reply to another appeal for union the federal chancellor reminded the German Democratic republic (Feb. 10) that it had signed away a quarter of the pre-1938 territory of Germany, that since 1945 about 200,000 Eastern Germans had been placed in concentration camps and 37,000 deported to the U.S.S.R. Adenauer also suggested that the release of political prisoners would be one proof of the Soviet zone's sincerity (Pieck announced the liberation of 20,000 prisoners in September, but by December it was still unclear how many of these were political prisoners or how many had been released).

From March onwards came numerous proposals and counter-proposals both from Pankow and Bonn. Then, on Sept. 27, Adenauer presented in the Bundeshaus a programme including the following points: in any really free elections all parties should be able to submit candidates throughout the whole country; no travel restrictions from Federal republic into Soviet zone and into greater Berlin at least three months before elections; freedom of political meeting and personal freedom as well as international protection and supervision.

About the same time the Allied High commission agreed to bring in the question of all-German elections before the United Nations and to request a preliminary U.N. investigation on political conditions in Germany, as to whether democratic elections could be held—a request rejected by Eastern Germans as "foreign interference."

As the issue of all-German elections unfolded, it became clear that the Democratic republic was concerned not with elections but with discussions which could drag on interminably. For the main Communist objective was to prevent Western Germany becoming an integral part of any Western European community, and especially to prevent its making any military contribution to the North Atlantic Treaty organization. The Communists also wanted to discuss a German peace treaty and the withdrawal of Allied troops. In a letter to the federal parliament, Grotewohl declared that "the incorporation of Western Germany in any European defence force would create a strong possibility of civil war." The Social Democrats proposed on Sept. 25 that the federal parliament should sponsor all-German elections under international control and that elections throughout Berlin should be the first step towards achieving German unity. To a similar suggestion made earlier by the mayor of West Berlin, Ernst Reuter, Grotewohl replied that he was not interested in "parish elections."

At their Washington conference the three foreign ministers stated on Sept. 14 that their aim was "a democratic Germany, on the basis of equality, in a continental European community." Agreement along these lines was reached in Paris, on Nov. 22, between Adenauer and the foreign ministers of the United States, Great Britain and France. Four gains were registered by Western Germany at that conference: complete freedom of decision for the German government; the end of economic restrictions; German control of foreign trade; and an assurance that Germany would be heard whenever its interests were involved. Many Germans were, however, sceptical because the agreement and German participation in a European army were to become effective simultaneously.

On this latter issue of rearming differences existed not only abroad but also among the Germans themselves. The Social Democrats objected to the Pleven plan—or any other—which did not first guarantee full security to the Federal republic against possible Soviet aggression. Objections also came from neutralists like Pastor Martin Niemöller who said at Frankfurt, on April 17, that Germany could best serve the cause of peace by becoming a buffer state between east and west. There was also the Emergency Committee to Save European Peace founded on Nov. 25 by Frau Helene Wessel, chairman of the Zentrum (Catholic) party, and counting among its leaders Gustav Heinemann, chairman of the Evangelical Church synod and former federal minister of the interior, who were opposed to German rearmament.

During the year the state of war between the Federal

republic and many other states was officially ended: with the United Kingdom this was announced on July 9 by a notice published in the *London Gazette;* in the United States, a proclamation was signed by the president on Oct. 24, after a resolution to that effect had been adopted by the Congress.

Chancellor Adenauer (also officially foreign minister since March 15) visited Paris to sign the Schuman plan (April 10) and again to sign the agreement on the new status of the Federal republic (Nov. 22). He was in Rome from June 14 to 20 and visited London from Dec. 3 to 8.

On March 6 the Federal republic accepted in principle responsibility for Germany's pre- and postwar debts estimated at DM. 19,000 million. Jewish claims for restitution were dealt with on Sept. 27 in a statement which promised the rapid implementation of legislation, but also stressed the limits of German capacity to pay in view of other victims' claims. Nevertheless the federal government expressed its readiness to discuss the issue with the representatives of world Jewry and the Israeli government.

While the Federal republic strengthened its contacts with the west, the Democratic republic did likewise with the east. President Pieck paid an official visit to Prague on Oct. 23 and President Bolesław Bierut, of Poland, visited Berlin-Pankow on April 22. Eastern and Western German governments continued to be sharply divided over the frontier with Poland. The former accepted the Oder-Neisse line as the " final peace frontier " in a treaty signed at Frankfurt-on-Oder on Jan. 27. Chancellor Adenauer on the other hand declared in Berlin, on Oct. 6, " For us, the territory east of the Oder-Neisse line belongs to Germany." The western allies' point of view was that the frontiers of Germany would be finally settled at some future peace treaty.

Federal Republic. Political battles were fought mainly about international rather than internal issues during the year: Western Germany's rearming and the Schuman and Pleven plans, with the Saar problem cropping up periodically in leading debates between the government and the opposition. The Social Democrats continued to press for a new federal election (not due until 1953) because Adenauer's party, the Christian Democratic union, lost heavily in Länder elections and because the rearming was such a vital issue that the electorate should be consulted before any action was taken.

A special feature of the local elections in Lower Saxony, Schleswig-Holstein and Bremen, apart from the defeat of the Communists, was the increase in the support of the neo-nazis, the Socialist Reich party. One of its outstanding members, Otto Ernst Remer, who in the July 20, 1944, *Putsch*, played an important part on the nazi side, was sentenced on May 26 to four months' imprisonment for slandering the government. The federal government announced in November that it would seek a juridical ruling from the Supreme court on banning both the Communist and neo-nazi parties.

The Supreme court, whose function was to interpret the constitution and decide issues between federal and Land authorities, was officially constituted at Karlsruhe on Sept. 28. In its first case it decided in favour of a plebiscite on the creation of a Southwest state, out of the present states of South Baden, Württemberg-Baden and Württemberg-Hohenzollern. Voting took place on Dec. 9. Rather less than 60% of the registered electors voted and only the South Badener provided a majority against the plan; 69·8% voted for a Southwest state and 30·2% for the reconstruction of the former Länder of Baden and Württemberg.

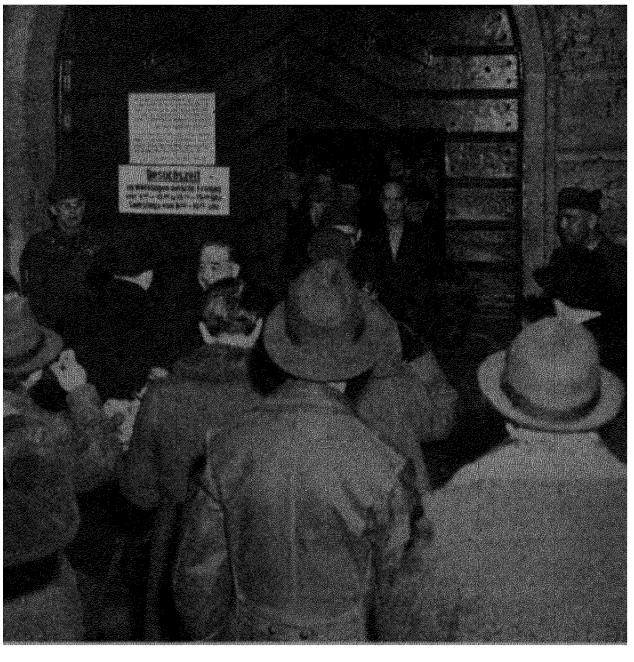
One of the outstanding struggles in industry had been over *Mitbestimmung* (co-partnership) of employers and employees. This system was introduced into the coal, iron and steel industries of the Ruhr by the British occupation authorities and, by a law passed on April 11, it would be continued there. But important details as to the form of workers' representation on various committees had still to be agreed on. Meanwhile, the German trade union movement (Deutscher Gewerkschaftsbund or D.G.B.) demanded that the system be extended to other industries; *e.g.*, chemicals. Throughout the year there was only one big strike, that of the metal workers in Hesse for higher wages (Aug. 27 to Sept. 24).

Little progress was made towards a satisfactory agreement between the federal and Länder governments for equalizing of burdens or for the implementation of a six-year plan for resettling the 9 million refugees now concentrated mainly in Schleswig-Holstein and Bavaria.

Allied plans for decentralizing the iron and steel industries and for breaking up the chemical trust (Interenen-Gemeinschaft Farbenindustrie or I.G.F.) were announced on Aug. 24. A law depriving the former German owners of the legal right and title to assets abroad, thereby confirming the Allied use made of them for reparations and other claims, was promulgated on Sept. 5.

The federal budget for 1950 closed with a deficit of DM. 256·8 million. For first six months of the financial year 1951, receipts from the ordinary and extraordinary budgets were DM. 13·1 million less than expenditure. Germans attributed these deficits mainly to the heavy occupation costs and mandatory expenses. For the fiscal year 1951-52, these were fixed by the Allies at DM. 6,595 million (DM. 1,132 million more than the previous year). German demands that these charges should be reduced and converted into security costs for the upkeep of Allied forces stationed in the Federal republic and possibly later for meeting the costs of any German contigent in a European army were under consideration. The unofficial Allied estimate of DM. 13,000 million as the Federal republic's contribution for the first year of rearming was condemned as far too high by German experts. But it represented only 11% of the calculated national production for 1952, and Great Britain and France were themselves paying somewhat higher percentages for their rearming.

Western Germany received from the E.R.P. funds, from 1948 to Sept. 30, 1951, $1,317,284,000. Of this, 50% went into industry in the form of machinery and machine tools and raw materials. Most of the rest went to improve agriculture. (The



The gateway of Landsberg prison, Western Germany, as 39 war prisoners were released on Feb. 3. Among those freed were Alfried Krupp and four former generals.

1951 harvest was a record for postwar years). From G.A.R.I.O.A. (Government Appropriation and Releases in Aid of Occupied Areas) funds $80,340,116 was received in 1950-51. The grand total of U.S. aid amounted to about $3,500 million since 1945.

Whereas in the spring the Federal republic had an adverse balance with the European Payments union, this was later corrected through the increase of exports and restricted imports. For October the monthly surplus in trade balance was DM. 77 million: exports were DM. 1,260 million and imports DM. 1,183 million. Ludwig Erhard, the federal minister for economic affairs, announced in parliament on Oct. 11 that the German dollar reserves amounted to $950 million.

Production, though by Oct. 1951 only 91% per head of the 1938 figure, was phenomenal as compared with 1946 (26%). Coal was still a great problem. Daily extraction needed to be raised from 375,000 tons to 410,000 tons to be sufficient for all needs. Conditions of ownership in the industry, more houses for miners, a capital investment programme to modernize equipment and the retention of the present coal-marketing system (which the western powers rejected) were among the essential issues that the government was considering in co-operation with the German Coal board and the trade unions.

Unemployment was still very high: 1,257,000 by mid-Nov. 1951. As for the future, much would depend upon whether funds were available to continue building at the present high rate. In the previous two years over 700,000 dwellings, with accommodation for 2·5 million people, were built.

Final figures of the 1950 census showed that 9,630,000 people moved into Western Germany during and after World War II. The total was made up as follows: 4·5 million from the territory east of the Oder-Neisse line and the Saar; 3·4 million from Czechoslovakia, pre-1939 Poland and other eastern European countries; 1,030,000 from Eastern Germany (Soviet zone); 518,000 from Berlin; and 182,000 foreigners.

German Democratic Republic. Differing economic structures in Western and Eastern Germany presented different problems. Whereas the Western republic was predominantly industrial, the Eastern was mainly agricultural, but striving to become an industrial state. In 1950, Western Germany imported foodstuffs to a value of DM. 5,000 million, whereas similar imports by Eastern Germany had not 5% of that value.

Production, especially in heavy industry, was the main concern of the five-year plan, 1951-55. This envisaged an annual pig iron production of 1,250,000 tons, and of 3 million tons of crude steel. Foreign trade increased since 1949, when it amounted to DM. (East) 700 million (exports and imports, without reparations), to about DM. (East) 1,200 million in 1950 and was expected to be still higher in 1951. But 90% of this trade was with the Soviet Union and the people's democracies (the U.S.S.R. led with 50%, then came Poland and Czechoslovakia). In fact, rapid strides were made towards incorporating Eastern Germany into the economic bloc of eastern Europe. A five-year trade treaty extending to 1955 was signed in Moscow on Sept. 27.

Eastern Germany was still dependent, however, upon Western for about 50% of its machinery and raw materials, so that interzonal trade was essential for the success of its five-year plan. Yet the trade agreement signed on July 4 was not in force by December because the Eastern German government refused to remove hindrances to traffic on the international highway between West Berlin and Western Germany. This agreement was for an exchange of goods valued at about DM. 500 million—manufactured goods from the west and agricultural products from the east. Illegal interzonal trade was such a menace that any West Berlin firms caught engaging in it were threatened with the stoppage of



Otto Ernst Remer, a former [illegible] in the German army, who in 1951 emerged as leader of the neo-nazi Socialist Reich party in Western Germany.

E.R.P. aid. In October, in a single case before a West Berlin court, 15,000 tons of steel valued at DM. 9 million marks were involved.

The ownership and management of industrial concerns were further concentrated in the hands of the Sowjet Aktlen Gesellschaften (S.A.G.)—entered in the trade register as owned by the Ministry of Foreign Trade in Moscow—and in the Eastern German nationalized industries the so-called *volkseigene Betriebe*. By Nov. 1951 only 26% were in private hands, and of these 2% were under trusteeship. The S.A.G. owned 66% of the chemical industry, 95% of petrol and diesel oil, 36% of brown coal and 45% of the electrical industries.

Production in April was said to be 75% (in volume) of that for 1936. But some idea of the outlook for the individual might be gathered from the fact that Walter Ulbricht, the deputy premier and secretary general of the Sozialistische (Communist) Einheitspartei, in dealing with the five-year plan promised that in 1955 it would be possible to give every person in the Soviet zone 1·24 pairs of leather shoes—a rise of 376% over 1950 supplies.

Political activities continued to concentrate upon criticism of the west. A White Book on *American-English Policy of Intervention in Western Germany and the Revival of German Imperialism* was published on Aug. 11. Party organizations were still being purged of all unreliable elements and a sharp watch was being kept on all publications. In November most of the Russian staff of the Soviet-controlled newspaper *Tägliche Rundschau* was replaced as were also some of the chief German editors of the Soviet-licensed press agency A.D.N. (Allgemeiner Deutscher Nachrichtendienst). Literature was being carefully scrutinized by a new branch of the A.D.N. Every new book was judged from the standpoint of whether it fulfilled its " intended social function." Publishing firms were controlled after some of the publications had been withdrawn because they were too " objective." Measures were first taken against current literature, but now the second-hand bookshops were also being purged of bourgeois material.

(J. E. Wr.)

Education. *Western Germany.* Schools (May 1950): elementary 28,400, pupils 6,291,000, teachers 130,400; higher elementary 579, pupils 196,067, teachers 6,011; secondary 1,488, pupils 620,488, teachers 28,872; universities 16, students 74,258, professors and lecturers 3,450; Roman Catholic theological and philosophical faculties 10, students 3,778; technical colleges 7, students 21,640. The Free University in Western Berlin had 2,000 students in 1951.

Eastern Germany. Universities 5, students (1948) 12,269, teaching staff 671. In addition there was the University of Berlin with, in 1948, 5,634 students and 157 professors and lecturers.

Agriculture. Tables I, II and III show respectively the production of main crops, the amount of livestock and the production of certain foodstuffs.

TABLE I. AGRICULTURAL PRODUCTION ('000 metric tons)
(W = Western Germany without the Saar; E = Eastern Germany)

		1934-38	1947	1949	1950	1951
Wheat	W	2,505*	1,229†	2,471	2,614	2,949
	E	1,553*	483	926	815	—
Rye	W	3,081	2,023†	3,310	3,021	3,034
	E	2,070	1,418	2,025	2,130	—
Barley	W	1,699	701†	1,213	1,473	1,688
	E	1,029	423	458	515	—
Oats	W	2,843	1,696†	2,600	2,545	2,835
	E	1,587	893	1,087‡	1,140‡	—
Potatoes	W	19,603	14,415	20,875	27,959	24,103
	E	13,630	8,055	8,499	13,060	10,890

* Includes spelt. † With the Saar. ‡ Includes mixed grains.

TABLE II. LIVESTOCK ('000 head)

		Dec. 1938	Sept. 1947	Sept. 1949	Sept. 1950
Cattle	W	12,187	11,185	10,573	10,883
	E	3,647	2,764	2,879	3,310
Pigs	W	12,280	6,429	6,758	9,698
	E	5,707	1,968	2,620	4,310
Goats*	W	1,403	1,106	1,428	1,445
	E	679	899	1,398	1,644
Sheep	W	2,097	2,250	2,492	2,020
	E	1,771	748	723	900
Horses	W	1,566	1,556	1,618	1,629
	E†	811	642	665	695
Poultry	W	52,193	22,299	25,182	39,957
	E	18,424	13,452	15,764	19,902

* Figures for Western Germany include the Saar. † Including Berlin.

TABLE III. FOODSTUFFS ('000 metric tons)

		1938	1947	1949	1950	1951*
Milk ('000 hl.)	W	148,050	82,572	109,860	134,556	156,000
	E	49,240	22,220	—	—	—
Butter	W	239·0	174·0	236·4	259·2	276·0
	E	85·0	—	64·0	—	—
Meat	W	1,983	830	634·8	1,111·2	1,212·0
	E	731	—	419·0	—	—
Sugar, raw	W	1,286	363	614	1,017	1,085
	E		417	555	833	775

* Annual estimate based on first eight months.

TABLE IV. WESTERN GERMANY: INDUSTRIAL PRODUCTION*
('000 metric tons if not otherwise stated)

	1936	1946	1950	1951†
Coal	116,964	53,946	110,760	117,600
Lignite	65,748	51,588	75,840	80,000
Electricity (million kwh.)	—	23,820	44,028	49,600
Gas (million cu.m.)	—	3,167	9,144	10,200
Crude oil	445·2	649·5	1,118·4	1,300
Iron ore (25% metal)	5,508	3,912	10,884	13,200
Pig iron	12,204	2,088	9,468	10,300
Steel ingots and castings	14,232	2,556	12,121	13,200
Copper	121·7	6·0	133·7	140
Lead	139·6	19·4	118·2	120
Zinc	96·0	14·9	122·8	138
Potash	2,400	2,615	8,927	—
Cement	9,071	2,592	10,872	12,000
Building bricks (million)	4,572	792‡	4,236	4,800
Motor vehicles: Cars	174,240	9,960	216,120	312,000
Motor vehicles: Commercial	42,720	12,960	85,560	132,000
Cotton yarn	275·8	78·9§	282·4	312
Woven cotton fabrics	—	50·5§	189·2	210
Wool yarn	47·3	19·8	85·4	96
Rayon filament yarn	26·3	3·8	48·6	55
Rayon staple fibre	22·3	17·5	112·7	120

* Excluding the Saar. † Annual estimates based on ten months. ‡ Bizone only. § 1947.

Industry. The index of industrial production, which stood at 89 in 1949 (1936 = 100), rose to 113 in 1950 and reached 148 in 1951. The number of persons employed in industry in Sept. 1951 was 14,884,500, or 587,500 more than at the corresponding period of the previous year; but there were still 1,234,900 unemployed. Production progress in basic industries is summarized in Table IV; 1936 is given as a measure of comparison because the Allies considered this a year of neither boom nor depression.

A five-year plan came into effect in Eastern Germany on Jan. 1, 1951, and the Communist press estimated that the population of the Democratic republic would regain a prewar living standard by 1952. The Berlin-Pankow government claimed that the 1951 industrial production rose to the 1936 level. Eastern Germany produced in 1951 about 2·5 million metric tons of coal, about 900,000 tons of crude steel and about 100 million tons of lignite, used as raw material for synthetic oil and rubber.

Foreign Trade. Western German imports in 1951 doubled in value in comparison with 1949. As exports increased more than threefold, the adverse balance of trade was wiped out.

TABLE V. WESTERN GERMANY: EXTERNAL TRADE (DM. million)

	1936*	1948	1949	1950	1951
Imports	2,650	3,168	7,332	11,376	14,700
Exports	3,000	1,812	3,804	8,364	14,600

* Estimate for Western Germany.

Eastern German imports and exports were together estimated at DM.(East) 700 million in 1949 and at DM.(East) 1,200 million in 1950. Nine-tenths of exports were taken by the Soviet Union (50%), Poland (23%), Czechoslovakia (10%) and other people's democracies; 85% of imports were supplied by the U.S.S.R. and its satellites.

Transport and Communications. Railways (Dec. 1950): Western Germany 30,734 km.; Eastern Germany 14,400 km. Railway traffic (Western Germany, monthly average, 1950): passenger-km. 2,443 million; goods ton-km. 4,007 million; goods transported 19,360,000 m. tons. Roads (Dec. 1950): Western Germany 127,621 km., including 2,116 km. of Autobahnen; Eastern Germany 54,900 km. Motor vehicles licensed (Western Germany, Dec. 1950): 2,155,355, including 987,583 motorcycles. Shipping (Dec. 1950; Dec. 1948 in brackets): 762,263 (247,290) gross registered tons. Ships entered in Western German ports (monthly average, '000 NRT., June 1951; June 1950 in brackets): 708 (699). Cargo in Western German ports in external trade (monthly average, '000 metric tons, May 1951; May 1950 in brackets): loaded 820 (647), unloaded 1,578 (967). Telephones (Jan. 1950): Western Germany 2,112,728; Eastern Germany about 300,000.

Finance and Banking. *Western Germany.* Budget: (1950-51 est.) balanced at DM. 13,013·6 million, including occupation costs of DM. 4,598·4 million; (1951-52 est.) balanced at DM. 17,260 million, including occupation costs of DM. 7,300 million. National income (1950, 1949 in brackets): DM. 73,400 (64,500) million. Bank deposits (May 1951): DM. 8,200 million. Currency circulation (June 1951; Aug. 1950 in brackets): DM. 7,550 (7,420) million. Monetary unit: *Deutsche Mark*, created by the currency reform of June 20, 1948; official exchange rate (Dec. 1951): £1 = DM. 11·76; $1 = DM. 4·20.

Eastern Germany. Budget (1950 est.): balanced at DM.(East) 13,500 million, including occupation costs estimated at DM.(East) 6,100 million. Currency circulation (Dec. 1951): DM.(East) 3,331 million. Although theoretically at par with the western Mark, the free exchange rate in Berlin was (Dec. 1951): DM.(West) 1 = DM.(East) 4·70.

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GHULAM MOHAMMAD. Pakistan statesman (b. Punjab, Aug. 29, 1895), was educated at the Mohammedan Anglo-Oriental college (Muslim university after 1920), Aligarh, United Provinces, and entered the Indian Audit and Accounts service in 1920. He later became financial adviser, communications, to the central government. During the early part of World War II he was chief controller of stores, controller general of purchase (1940) and additional secretary, Department of Supply (1941). From 1942 to 1946 he was seconded to Hyderabad state as financial member of the Nizam's government; he had also served in the Bhopal state service (1932-34). When the dominion of Pakistan was set up (Aug. 15, 1947) he became minister of finance and in 1948 took over the additional portfolio of economic affairs. On the assassination of Liaquat Ali Khan (*see* OBITUARIES) on Oct. 16, 1951, Khwaja Nazimuddin (*q.v.*) became prime minister and Ghulam Mohammad succeeded him as governor general.

Ghulam had been knighted in June 1946 but renounced his title in the autumn of that year, in accordance with the Muslim league's decision, when M. A. Jinnah's offer to form an interim government was rejected.

GIBRALTAR. British fortress colony, on a peninsula from S.W. coast of Spain covering the western outlet of the Mediterranean. Area: 2·12 sq.mi. (incl. reclamation). Pop., excl. armed forces: (1931 census) 17,613; (mid-1950 est.) 25,000. Language: Spanish (50% also speak English). Religion: mainly Roman Catholic. Administration: governor; executive council, 4 *ex-officio* and not more than 3 unofficial members; legislative council, 3 *ex-officio*, 2 nominated and 5 elected members. Governor, General Sir Kenneth Anderson.

History. The new legislative council, which had been opened by the Duke of Edinburgh on Nov. 2, 1950, got under way in 1951 and ran into no stormy weather until the autumn session when it was presented with bills introducing income tax and workmen's compensation, neither of which were popular. On April 27 an Admiralty supply vessel, the "Bedenham," blew up in the harbour; ten civilians were killed and extensive, though largely superficial, damage was done to the town, particularly to Government house and the secretariat. The big flat-building scheme continued to make good progress: the first part of it was completed by the end of the year. On Aug. 4 the Spanish government organized the first annual "Gibraltar day" to impress upon Spanish youth the continuing tragedy, as the Spaniards saw it, of occupation of the fortress by foreigners.

Education. Primary and infant schools 15 (1,638 pupils), secondary schools 6 (1,013 pupils).

Finance and Trade. Currency: sterling with local notes. Budget (1951 est.): revenue £819,000; expenditure (incl. development) £1,240,000. Foreign trade: imports (1950) £5 million; exports (incl. re-exports) £634,000. (K. G. B.)

GILBERT AND ELLICE ISLANDS: *see* PACIFIC ISLANDS, BRITISH.

GIRL GUIDES. During the festival year of 1951 practical demonstrations of the Girl Guides' ideal of service to the community through the "good turn" took the form of planting flowers to brighten city window boxes and hospital grounds, removing litter from much-loved beauty spots and setting an example of tidiness wherever they camped or held functions. They joined in the nation-wide ceremony of lighting beacons on the eve of the Festival of Britain and, at the South Bank exhibition in London as well as in towns and villages up and down the country, took part in great rallies and pageants. At the many Festival camps the general public was given an opportunity of seeing the recreational and outdoor activities of the movement. In addition, many fine indoor exhibitions and displays gave evidence of the contribution to the life of the community made by every member of the movement. Princess Margaret (*q.v.*), as commodore of the sea rangers, took the salute from 5,000 guides of County Durham after a service in Durham cathedral on May 13, and a rally and pageant were held on Oct. 6 in London for over 1,200 cadets, the young girls in training to be the leaders of tomorrow. (B. PL.)

United States. Activities in 1951 included the International Encampment of Girl Guides and Girl Scouts at Camp Wind mountain, near Stevenson, Washington, July 17-Aug. 6; the All-States Girl Scout camp, the first of its kind to be held in the U.S., July 31-Aug. 21; and the 31st national convention at Boston, Massachusetts, Oct. 15-18. During the year, girl scout units celebrated the 25th anniversary of the Edith Macy school, the national girl scout training school. The total membership on June 30, 1951, was 1,764,682. The officers in 1951 were: Dorothy C. Stratton, national executive director; Mrs. C. Vaughan Ferguson, president; and Mrs. Amory Houghton, secretary.

GLASS. The year 1951 was a period of increasing activity—commercial, manufacturing, technical and scientific—in the glass industries of all countries. Shortage of metals caused by rearmament increased the world demand for glass. National exhibitions of unusual character enhanced public interest in glass. The demonstration of glass-making in the Power and Industry pavilion, at the South Bank exhibition, London, was popular. The "Two Thousand Years of Paris" exhibitions included "L'Art du Verre" in the Louvre, where great manufacturers of artistic glass (Lalique, Baccarat, Daum and Saint-Louis of France; Val Saint-Lambert of Belgium; Barovier and Toso, Seguso and Venini of Italy; Leerdam of the Netherlands; Kosta and Orrefors of Sweden; and Steuben of the United States) collectively provided a galaxy of specimens of beautiful craftsmanship. The centenary of Corning glass works, leading U.S. glass manufacturers, was made known to Europe in the lecture to the 1951 Design congress in London on Sept. 19 and 20 by Arthur Houghton, Jr.

Technological and scientific progress was manifested in lively discussions at the meeting in Paris, in June, of the International Commission on Glass, when research workers of nine countries presented contributions to contemporary technology.

Shortage of certain raw materials for glass-making created anxieties; particularly the world shortage of selenium, used in the glass industry for ruby glasses and for "decolourizing" commercial glasses. Methods of economizing in the use of selenium were devised, possible substitutes investigated and new world sources of selenium explored.

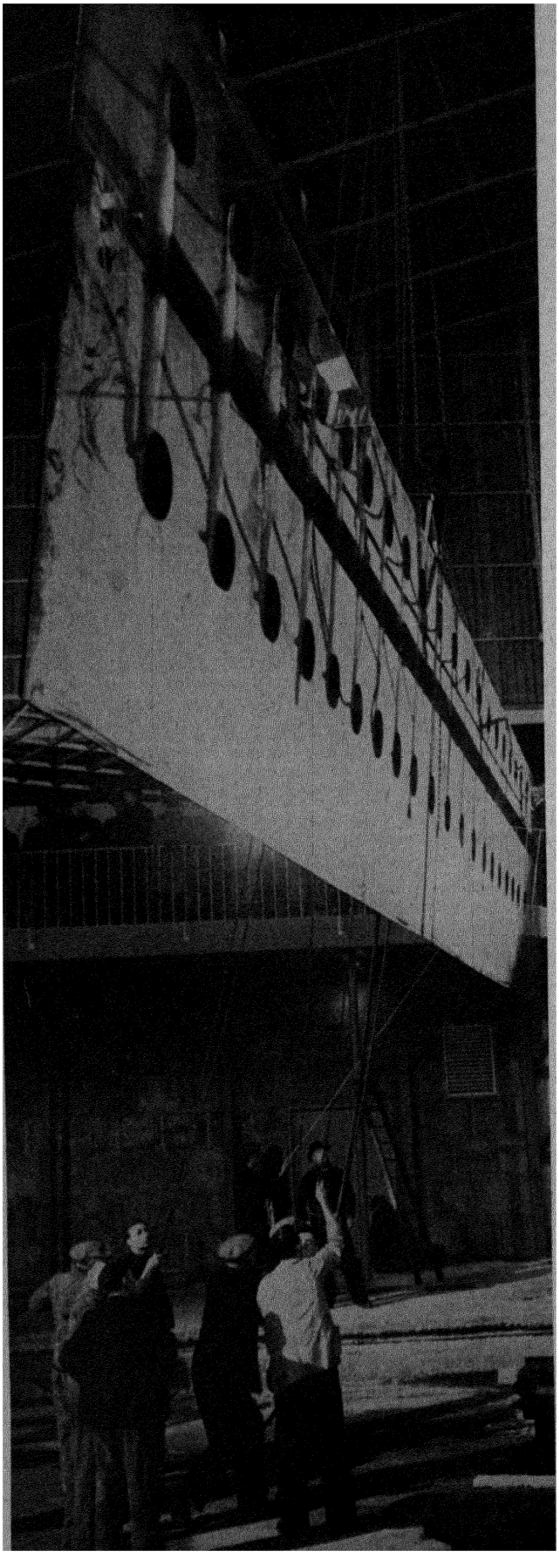
Continued expansion of production in the United Kingdom was demonstrated particularly in the output of containers, this was nearly 25 million gross, as compared with about 22 million gross in 1950; container productive capacity was increased by the use of electricity in glass-melting.

In many European countries, important manufacturing developments took place. In Italy, 360 glass factories employing 36,000 workers reached an output approaching 450,000 tons. Yugoslavia worked to a target of 30,000 tons of containers and 50 million sq. ft. of flat glass.

In Western Germany, 109 glass factories reached a productive capacity of more than one million tons of glass, 12½% higher than in 1936. In Austria production valued at £10 million sterling resulted from the work of 10,000 employees. The overseas expansion of the Australian glass manufacturers was continued by the erection of a factory in Bangkok. In India, the Hindusthan-Pilkington glassworks was established with the object of producing 21 million sq. ft. of sheet glass a year. In Israel, the erection of Negev Glass works at Beersheba was started, intended to manufacture 60 tons of glass containers a year, while the already established Phoenicia glassworks increased its plant and equipment for containers and window glass. (E. MGH.)

United States. In 1951 the U.S. glass industry continued to be prosperous. Glassware selling for $1,000 million was produced in 1951 by 130,000 workers. Production reached new high levels in several fields. Competition by foreign producers of hand-made glass tableware began to be felt. Plastic substitutes for tumblers and small dishes appeared in larger numbers than formerly.

Polished plate glass production was 8% over that for 1950, which was a record year. Automobiles required the major portion of the polished plate and a great deal of the window glass. The plate glass industry made progress in the improvement of glass quality and in techniques such as the bending of polished plate. Certain of the manufacturers of plate glass established plants for making glass fibres and increasing production and widespread application of this new engineering



material was expected. Numerous patents disclosing new methods of making and using glass fibres were issued during the year.

Raw materials were in good supply, with the exception of selenium and cobalt oxide, both essential for making colourless glasses in tanks. (S. R. S.)

See J. E. Stenworth, *Physical Properties of Glass* (Oxford, 1950).

GLIDING. There were no international contests in 1951. The British National Gliding championships (no longer contests) were held once more at Great Hucklow (Derbyshire), in July. The winner was Flight Lieut. R. C. Forbes, who produced a photograph of a lighthouse to prove that he had passed over it. Both Forbes and G. H. Stephenson, runner-up, used the new Slingsby Sky sailplane. The R.N. Gliding and Soaring association's win of the Kemsley trophy for the leading club was evidence of the flourishing state of the sport in the services.

Flight Lieut. A. W. Bedford broke the British single-seat distance and "goal" records with a flight on May 2 from Farnborough, Hampshire, to near Newcastle-on-Tyne (253 mi.). P. A. Wills (awarded the Britannia trophy for 1950) set up yet another home record by soaring 163 mi. "out and return" on June 3.

In May, the Allied high commissioners "withdrew existing prohibitions on gliding" in the Federal German republic. Later in the year reports and photographs were already appearing of German competitive gliding. (G. D. H. L.)

Western Germany held its first postwar glider meeting on Aug. 25 and 26 at the Wasserkuppe. About 30,000 people attended the demonstration by 15 gliders, most of which were home-built.

The French women's distance record was broken on May 11, 1951, when Mme. M. Choisnet-Gohard flew the Air 100 for 235 mi. In France, on May 5, 1951, René Fonteillis flew a passenger in a Kranich at an average speed of 41 m.p.h. for a new record.

The Institute of Gliding in Poland created the I.S. 4 Jastrząb, an aerobatic glider with excellent stability characteristics, and the I.S. 6X Nietoperz, a tailless glider which was flown successfully. Fritz Raab, of Western Germany, produced the Doppelraab, designed to serve as an inexpensive, simple intermediate two-seat sailplane suitable for glider training. The A.M. 11 Albatros, a powered glider, was designed in Argentina by Martelli. The fuselage ended at the trailing edge of the wing, and the tail surfaces were supported by two booms. The French designed the Arsenal 4·111, a high-performance, single-seat sailplane with a predicted glide ratio of 34 to 1 at 53 m.p.h. and the Fouga CM 8-13 Aero, an aerobatic glider which successfully performed at air shows.

Three pilots earned the newest Fédération Aéronautique Internationale award, the Diamond C; John Robinson of the U.S., no. 1; Gérard Pierre of France, no. 2; and J. Shelly Charles of the U.S., no. 3.

United States. On Dec. 30, 1950, William S. Ivans, Jr., flying a 1-23, reached an absolute altitude of 42,000 ft. and an altitude-gained record of 30,100 ft. On March 5, 1951, Robert Symons and a passenger soared to an absolute altitude record for multi-seat gliders of 38,035 ft., in a Pratt Read. On Aug. 5, 1951, Richard H. Johnson set a distance record of 536·169 mi. flying his RJ-5.

The 18th National Soaring contest of the Soaring Society of America was held at Elmira, New York, during July 4-12, 1951. Thirty-five pilots participated and flew 7,093 mi. The longest flight was 363 mi. by R. H. Johnson, who became

The largest sheet of plate glass ever made, being moved into position by means of a vacuum-sucker apparatus in the Power and Production pavilion at the South Bank exhibition in 1951.

national soaring champion for the second consecutive time.

Ten pilots assembled at Odessa, Texas, for a soaring expedition. In the following five days the average distance per flight was 255·7 mi. Besides the international distance record already mentioned, W. Wiberg, on Aug. 5, 1951, flew his LK to a predetermined destination 332·903 mi. away for a new national record.

Two new designs appeared—a sailplane by Kemp Trager with a pressurized cabin for high-altitude flight, and a modification of the RJ-5. (B. SK.)

GOA: *see* PORTUGUESE OVERSEAS TERRITORIES.

GOLD. Production. Extraction of gold in the main producing countries during the greater part of 1951 was carried on at a rather lower rate than in the preceding year. High operating costs and the relatively low selling price favoured by the International Monetary fund during most of the year were deterrents to higher output.

Canada. Whereas the recovery in production which set in after 1945 continued in 1950, a slight drop was recorded in 1951. During the first seven months of that year output ran at an annual rate of 4,342,000 fine oz., or about 100,000 fine oz. less than the amount raised in 1950.

South Africa. Output in 1950 was slightly lower than in 1949, and this trend continued in 1951 when, during the first nine months, production was 8,614,282 fine oz., which is equivalent to 11,485,708 fine oz. a year. Extraction in 1950 came to 11,663,692 fine oz.

WORLD PRODUCTION OF GOLD
(thousands of fine ounces)

	1945	1946	1947	1948	1949	1950
United States	929	1,462	2,165	2,025	1,996	2,375
Canada	2,697	2,833	3,070	3,525	4,113	4,441
Mexico	419	421	465	368	350*	400
Central America	244	218	250	262	260	250*
South America	1,259	1,202	1,100	935	900	900*
India	168	132	175	180	161	189
Belgian Congo	341	331	308	300	300*	350
Gold Coast	475	587	560	672	675*	689
Southern Rhodesia	568	545	520	514	528	511
South Africa	12,225	11,927	11,200	11,584	11,705	11,664
Australia	657	824	938	890	893	850
World total*	26,100	27,500	29,800	29,600	30,000†	29,600†

* Estimated. † Including an estimated 7,000,000 fine oz. for the U.S.S.R.

United States. In 1950 production of gold reached a postwar record of 2,375,130 fine oz., but during the first eight months of 1951 extraction fell to an annual rate of 1,971,190 fine oz.

Prices and Movements. During the early part of 1950 the price of gold in the free market rose to $44 a fine oz., on the strength of hopes in the far east that the U.S. official price would be raised. This did not happen, and the price slowly went back to $40·50. This tendency was strengthened by the moves towards an armistice in Korea in early summer. Buying came chiefly from the near east; the price fluctuated between $40·50 and $42 a fine ounce.

The most important event of the year came on Sept. 28, when the International Monetary fund dropped its objections to the sales of non-monetary gold at a premium. Before this many mines (particularly in South Africa) found it impossible to produce at a profit at the official rate of $35 a fine oz., and attempts had been made to ease the position by subsidies (for instance in Canada), and by selling certain amounts of gold at a premium for industrial and private purposes against certificates, a method which was sometimes abused. During the first half of 1951 such premium sales in South Africa came to nearly £4 million. When the ban was raised Southern Rhodesia decided to sell 40% of its output on the free market. Policy in South Africa was affected by the consideration that excessive offerings would depress the premium. The Canadian government decided to sanction premium sales, subject, however, to the withdrawal of the subsidy. Late in November, Australia decided to sell all gold produced on the free premium market.

The immediate result of the fund's decision was an increase in the free price. This was due to a shortage of gold—dealers had been keeping their stocks low pending a decision—coupled with a deterioration in the international position.

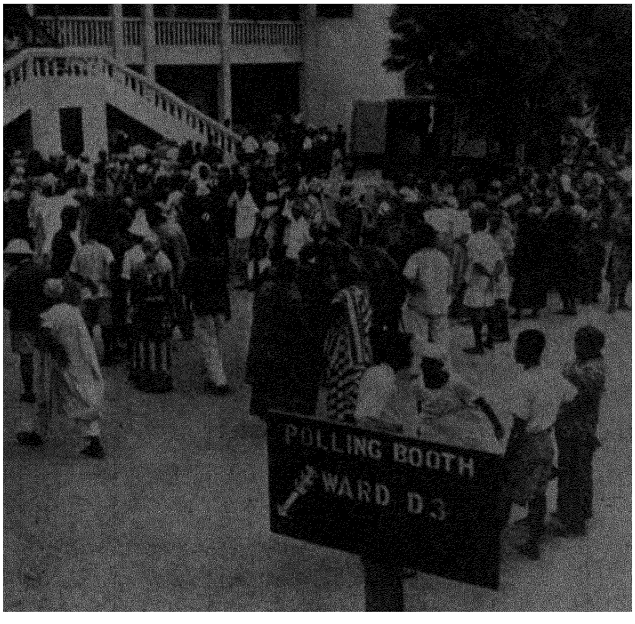
Movements of gold, as in 1950, were dominated by conditions in the United States. During 1951 it became clear that the outflow of gold from the U.S. in 1950 was merely temporary. In that year U.S. stocks of monetary gold declined by $1,744 million; during most of 1951 stocks of gold remained stable.

There was a converse movement in the sterling area, where reserves of gold (and dollars) did, indeed, increase by $567 million during the first half of the year; but this gain was more than lost during the third quarter, with all the indications suggesting more losses to come. Some gold had also to be paid to the European Payments union. Substantial increases were recorded in the gold holdings of the national banks of Belgium and Sweden. (W. H. JN.)

GOLD COAST. British colony and protectorate on the west coast of Africa bounded W., N. and E. by the French territory of Ivory Coast and Upper Volta and Togoland under United Kingdom trusteeship respectively. Togoland under United Kingdom trusteeship, the western part of the former German colony of Togoland, is administered with the Gold Coast.

	Area (sq.mi.)	Population (1931 census)	Population (1948 census)
Gold Coast	78,650	2,869,854	4,118,450
Togoland	13,040	293,714	382,768

Pop.: African with Arab admixture; non-African (1948 census), Gold Coast 6,770, Togoland 51. Language: tribal dialects and Hausa. Religion: pagan, with Moslem and Christian minorities. Chief towns (pop. 1948 census): Accra (cap., 135,926); Kumasi (78,483); Sekondi-Takoradi (44,557). Administration: governor; executive council, 3 *ex-officio* ministers, 6 responsible for departments and 2 without portfolio; legislative assembly, 38 members elected on adult



Electors of Accra in the Gold Coast, lining up [illegible] in the colony's first general election, Feb. 1951.

suffrage partly directly and partly through electoral colleges, 18 elected by the local councils of Ashanti, 19 elected from the Northern Territories council, 6 elected by the chambers of commerce and mines (only 2 have voting rights) and the 3 *ex-officio* ministers. Governor, Sir Charles Noble Arden Arden-Clarke.

History. The year 1951 saw the inauguration of the remarkable political experiment in the Gold Coast, the new constitution which established a legislative assembly of 84 members (75 elected) and an executive council, with the governor as president and 11 members, 8 of whom were chosen from the assembly and were removable at its instance. Elections for the assembly were held during Feb. 5-10. There was no disorder and few election offences were reported. About 80% of the electorate were illiterate.

The three main political parties were the Convention People's party led by Kwame Nkrumah (*q.v.*), the United Gold Coast convention led by Dr. J. B. Danquah and the much smaller and, as events proved, quite ineffective National Democratic party. In the 33 rural seats, for which there were 89 candidates, the Convention People's party secured 1,946 votes and 29 seats against 745 votes and 4 seats for all others, while in the municipalities of Accra, Kumasi, Sekondi-Takoradi and Cape Coast they polled 58,886 votes against 5,500 for the rest and secured all 5 seats. The new assembly had an average age of just below 40, and of its 84 members 22 were graduates and 40 had received no post-primary education. Nkrumah, who was elected for Accra with a vote of 20,780, was at the time serving a prison sentence not due to end until November, but on Feb. 12 the governor remitted the remainder of the sentence "as an act of grace on the eve of the inauguration of the new constitution." At a press conference next day, Nkrumah said: "I come out of gaol and into the assembly without the slightest feeling of bitterness to Britain." He added that the Gold Coast would remain within the Commonwealth. On Feb. 26 Sir Charles Arden-Clarke submitted to the assembly the names of Nkrumah as leader of government business, and seven others as ministers. Six were members of the C.P.P., and the two remaining were representatives of Ashanti and the Northern Territories. These appointments were approved almost unanimously.

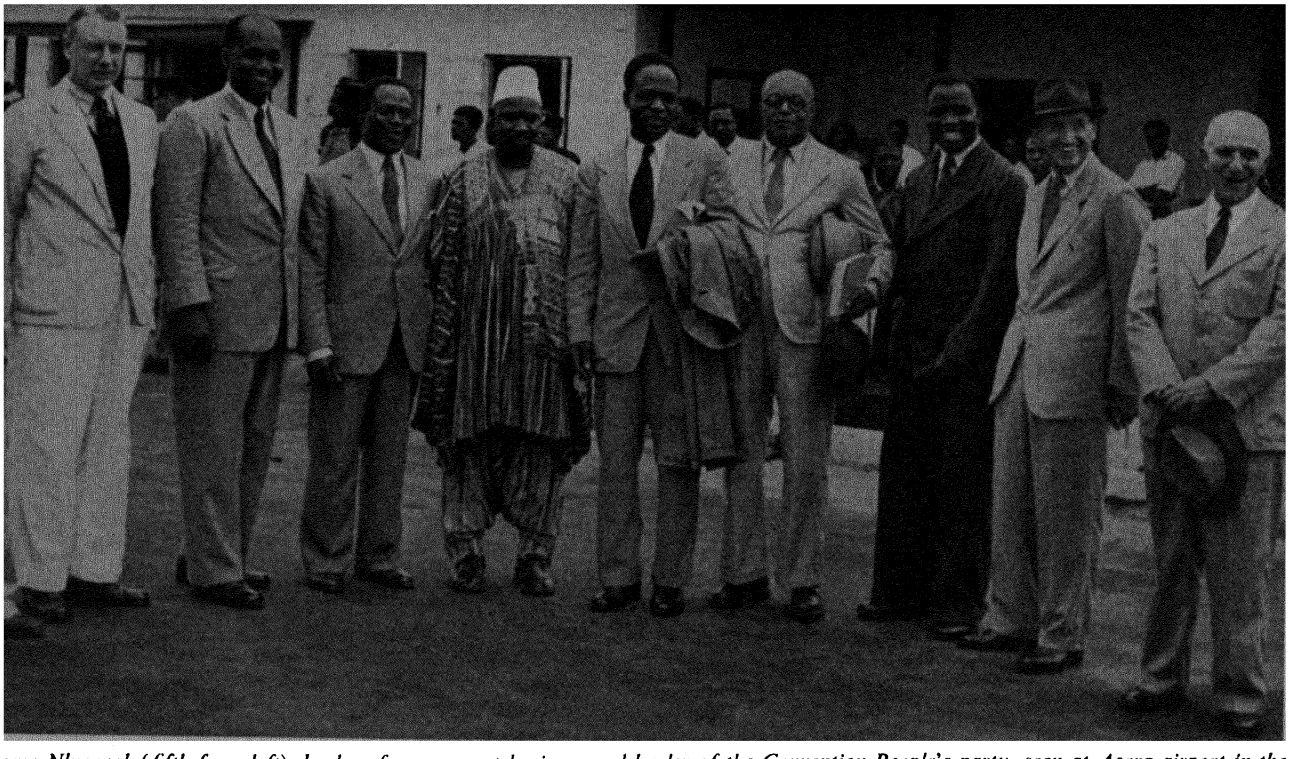
The government produced a development plan involving an expenditure of £74 million of which 52% was to be on economic development and communications and 33% on social services. The Volta river power project would in addition require £70 million to £100 million. The government declared its intention to proceed with this, provided the money could be raised and suitable terms agreed with the aluminium companies for the purchase of power for smelting Gold Coast bauxite.

Education. Primary schools attendance: (1950) 212,000; (est. for Jan., 1952) 270,000. Univ. coll. (1951-52): students, 340; staff, *c.* 100.

Finance and Trade. Currency: West African pound (£WA = £1 sterling). Budget (1950): revenue £20,564,750; expenditure £15,643,150. Foreign trade (1950): imports £44,276,174; exports £71,435,395. Principal exports: cocoa, gold, manganese and timber.

See J. R. E. Carr-Gregg, *Self-Rule in Africa* (New York, 1951); J. H. Price, *The Gold Coast Election* (London, 1951); F. J. Pedler, *West Africa* (London, 1951). (K. E. R.)

GOLF. In many respects 1951 was the most eventful year of British golf since World War II. M. Faulkner, who, at Portrush, Northern Ireland, won the first British open championship to be played in Ireland and the masters' tournament at Wentworth, was the outstanding golfer. Splendid putting and a rare determination enabled him to score most consistently and at last do justice to his great ability. Faulkner played admirably and his open victory would have been overwhelming but for a brave last round by A. Cerda. Of the other professionals J. Panton, who won the Vardon trophy, and C. H. Ward were the most consistent. The matchplay champion hit immense distances and putted ruthlessly at Hoylake, Cheshire, in beating



Kwame Nkrumah (fifth from left), leader of government business and leader of the Convention People's party, seen at Accra airport in the summer of 1951 after visiting Great Britain and the United States. Left to right: R. P. Armitage (minister of finance), K. A. Ghedemah (minister of health and labour), E. O. Asafu-Adjaye (minister of local government), J. A. Braimah (minister of communications and works), Kwame Nkrumah, T. Hutton-Mills (minister of commerce, industry and mines), Kojo Botsio (minister of education and social welfare), P. R. Branigan (minister of justice), E. Norton-Jones (minister responsible for defence and external affairs).



Harold Paddock (United States) putting at the 18th hole at Birkdale, Lancashire, in his Walker cup match with Ian Caldwell (Great Britain), May 1951. The United States retained the cup by 6 matches to 3.

F. Van Donck, T. H. Cotton, W. D. Smithers and, in the final, J. Adams, who won the Italian open a few days later. P. Thomson, a young Australian, returned a 62 at Oakdale and created a new record for major British tournaments.

The United States retained the Walker cup after a magnificent contest at Birkdale by 6-3. Two down in the foursomes, the British fought gallantly against powerful opposition. The match in which C. R. Coe, a glorious golfer, was beaten by R. J. White, the finest amateur of his generation, was probably the greatest within memory. J. B. Carr defeated F. R. Stranahan and A. T. Kyle, with the aid of a stymie on the last green, beat W. P. Turnesa, the U.S. captain. In the Ryder cup match at Pinehurst (U.S.), the British team, although defeated by 9½-2½, did as well as was expected. A. Lees became the first British professional to win both his foursome, with Ward, and his single in the U.S. F. Daly halved his single and D. J. Rees was only beaten on the last green. Faulkner and Ward played finely against the greatest U.S. players, S. J. Snead and B. Hogan. The remainder were outclassed.

The amateur championship, played in Wales for the first time, included a formidable U.S. entry at Porthcawl, Glamorgan. Most of the leading British players did not compete and although Carr again defeated Stranahan a U.S. victory was almost inevitable. R. D. Chapman in his third final played superbly and overcame Coe by 5 and 4. For the last eight holes of the game he required only 26 strokes. G. P. Roberts won the English title at Hunstanton, Norfolk, defeating H. Bennett at the 39th. The women's championship was won by an Irish golfer, Mrs. P. G. MacCann, who surprisingly beat Miss F. Stephens by 4 and 3 at Broadstone. Later in the year Miss Stephens was a member of a British team which toured South Africa. In July six leading U.S. women professionals visited England, played in two events and made a great impression by their power and technical efficiency.

F. Van Donck (Belgium) was the most successful European professional. In addition to the Silver King and North British tournaments he won the Dutch and Spanish opens and was runner-up to A. Pelissier (France) in the Belgian. Several U.S. Walker cup players appeared in the French amateur championship and R. W. Knowles (U.S.) defeated H. de Lamaze, the best European amateur, in the final. The Vicomtesse de Saint-Sauveur remained the most elegant and effective woman player in Europe.

During the summer representatives of the United States Golf association visited Great Britain to confer with the Rules of Golf committee of St. Andrews and uniformity of rules between the two countries was agreed upon. The most important changes, which became effective on Jan. 1, 1952, were the abolition of the stymie, revised definitions of putting surfaces and hazards and, most wisely, reversion to the increased penalty of stroke and distance for out of bounds, lost and unplayable balls. In the autumn the illustrious Francis Ouimet drove himself in at St. Andrews and became the first U.S. captain of the Royal and Ancient club. (P. A. W. T.)

United States. In the 1951 U.S. open championships at Oakland Hills, Detroit, Ben Hogan, winner of the 1948 and 1950 championships, was five strokes behind at the end of 36 holes in the 72-hole test, but he won with a 35-32-67 round. His score was 287. Only one other man, Clayton Heafner, who was runner-up with 289, was able to break 70 at Oakland Hills.

Dorothy Kirby of Atlanta, Georgia, won the women's national amateur championship by defeating Claire Doran of Cleveland, Ohio, 2 and 1, in the 36-hole final match at St. Paul, Minnesota. Miss Kirby had entered her first national at 13 years of age, and had twice finished as runner-up for the title.

Sam Snead of White Sulphur Springs, West Virginia, achieved his third victory in national professional championship golf by running away from the field in the 1951 Professional Golfers' association championship at the Oakmont club, Pittsburgh.

Richard D. Chapman of Pinehurst, North Carolina, a relentless seeker after the British amateur championship for half his 41 years, finally did the trick when he defeated his Walker cup compatriot, C. R. Coe, in the final at Porthcawl, Glamorgan (see above).

Lloyd Mangrum, Niles, Illinois, and Billy Maxwell,

Odessa, Texas, also won their first major honours. Maxwell won the national amateur championship at Bethlehem, Pennsylvania, and Mangrum led all professional money winners with $26,008, and also captured the Vardon scoring trophy with an average of 70·05 strokes a round for 104 rounds.

Apart from the competitive aspect of the game, golf prospered in every part of the U.S., notably in the open championship at the Oakland Hills club, Detroit, where a record attendance revenue of $70,000 was taken. A following of 15,000, the largest single-day attendance in the 51-year history of the United States Golf association's classic event, saw the final two rounds of the tournament. (C. Bt.)

GOVERNMENT DEPARTMENTS. The following were the chief officers of the more important public departments in the United Kingdom on Dec. 31, 1951.

Admiralty, Board of	
First Lord	J. P. L. Thomas
Parliamentary and Financial Secretary	Commander A. H. P. Noble
Permanent Secretary	Sir John Lang
Agriculture and Fisheries, Ministry of	
Minister	Sir Thomas Dugdale
Parliamentary Secretaries	Lord Carrington G. R. H. Nugent
Permanent Secretary	Sir Donald Vandepeer
Air Ministry	
Secretary of State	Lord de L'Isle and Dudley
Parliamentary Under Secretary	Nigel Birch
Permanent Under Secretary	Sir James Barnes
Cabinet Office	
Secretary to the Cabinet	Sir Norman Brook
Civil Aviation, Ministry of	
Minister	J. S. Maclay
Parliamentary Secretary	J. Gurney Braithwaite
Permanent Secretary	Sir Arnold Overton
Civil Service Commission	
First Commissioner	A. P. Sinker
Colonial Office	
Secretary of State	Oliver Lyttelton
Minister of State	A. T. Lennox-Boyd
Parliamentary Under Secretary	Earl of Munster
Permanent Under Secretary	Sir Thomas Lloyd
Commonwealth Relations Office	
Secretary of State	General Lord Ismay
Parliamentary Under Secretary	J. G. Foster
Permanent Under Secretary	Sir Percivale Liesching
Customs and Excise, Board of	
Chairman	Sir William Croft
Defence, Ministry of	
Minister	*Winston S. Churchill
Permanent Secretary	Sir Harold Parker
Development Commission	
Chairman	Countess of Albemarle
Duchy of Lancaster, Office of the	
Chancellor	Viscount Swinton
Education, Ministry of	
Minister	Florence Horsbrugh
Parliamentary Secretary	K. W. M. Pickthorn
Permanent Secretary	Sir John Maud
Exchequer and Audit Department	
Comptroller and Auditor General	Sir Frank Tribe
Food, Ministry of	
Minister	Gwilym Lloyd-George
Parliamentary Secretary	Charles Hill
Permanent Secretary	Sir Henry Hancock
Foreign Office	
Secretary of State	*Anthony Eden
Minister of State	Selwyn Lloyd
Parliamentary Under Secretaries	Marquess of Reading Anthony Nutting
Permanent Under Secretary	Sir William Strang
Forestry Commission	
Chairman	Lord Robinson
Fuel and Power, Ministry of	
Minister	Geoffrey Lloyd
Parliamentary Secretary	L. W. Joynson-Hicks
Secretary	Sir Donald Fergusson
General Register Office	
Registrar General	George North
Health, Ministry of	
Minister	H. F. C. Crookshank
Parliamentary Secretary	Patricia Hornsby-Smith
Secretary	J. M. K. Hawton
Health, Welsh Board of	
Chairman	G. C. H. Crawshay
Home Office	
Secretary of State	*Sir David Maxwell Fyfe
Parliamentary Under Secretary	David Llewellyn
Permanent Under Secretary	Sir Frank Newsam
Housing and Local Government, Ministry of	
Minister	Harold Macmillan
Parliamentary Secretary	A. E. Marples
Permanent Secretary	Sir Thomas Sheepshanks
Information, Central Office of	
Director General	Sir Robert Fraser
Inland Revenue, Board of	
Chairman	Sir Eric St. John Bamford
Labour and National Service, Ministry of	
Minister	Sir Walter Monckton
Parliamentary Secretary	Sir Peter Bennett
Permanent Secretary	Sir Godfrey Ince
Law Officers' Department	
Attorney General	Sir Lionel Heald
Solicitor General	Sir Reginald Manningham-Buller
Lord Advocate's Department	
Lord Advocate	J. L. Clyde
Solicitor General	W. R. Milligan
Lord Chancellor's Department	
Lord Chancellor	Lord Simonds
Permanent Secretary	Sir Albert Napier
Lord Privy Seal	
Lord Privy Seal	*Marquess of Salisbury
Materials, Ministry of	
Minister	Viscount Swinton
Permanent Secretary	E. A. Hitchman
National Debt Office	
Comptroller General	N. E. Young
National Insurance, Ministry of	
Minister	Osbert Peake
Parliamentary Secretary	R. H. Turton
Permanent Secretary	Sir Geoffrey King
Paymaster General	
Paymaster General	Lord Cherwell
Pensions, Ministry of	
Minister	D. Heathcoat-Amory
Parliamentary Secretary	Brigadier J. G. Smyth
Permanent Secretary	Sir Arton Wilson
Post Office	
Postmaster General	Earl de la Warr
Assistant Postmaster General	L. D. Gammans
Director General	Sir Alexander Little
Prison Commission	
Chairman	L. W. Fox
Privy Council Office	
Lord President	*Lord Woolton
Clerk	F. J. Fernau
Public Prosecutions, Department of the Director of	
Director	Sir Theobald Mathew
Public Record Office	
Deputy Keeper	Sir Hilary Jenkinson
Royal Mint	
Deputy Master and Comptroller	L. L. H. Thompson
Scientific and Industrial Research, Department of	
Secretary	Sir Ben Lockspeiser
Scottish Office	
Secretary of State	James Stuart
Minister of State	Earl of Home
Parliamentary Under Secretaries	Commander T. D. Galbraith W. Mc. N. Snadden
Permanent Under Secretary	Sir David Milne
Stationery Office	
Controller	H. G. G. Welch
Supply, Ministry of	
Minister	Duncan Sandys
Parliamentary Secretary	A. R. W. Low
Permanent Secretary	Sir Archibald Rowlands
Trade, Board of	
President	Peter Thorneycroft
Secretary for Overseas Trade	H. L. d'A. Hopkinson
Parliamentary Secretary	H. G. Strauss
Permanent Secretary	Sir Frank Lee
Transport, Fuel and Power, Office of the Secretary of State for the Co-ordination of	
Secretary of State	Lord Leathers

Transport, Ministry of	
Minister	J. S. Maclay
Parliamentary Secretary	J. Gurney Braithwaite
Permanent Secretary	Sir Gilmour Jenkins
Treasury	
Prime Minister and First Lord	*Winston S. Churchill
Chancellor of the Exchequer	*R. A. Butler
Parliamentary Secretary	P. G. T. Buchan-Hepburn
Financial Secretary	J. A. Boyd-Carpenter
Permanent Secretary	Sir Edward Bridges
War Office	
Secretary of State	Antony Head
Under Secretary and Financial Secretary	J. R. H. Hutchison
Permanent Under Secretary	Sir George Turner
Works, Ministry of	
Minister	David Eccles
Parliamentary Secretary	Hugh Molson
Permanent Secretary	Sir Harold Emmerson

* *See* separate article.

GRAIN CROPS. In northern Europe, including Great Britain, a long wet winter handicapped winter cereal crops and delayed spring sowings. Conditions were better in Spain and Portugal and in eastern Europe. In India, floods caused some damage to rice, and drought was severe in parts of north Africa. Excessive dryness also caused a setback to winter cereals in the United States, but in Canada growing conditions were highly satisfactory.

TABLE I. ESTIMATED AREA AND PRODUCTION OF MAIZE

	Area ('000 ha.)		Production ('000 metric tons)	
	1950	1951	1950	1951
Europe (excluding U.S.S.R.)	10,500	10,800	13,000	17,000
North and Central America	39,400	40,100	83,800	83,900
South America	7,500	8,800	9,200	10,600
India	3,061	—	1,709	—
Pakistan	381	—	374	—
Indonesia	—	—	—	—
Philippines	950	—	570	—
Turkey	593	617	628	842
North and Central Africa	5,100	—	4,420	2,470
South Africa	3,300	3,200	2,633	—

SOURCE: Figures in Tables I, II and III are taken from the F.A.O. *Monthly Bulletin*. Data are not available from the U.S.S.R., eastern Europe or China. Figures for the southern hemisphere (excluding rice) relate to the 1949-50 and 1950-51 crops respectively.

The rye crop showed comparatively little change over the preceding year though it may have lost ground to wheat in the U.S.S.R. A tetraploid strain of the variety Stål was tested out in Sweden. It had much larger kernels than the normal strain, but had to be grown in isolation from the latter for proper grain setting.

There was little change in the production of oats. In North America, races of crown rust, to which the numerous varieties deriving their resistance from the variety Bond were susceptible, became prevalent.

Barley production was up on the previous year. In England, breeders worked on the production of types with greater winter hardiness.

Maize generally did well, and production in several countries exceeded that of the previous year. Hybrid maize was grown on a considerable scale in Argentina, Peru, Spain, Portugal, Italy and South Africa. Although hybrid seed from the U.S. did well in some cases when imported elsewhere, local inbreds usually seemed preferable for hybrid production. Hybrid maize did not produce large yield increments in more northerly latitudes.

The sorghum acreage continued to expand in Italy, South Africa and Australia. Dwarf forms suitable for mechanized harvesting were sought by breeders.

The area sown to rice was very large. Chinese rice production apparently returned to normal, but military insecurity lowered production in Indochina. Rice production in Europe continued to expand, and also increased in Australia. (*See* also WHEAT.) (R. H. RI.)

TABLE III. ESTIMATED AREA AND PRODUCTION OF RICE

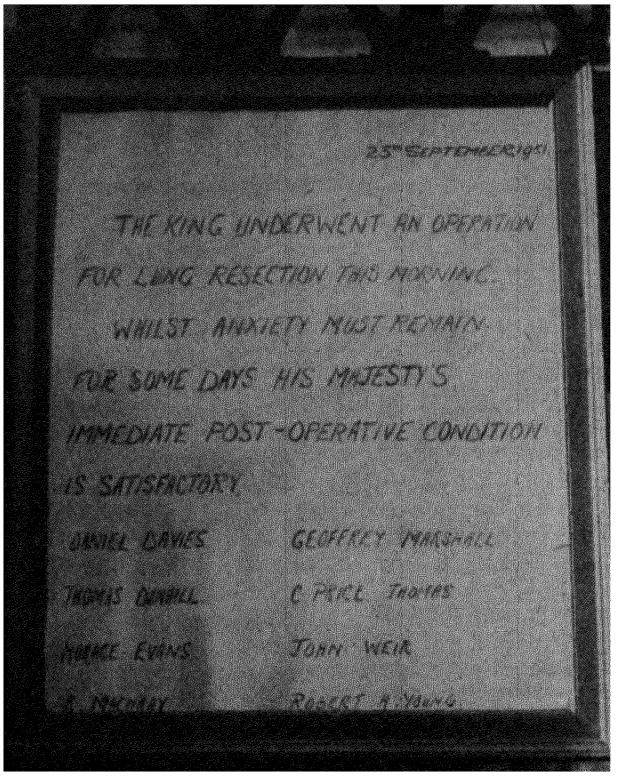
	Area ('000 ha.)		Production ('000 metric tons)	
	1950	1951	1950	1951
Europe (excluding U.S.S.R.)	300	320	1,200	—
North and Central America	1,050	—	2,300	—
South America	2,300	—	3,900	—
Burma	3,800	—	5,200	—
Formosa	770	—	1,855	—
India	30,462	—	30,981	—
Indochina	—	—	—	—
Indonesia	—	—	—	—
Japan	2,994	3,004	12,005	12,007
Pakistan	9,065	—	12,490	—
Philippines	2,258	—	2,795	—
Thailand	5,295	—	6,782	—
Africa	2,900	—	3,500	—

GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF. An independent kingdom in northwestern Europe, the United Kingdom comprises the main island of Great Britain, with numerous smaller islands off the English and Scottish coasts, and the six northeastern counties of Ireland. It is a constitutional monarchy, with a king and parliament of two houses, the House of Lords, consisting, on Nov. 13, 1951, of 3 peers of the blood royal, 791 hereditary peers (21 dukes, 27 marquesses, 134 earls, 93 viscounts and 516 barons), 26 spiritual peers (2 archbishops and 24 bishops), 16 Scottish representative peers, a number of Irish representative peers (in 1951, 5; vacancies no longer filled) and 9 life peers who have held high judicial office; and the House of Commons, numbering 625 members, elected by universal suffrage. Table I shows areas and populations of the component parts of the United Kingdom.

Language: English is almost universally spoken, but in Wales (according to the 1931 census) 3% of the population spoke Welsh only and 31% spoke both languages; in Scotland (1951 census) 2,652 spoke Gaelic only and 91,630 spoke both languages; in the Isle of Man 528 spoke English and Manx. Religion: Church of England (nominal membership 15 million, effective 5·5 million); Roman Catholic Church

TABLE II. ESTIMATED AREA AND PRODUCTION OF SMALL GRAIN CEREALS, EXCLUDING WHEAT

	Rye				Oats				Barley			
	Area ('000 ha.)		Production ('000 metric tons)		Area ('000 ha.)		Production ('000 metric tons)		Area ('000 ha.)		Production ('000 metric tons)	
	1950	1951	1950	1951	1950	1951	1950	1951	1950	1951	1950	1951
France	504	471	606	504	2,353	2,223	3,305	3,602	962	1,017	1,572	1,667
Germany, Western	1,363	1,290	3,021	3,034	1,158	1,131	2,545	2,835	613	643	1,473	1,688
Germany, Eastern	1,375	—	2,130	—	710	—	1,140	—	285	—	515	—
Great Britain	29	22	58	45	1,257	1,158	2,735	2,457	720	771	1,738	1,811
Other western European	2,276	2,172	3,057	—	4,106	3,976	5,775	6,163	—	—	5,379	—
United States	737	740	584	638	17,007	15,318	21,266	19,918	4,529	3,963	6,554	5,539
Canada	473	456	339	458	4,684	4,882	6,482	7,608	2,681	3,252	3,732	5,507
Argentina	467	709	277	413	516	635	540	692	393	586	395	708
Japan	6	3	10	5	85	77	135	120	1,017	976	1,958	2,168
India	—	—	—	—	—	—	—	—	3,096	3,012	2,187	2,300
Pakistan	—	—	—	—	—	—	—	—	227	231	157	164
Turkey	488	518	443	655	302	320	316	352	1,902	2,048	2,047	2,640
North Africa	5	—	2	—	280	280	230	2·0	4,950	—	3,050	—
Australia and New Zealand	—	—	—	—	730	820	550	510	440	420	500	560



The bulletin hung on the railings of Buckingham palace, London, on Sept. 23, 1951, which announced that a successful operation had been performed on King George VI.

(England, Wales, Scotland and Northern Ireland: *c.* 3·5 million); Presbyterian established church in Scotland (1·6 million in 1949); Church in Wales (*c.* 250,000); Methodists (1·5 million in 1949); Jews (*c.* 400,000).

King, George VI (*q.v.*); prime ministers in 1951, Clement R. Attlee (*q.v.*) and (from Oct. 26) Winston S. Churchill (*q.v.*).

TABLE I. THE UNITED KINGDOM

	Area (sq.mi.)	*Population* (1931 census)	(1951 census)
England	50,327	37,359,045	41,147,938
Wales, incl. Monmouthshire (*q.v.*)	8,016	2,593,332	2,596,986
Scotland (*q.v.*)	30,411	4,842,980	5,095,969
Isle of Man (*q.v.*)	221	49,308	55,213
Channel Islands (*q.v.*)	75	93,205	102,770
Great Britain	89,050	44,957,870	48,998,876
Northern Ireland (*q.v.*)	5,451	1,279,745*	1,370,709
United Kingdom	94,501	46,237,615	50,369,585

* 1937 census.

SOURCES. *Census 1951: England and Wales: Preliminary Report* (London, H.M.S.O., 1951); *Preliminary Report of the Fifteenth Census of Scotland* (Edinburgh, H.M.S.O., 1951); *Census of Population of Northern Ireland 1951: Preliminary Report* (Belfast, H.M.S.O., 1951).

TABLE II. CHIEF TOWNS OF THE UNITED KINGDOM
(with population over 200,000)

	1931 census	1951 census		1931 census	1951 census
London (Greater)	8,215,673	8,346,137	Nottingham	276,189	306,008
London (County & City)	4,397,003	3,348,336	Hull	313,649	299,068
Birmingham	1,002,603	1,112,340	Bradford	298,692	292,394
Glasgow	1,093,337	1,089,555	Newcastle-upon-Tyne	286,255	291,723
Liverpool	856,072	789,532	Leicester	257,718	285,061
Manchester	766,331	703,175	Stoke-on-Trent	276,639	275,095
Sheffield	518,257	512,834	Coventry	178,126	258,211
Leeds	482,827	504,954	Croydon	233,108	258,211
Edinburgh	439,010	466,770	Cardiff	226,937	243,627
Belfast	438,086*	443,670	Portsmouth	252,421	233,464
Bristol	403,948	442,281	Harrow	96,656	219,463
			Plymouth	213,038	208,985

* 1937 census.

History. *Political.* The main event of 1951 was that the Labour government, returned to office in Feb. 1950 by a majority of only six, was replaced by a Conservative one in October with a majority of 17, thus indicating the continuance of the almost equal division of opinion among the electorate and a further period of political stalemate. Yet, ideas of what constitutes a working majority had to be revised in view of the experience of the two years 1950-51, which showed that a government could go on surviving by only a handful of votes in the House of Commons, although the strain on its members was well-nigh intolerable. Especially during the winter months every cough or sneeze among its supporters in the house raised hopes among the members of the opposition, who challenged it to frequent divisions into which invalids were wheeled in bath chairs. In debate, speeches on both sides were obviously actuated by electoral considerations. There were many late sittings, and a number of all-night ones when the Conservatives resorted to the practice of challenging ministerial orders and regulations, but this tactic, although it kept Labour members on tenterhooks, did not bring defeat on any major issue, because in the last resort the Liberals—or some of them—could be counted on to save the government. Nevertheless, the opposition kept the government hard at it. The Finance bill occupied the Commons for about 100 hr. during the committee stage, including three all-night sittings, one of which lasted non-stop for 31 hr. 47 min. and was the longest since 1936; but, although about 65 divisions were taken during this stage of the bill, the government majority never fell below six. Moreover, the Labour government maintained its remarkable record of immunity from by-election defeats. Three by-elections were pending when parliament rose for the summer recess, but although the tide of public opinion appeared to be running against the government there was no reason to suppose that it could not hang on indefinitely, or at any rate as long as the voting stamina of its supporters could continue to stand the strain. Indeed, it was a marvel that it had lasted for 18 months without what was judged to be a working majority.

The Festival of Britain (May to October), designed to commemorate the great exhibition of 1851 and sponsored by Herbert Morrison, lord president of the council, seemed rather incongruous in the straitened circumstances of the time; but it did stimulate laudable efforts of various kinds throughout the country, and if in London the South Bank exhibition was only moderately successful, the Battersea Park pleasure gardens and fun fair so pleased the millions and made money that it was decided to continue it for five years. (*See* FESTIVAL OF BRITAIN 1951.)

The prime minister, Clement Attlee, took the unusual course of announcing in a broadcast, after the 9 o'clock news on Sept. 19, that he had asked and obtained the consent of the king to a dissolution of parliament on Oct. 5, which would enable a general election to take place on Oct. 25. "His Majesty," the broadcast concluded, "has graciously announced his intention formally to open parliament on Tuesday, Nov. 6." Alas, the king's illness to which Attlee sympathetically referred had taken a more serious turn. On Sept. 18 a bulletin issued by nine doctors stated that "structural changes" had developed in one of his lungs, and on Sept. 23 it was announced that he had undergone an operation for lung resection.

Public concern about the king's illness overclouded interest in the general election campaign, at any rate in its early stage, but if the interest was never very demonstrative, it was evidently deep-seated, to judge by the large attendances at meetings in most parts of the country and the high percentage of votes recorded, 82% of the electorate. Actually there was a sense of unreality about the

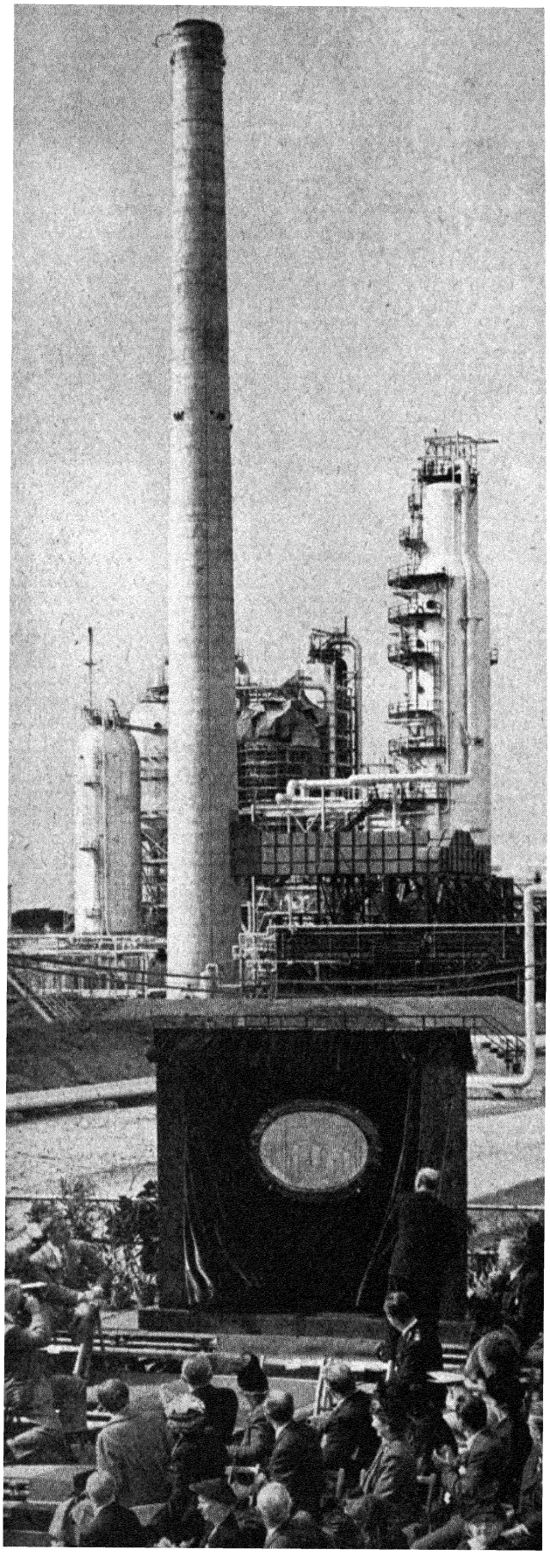
campaign. Foreign affairs, particularly the debacle in Persia, figured prominently in it at first, and the Conservatives complained of Labour insinuations that a Conservative government would be less likely to maintain peace either at home or abroad or, more crudely and unjustifiably, that Winston Churchill was a warmonger. Conservative headquarters after the result expressed the belief that this whispering campaign lost them many votes. Internally, the rising cost of living was the main issue. The Labour proposal for dealing with this was an overhaul of methods of food distribution, particularly fruit and vegetables, while the Conservatives promised economy in public expenditure. But neither side emphasized sufficiently the parlous economic condition of the country, doubtless because they thought that there were no votes to be got that way.

The reasons which induced Attlee to decide upon an election can only be surmised, but some of them were fairly obvious. In their second term of office the government had been too much preoccupied with staving off defeat to do anything to retrieve their waning popularity. A shuffle of offices in January which transferred Aneurin Bevan from the Ministry of Health to that of Labour and National Service, and another in March which made Morrison foreign minister because of the failing health of Ernest Bevin, who held the sinecure office of lord privy seal until his death on April 14 (*see* OBITUARIES), did nothing to strengthen the government, and in foreign affairs seriously weakened it. An armistice in Korea, or a settlement of the Persian dispute might have helped to revive the government credit, but these hopes proved illusory. On the home front the outlook was so grim that the government would have been courting a further decline in popularity had they chosen to struggle on. Rising prices, a shortage of coal, a prospect of power cuts, traffic congestion on the railways, were pointers to a winter of discontent; and beyond and above that there was a grave worsening of the country's economic position, a growing gap in sterling as well as in dollar payments. All things considered Attlee probably chose what was the least unfavourable moment for his party to go to the country. If the Labour party were not returned to office, their successors would be left to shoulder a pack of troubles and would have to take unpopular measures to readjust the burden. There was also the latent threat of a split in the Labour ranks, for, although Bevan since his resignation as minister of labour on April 21 because of his views on rearmament and his objection to charges for spectacles and dentures in the health service scheme had, along with his left-wing supporters, refrained from incommoding the government in the House of Commons and even voted for them on budgetary and other proposals of which he and his supporters disapproved, his bitter criticisms, particularly of the government's rearmament policy, fanned internal dissension. By announcing the election at the time he did Attlee adroitly transformed the Labour party conference at Scarborough early in October into a pre-election rally with the emphasis on unity. It was an awkward coincidence for the Bevanites that on the very eve of Attlee's decision they had issued a pamphlet *Going Our Way* virulently attacking the Labour party and government policy, although their professed aim was to give it a new vision for the future. At Scarborough the ballot for membership of the executive was unmistakably in favour of greater support for the left-wing and Bevan's ideas.

Although the announcement of the election results (*see* ELECTIONS) did not have the dramatic fascination of 1950 when the issue swayed in the balance until the last moment, it did indicate early on that the Conservatives would have only a narrow majority, and even for that they were indebted considerably to the Liberals, whose own representation in the new House of Commons was reduced from nine to six. While their attitude to the new government was one of benevolent support, they declined to take part in it. Churchill's choice of ministers found many of them in unexpected positions. The cabinet contained a number of co-ordinators of departments, the prime minister himself taking on the Ministry of Defence, although it was understood that he intended to assume this double burden only for a limited period. There was a notable development in the Scottish office with the appointment of a minister of state, mainly resident in Scotland to act as a deputy to the secretary of state, and an increase in the number of under secretaries from two to three, the appointment of the third requiring legislation. This change was, of course, in no way connected with the reprehensible removal of the Stone of Destiny from Westminster abbey by youthful Scottish home rulers on Christmas Day 1950, and its return in April, but was part of the Unionist proposals announced in November 1949 to give Scotland closer administrative control of its own affairs. The appointment of Sir David Maxwell Fyfe, a Liverpool Scot, as minister for Welsh affairs in addition to being home secretary was greeted with some derision, which was mollified when David Llewellyn was made under secretary for Wales. When the house met on Nov. 6 after hearing the king's speech delivered in the Lords by the lord chancellor, Attlee said that the opposition would not indulge in factious criticism, but it was soon evident that many of his followers



A cartoon by Illingworth "The pilot goes aboard again," (based on Sir John Tenniel's "Dropping the pilot," "Punch," 1890), published in the "Daily Mail" (London) Oct. 27, 1951.



were not prepared to observe this self-denying ordinance. The moderate raising of the bank rate to 2½% was misrepresented as a sop to the City; the Home Guard bill gave rise to so many bitterly contested amendments in committee that there were late-night sittings; the Japanese Treaty bill was opposed by Bevanites, although the Labour government had signed it; but it was the new government's decision to suspend further operation of the Iron and Steel act and to amend it after the Christmas recess which most exacerbated the opposition.

Finance and Economics. In large measure the economic history of the United Kingdom in 1951 was a commentary upon the extent to which an already taut economy was able to meet the growing demands upon it. As the year advanced, the signs of strain became increasingly pronounced and this was especially the case with the balance of payments position. In its review of the achievements of 1950 the *Economic Survey for 1951*, issued in April, had been able to refer to the "dramatic improvement" that had taken place. All this, however, was changed during 1951. In the first two quarters of the year there was a significant slowing down in the rate of increase in the gold and dollar reserves and in the third quarter a deficit was incurred of such a magnitude that it more than offset the gains during the previous six months.

The deterioration in the balance of payments position became especially marked in the autumn months. It was the immediate occasion of a confidential report prepared by the Treasury during the period of the general election which pointed the way to the emergency measures taken by the new government in November. Churchill told the House of Commons that the position which he had inherited was worse than he had expected, the deficit being higher than during the period immediately before the devaluation of sterling. In justifying the decision of the government to cut imports by £350 million R. A. Butler, the chancellor of the exchequer, said: "If we do not find a means to correct the disparity between what we earn and what we buy we shall, in fact, be bankrupt."

In part the deterioration could be attributed to the movement of the terms of trade against Britain, particularly during the first half of the year. But the chief reason seemed to have been the failure to step up exports sufficiently to keep pace with the rising value of imports. Not only did the dollar gap widen, but the United Kingdom became the largest single debtor of the European Payments union. In a speech in September after his return from the Washington and Ottawa conferences, Hugh Gaitskell, chancellor of the exchequer in the Labour government, expressed his confidence in the ability of the nation to carry out the defence programme and said that the danger to the standard of living could be overcome. He considered, however, that any proposal to increase defence expenditure would necessitate "a radical change in the economic policies of all the members of N.A.T.O., involving something more like a war economy in each case, and in their relations with each other."

Until the cuts in imports were announced, the man in the street was hardly affected by accumulating foreign exchange difficulties. His main concern was with inflation and rising prices at home. That inflation would increase in severity was common knowledge, and the budget proposals in April to limit purchasing power by increasing income tax by 6*d.* and the tax on distributed profits from 30% to 50% as well as by requiring payments for certain parts of the national health service were designed to be anti-inflationary. Not only, however, did the government's estimates of the deficit in the foreign trade account prove wide of the mark, but the

C. R. Attlee unveiling the commemorative plaque at the new oil refinery at Fawley, Hampshire, on Sept. 13, 1951. The refinery cost £37,500,000 to build.

budget provisions were inadequate to control inflation. It was largely as a result of growing discontent among the trade unions that in July Gaitskell announced the intention of the Labour government to introduce in the autumn measures to limit company dividends during the three-year rearmament period and to re-impose price controls over a wide range of goods.

Only in part could the rising prices be attributed to the higher cost of imports. As a report of the Economic Commission for Europe declared, cost inflation was rampant. The abandonment of the policy of restraint by the trade unions was accompanied by a spate of wage demands and by the end of June wage rates had risen as much as the *Economic Survey* had expected them to rise during the whole of 1951. In the first nine months of the year about 9,230,500 workers were affected by increases in wages amounting to £3,983,900 a week, as compared with 3,278,500 workers and £603,000 in the corresponding period of 1950. Several major wage claims, affecting the railwaymen, miners and engineers were made in the closing quarter, and experience confirmed the warning of the Economic Commission for Europe that the pressure of inflation would become heavier as the year progressed.

Industrial. The performance of British industry throughout the year also bore out the verdict that the British economy was suffering from severe strain. The rate of increase in production was appreciably lower than in 1950, and labour shortage became a major industrial problem. The aggregate loss of working days during the first nine months of the year as a result of industrial disputes, although comparatively low, was higher than in the corresponding period of 1950. The number engaged in civil employment, however, was the highest in the history of the country, and unemployment remained at a low level. Towards the end of the year the number of unemployed was only about half the number of vacancies, and Sir Walter Monckton, the new minister of labour, described the manpower situation as one of "extreme stringency." The defence industries, notably engineering, were affected by the shortage of skilled workers. By the end of July some 600,000 workers were engaged in making equipment and supplies for the forces, but it was estimated that this number would have to rise to over a million if the defence programme was to be completed on schedule.

Other important issues in the industrial sphere sprang from the difficulties of the fuel and power industries. Although the British Electricity authority added to their generating plant at a higher rate than in the previous year, output of electricity fell considerably short of what was necessary to satisfy requirements. In their annual report the British Electricity authority declared that the increase in demand had once more outstripped the increase in plant capacity. They added that even if the planned rate of development was achieved it would take several years to effect a substantial reduction in load-shedding. They were critical of the decision of the Labour government, in apportioning national capital investment, to reduce permitted expenditure on new generating plant.

The coal situation also continued to be unsatisfactory. Although output was at a slightly higher rate than in 1950, on Nov. 1 stocks were below the target of 17 million tons and the new government were obliged to issue an order restricting deliveries to domestic consumers. The reduced amounts to be supplied could be ensured only by agreeing to draw upon stocks allotted for industrial use.

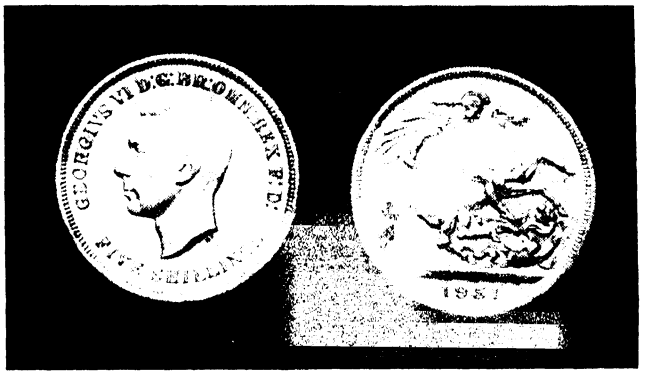
Throughout the year shortages of various raw materials, notably sulphur, threatened to have serious repercussions upon industry. On the whole these were successfully overcome. In June the government took the decision to set up a Ministry of Materials. In September a conference of Commonwealth ministers was held in London to discuss



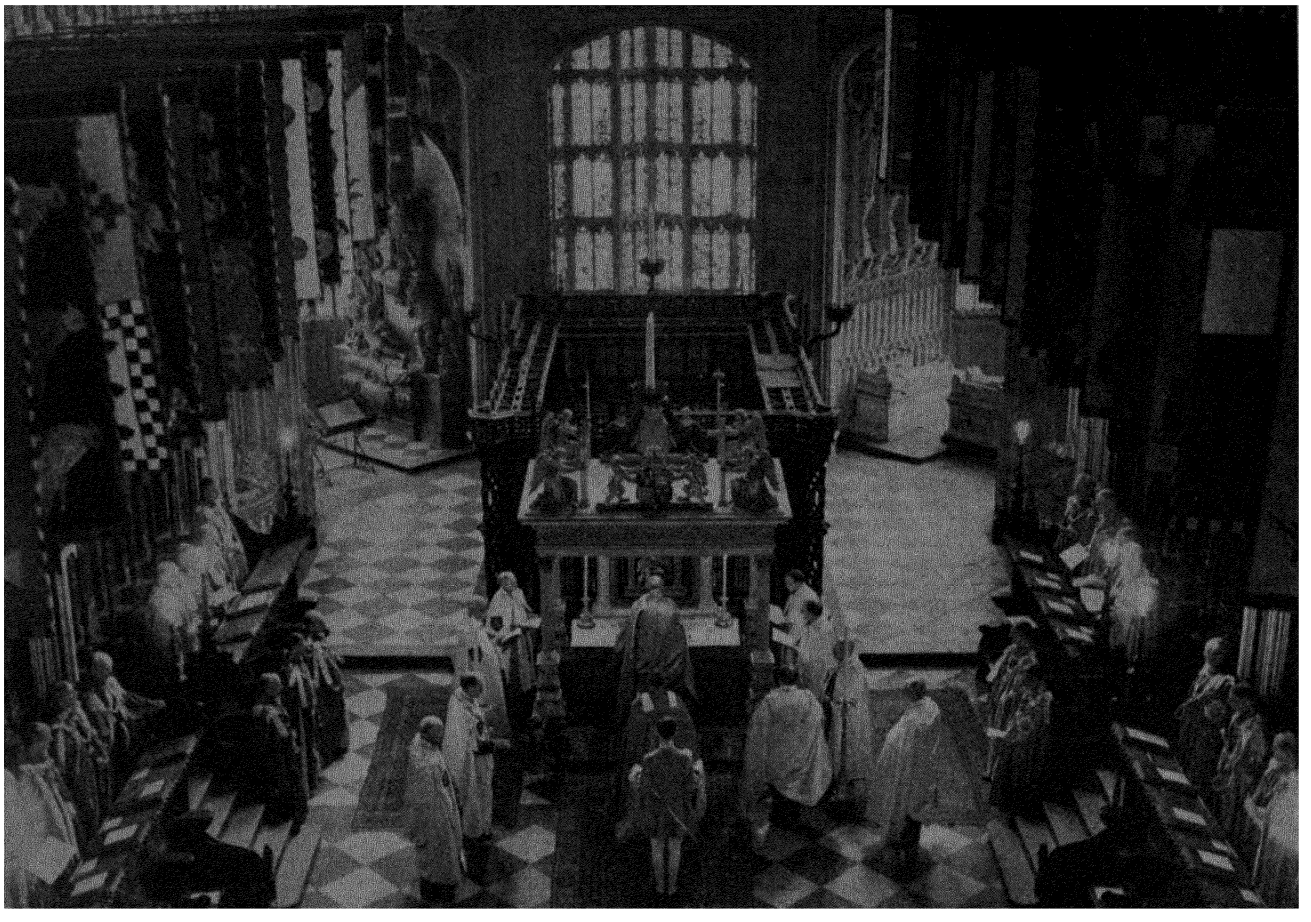
Low's cartoon "Who Comes First?"—Welfare or Security — which appeared in the "Daily Herald" (London), May 3, 1951.

raw-material questions. The agreements reached by the International Materials conference in Washington on the allocation of sulphur and non-ferrous metals was of assistance to Britain, though complaints continued about prices. The main difficulty centred on steel supplies. Output was at a somewhat lower level than in 1950, and this was accounted for largely by the decline in the imports of scrap from Germany. In November Butler put national requirements of finished steel at 1·5 million tons above current production and imports. Towards the end of the year the shortage resulted in the emergence of black market selling of steel at prices as much as £45 above the controlled price.

Foreign Policy. Nowhere had the drift been more apparent than in regard to foreign policy. This lack of direction was partly due to the illness of Bevin which forced his resignation in March when he was succeeded by Morrison as foreign secretary. The delay in making the change indicated the prime minister's personal regard for Bevin as well as the difficulty of finding a successor. It cannot be said that Morrison was suited to the task either by temperament or by experience, nor did he appear to devote his energy entirely to it. He gave up the leadership of the House of Commons to Chuter Ede, home secretary, but continued to concern himself with the Festival of Britain until Richard Stokes, minister of works, took over from him in April, and he seemed still to be concerned with party management. Dissatisfaction grew with his handling of the Persian oil crisis (*see* PERSIA). Morrison's policy of playing for time in the hope that the Mossadegh government would fall had proved a failure. In Egypt, where the government abrogated the Anglo-Egyptian



The obverse and reverse of the 1951 Festival crown piece. Crowns were minted in 1951 for the first time since the coronation issue in 1937. The edge was inscribed "MDCCCLI Civium Industria Floret Civitas MCMLI."



The scene in King Henry VII chapel, Westminister abbey, May 24, 1951, when King George VI installed his brother, the Duke of Gloucester, as grand master of the Order of the Bath. Twenty-nine knights grand cross were installed at the first ceremony of the order since 1935.

treaty of 1936 and rejected a four-power proposal for defence of the Canal zone, the British government stood firm. (*See* EGYPT.)

Intensification of the "cold war" by the Soviet Union compelled the British government at the end of January to accelerate the rearmament programme by selective call-up of Class Z reservists for 15 days' training and other measures, and by increasing expenditure on armaments in 1951-52 to around £1,300 million and a total of possibly £4,700 million over three years. In March a Supreme Headquarters, Allied Powers in Europe (S.H.A.P.E.), was set up near Paris with General D. D. Eisenhower at its head and Field Marshal Viscount Montgomery as his deputy under the North Atlantic Treaty organization (N.A.T.O.). But already a dispute had arisen with that organization over the proposal to appoint a U.S. admiral as supreme naval commander in the Atlantic. Churchill claimed that this command should be in British hands, and received substantial support on both sides of the House of Commons. When the Atlantic council met in November the Churchill government maintained the point, but a matter of greater disappointment to the European countries concerned was the British refusal, expressed both at the Atlantic council meeting in Rome and at the meeting of the Council of Europe at Strasbourg, to contribute to the proposed European army as well as to take part in the Schuman plan, although they were prepared to be "associated" with them. The disappointment was all the keener because a European army had been originally Churchill's proposal. Under the Pleven plan there was the prospect of a working solution to the problem of the rearmament of Germany. The state of war with Germany had been formally ended on July 9, and after the signature of the Japanese treaty at San Francisco in September the foreign ministers of the United Kingdom, United States and France, meeting in Washington, issued a declaration stating that they aimed at "the inclusion of a democratic Germany, on a basis of equality, in a Continental European community, which itself will form part of a constantly developing Atlantic community." But the antagonism of Soviet Russia to any such proposal remained ominous and threatening.

Commonwealth. British policy in relation to the Commonwealth continued to be concerned with the development of closer economic relations and of mutual arrangements for defence in southeast Asia and the middle east. A Commonwealth prime ministers' conference took place in London in January to review the international situation and declared that it would welcome co-operation with other nations, but India and Pakistan remained estranged by the Kashmir question, and neither was inclined to take part in any defence arrangements that might give offence to the Soviet Union and China. When a conference of the Commonwealth defence ministers met in London in June, India and Pakistan as well as Ceylon were unrepresented. In July Australia and New Zealand concluded a Pacific defence pact with the United States, from which Great Britain was left out, although it was explained that it should be kept informed about it. This was a clear indication that Australia and New Zealand now looked mainly to the United States for their defensive as well as perhaps their economic requirements. South Africa, where the Malan government flirted with the idea of a contingent republicanism, showed keen interest in the defence of the Suez canal zone. In the colonies, remarkable political and

constitutional developments took place in west and central Africa during the year, the Gold Coast and Nigeria receiving new constitutions; at a conference at Victoria Falls the federation of the central African territories was discussed. (*See* COMMONWEALTH OF NATIONS.) (J. M. WN.)

Education. (March 1950.) *England and Wales:* nursery schools and classes, pupils 82,491; primary schools 23,113, secondary schools 4,765, pupils combined 5,926,702; special schools (for physically or mentally handicapped children) 601, pupils 47,119; further education (mainly evening institutes) 11,546, pupils 54,046 full-time and 2,175,796 part-time; full-time teachers (all schools) 230,846. *Scotland:* nursery schools and classes, pupils 4,599; primary schools 2,084, pupils 364,529, teachers 11,534; special schools, pupils 10,439; secondary schools 913, pupils 417,416, teachers 17,592; further education 1,237, pupils 237,931. *Northern Ireland:* nursery schools 6, pupils 201; primary 1,632, pupils 185,712; special, pupils 660; secondary 89, pupils 32,317. *United Kingdom:* nursery, primary, special and secondary schools, pupils combined 6,989,694.

Universities (1950-51): England 17, students (full and part-time) 76,768; teaching staff 7,421; Scotland 4, students 17,121, teaching staff 1,819; Wales 2, students 5,187, teaching staff 542; University of Belfast, students 2,686, teaching staff 233. United Kingdom: universities 24, students 101,762, teaching staff 10,015.

Agriculture. Table I gives the estimated average quantities of main crops in four prewar years, one wartime peak year and four postwar years.

TABLE I. AGRICULTURAL PRODUCTION IN THE UNITED KINGDOM ('000 long tons)

	1934-38	1943	1947	1949	1950	1951*
Wheat	1,708	3,447	1,667	2,204	2,606	2,203
Barley	766	1,645	1,619	2,129	1,711	1,805
Oats	1,978	3,064	2,509	2,995	2,692	2,484
Rye	12†	95	22	54	57	43
Mixed corn	75†	394	386	646	715	761
Potatoes	4,911	9,822	7,766	9,035	9,507	7,972
Sugar beet	2,191†	3,760	2,960	3,962	5,216	4,625

* Estimates. † 1938.

In 1947-49 the United Kingdom was importing a yearly average of 4·4 million tons of wheat, 764,000 tons of wheat meal and flour and 451,000 tons of barley.

TABLE II. LIVESTOCK IN THE UNITED KINGDOM ('000 head at June in each year)

	1939	1943	1947	1949	1950	1951
Cattle	8,762	9,259	9,567	10,244	10,620	10,473
Sheep	26,887	20,383	16,713	19,493	20,430	19,984
Pigs	4,394	1,829	1,628	2,823	2,986	3,891
Poultry	74,357	50,729	70,006	95,499	96,109	94,344

TABLE III. BRITISH FISHERIES: TOTAL CATCH*

	1938	1948	1949	1950	1951
England and Wales:					
Total catch ('000 tons)	776·6	722·0	708·7	629·9	700·1
(£ '000)	12,229	33,807	29,475	26,299	34,476
Scotland:					
Total catch ('000 tons)	269·0	320·3	292·9	252·8	244·2
(£ '000)	3,826	11,608	10,309	9,405	10,858

* Excluding shell-fish, but including grey mullet and whitebait.

Industry. Number of industrial establishments with more than 10 employees (April 1948): 51,040. Distribution of total manpower in 1948, 1950 and 1951 (at June in each year) is given in Table IV.

TABLE IV. EMPLOYMENT IN GREAT BRITAIN ('000)

	1948	1950	1951
Total working population	22,904	23,068	23,327
Working population (men)	15,810	15,832	15,952
Forces (incl. women's services)	846	690	827
Forces (excl. women's services)	807	666	804
Total in civil employment	21,684	22,097	22,304
Agriculture, forestry, fishing	1,235	1,197	1,173
Manufacturing industries	8,099	8,478	8,676
Registered unemployed	282	274	188

During 1951 industrial production increased by only about 4·5%, half the rate of preceding years, mainly owing to shortage of steel and of various imported raw materials. Steel production was slowed down, chiefly through shortage of imported scrap and iron ore, to about 3·2% below 1950. Lack of steel caused an 8·2% decline in the production of motor cars since the preceding year. Despite a 5·6% decline in shipbuilding, 42% of the world's new merchant shipping was being built in British yards. Although 6 million tons more coal was produced than in 1950, there was a roughly equivalent increase in home consumption.

TABLE V. INDUSTRIAL PRODUCTION IN GREAT BRITAIN

	1938	1946	1950	1951
Coal (million long tons)	226·99	190·06	216·30	222·18
Gas (million cu.ft.)	349,171	471,628	542,360	556,920
Electricity (million kwh.)	25,708	42,742	54,960	59,555
Iron ore (30% met. cont., m.l.t.)	11,859	12,173	12,948	14,664
Pig iron (m. long tons)	6,761	7,761	9,620	9,656
Crude steel (m. l. tons)	10,398	12,695	16,276	15,787
Tractors*	10,029	47,046	120,336	140,748
Motor vehicles: Cars	341,004	219,162	522,516	477,543
Motor vehicles: Commercial	104,124	146,120	261,156	257,428
Locomotives (steam)	717†	790	808	726
Coaches	2,043†	887	3,320	2,277
Wagons	29,328†	39,354	33,155	41,455
Aircraft‡	—	644	517	549
Shipbuilding ('000 gross)§	843	987	1,376	1,293
Cotton woven cloth (m.yd.)	3,640	1,626	2,122	2,199
Woven wool fabrics (m.sq.yd.)‖	475	346	450	432
Rayon filament yarn (m.lb.)	115	108	198	221
Rayon staple fibre (m.lb.)	34	71	173	171

* Wheeled and track-laying of 10 h.p. and over for agricultural and industrial uses. † 1935. ‡ Excluding military type aircraft except those produced for export. § Completed merchant vessels of 100 gross tons and over. ‖ Excluding blankets, of which 23·5 million sq.yd. were produced in 1950.

Foreign Trade. In Table VI the value of imports is expressed in c.i.f. (carriage, insurance, freight) prices and the value of exports in f.o.b. (free on board) prices.

TABLE VI. EXTERNAL TRADE OF THE UNITED KINGDOM

	1947	1948	1949	1950	1951
Value (£ million)					
Imports	1,794·5	2,078·0	2,272·5	2,608·2	3,914·2
Exports	1,138·3	1,581·8	1,784·4	2,171·2	2,580·0
Re-exports	59·8	64·7	58·6	84·8	126·6
Trade gap	596·4	431·5	429·5	352·2	1,207·7
Volume index*					
Imports	100	104·6	113·7	113·9	132·1
Exports	100	127·0	139·6	161·5	166·9

* Quantities revalued at 1947 prices and expressed as a percentage of the value of imports and exports in 1947.

Main sources of imports (% 1950; 1951 in brackets): sterling area 37·9 (35·8), including British colonies 12·2 (14·0), Australia 8·4 (6·45), New Zealand 5·1 (4·2) and India 3·8 (3·9); dollar area 18·4 (19·8), including the U.S. 8·1 (9·7) and Canada 6·9 (6·7); non-sterling O.E.E.C. countries 25·1 (25·8), including France 4·2 (3·5), Denmark 3·9 (2·9) and the Netherlands 3·3 (3·3).

Main destinations of exports (% 1950; 1951 in brackets): sterling area 46·3 (49·0), including British colonies 11·8 (12·8), Australia 11·4 (12·0), South Africa 5·4 (6·2), India 4·3 (4·3), New Zealand 3·8 (4·1) and Irish republic 4·0 (3·8); dollar area 13·2 (12·7), including Canada 5·7 (5·2) and the U.S. 5·6 (5·7); non-sterling O.E.E.C. countries 26·2 (24·8), including Sweden 3·6 (3·6), the Netherlands 3·4 (2·9), Denmark 2·9 (2·2), Belgium-Luxembourg 2·6 (2·3), France 2·4 (2·7) and Western Germany 2·1 (2·2).

Great Britain depended on imports for all its sulphur, rubber and cotton, for nearly all its petroleum, non-ferrous metals and wool, for three-quarters of its timber, half of its iron ore and more than a half of all its food. Export earnings, although 19% above 1950, were unable to keep pace with a mounting imports bill. This was over 50% higher than in 1950, more than two-thirds of the increase being due to higher prices. (*See* also INTERNATIONAL TRADE.)

Transport and Communications. Railways (1949): Great Britain, total first track (all gauges) 19,600 mi.; Northern Ireland 1,035 mi. Passenger journeys originating (British Railways, monthly average, 1950; 1938 in brackets) 81·8 (103·0) million; average receipt per journey 2*s.* 4*d.* (11¼*d.*). Goods traffic originating (weekly average, 1950; 1938 in brackets) 5·4 (5·1) million tons; net ton-mi. 425 million.

Roads (1949): Great Britain 183,793 mi. Motor vehicles licensed (Dec. 1950): 4,414,000, including 2,258,000 cars; new registrations (1950) 417,720, including 133,404 cars.

Air transport (U.K. airlines, all services, monthly average, 1949; 1950 in brackets): miles flown 3,688,000 (4,019,000), passengers carried 76,800 (96,300), passenger-mi. 51·2 (66·1) million; freight carried ('000 short ton-mi.) 1,688 (2,045); mail carried ('000 short ton-mi.) 985 (1,130).

Shipping: merchant vessels on the U.K. register of 500 gross tons and over (Nov. 1951): non-tankers 13,338, tankers 4,190; total tonnage (Dec. 31, 1949) 19,382,000 gross tons. Shipping movement at U.K. ports ('000 NRT, monthly average, 1949; 1950 in brackets): entered with cargo, mail only 128 (114), other 4,447 (4,678); entered in ballast with passengers only 176 (277), calling for bunker only 96 (50), other 747 (815).

Number of telephone stations (Dec. 31, 1951): 5,650,391 (approx. 71% with automatic dial). Wireless receiving sets licensed (Dec. 31, 1951): 12,547,700: television licences (Dec. 31, 1951) 1,181,200.

Finance and Banking. Table VII gives the United Kingdom's postwar budget figures. The fiscal year ends on March 31.

TABLE VII. UNITED KINGDOM REVENUE AND EXPENDITURE (£ million)

	1946-47 actual	1947-48 actual	1948-49 actual	1949-50 actual	1950-51 actual	1951-52 est.
Revenue	3,341·2	3,844·8	4,166·5	3,924·0	3,977·8	4,236·4
Expenditure	3,910·3	3,209·5	3,337·1	3,356·6	3,257·3	4,196·9

National debt (£ million, Dec. 31, 1950; Dec. 31, 1951, in brackets): 26,426 (26,569). Currency circulation (£ million, Dec. 31, 1950; Dec. 31, 1951, in brackets): 1,333·2 (1,419·0). Gold and dollar reserves of the sterling area (U.S. $ million, Dec. 31, 1950; Dec. 31, 1951, in brackets): 3,300 (2,335).

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GREECE. Kingdom in the southern part of the Balkan peninsula. Area: 51,182 sq.mi. including the Dodecanese islands (1,035 sq.mi.); the mainland accounts for 41,328 sq.mi. and the islands, of which the largest is Crete (3,235 sq.mi.), for 9,854. Pop.: (1940 census, without the Dodecanese) 7,344,860; (1951 census) 7,603,599. Language (1940 census): Greek 6,794,309 (93%); Turkish (Turks and Turkish-speaking Greeks from Anatolia) 222,968; Macedonian Slav 81,860; Vlach 57,263; Albanian 49,629; Bulgarian (Pomaks) 18,086, etc. Religion (1940 census): Greek Orthodox 7,090,192 (96·5%); Roman Catholic 29,136; Gregorian (Armenian) 16,350; Moslem 134,722; Jewish 53,095 (reduced to 9,000). Chief towns (1951 census, municipal area only): Athens (cap., 559,250)*; Piraeus (184,980); Salonika or Thessaloniki (1940, 226,147); Patras (1940, 79,570); Volos (1940, 54,919). Ruler, King Paul I; prime ministers in 1951, Sophocles Venizelos and (from Oct. 27) General Nikolaos Plastiras.

History. Except for an occasional small-scale raid on the Bulgarian frontier, there was no guerrilla activity throughout 1951. The internal railway network having been completely restored, rail communications between Greece and Yugoslavia were resumed on Feb. 12, and the Simplon Orient Express train service from Paris to Athens via Belgrade, which had been interrupted since 1940, restarted its scheduled run on March 17. Considerable progress was achieved in all fields of reconstruction.

Internal conditions generally were sufficiently restored to normal to make it possible for King Paul to declare 1951 "homecoming year" and to urge Greeks abroad to revisit their motherland. The International Trade fair at Salonika re-opened on Sept. 16 after an interruption of 11 years.

The 1900th anniversary of St. Paul's landing in Greece was celebrated in June by pilgrimages to the various places where, according to the *Acts of the Apostles*, he had preached the Gospel, and many Christian churches throughout the world sent delegates to take part in the celebrations organized by the Church of Greece.

Foreign Affairs. In the international field, the improvement of relations with Yugoslavia initiated in the previous year continued. A significant contribution in this direction was the repatriation by the Yugoslav government, in small groups, of a total of 385 of the Greek children abducted by the Communists during the civil war.

Diplomatic relations with Germany were resumed with the appointment early in the year of a German consul general, representing the Bonn government. On July 12 he was accredited as Germany's first ambassador to Greece since the end of World War II. A corresponding change was made in the status of the Greek representative on the Allied High commission, who was accredited ambassador to the German Federal republic.

On the conclusion of its conference at Ottawa on Sept. 20, the North Atlantic Treaty council announced that it had agreed to recommend to its members that an invitation to accede to the treaty should be addressed to Greece and Turkey. On Oct. 10 the chairman of the U.S. joint chiefs of staff (General Omar N. Bradley), the chief of the imperial general staff (Field Marshal Sir William Slim) and the chief of the French joint chiefs of staff (General Charles Lechères) visited Athens and had conversations with Greek military leaders regarding defence questions. The Greek under-secretary for foreign affairs, Evanghelos Averoff, attended the North Atlantic Treaty council meeting in Rome on Nov. 23 as Greek observer.

The Greek contingent with the United Nations forces in Korea was maintained at a strength of some 1,000 men, together with a flight of Dakota aircraft of the Royal Hellenic Air force which was employed on supply and ambulance duties.

On Dec. 7 the U.N. general assembly in Paris approved, by 48 votes to 5 (with one abstention), the political committee's recommendation that the U.N. Special Committee on the Balkans, originally appointed in 1947 to mediate between Greece and its neighbours and watch the frontiers, should be dissolved within 60 days and replaced by a Balkan sub-commission of the Peace Observation commission. Greece was a candidate for the Security council seat vacated by Yugoslavia, and after 19 ballots, in which the voting fluctuated between Greece and Byelorussia, Greece was elected by 36 votes to 20.

On June 30, the Italian battle cruiser "Eugenio di Savoia," which was awarded to Greece under the peace treaty, was handed over to the Royal Hellenic navy.

Politics and Elections. The coalition government of Liberals and Democratic Socialists which took over on Nov. 3, 1950, was reshuffled on Feb. 2, the number of ministers being reduced to 15. On July 4 the Democratic Socialist leader, Gheorghios Papandreou, resigned and withdrew from the government with his friends. The Liberal leader Sophocles Venizelos then formed a government consisting exclusively of members of his own party. The new government obtained a vote of confidence on July 6 after pledging itself to hold general elections as soon as the Electoral Reform bill had been passed. The elections were held on Sept. 9 under an amended system of proportional representation which favoured large parties or groups at the expense of small parties by a provision that no party could participate in the second distribution of seats unless it had obtained over 17% of the total poll.

The outstanding political event of the year was the decision of Field Marshal Alexandros Papagos to relinquish the supreme command of the armed forces and enter politics as leader of a new party, the Greek Rally. This party drew its main support from the dissident Populists under Stefanos Stefanopoulos and the Unionists under Panayotis Kanellopoulos who had already fused into the Populist-Unionist party (L.E.K.) in January, from the New party under Spyro Markezinis and from individual members of the Democratic Socialist party and other groups who seceded from their own parties.

A total number of 1,957 candidates, representing 17 parties, contested the 258 seats. The extreme left took the field under the name of Union of Democratic Left (E.D.A.), its principal candidates being interned persons or persons serving prison sentences for their support of the Greek Communist party during the Communist rebellion. No

* The population of Greater Athens, which included the population of Athens, Piraeus and suburbs was 1,368,142 (1940 census 1,124,109).

single party obtained an absolute majority. The Greek Rally topped the poll with 114 candidates elected, as compared with 74 for National Progressives (E.P.E.K.) and 57 Liberals. (*See* ELECTIONS.)

After the announcement of the final results the king invited the three principal parties to form a coalition government, but the leader of the Greek Rally refused to participate and advised the king that parliament should be immediately dissolved and fresh elections held, this time under the majority system. The king then entrusted the mandate to the E.P.E.K. leader, General Plastiras, who on Oct. 27 formed a coalition government with the Liberals, with himself as prime minister and the Liberal leader Venizelos as deputy premier and foreign minister.

On Dec. 8 the electoral court, which considered appeals against the election of the E.D.A. deputies, declared their election invalid on the grounds that, as persons serving sentences of imprisonment or internment, they were not entitled to vote according to the electoral law—a disability which under the constitution disqualified them from standing for parliament. The court further decided that the ten seats thus vacated were to be filled by the next eligible E.D.A. candidates in the constituencies affected.

A strike of civil servants, who demanded a readjustment of salaries in accordance with the increased cost of living, began on July 6 and continued for a fortnight, being called off only on the government's promise to give sympathetic consideration to the strikers' claims.

On Dec. 22, the Chamber of Deputies ratified the draft constitution drawn up by the all-party parliamentary committee set up in 1946 to amend the 1911 constitution. It was carried by 132 votes to 8, after the major opposition party, the Greek Rally, had withdrawn. The most important new provisions were: (a) the king could, with his ministers' approval, take emergency measures suspending the provisions of the constitution, to be ratified by parliament within 10 days; (b) to settle landless peasants and others, estates could now be expropriated without previous compensation; (c) strikes by civil servants were declared illegal.

During the year Greece lost several of its most distinguished men of letters, including the poet Gheorghios Drosinis who died in Athens on Jan. 22 aged 92, the playwright Grigorios Xenopoulos who died in Athens on July 27 aged 65, and the poet Anghelos Sikelianos (*see* OBITUARIES). In the political world Ioannis Sofianopoulos, leader of the left-wing Democrats and a former minister of foreign affairs, died in Athens on July 27 aged 65, and the mayor of Athens, Konstantinos Kotzias, who had been governor of the metropolitan area of Athens in the Metaxas government before World War II, died on Dec. 8 aged 58. Archbishop Germanos, metropolitan of Thyateira and patriarchal exarch of western and central Europe, died in London on Jan. 23 (*see* OBITUARIES), and was succeeded by the metropolitan of Philadelphia, U.S., Archbishop Athinagoras, formerly bishop of Boston and head of the Orthodox seminary in that city. (A. A. P.)

Education. Schools (1948-49): primary 9,986, pupils 1,218,000; secondary 507, pupils 169,836; universities 2, professors and lecturers 289, students 13,337; institutions of higher education 9. Illiteracy (1940), 27%.

Agriculture and Fisheries. Main crops ('000 metric tons, 1950; 1951 in brackets): wheat 850 (930); barley 200 (230); oats 120 (140); rye 48 (48); maize 195; potatoes 348; rice 32 (37); grapes 137 (140); citrus fruit 119; tobacco 51; cotton 76 (81); olive oil 54, Livestock ('000 head, Dec. 1949): cattle 675; sheep 6,656; pigs 530; horses 232; mules 149; goats 3,438. Meat production (1950) 76,000 tons. Fisheries: total catch (1950) 48,000 tons.

Industry. Fuel and power: lignite (1949) 131·500 m. tons; electricity (installed capacity, 1950) 245,000 kw. Raw materials ('000 metric tons, 1949; 1950 in brackets): bauxite 77 (49); magnesite 26 (25); iron pyrites 14 (16); chromite 13 (3). Index of industrial production (1950, 1948 = 100): 150.

Transport and Communications. Roads (1949): 4,189 mi. Licensed motor vehicles (Dec. 1950): cars 7,494, commercial 19,088. Railways (1949): 1,621 mi., of which state 826 mi.; number of railway locomotives 241. Shipping (merchant vessels of 100 gross tons and over, July 1950): 386; total tonnage 1,348,874. Telephone subscribers (1949): 65,078. Wireless receiving sets (1949): 44,500.

Foreign Trade. (Million drachmas, 1950; 1951, six months, in brackets): imports 2,141,000 (1,442,000); exports 452,000 (323,000). Main sources of imports (1950): U.S. 32·3%; U.K. 12·3%; Germany 7·9%; Italy 6·0%. Main destinations of exports: U.K. 18·5%; U.S. 17·4%; Germany 16·4%; France 7·8%. Main exports (1950-51): tobacco 39·6%; currants 25·1%; turpentine colophony 3·5%; minerals 5·2%.

Finance and Banking. Budget (million drachmas): (1950-51 actual) revenue 4,631,000, expenditure 6,192,000; (1951-52 est.) revenue 5,879,000, expenditure 7,459,000. Currency circulation (Aug. 1950; Aug. 1951 in brackets): 1,739.000 (1,926,000). Bank deposits (Aug. 1950; Aug. 1951 in brackets): 1,796,000 (2,567,000). Monetary unit: *drachma* with an exchange rate (Nov. 1951) of Dr. 42,170 to the pound and Dr. 15,060 to the U.S. dollar.

GREENLAND. Large island (839,782 sq.mi., about 705,000 sq.mi. covered by an ice cap), a Danish possession in the north Atlantic ocean, northwest of Iceland. Pop. (1945 census): 21,412, distributed in settlements along west coast except for 1,372 on east coast; 580 Europeans (mostly Danes), the rest native Greenlanders (Eskimos). Language: Danish and Eskimo. Religion: Lutheran. Capital, Godthaab (second governor's seat, Godhavn). Governor general, Poul Hugo Lundsteen.

History. An agreement between Denmark and the United States for the joint defence of Greenland, concluded within the framework of the North Atlantic Treaty organization (N.A.T.O.) and replacing the provisional agreement of April 9, 1941, was signed in Copenhagen on April 27, 1951, and approved by the Danish Rigsdag on June 1. Stressing Greenland's part in the N.A.T.O. defensive system the agreement said:

(1) The United States naval station at Grønnedal would be taken over by Denmark, but the United States and other N.A.T.O. countries would receive certain rights of access to the port. (2) As need arose, defence areas would be established for joint operation by Denmark and the United States, the nationality of the commander being decided upon periodically by agreement. (3) In the areas under U.S. command the United States would enjoy certain rights of use without impairing Danish sovereignty. (4) Denmark would be entitled to use such defence areas in co-operation with the United States, and Danish military personnel under a Danish officer would be attached to the staff of the U.S. commander. (5) Conversely, the U.S. military personnel might be sent to defence areas under Danish command. (6) All defence areas could be used by the ships, aircraft or armed forces of other N.A.T.O. countries. (7) U.S. troops would be exempt from customs duties and taxes and jurisdiction over them would be specially arranged with the Danish authorities. (8) U.S. forces in Greenland would respect Danish laws and administration concerning the indigenous population.

The modernizing of Greenland's political and social life went on during the year. On June 29 elections for the country council took place for the first time, the polling amounting to 70%. Political parties had not yet been formed, but political tendencies were already noticeable. From Dec. 1 all persons, both Greenlanders and Danes, were subject to the same 17 lower courts of justice with appeal to the Greenland Country Court of Justice at Godthaab. Simultaneously, Greenland was divided into five police districts, each under a Danish police sergeant assisted by a Greenland policeman.

Education. Schools (1948): infant and primary 175, pupils 4,200, teachers 237; post-primary 4, pupils 100, teachers 15; technical 1, pupils 50, teachers 2; institutions of higher education 2, students 45, lecturers 10.

Finance and Trade. Budget (1948-49): expenditure Kr. 23,593,000; revenue Kr. 17,449,000. Monetary unit: the Danish *krone*, with an exchange rate of Kr. 19·34 to the £ and Kr. 6·92 to the U.S. $. Foreign trade (1950): imports from Denmark Kr. 23,300,000; exports to Denmark Kr. 16,800,000. (H. LN.)

GRENADA: *see* WINDWARD ISLANDS.

GREYHOUND RACING. Ballylanigan Tanist, fastest and most successful track greyhound in Great Britain in 1951, had 10 wins from 20 races (second in 8 others) for a prize total of £3,719. He won the Greyhound Derby, Welsh Derby and the Laurels and in a heat of the Stewards' cup at White City, London, ran 525 yards in 28·48 sec., a record for any track in Great Britain and Ireland. Other winners in Great Britain were Rushton Smutty (Scottish Derby, Stewards' cup, Northern and Midland Flat championships); Loyal Accomplice (Gold collar); Black Mire (St. Leger); Carmody's Tanist won the Irish Derby.

In New South Wales, Australia, the statutory control board made earmarking for identification of greyhounds compulsory. Ireland was the only other country to have earmarking. Farrago, Australian champion, was sold for £A 4,000, a record sale price.

A committee on the Irish greyhound industry was appointed by the Republic of Ireland minister of agriculture.

A new track was opened at Havana, Cuba. In the United States, champion racer Real Huntsman had wins which, until a defeat in April, made up a succession of 27 wins, a world record in first-class greyhound racing.

Courbevoie, near Paris, the only track in France, was closed early in 1951. (J. A. Rs.)

GROMYKO, ANDREY ANDREYEVICH, Soviet diplomat (b. Starye Gromyki, Byelorussia, July 5, 1909). He graduated from the Minsk Institute of Agricultural Economics in 1934. In 1938 he was taken into the People's Commissariat for Foreign Affairs, and after one year's training was sent to Washington, D.C., as counsellor of the Soviet embassy there. In Aug. 1943 he succeeded Maxim Litvinov as ambassador to the U.S. and also to Cuba. He headed the Soviet delegation at the Dumbarton Oaks conference in 1944, attended the San Francisco United Nations conference (April 25-June 26, 1945) and was appointed chief Soviet representative to the new organization. On April 10, 1946, he was freed from his duties as ambassador to become permanent Soviet delegate to the U.N. Security council. On Dec. 29, 1947, it was announced that he had been promoted to be one of the four deputy foreign ministers. In July 1948 he left New York for Moscow. On March 4, 1949, when Andrey Y. Vyshinsky succeeded Vyacheslav H. Molotov as minister of foreign affairs, Gromyko became first deputy foreign minister. He was the chief Soviet delegate to the Paris preliminary conference of the foreign ministers' deputies of the four powers (March 5-June 21, 1951) and to the San Francisco conference on the peace treaty with Japan (Sept. 4-8).

GUADELOUPE. Former French colony situated in the Lesser Antilles, the status of which was changed in 1946 to that of an overseas *département*. It consists of two islands separated by a narrow channel and five smaller islands. Total area: 686 sq.mi. Pop.: (1936 census) 304,239; (1946 census) 278,464. The inhabitants are mainly Negro or mixed, speak a French *patois* and are Roman Catholic. Chief towns (pop., 1946 census): Basse-Terre (cap., 10,086); Pointe-à-Pitre (41,323). Prefect, Maurice Philipson.

History. Work went on towards bringing uniformity to the administration and establishing the social services. The *département* sent one Gaullist, one Socialist and one Communist deputy to the National Assembly in Paris. Six Gaullists, six Communists, two Socialists, three Radicals and two Independents were elected to the local general council. The slump in rum-drinking in France and the restriction of the quotas of sugar and rum to be admitted into that country, together with the high cost prices that made sales abroad difficult, gave rise to economic anxiety. A landing ground for four-engined aircraft was under construction. Work on new roads was begun.

Education. Provision is made for all children of school age. There are two *lycées*.

Transport and Communications. Ships entered (1950), 617.

Foreign Trade. (1950, million Fr.): imports 7,422; exports 6,008. Principal exports: sugar 3,304, rum 1,071, bananas 1,352. Trade is almost wholly with the French Union. (HU. DE.)

GUAM: *see* PACIFIC ISLANDS, U.S.

GUATEMALA. Central American republic bounded W. and N. by Mexico, E. by British Honduras, the Caribbean sea, Honduras and El Salvador and S. by the Pacific ocean. Area: 45,452 sq.mi. Pop. (1950 census, prel. fig.): 2,787,030, including almost two-thirds of pure Indians descending from Maya or Quiché strains, one-third of mixed Indian and Spanish (*ladinos*) and Indian and Negro blood, the balance of about 1% being white. Language: Spanish, but unknown to hundreds of thousands speaking only Indian dialects (numbering at least 18). Religion: predominantly Roman Catholic. Chief towns: Guatemala city (cap., pop., 1946 est., 225,000); Quezaltenango (pop., 1940 census, 33,538); Puerto Barrios (15,784). Presidents in 1951: Juan José Arévalo and (from March 15) Lieut. Colonel Jacopo Arbenz Guzmán.

History. During 1951 labour unrest and mounting Communist influence occupied the attention of Guatemalans. The Communist leader José Manuel Fortuny announced on Jan. 23 the formation of a new left-wing coalition composed of the Popular Liberation front, the National Revolutionary, the Workers' and the Communist parties, the over-all coalition being called the National Democratic front. The president-elect, Lieut. Colonel Arbenz, who had won the election held Nov. 10-12, 1950, issued a statement on Feb. 15 pledging continued Guatemalan friendship with the United States and attacking " malicious rumours " that he intended to expropriate foreign and domestic capital. On March 15 Arbenz was inaugurated as president. The 37-year-old chief executive thus became the second popularly elected president in Guatemalan history, and, at the time of his inauguration, was the youngest Latin-American president.

Labour disorders were the first big crisis facing the new administration. Unrest among the workers resulted in April in an 11-day railway strike which ended with unions still demanding that Arbenz should press for revision of all contracts with foreign firms operating in Guatemala. An estimated 2,000 Guatemalans attended on June 22 a celebration at Guatemala City of the first anniversary of the founding of *Octubre*, a Communist weekly publication. Anti-Communist riots swept Guatemala City on July 11 and 12, as demonstrators called upon President Arbenz for assurances of his anti-Communist position. Branding the disorders as the result of a subversive plot " under the pretext of combating Communist activities," Arbenz on July 12 suspended constitutional guarantees for 30 days.

Four political parties supporting Arbenz announced on July 19 the formation of a Democratic alliance to intensify the " revolutionary process " typified by the former President Arévalo. The announcement said that the alliance was neither pro-Communist nor anti-Catholic; but on Aug. 31 Communists seized control of the pro-administration National Renovation party, one of the components of the coalition.

With the dispute with the United Kingdom over British

Honduras (Belize) apparently tapering off, Guatemala on May 18 reopened its border, closed since 1948. (G. I. B.)

Education. Schools (1947-48): primary 3,626, teachers 9,554, pupils 195,463; secondary 62, teachers 1,139, pupils 9,000. University of Guatemala: students 1,719.

Agriculture. Production of coffee in the 1950-51 season was 1,050,000 bags of 132 lb. each, of which 818,244 bags were exported (1949-50 exports, 900,277 bags). Banana exports in 1950 amounted to 6,897,061 stems. Other crops (1950-51, million lb.): maize 710, beans 130, abacá 8·7, rice 15. In 1950 there were about 800,000 cattle, 340,000 pigs and 610,000 sheep.

Foreign Trade. Exports in 1950 totalled $67,605,000, imports $71,221,000. Leading exports: coffee (78%), bananas (11%), essential oils (2%) and chicle (2%). Leading customers: U.S. (89%), the Netherlands (3%). Leading suppliers: U.S. (68%), Mexico (6%).

Finance. (Million quetzales.) Budget (1949-50 actual): revenue 42·4, expenditure 47·4; (1950-51 est.) balanced at 48·7; (1951-52 est.) balanced at 59·0. National debt: internal (Dec. 31, 1950) 12·8; external (June 30, 1949) 0·7. Notes in circulation (Oct. 1951): 37·2; gold reserves 27·2. Monetary unit: *quetzal*, at par with the U.S. dollar. (J. W. Mw.)

GUIANA, BRITISH: *see* BRITISH GUIANA.

GUIANA, DUTCH (Surinam): *see* NETHERLANDS OVERSEAS TERRITORIES.

GUIANA, FRENCH: *see* FRENCH GUIANA.

GUINEA: *see* FRENCH WEST AFRICA; PORTUGUESE OVERSEAS TERRITORIES; SPANISH COLONIAL EMPIRE.

GYMNASTICS. In 1951 20 men and 30 women entered for the national championships. The results were: individual, F. C. Turner, of London (men), C. Davies, of Wales (women); gymnastic teams, London (men), Swansea (women). For the first time, women champions of the year were declared, equally with the men, on each piece of apparatus, as follows: parallel bars, pommelled horse, rings, vaulting, F. C. Turner (London); horizontal bar and free standing physical exercises, K. F. Buffin (Barry, Wales). Women's beam, C. Davies (Swansea); parallel bars of unequal height, vaulting, G. Lewis (Cardiff); free standing physical exercises, C. Davies and G. Lewis (tie).

The third national coaching course, held at Lilleshall, Shropshire, was followed by the second national holiday training course (for personal performance) at Bisham Abbey, Berkshire. Television and sound broadcasts were made of contests and Festival of Britain demonstrations.

The inter-city match Cardiff *v.* London was won by Cardiff and the two Lille (France) *v.* London matches were both won by Lille. The British team, visiting Wuppertal (Germany), was beaten by the Langerfelder Turnverein by 18 points. The Earl of Gainsborough, president of the Amateur Gymnastic association, and Miss W. M. Taylor, represented Great Britain at the International Federation congress in Florence. King Baudouin of the Belgians conferred upon Miss W. M. Taylor the Belgian civil decoration "Les Palmes d'Or de l'Ordre de la Couronne." (L. N.)

GYNAECOLOGY AND OBSTETRICS. The remarkable decline in maternal mortality, which occurred throughout the world in the years immediately before 1951, resulted largely from the decline in deaths from puerperal infection. The first attack on this disease, once a cause of appalling maternal mortality, was made by Charles White of Manchester in the 18th century, and by I. P. Semmelweiss and Oliver Wendell Holmes in the 19th century. It was these workers who first showed that puerperal sepsis was an infectious condition and one which the patient could acquire from her attendants or from contact with other infected patients. The minister of health amended the puerperal pyrexia regulations in 1951 to read as follows:

Puerperal pyrexia means any febrile condition occurring in a woman in whom a temperature of 100·4°F. (38° C.) or more has occurred within 14 days after childbirth or miscarriage.

The former standard of puerperal pyrexia was a temperature of 100·4° F. (38° C.) or over, maintained during the 24 hr. or recurring during that period between the end of the first and 21st days of the puerperium.

Thus, the period of notifiable pyrexia was reduced from three to two weeks, the latter being the statutory period during which a midwife attended the lying-in mother. The first day was no longer excluded and a more exacting standard was adopted. The new regulation, which came into force on Aug. 1, 1951, applied, at first, only to England and Wales. It was hoped that cases of puerperal infection would receive earlier treatment and would be isolated early in the infective phase when they were a danger to other mothers. As a result, the apparent incidence of puerperal pyrexia in England and Wales showed an increase. The Medical Research council re-issued its memorandum on *The Control of Cross Infection in Hospitals*. This dealt with the problem in a general way but also included detailed recommendations for the prevention of infection in mothers and new-born babies.

The question of relief of pain in childbirth received a considerable amount of attention. One of the difficulties in Great Britain was to give adequate relief to the mother delivered by a midwife. The Dangerous Drugs regulations were amended as from April 1, 1950, to permit state certified midwives to possess and to administer pethidine (known also as demerol and dolantin). A joint committee of the Medical Research council and the Royal College of Obstetricians and Gynaecologists was considering, during the year, further means of giving midwives more powerful methods of pain relief. At the same time, the advantages to the mother of training for natural childbirth were again emphasized. The late Helen Heardman's book, *Physiotherapy in Obstetrics and Gynaecology*, gave detailed guidance for doctors, midwives and physiotherapists in this training process. W. C. W. Nixon and S. G. Ransome (1951) urged a combination of training for natural childbirth, combined with the administration of such relief of pain as was necessary and could be given with the maximum safety to mother and child.

The problems of toxaemia of pregnancy were exhaustively discussed at a symposium organized in London by the Ciba foundation. The aetiology of toxaemia of pregnancy remained a mystery and it could not be claimed that the symposium made any outstanding advance. Nevertheless it provided a forum for discussion for those interested in human and veterinary toxaemia from all over the world and the published volume of papers presented was useful and informative.

The French Gynaecological society celebrated its jubilee by making its 21st meeting an international congress of gynaecology which took place in Paris in June 1951. Papers were presented by gynaecologists from all over the world covering a great variety of subjects in the field of gynaecology. A good deal of attention was paid to endocrinology, a science which, in relation to gynaecology had advanced considerably in latter years. Many problems remained unsolved, among these being that of the pituitary gonadotrophins, hormones secreted by the anterior part of the pituitary gland and exerting a remote effect on the ovary and thus on the uterus and other internal organs.

A useful review of knowledge on this subject was given in the *Obstetrical and Gynaecological Survey* for June, 1951 by F. G. Sulman. The gonadotrophins are complex chemical substances of the protein group. Little was known about their chemical structure so that all observations on their function were necessarily empirical. They proved disappointing in treatment possibly because dosage had, up to 1951, been inadequate. Treatment could not be prolonged because

of the development of antihormones which neutralized the effect of later treatment. Much remained to be discovered in this interesting field.

Human infertility continued to be studied exhaustively and an important book on this subject was published by R. Palmer. In British and U.S. clinics, extensive investigations were carried out in cases of infertile marriage. The surgical treatment of the sterile woman was fully reviewed by J. V. Meigs, who favoured a conservative approach to the problem. The woman whose fallopian tubes were mechanically blocked presented a difficult problem. Operations for the relief of obstruction were not very successful, only 15% to 20% of those operated on subsequently becoming pregnant. Nevertheless many gynaecologists favoured trying the method in suitable cases, provided the situation was explained to the couple and no guarantee of cure given. (J. Bs.)

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HAITI. West Indian republic forming the western third of the island of Haiti or Hispaniola. Area: 10,748 sq.mi. Pop.: (1950 census) 3,111,973, of whom 95% are Negro and the remainder—the ruling class—almost exclusively mulatto. French is the official language, although a patois called *créole* is widely spoken. Roman Catholicism is the official religion, while voodooism is practised on a large scale in rural areas. Port-au-Prince (pop. est., 125,000) is the capital. President, Paul E. Magloire.

History. The world demand for sugar, coffee, sisal, vegetable oils, hardwoods and other products of Haiti lifted the trade balance to the best level in many years; sugar production rose to 65,000 tons, and with the prosecution of the Artibonite valley irrigation programme, towards which the U.S. Export-Import bank advanced a loan of $10 million in April, an expansion of sugar planting was assured.

By March the government had paid off the deficit and had a cash balance of 19 million gourdes. Although by midyear the government had reduced the public debt to less than 35 million gourdes from the 43 million in May 1950, it was also able to sustain a substantial programme of road construction and irrigation projects. Throughout 1951 agitation for an increase in the minimum legal wage limit (fixed at about 70 U.S. cents in 1948) led to no concrete step, but kept the matter in the forefront of major issues.

On Feb. 19 President Magloire had a formal meeting at the frontier with President Rafael Leónidas Trujillo of the Dominican Republic, inaugurating an era of friendly co-operation between the two states after a long period of strained relations. (C. McG.)

Education. Schools (1949): primary 1,060, pupils 87,000; secondary 21, pupils 10,000. Higher education was available at the national law and medical schools, the Central School of Agriculture and the University of Haiti.

Foreign Trade. Fiscal year 1949-50: exports U.S. $38,477,928, imports U.S. $36,200,924. Chief exports: coffee (53%, 28,927 short tons), sisal (24%), sugar (7%), bananas (4%), cacao (2%). Leading imports: cotton manufactures (25%), wheat flour (9%), iron and steel and products (8%), machinery and apparatus (8%). Leading suppliers: U.S. (77%), Canada (5%), U.K. (4%). Leading customers: U.S. (56%), Belgium (16%), Italy (12%), the Netherlands (9%).

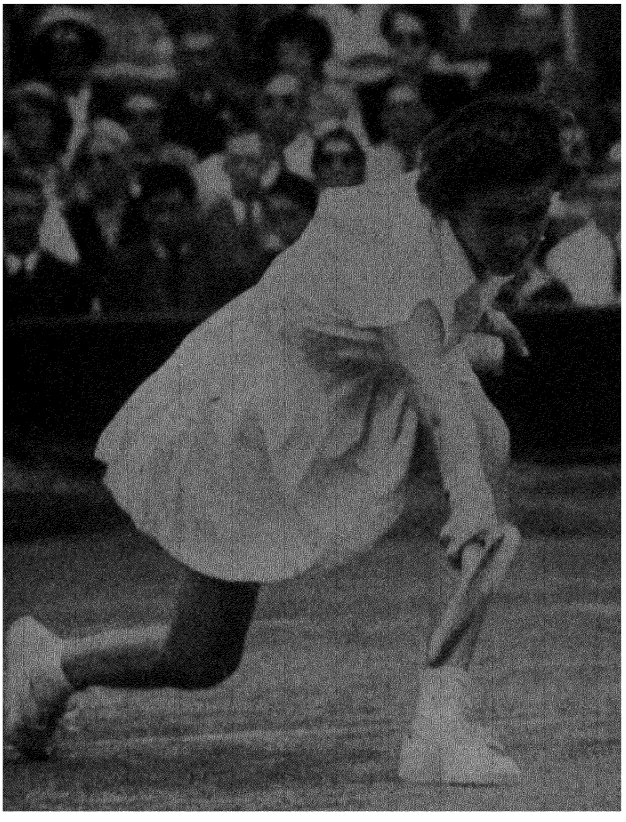
Finance. (Million gourdes.) Budget: (1949-50 actual) revenue 109·0, expenditure 107·0; (1951-52 est.) balanced at 124·5. Public debt (Aug. 1951): 32·6. Currency circulation (May 1951): 44·3. Monetary unit: *gourde*, officially valued at 20 U.S. cents. (J. W. Mw.)

HANCOCK, DAME FLORENCE MAY, British trade union official (b. Chippenham, Wiltshire, Feb. 25, 1893), the daughter of a weaver, started work at the age of 12 for 3*s.* a week. She was one of 12 children and at 18 was left an orphan and the sole breadwinner for the three youngest members of the family. She became associated with the Workers' union and was a member of a strike committee before she was 20. In 1917 she became a full-time organizer for the union, which was later absorbed in the Transport and General Workers' union. She became chief woman officer of the combined union in 1942. Dame Florence has served on many public bodies and commissions. Since 1918 she has been an assessor of the Court of Referees. She was a member of the Royal Commission on Capital Punishment (1949) and of the council of the Festival of Britain, 1951. She became a member of the council of the Trades Union congress in 1935 and was chairman in 1947-48. She was created a D.B.E. in June 1951.

HARBOURS: *see* DOCKS AND HARBOURS.

HARRIMAN, WILLIAM AVERELL, U.S. diplomat (b. New York city, Nov. 15, 1891), graduated from Yale university in 1913. Two years later he became a vice president of the Union Pacific Railroad company and in 1932 was named chairman of the board of directors. During World War I he organized a shipbuilding and operating company, and in 1920 launched W. A. Harriman Co., investment bankers, a firm that became Brown Brothers Harriman & Co. in 1931. He was administrative officer in the National Recovery administration, and during 1940-41 served with the National Defence Advisory commission and its successor, the Office of Production Management. In 1941 President Franklin D. Roosevelt appointed him lend-lease expeditor to Great Britain and later to the U.S.S.R. He was U.S. ambassador in Moscow from Oct. 1943 to Feb. 1946, and he attended every important Allied conference during World War II. On April 1, 1946, President Truman chose him to be ambassador to Britain, but on Oct. 7, made him secretary of commerce instead. In April 1948 he was appointed special representative abroad to supervise the administration of the European Recovery programme. Later he became special presidential adviser on foreign affairs. In July 1951, President Truman sent him as special envoy to Persia, to try to bring about new conferences between Persia and Great Britain on the oil dispute. When renewed negotiations broke down in August, Harriman visited Belgrade and London on his return to the U.S.

HART, DORIS, U.S. tennis star (b. Jacksonville, near Miami, Florida, 1926), took up tennis for exercise after suffering an attack of poliomyelitis in childhood. Her courageous struggle against this physical handicap was well rewarded for she succeeded in becoming one of America's outstanding players and by 1950 was third ranking U.S. amateur woman, being ranked second only to Mrs. Margaret du Pont by the beginning of 1951. In the finals of the all-England lawn tennis championships at Wimbledon in July 1951, Doris Hart helped the U.S. share of four of the five Wimbledon titles by winning three herself. She won the women's singles by defeating her friend Shirley Fry, 6-1, 6-0. In the women's doubles, she and Shirley Fry then beat the veteran doubles pair, Mrs. du Pont and Louise Brough, who had four times been Wimbledon champions, 6-3, 11-9.



Doris Hart (United States) seen winning the women's singles title at Wimbledon in July 1951. She also won the women's doubles and the mixed doubles.

Finally, in partnership with Frank Sedgman of Australia, Doris Hart won the mixed doubles title, 7-5, 6-2, from the Australian team of Mervyn Rose and Mrs. Nancye Wynne Bolton. Doris Hart and Shirley Fry also won the U.S. women's doubles championship at Forest Hills, New York, in August. In the U.S. singles championship Doris Hart was surprisingly beaten by the 16-year-old U.S. junior champion, Maureen Connolly who went on to win the championship. In the top United States Lawn Tennis association's rankings for 1951 in December, Doris Hart and Shirley Fry were placed top in the women's doubles list.

HAUTE VOLTA: *see* FRENCH WEST AFRICA.

HAWAII. A United States territory of eight large islands and numerous islets in the Pacific ocean. From southeast to northwest the islands are Hawaii (4,021 sq.mi.), Kahoolawe, Maui, Lanai, Molokai, Oahu, Kauai and Niihau; stretching northward beyond Niihau more than 1,100 mi. is an archipelago of rocks, reefs and shoals which includes Midway. Total area: 6,433 sq.mi. Pop. (1950): 499,794; cosmopolitan, the Japanese and white or Caucasian groups being the largest. Capital: Honolulu, on Oahu island (pop. 230,485 excl. military and naval strengths). Governors in 1951: Ingram M. Stainback and (from May 8) Oren E. Long.

History. Since 1900, when Hawaii became a territory of the United States, repeated petitions had been sent to Congress for statehood and in a plebiscite in 1940 the electors voted in favour of statehood by a majority of more than two to one. A statehood convention was held in April 1950 and the constitution drafted at this convention was approved by the general election of 1950, following approval by the territorial legislature. In Dec. 1950 copies of the constitution were formally presented to President Truman and to both houses of Congress by the governor.

Production. (1950-51); sugar, 960,961 tons valued at $115 million; pineapple, 26,071,427 cases valued at $80 million (incl. juice); green coffee, 6,500,000 lb. valued at $2,700,000.

Finance and Banking. Bank clearings in 1950-51 amounted to $1,955 million. The volume of business transacted amounted to $1,312 million. The net bonded indebtedness was $32,582,000. The net assessed valuation of real property was $340 million. Internal revenue collections for the fiscal year totalled $97,630,000, an increase of $16,568,000.

(O.E.L.)

HEART DISEASES. Congenital heart disease continued to be the subject of intensive study during 1951 because of the increasing number of surgical procedures available for relief of certain types, as, for example, cutting the valve in cases of pulmonic stenosis.

Research in the mechanisms of hypertension (high blood pressure) was world-wide. C. Heymans and G. van den Heuvel-Heymans suggested that decrease of resistance to stretch of the arterial wall, where the receptors of the sino-aortic nerves which moderate reflexly the general arterial pressure are situated, could be the primary mechanism of essential hypertension.

Arteriosclerosis, and particularly coronary atherosclerosis, was subjected to wider laboratory and clinical investigation than in any previous year. The total chemical synthesis of cholesterol was accomplished for the first time. The great increase in excretion of cholesterol in the bile by hyperthyroid rats and converse reduction in hypothyroid animals was demonstrated. Observations were reported of the synthesis of cholesterol *in situ* by isolated arterial tissue, and of the effect of heparin in altering the fat and protein molecules in human blood. The ultracentrifuge work of John W. Gofman was subjected to critical evaluation in several research centres. Dietary influences, protective drugs and food factors, hereditary components and hormonal relationships were some of the many areas of investigation.

The electrocardiograph became increasingly an instrument for three-dimensional analysis of the electrical activity of the heart through the growth of interest in vector-electrocardiography. Cathode-ray instruments were used for recording the movement of the electrical vector during cardiac contraction, and high-speed motion pictures of the moving light-beam were made to permit finer analysis of such motions. Another technique, developed by Stanford Goldman and his associates, used motion pictures of a multiscreen oscilloscope which measured, by the changing brightness of the screens, the course of the potential changes over the area of the exploring electrodes.

Surgery of the heart and blood vessels made rapid progress in many clinics of the world during 1951. Operations on the mitral valve, either by finger fracture or incision, increased, and considerably more than 500 such operations had been performed in the world by the middle of 1951. A method was devised by which, with the use of data derived from intracardiac catheterization, it was possible to determine before the operation the approximate size of the constricted mitral valve. (*See* also BLOOD, DISEASES OF THE.) (H. B. S.)

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HEAVY ENGINEERING. Early in 1951 the hydro-electric scheme at Castelo do Bode, on the river Zezere, in Portugal, was put into operation by the inauguration of the first of three turbo-alternator sets. When complete, the power station would be capable of supplying 156,000 kw. at 15·5 kv., to be delivered to the Portuguese grid at 165 kv. The more important items of equipment included three generating sets, each comprising a vertical-shaft water turbine of the reaction type, delivering 73,000 b.h.p. and driving a 57,400-kva. generator at 214 r.p.m.; three 52,500-kva. 15·5/165-kv. three-phase transformers and 165-kv. switchgear incorporating air-blast circuit breakers. Air-blast switchgear for the 165-kv. equipment in the substation was also specified. Unlike the previous year, which, particularly in Canada, was notable for the large volume of hydro-electric potential completed, fewer big additions were made to world capacity, although progress continued on important contracts already in hand.

In Africa, for example, where the Owens falls project in Uganda was under construction, excavation on the intake dams was carried well below the water level and much auxiliary plant was installed, while further transmission lines were put into operation. Work began on the Kosi dam in the Indian state of Bihar which, when completed, was expected to be the tallest yet constructed. A development which excited great interest as a trend likely to be followed increasingly in countries with suitable conditions was the completion of the Abjöra underground hydro-electric power station at Aurdal, in central Norway. This plant was constructed by excavating a tunnel 650 yd. long into the side of a mountain and its machine hall had a roof of mountain rock which was 160 yd. thick. The plant, which had an output of 50,000 kw., was one of the first to be constructed that took advantage of natural features to ensure complete protection from atomic bomb attacks.

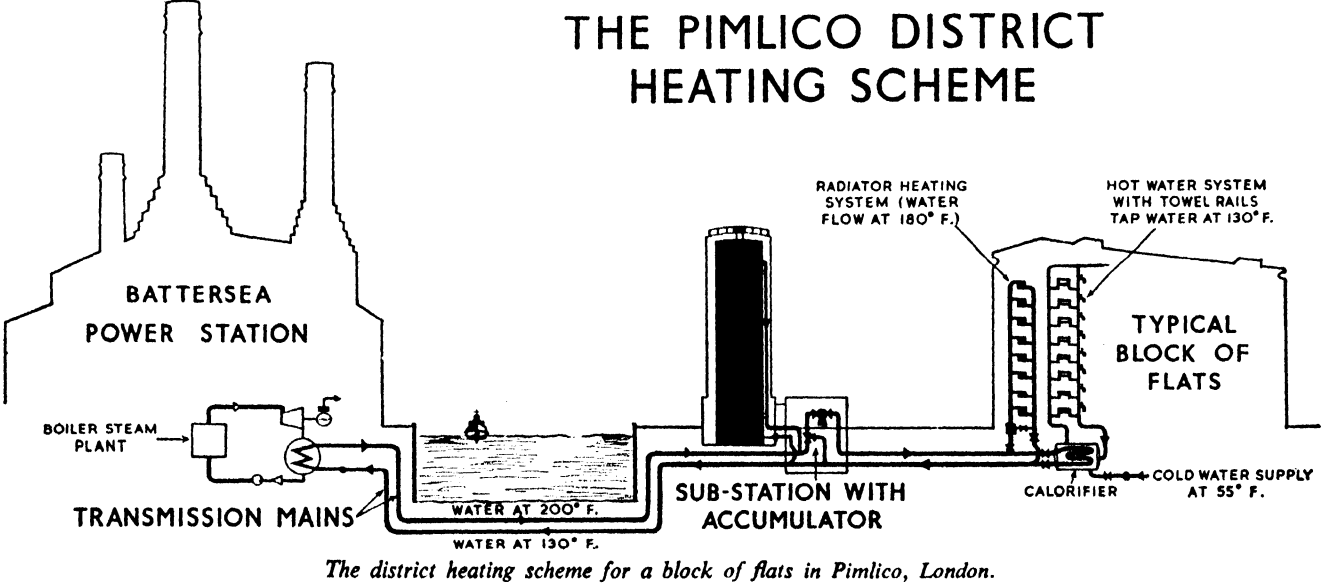
Progress in the installation of thermal power stations was continuous throughout the year in most countries, although it did not mark the completion of any particularly notable scheme. In Great Britain, five new stations were commissioned as well as additions to existing establishments. Among the latter should be mentioned the extension to the Portobello station in southeast Scotland, where a 60-Mw. generating set was installed. In this connection, the largest boiler constructed for use in Great Britain had actually been put into operation in 1950, although primarily intended to be employed in conjunction with the extra generating equiqment. It had an evaporative capacity of 540,000 lb. of steam an hour at a pressure of 1,350 lb./sq.in. and a temperature of 950° F.

A further 150-Mw. unit was added to the giant 600-Mw. Ridgeland station in the United States. This addition, with the unit of the same capacity brought into service the previous year, raised the plant to half its rated output. Each separate unit included two 730,000-lb./hr. cyclone fuel boilers for producing steam at a presssure of 1,900 lb./sq.in. and at a temperature of 1,050° F. The plant was remarkable for its design which enabled coal and natural gas to be burned in any proportion, and combustion was regulated electronically. Hydrogen-cooled alternators, in which the gas could be used at pressures up to 15 lb./sq.in. were employed.

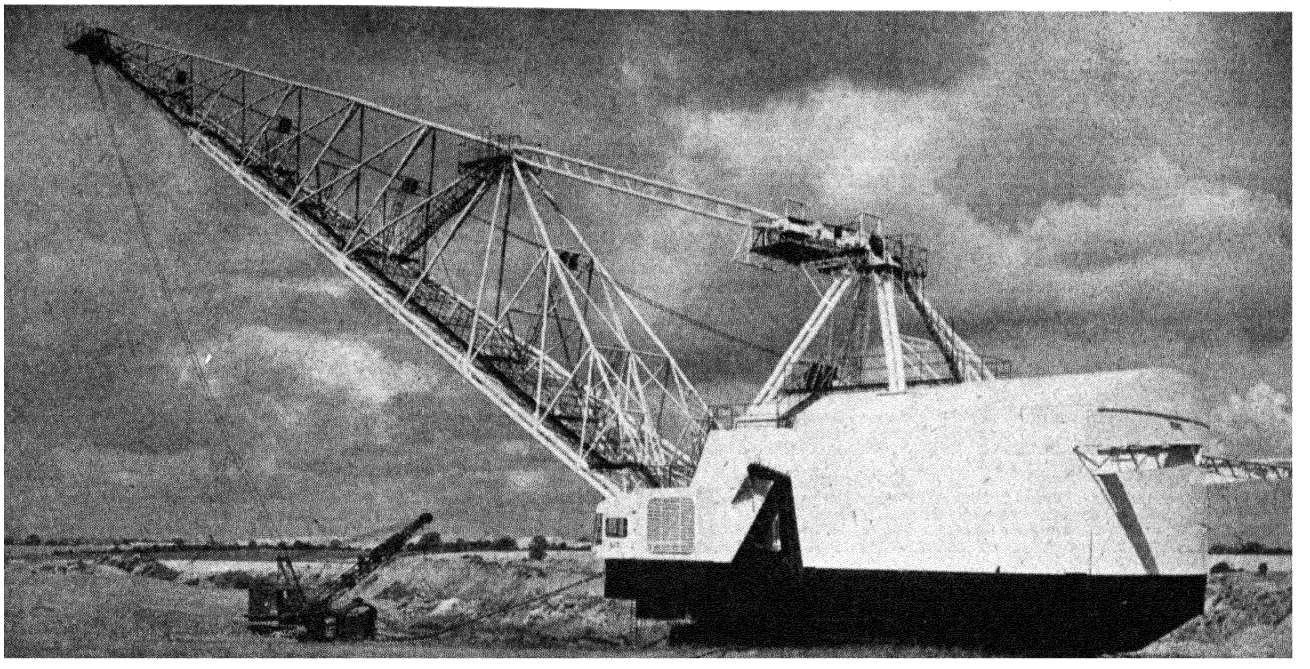
An interesting development, subsidiary to a large power station, was completed in Great Britain in the shape of a district heating scheme for a large block of new flats in London. The dwellings were supplied with 15 gal. of water per head a day at a temperature of 130° F. and rooms were heated to between 60 and 65° F. by means of exhaust steam from back-pressure turbo-alternators specially installed in Battersea power station for the purpose. The system included a large accumulator in the form of a welded mild steel tank, 29 ft. in diameter and 126 ft. high, lagged with cork mats 3 in. thick and covered with sheets of rough-cast glass set in aluminium glazing bars. It represented one of the first attempts in Great Britain to recover the heat of exhaust steam from thermal power stations and, although experimental in that the turbo-alternators themselves were specially installed and represented only a small fraction of the total output of the station, must be regarded as the forerunner of important advances in the useful recovery of low-grade heat in conjunction with the generation of power.

In electrical engineering, although much heavy plant of more or less standard design was built in many countries and moves towards new experimental ideas, such as wind generators and new prime movers, were made, the most significant advances were in the field of transmission. As part of a long-term policy of utilizing to the full its resources of water power, even those distant from the load centre, the State Power board of Sweden inaugurated what was claimed to be the longest transmission line in the world to work ultimately at a pressure of 380 kv., though first made alive early in the year at 220 kv.

It ran from Harspranget in the north to Hallsburg in the south of Sweden, a distance of about 600 mi., and comprised a single-circuit three-phase alternating current line carried on portal-type towers with lattice steel members and a steel crossbar. The current was carried by steel-cored



The district heating scheme for a block of flats in Pimlico, London.



The W. 1400, the biggest walking dragline in the world, which in 1951 was installed by Stewarts and Lloyds for use in one of their ironstone quarries near Corby, Northamptonshire.

aluminium conductors and the whole project, which also included an underground power station, involved the design and construction of the necessary cable transformers and switchgear of the air-blast type, all to operate at 380 kv. Design of the ancillary equipment included the provision of sets of single-phase transformers constituting a bank with the extraordinarily high rating of 300,000 kw. and the construction of the air-blast switchgear in the form of a series of units, each capable of full breaking duty but at a lower voltage. The whole project was a landmark in advanced electrical practice in the course of which many difficult problems were surmounted. Other interesting advances in this class of work were the completion in Great Britain of what was thought to be the first large installation in the world of a three-core single-lead sheathed 132-kv. gas-filled cable. It covered a distance of a little over five miles and was capable of transmitting 120,000 kva. Further progress in this class of work was foreshadowed by the demonstration during the year of a novel type of oil-filled cable also intended for 132 kv., developed by Danish electrical engineers. In its construction the three cores were laid flat and enclosed in an oval lead sheath which was itself contained in a springy diaphragm to take up expansion during heating.

Among the influences that had been affecting structural engineering in recent years were the trend towards the application of steels with higher yield strengths from the introduction of suitable low-alloy structural steels, advances in methods of design, such as the plastic theory, and the development of structural practice in the exploitation of materials relatively new to commercial use, in particular, pre-stressed concrete. Although orthodox construction continued during the year, few specially interesting examples of finished work were completed and progress in the technique of structure specifically built of steel was comparatively slow. A few instances of the application of pre-stressed concrete included the construction of a number of tanks claimed to be the first of their type built in Great Britain for the storage and treatment of seawater in the course of the manufacture of magnesia. These vessels, two of which had capacities of 2 million gal., were designed to employ the Magnel Blaton system of pre-stressing in which the walls were pre-stressed both horizontally and vertically, so that, under all conditions of loading, tensile stress was entirely eliminated and there was always compressive stress at all points in the structure.

A feature of the design in this instance was the decision to make the walls thicker than was necessary from consideration of the working stress in the concrete, for ease of placing and compacting, but later experience proved that the extra material was unnecessary from all points of view. High tensile wire of ·2 in. diameter and with an ultimate tensile strength of 95 to 100 tons/sq.in. was used for the bulk of the pre-stressing with some slightly thicker material in certain places. Another point about the construction was that the pre-stressed shells were cast full circle in continuous operation and each was completed before beginning the next lift. Correspondence of deflections and the behaviour of the joints were found to be in accordance with calculations and the project undoubtedly indicated a trend which would be increasingly followed by engineers throughout the world for its promise of economy of steel, equally with its practical merits.

Progress in the intrusion of aluminium into structural engineering also continued during the year. The influence of the factor of its weight-strength ratio on both design and methods of fabrication was particularly well demonstrated in the three-bay aluminium alloy hangar, which was completed during the year at London airport. This structure was claimed to be the largest of its kind and also the first to be constructed in aluminium alloy. The three bays were each 150 ft. wide by 110 ft. long and the method of construction took advantage of the lightness of the material to dispense with scaffolding and ladders in the construction. Side pillars, together with the arches which spring from them, were prefabricated on the ground and each was hinged at its base to an aluminium casting set in concrete. The pillar was then hoisted to meet the half-portal on the opposite side of the building and the two were then bolted together to form a complete span. The technique thus followed, in principle, a procedure which, initiated with bridges, promised to add greatly to the inherent advantages of light metals in structural work.

The field of transport was characterized, in the ship-building world, by the completion of oil tankers, cargo vessels and a number of passenger liners in which no specially advanced features were recorded. The demand for tanker

tonnage continued unabated and most of the vessels actually finished represented ships which conformed to previous standards. Perhaps the most remarkable technical event of the year was the installation, in a 12,000-ton oil tanker belonging to a British company, of a gas turbine alternator set for experimental service at sea in comparison with compression-ignition engines. The vessel, originally specially built for this purpose, was first equipped with four oil engines driving alternators which supplied current for a main propulsion motor. The gas turbine was designed to burn furnace oil and comprised a high-pressure turbine and compressor running at 5,750 r.p.m., with a maximum operating temperature of 1,200° F., and a low-pressure turbine driving the alternator at 3,000 r.p.m., and a heat exchanger mounted on the exhaust of the l.p. turbine. Its rated output was 1,200 h.p. or 860 kw. at the alternator terminals and experience to the end of the year had proved it highly successful in respect of performance and maintenance.

Rail traction saw steady progress in the introduction of oil engines in various countries. In Great Britain, a prototype diesel mechanical locomotive of 2,000 h.p. was produced. The drive to eight coupled wheels was taken through a specially designed gearbox arranged to give stepless mechanical transmission of power and employed a quill system familiar in continental electric locomotives. Fluid couplings were located between engines and gears and this attempt to avoid the losses inherent in oil-electric combinations was one of the most important yet undertaken in the exploitation of oil engines for main line traction.

An outstanding development in the electrification of railways, which attracted world-wide attention, was the successful installation of an experimental length of line operating on the 50-cycle single-phase alternating current system in France. The section concerned covered a length of about 70 km., worked at 20,000 volts and proved so successful in operation that extensions to other sections were in hand.

In the heavy metallurgical and allied industries the main trends throughout the year were the outcome of impluses administered by the growing shortages of raw materials resulting from increased industrial activities in all countries. Plans were made in the United States, Canada, Norway and other countries for the increased production of aluminium in conjunction with further hydro-electric schemes. The completion of important projects in Great Britain for an increased output of steel, such as the new steel works and rolling plant in south Wales, synchronized with a serious decline in the quantities of steel scrap which had been available, principally from German sources, and indicated the general revival in industrial activity in Europe. In consequence, long-term projects for the winning of further supplies of iron ore were announced and, to aid in the production of ore from surface mines by open-cast methods, a British engineering company finally completed and successfully put into operation during the year the largest drag-line excavator in the world. This machine, in which tubular construction, welding and alloy structural steel were prominent features, had a boom 282 ft. long and was capable of digging to a depth of 100 ft.

Most important and timely in view of parallel events in the political world was the progress made in the completion of European oil refineries, with such units as that at Fawley, Southampton, in Great Britain, which was capable of an output of some 6 million gal. of refined petroleum products a year. This and similar schemes in other countries made a contribution to the independence of Europe in respect of oil refining in which heavy engineering, taking advantage of U.S. technical experience, participated extensively.

The general impression of the course of heavy engineering throughout the year, therefore, was the initiation of projects for greater production of raw materials for industry, the reorientation of important branches of production to this end and the retardation in the progress of contracts for work of a purely civilian nature. Most significant were the progress in the construction of the European oil refineries and the new measures taken to bring fresh sources of iron ore to the service of the expanded U.S. and European metallurgical industries. (W. As.)

HEMP. During 1951 the hemp-consuming industries—mainly cordage, matting and coarse textiles—in Europe depended largely on Italy and Yugoslavia for soft hemp, and on east Africa and the Philippines for hard hemp.

Italy was the largest individual supplier of soft hemp, and the total Italian hemp crop for 1951 was estimated at about 72,000 tons, of which 43,000 tons came from northern Italy. This figure represented an increased production of some 20% per ha. The crop figures for 1951, from the four principal growing regions in northern Italy, were as follows: Bologna, 12,000 tons (11,000 tons in 1950); Ferrara, 21,000 tons (20,000 tons); Modena, 4,500 tons (4,000 tons); and Rovigo, 5,500 tons (5,000 tons). In southern Italy 21,000 ha. yielded between 24,000 and 25,000 tons.

Prices averaged at the end of Sept. 1951 about 12% above 1950, and, anticipating further favourable developments, the Italian hemp monopoly fixed advance payments to growers for the new season's crop at 24,000 lire a quintal, as compared with 18,000 lire a quintal in 1950.

The rate of hemp product sales during the year declined, as compared with previous years. Exports to Uruguay, Brazil, Cuba and Colombia featured prominently in business, with larger consignments going to each country. Exports of twine to the United States developed satisfactorily, but the sale of hemp fabrics in the U.S. was hampered by the *ad valorem* duty on this commodity.

United Kingdom buyers placed considerable orders for hemp yarns in Italy. The importation into the U.K. of binder twine and heavy fabrics was still restricted by import quotas.

World hemp production since World War II had gradually improved. The latest available figures, for 1949, assessed world production at 310,000 tons. (*See* also JUTE.) (G. Hs.)

HERRIOT, EDOUARD, French statesman (b. Troyes, July 5, 1872), was educated at the Ecole Normale Supérieure, from which he graduated with highest honours. He entered politics as a Radical (Liberal) and, in 1905, was elected mayor of Lyons and constantly re-elected since, the only interruption being for the period 1941-45 when the mayors were appointed by the Vichy government. In 1912 he was elected in the Rhône *département* as senator and in 1919 as deputy; in the latter capacity, too, he was constantly re-elected. He was minister of public works in the 6th Briand cabinet (1916-17). After the electoral success of the Cartel des Gauches over the Bloc National in May 1924, Herriot, as leader of the Radical party, in June became prime minister, but in April 1925 was forced out of office by the gravity of the financial situation. From July 1926 to Nov. 1928 he served as minister of public instruction in the Poincaré government of national unity. He was again prime minister and minister of foreign affairs from May to Dec. 1932 and later held the portfolio of minister of state in the G. Doumergue (Feb.-Nov. 1934) and P. E. Flandin (Nov. 1934-May 1935) cabinets. After the Front Populaire victory at the May 1936 election, Herriot was elected president of the Chamber of Deputies and held this post without interruption until the dissolution of the parliament by the Pétain-Laval régime in Aug. 1942. Arrested by the Germans on Oct. 2 of the same year, he was interned at Wannsee, near Berlin, and liberated by the Russians in April 1945. A month later he returned to France and was re-elected mayor of Lyons and president of the Radical party. In Oct. 1945 and June 1946

he was elected to the two Constituent Assemblies and in Nov. 1946 and June 1951 to the National Assemblies. From Jan. 1947 he was constantly re-elected president of the National Assembly. On Dec. 5, 1946, as a writer of great distinction, Herriot was elected a member of the French Academy.

HIRE PURCHASE: *see* CONSUMER CREDIT.

HISTORICAL RESEARCH. Among the international congresses of 1951 the one of most general interest was the first plenary Anglo-American Conference of Historians since the war, which was held in London during July. It was attended by scholars from all parts of the British Commonwealth and the United States. A number of important papers were read, including a statement by Sir Frank Stenton on the new *Biographical History of Parliament*, sponsored by the House of Commons. The headquarters of the *History* would be at the Institute of Historical Research and the work was estimated to take a team of researchers at least 20 years. Another congress of special significance was organized by the Association Internationale des Etudes Byzantines at Palermo in April. After World War II there was a striking increase in the study of the Byzantine empire in western Europe as well as eastern. Each year saw some new development and one result of the year's conference was the setting up of a British national committee on the subject, with several well-known historians serving on it, including Steven Runciman, who published during the year vol. I of a definitive *History of the Crusades* (Cambridge). Another prominent writer in this field was the Dutch scholar C. D. J. Brandt, whose *Kruisvaarders naar Jeruzalem* (Utrecht) also appeared. Another relevant publication was *Recherches d' histoire et de philologie orientales*, by P. Peeters (Brussels), a selection from the writings of the "senior Bollandist," whose death in 1950 was a blow to Byzantine studies.

Among the new enterprises for printing manuscripts were the first volumes of the *Bibliotheca Scriptorum Latinorum Mediae et Recentioris Aetatis* (Zürich), a series of newly edited texts, many printed for the first time. In Germany further volumes of the *Monumenta Germaniae Historica* were issued and a considerable number of bibliographies, teaching aids and general histories, of which F. Wagner's *Geschichtswissenschaft* (Munich) was a good example. Two valuable interpretations of the old Austro-Hungarian empire appeared: the second volume of *Die Geschichte Österreichs* (Graz), by Hugo Hantsch, and *Böhmische Tragödie* (Brunswick), by Hermann Münsch. In France there was considerable activity in all fields of history. The Société de l'Histoire de France resumed publication of its *Annuaire-Bulletin* on a smaller scale than prewar. The translation of Professor Edouard Perroy's clear and well-balanced account of *The Hundred Years' War* into English (London) was warmly welcomed. In the modern period of French history an important monograph was J. Godichot's survey of *Les Institutions de la France sous la Révolution et l'Empire* (Paris). At the beginning of the year publication was resumed of the *Documents diplomatiques français relatifs à l'origine de la guerre de 1914*. The new volume (second series, vol. 9) covered the years 1907-09. Of the respectable production of scholarly works in Italy two only can be mentioned. The first is a register of the *Documenti commerciali del Fondo diplomatico mediceo nell'Archivio di Stato di Firenze*, 1230-1492 (Florence). In his large-scale *Storia Politica d'Italia*, R. Quazza produced an imposing volume on the *Preponderanza Spagnuola*, 1559-1700 (Milan). A fine example of a town history was the *Histoire de Genève, des origines à 1798*, issued by the Société d'histoire et d'archéologie de Genève.

As regards the eastern half of Europe, a valuable article on "Post-war Yugoslav Historiography" by W. S. Vucinich appeared in the March number of the *Journal of Modern History*. It mentioned the series of "Collections of Documents and Materials on the National Liberation War" [1941-45], which the Military Historical Institute of Yugoslavia was preparing. Vol. 3 and 4 of this series appeared in 1951. The magnificent archives of the old republic of Ragusa were being reorganized at Dubrovnik and several volumes of extracts from its records were published during the year. Historical writing in Czechoslovakia, as in other Communist countries, was suspect. The best work on Poland was undoubtedly vol. I of *The Cambridge History of Poland* (Cambridge), vol. 2 of which was published in 1941. Of the 44 contributors to these volumes, 19 were no longer alive in 1951, several of the Poles among them having perished at German hands. Vol. I contained masterly summaries of various aspects of Poland's history from the origins to Sobieski. In the Soviet Union there was a large output of historical works unlikely to be of permanent value. Evgheny Tarlé, a former authority on the Napoleonic period, rewrote his *opus major* for the third time in accordance with the official line of the moment. Scholarship does not thrive in such conditions, yet apparently some sound work was still going on: two volumes appeared of the *Primary Chronicle of Muscovy*, translated into modern Russian and edited by D. S. Likhachev (Moscow-Leningrad); vol. 9, part I of *The Letters and Papers of Peter the Great*, collected together those of the year 1709 (Moscow-Leningrad). This was the revival of a series begun in Imperial Russia and carried on, so far as could be judged, in exactly the same form. L. A. Nikiforov managed to write a factual account of *Russian-English relations under Peter I* (Moscow), with only occasional strained comparisons with the present day. As for recent events, an English scholar, E. H. Carr, essayed the bold task of writing a *History of Soviet Russia* (London), the first two volumes of which reached the year 1923 only.

In the United States an astonishing output of monographs of unequal quality continued to appear. The most general study of their own history was S. E. Morison and H. S. Commager's *Growth of the American Republic* (New York, London), a fourth edition of this standard work, thoroughly revised and extended. An Anglo-American enterprise came to fruition with *A Bibliography of British history: the Eighteenth Century* (New York, London), edited by S. M. Pargellis and D. J. Medley.

In Britain two further volumes in the big Oxford History of England appeared: A. Lane Poole's survey of the period. *From Domesday Book to Magna Carta* (Oxford) and J. D. Mackie's estimate of *The Earlier Tudors* (Oxford). Another well-known authority on the Tudor period, A. L. Rowse, presented vol. I of his general survey of *England in the Age of Elizabeth* (London), which was widely acclaimed. After many years Andrew Browning completed his three-volume study of one of Charles II's principal ministers, *Thomas Osborne, Earl of Danby* (Glasgow). The appearance of another definitive study of a great foreign secretary by Sir Charles Webster was eagerly awaited, and the two volumes he devoted to *The Foreign Policy of Palmerston, 1830-1841* (London), did not disappoint expectations.

In all the western countries the publication of documents on contemporary history went on apace. Professor A. J. Toynbee edited, for the Royal Institute of International Affairs, vol. I of a selection of *Documents on International Affairs, 1939-1946* (London), covering March to Sept. 1939. The institute also resumed the prewar *Survey of International Affairs* (London), with a volume on *The Crisis over Czechoslovakia 1938*, edited by R. G. Laffan. Further volumes were issued of the government-sponsored series of *Documents on British Foreign Policy* and of the captured Wilhelmstrasse

papers *Documents on German Foreign Policy*. Winston Churchill carried his story of *The Second World War* into the year 1943, calling vol. 4 *The Hinge of Fate* and writing with some elation of the brighter prospects which then opened for the western allies. In the United States the various series of their campaign and civil service histories continued, while in France an independent committee of well-known historians—Pierre Caron, Lucien Febvre and Pierre Renouvin—began the issue of *Cahiers d'histoire de la guerre* (Paris). At the same time the report of the Commission Parlementaire on *Les Evénements survenus en France de 1933 à 1945* (Paris) made public masses of verbal and documentary evidence, as valuable to the historian in its field as the revelations about prewar Germany at the Nuremberg trials a few years before. (A. T. ME.)

HISTORIC BUILDINGS. *Wren Drawings.* In May 1951, 122 of 200 lost working drawings by Sir Christopher Wren were identified at a sale of the Marquess of Bute's library at Sotheby's, London. The National Art-Collections fund bought many of the drawings and gave an important group concerning the church of St. Stephen, Walbrook, London (1672-87), to the Royal Institute of British Architects; of the remainder of the fund's purchase most went to the Victoria and Albert museum, London, some to the All Souls college, Oxford, collection and one to Winchester museum. The drawings relating to St. Paul's (1675-1710) fell to a dealer but were later recovered by the cathedral authorities with the help of the N.A.C.F. and a benefactor, Esmond de Beer.

Of the St. Paul's drawings, four sheets, apparently relating to the 1673 design (finished drawing at All Souls; model at St. Paul's), were thought to be the earliest post-Great Fire designs for the cathedral so far brought to light. The remainder were large-scale working drawings made in the surveyor's office in *c.* 1703-6, but they also contained studies for the southwest tower partly in Wren's own hand; two drawings seemed to have been made by Wren's distinguished assistant, Nicholas Hawksmoor. (See *The Times*, London, Oct. 11, 1951.)

Gowers Report. In April Lord Pakenham announced in the House of Lords that the Labour government could not accept the Gowers committee's proposal for tax exemptions for owners of historic houses, " which would amount to a subsidy of a special class of persons," but would introduce legislation in the next session empowering the minister of works and the secretary of state for Scotland to carry out preservation and to make loans and grants; the chancellor of the exchequer would make changes in estate duty in the Finance bill. (*See* also *Britannica Book of the Year 1951.*) At the end of the year the intentions of the Conservative party, who were returned to power in October, were still not known.

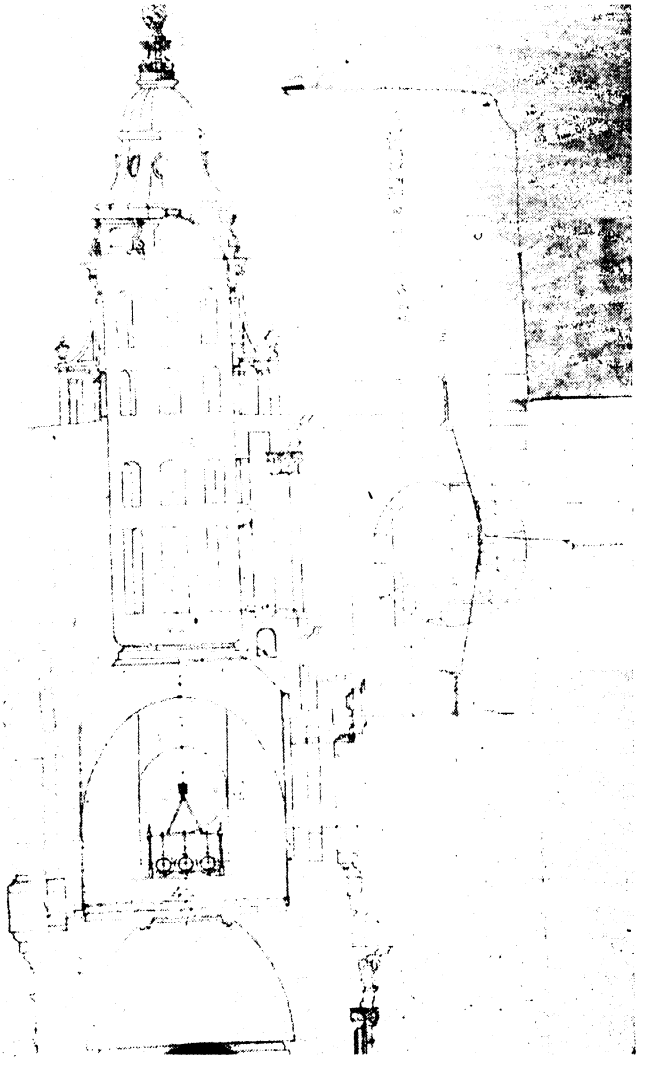
Restoration and Preservation: Secular Buildings. Considerable controversy was aroused by a proposal to restore Washington Old Hall, County Durham, an indifferent 17th-century manor house incorporating fragments of a building of 1183. It was intended to hand over the repaired hall, once the home of the first United States president's family, to the city of Washington, D.C. One of the most distinguished buildings subjected to a Ministry of Local Government and Planning preservation order during the year was Gosfield hall, near Halstead, Essex, a notable Tudor mansion which was for a time the home of the emigré Louis XVIII. In April, the Rubens paintings were replaced in the ceiling of the Banqueting house, Whitehall, London (Inigo Jones, 1619-22), after cleaning and restoration. The restoration of war damage in Westminster hall (1394-1402) was completed.

Among buildings newly opened to the public during the year were: Clandon, Surrey (Giacomo Leoni, 1732; gardens by " Capability " Brown); and Wilton house, Wiltshire (centre of E. front, Tudor; south wing, Inigo Jones, begun 1648, completed to Jones's plans by J. Webb after 1652; remainder, James Wyatt, early 19th century; furniture by William Kent and Thomas Chippendale).

Restoration and Preservation: Church Buildings. Attention was drawn to the increasing difficulties of those responsible for the upkeep of ancient church buildings, and only one indication of the inadequacy of subscriptions and benefactions in dealing with the backlog of restoration was the Pilgrim trust's decision not to entertain further applications for aid to lesser churches. In June, the Church assembly set up a commission to advise on the preservation of old churches.

In the nave of York minster, the Jesse window, badly jumbled during William Peckitt's " restoration " of 1789, was re-arranged in its correct form; it was now possible to date the glass to the earlier part of the period 1305-25. " Cannibalized " panels of another window were restored to it from other nave lights into which they had been intruded, and a third window, reglazed with plain glass in 1657, was rebuilt after most of its ancient glass had been discovered in the Becket window in the chapter house. In August an anonymous Yorkshireman gave £10,000 to the minster's £250,000 appeal fund. By the autumn renovations to the Zouche chapel and north transept roofs were completed.

An appeal for major repairs to Winchester cathedral central tower (1374) was launched; and extensive restoration inside the tower (*c.* 1100) of St. Albans abbey was completed.



A section of the S.W. tower of St. Paul's—the upper parts drawn by Wren himself—one of the original designs rediscovered in 1951.

The final proposals of the London Diocesan Reorganization committee (July) and the City of London (Guild Churches) bill (lodged in December) contained details of 39 City churches by Wren, Hawksmoor, the Dances and others which would be restored after war damage and retained as guild or parish churches. Other items of interest from the smaller London churches included: the discovery of a 12th-century chamber, possibly a treasury, in the ruins of Temple church; an appeal for £20,000 for the restoration of St. Pancras church, Euston road (W. and H. W. Inwood, 1819-22); and progress in the restoration of St. James's, Piccadilly (Wren, 1683; steeple, later), and St. Alphege, Greenwich (Hawksmoor, 1711-18; tower, J. James, 1730).

Scholarship. It was announced in August that the York Summer School of Architecture would be developed into a permanent Institute of Architectural History. The Prior's kitchen (*c.* 1310) in the precincts of Durham cathedral, restored with the aid of a Pilgrim trust grant, was opened on May 23 as the department of palaeography and diplomatic of Durham university.

Other Countries. *Germany.* The restored Marienkirche, Lübeck, rededicated on Sept. 2, 1951, was virtually a replica within the walls of the early 14th-century building gutted in 1942; however, fine wall and roof-paintings dating from 1476, revealed when the fire stripped off later surfacing, were now restored.

Italy. In February, during demolition work at Siena, documents were found which appeared to be designs by Donatello for bronze doors for the cathedral and seemed to refer to a documented commission which was never executed. In August restoration work at the cathedral (*c.* 1118-*c.* 1330) was completed. Repairs had been made to the façade, the buttresses and pinnacles and the famous marble pavement; and the tomb of Cardinal Petroni (Tino da Camaino, 1317-18) was re-assembled in its proper position. The chapel of Nicholas V in the Vatican, Rome, famous for Fra Angelico's frescoes of the lives of SS. Stephen and Lawrence, was reopened on Dec. 7 after being closed since 1947 for restoration.

Netherlands. The restoration of the interior of Jacob van Campen's Mauritshuis (1633-35) at The Hague was completed.

Turkey. In St. Sophia, Istanbul, several important mosaics were discovered. During the year R. Van Nice went ahead with his structure-and-materials survey of the basilica. This was to be published by the Dumbarton Oaks Research institute, Washington. (*See* also ARCHAEOLOGY; NATIONAL TRUST.)

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HOCKEY. The year 1951 was the most eventful the game had known since the Olympic Games of 1948. In addition to the international hockey championship between England, Ireland, Scotland and Wales, five countries took part in a special Festival of Britain tournament, held at the Rugby Football union's ground at Twickenham, a women's international (between England and Ireland) was played at Wembley stadium for the first time and, following a visit to Great Britain by the men's and women's teams of the combined South African universities, a British and Irish men's team toured the Union and Rhodesia in the summer.

England and Ireland shared the international championship. Both won their matches with Scotland and Wales, and they themselves played a drawn game at Dublin, the score being 1-1. Wales took third place by their 2-1 victory over Scotland. The records of the four countries were:

	Played	Won	Drawn	Lost	Goals for	Goals agst.
Ireland	3	2	1	0	9	3
England	3	2	1	0	9	4
Wales	3	1	0	2	4	8
Scotland	3	0	0	3	4	11

To celebrate Festival of Britain year, the Hockey association, in conjunction with the All-England Women's Hockey association, organized an international tournament at Whitsun, to which they invited the national teams of Belgium, France and Holland, and the Scottish women's team. The programme included six matches. The Belgian, Dutch and English women's teams were undefeated. Results (in order of play) were: England 0, Belgium 1; England, women 5, Scotland, women 1; Holland 5, France 0; Belgium 3, France 0; England 2, Holland 3; England 5, France 0. In other international fixtures, Holland defeated Ireland 4-2 and Wales 4-0, thereby establishing themselves as the leading European team.

Oxford beat Cambridge in the 51st university match by 4 goals to nil, the biggest winning margin recorded by either side since Cambridge won 5-1 in 1928. The Royal Air Force retained the Inter-Services championship, with the Army runners-up.

The England women's team won all their matches easily, beating Ireland 6-1 before a crowd of 30,000 at Wembley stadium, Wales 10-0 at Bristol, and Scotland 8-1 at Glasgow. Ireland defeated Scotland 3-2 and both easily defeated Wales.

Men's and women's teams representing the combined South African universities spent three weeks on tour in England, Scotland and Wales, playing mostly against university sides. The men played 8 matches, won 3, drew 2 and lost 3; the women played 9, won 3, drew 4 and lost 2.

In August and September, a team representing England, Ireland, Scotland and Wales made a seven weeks' tour of Rhodesia and South Africa. Four test matches were played against South Africa: each side won one, the other two being drawn. The full record of the British and Irish team was: played 15 matches, won 7, drawn 5, lost 3, goals for 33, goals against 19.

A Pakistan team played three matches in England in Nov. 1950 as part of a European tour. In the first they defeated Combined Services 4-2 at Aldershot; the second, against a Hockey association XI at Park Royal, London, was abandoned in fog with Pakistan leading 1-0; in the third, against Oxford university at Oxford, Pakistan won 3-2. (R. L. Hs.)

See R. Y. Fison and R. L. Hollands, *Hockey* (London, 1951); N. F. Borrett, *Improving Your Hockey* (London, 1950).

HOLLAND, SIDNEY GEORGE, New Zealand statesman (b. Greendale, N.Z., Oct. 18, 1893), was educated at Christchurch West high school, started work at 15 and served in World War I. A business man and farmer, he successfully contested his father's seat of Christchurch north in the House of Representatives in 1935. He was re-elected for the same constituency in 1938 and 1943, and for Fendalton in 1946 and 1949. A member of the National (Conservative) party he was elected its leader on Nov. 26, 1940. After the general election on Nov. 30, 1949, he became prime minister and minister of finance. At the beginning of 1951, he attended the conference of Commonwealth prime ministers in London (Jan. 4-12), and then visited Paris, Brussels, Antwerp and The Hague. He returned to New Zealand on Feb. 16, and in the following week received John Foster Dulles, the U.S. ambassador-at-large. He arrived home in the midst of a

strike of waterfront workers, and on Feb. 21 a state of emergency was declared. In a broadcast on Feb. 27 he said: " This is a strike without rhyme or reason whatsoever. The government is as fed up as it possibly can be, and isn't going to put up with it any longer. The public is also fed up." In another broadcast on May 1, after a number of acts of violence and intimidation, he announced the formation of a civil emergency organization. After the strike ended, in June, he visited Australia for the jubilee celebrations. On July 11 he announced that he would ask for a dissolution to test the country's support for the government strike measures. At the general election on Sept. 1 his government was returned to power with an increased majority. In the 1951 birthday honours he was created a C.H.

HOLLAND: *see* NETHERLANDS.

HONDURAS. Republic of Central America bounded E. by Guatemala, S. by El Salvador, the Pacific ocean and Nicaragua and N. by the Caribbean sea. Area: 59,160 sq.mi. Pop.: (1950 census, prel. fig.) 1,533,625, about 87% being *mestizos*, that is, Indians with an admixture of Spanish blood; there are also over 105,000 tribal Indians; on the Atlantic coast there are over 24,000 Negroes, of whom 3,000 are British subjects; the white population is less than 2%. Language: Spanish, but unknown to thousands speaking only Indian dialects. Religion: Roman Catholic. Chief cities (pop., 1949 est.): Tegucigalpa (cap., 62,263); San Pedro Sula (24,425); Comayaguela (16,907). President of the republic, Juan Manuel Gálvez.

History. In Aug. 1951 the Honduran government contracted with the Tela Railway company for the construction of a new dock at Puerto Cortés and the expansion of railway facilities serving the port to alleviate congestion there. The contract provided that the work was to begin as soon as the government made the construction supplies available, and that the task would be completed within 18 months. The Tela railway would then have the railway rights to the new dock at Puerto Cortés. (G. I. B.)

Education. Schools (1951): primary 2,061, pupils 106,438; secondary 21, pupils 1,107; teachers' colleges 24, pupils 1,746; commercial 14, pupils 2,386. The National university at Tegucigalpa had 796 students in 5 faculties.

Foreign Trade. Exports during 1949-50 amounted to 43·5 million lempiras, imports to 68·3 million lempiras. Chief exports: bananas (31%), coffee (15%), silver (13%). Leading customers: U.S. (69%), El Salvador (14%), Cuba (4%). Leading suppliers: U.S. (78%), El Salvador (5%), the Netherlands Antilles (4%).

Finance. (Million lempiras.) Budget (1949-50, actual): expenditure 32·1, revenue 32·6; (1951-52 est.) balanced at 28·9. Internal debt (June 30, 1950): 8·9. Currency circulation (Sept. 30, 1951): 19·9 million and $5,460,000 in U.S. coin. Monetary unit: *lempira*, officially fixed at 49·5 U.S. cents. (J. W. Mw.)

HONDURAS, BRITISH: *see* BRITISH HONDURAS.

HONG KONG. British colony on the coast of China consisting of Hong Kong island and the ceded territory of Kowloon and Stonecutter's island. The New Territories (the remainder of the Kowloon peninsular and numerous islands) were leased from China in 1898 for 99 years. Area: colony 36·5 sq.mi., New Territories 355 sq.mi. Pop.: (1931 census) 849,751; (1951 est.) 2,030,000. Language: Chinese (Cantonese); about 5% speak English. Capital, Victoria. Administration: governor; executive council, 7 official and 4 (incl. 2 Chinese) unofficial members; legislative council, 9 official and 8 (incl. 3 Chinese and 1 Portuguese) nominated unofficial members. Governor, Sir Alexander Grantham.

History. Hong Kong had a rather more uneasy year in 1951. Trade and industry suffered principally from the American decision in Dec. 1950 to cut off trade with China and to ban the loading of goods for any other country when it was believed they might be destined for China. In March the government announced its intention to proceed with a five-year development scheme in spite of the scarcities likely to result from western rearmament. To control trade with China, Hong Kong was transformed by July from a free port into one with a highly controlled trade system. Steps were taken to stop smuggling and there were some large seizures of gold. In May it was estimated that trade with China (20% of Hong Kong's total in 1949 and 30% in 1950) would probably fall to 10%. By September industry had suffered from the shortage of such materials as cotton yarn and there was a falling off in production with consequent unemployment. Some alternative sources of supply were found.

Legislation in January requiring the registration for national service was followed in August by the first call-up of British subjects for the local forces. In June government offices were given protection from bomb-blast. The Hong Kong Defence force was designated " Royal " in May.

A Chinese tanker under repair at Hong Kong since 1948 was requisitioned in April to prevent its being used directly or indirectly to help to supply the Communist forces in Korea. A 17-storey office building was completed by a British firm of builders for the Bank of China. Hearings continued on the claim by the Chinese Communists to the aircraft of the Chinese National Airways corporation impounded at Kaitak airport.

Hong Kong university, which had opened the first school of architecture in the far east in 1950, received in March a gift of £250,000 from Great Britain. In September it also received £1 million from former Japanese assets as a scholarship endowment fund. Plans for a reservoir in the New Territories holding 1,150 million gal. and costing £1,500,000 were announced in August. Oliver Lyttelton, British colonial secretary visited the colony in December.

Education. Registered schools (1950): 880 with 160,000 pupils (an increase of 30,000 on 1949).

Finance and Trade. Currency: Hong Kong dollar ($1 = 1*s.* 3*d.*). Budget (1951 est.; 1950 actual in brackets): revenue $247,799,850 ($274,240,876); expenditure $234,669,050 ($250,448,999). Foreign trade: (1950 total in $ million; 1951 first nine months in brackets): imports 3,787·6 (3,604·1), incl. from China 857·9 (674·8), Macao 104·4 (77·1); exports 3,715·5 (3,638) incl. to China 1,461·1 (1,512·4), Macao 208·3 (188·9). (H. Is.)

HOPS. Because of the very wet weather in winter and early spring, hops in Great Britain in 1951 made a slow start. They continued to be behindhand throughout the summer, but their quality was unaffected. Rain is no enemy to the hop, particularly to the Fuggles hop, which represented something like 75% of the entire crop. Pests and diseases were as troublesome as always, and downy mildew was more severe than usual in most districts, but the hop grower's armoury of defensive weapons was continually growing in effectiveness and the crop was well protected.

Picking began late in August in east Kent and finished in the Midland yards in mid-October, several days later than usual. Some 100,000 pickers altogether were employed, earning up to £5 or £6 a week apiece. Growers found increasing difficulty in securing pickers, particularly for the Midland yards, where the trouble had been growing acute for the previous 12 years. Picking machines therefore continued to take the place of the absent pickers on an increasing scale. One expert ventured the opinion that, within five years, 80% of the Herefordshire and Worcestershire hops would be picked by machine. Brewer-growers in Kent, however, declared their intention of sticking to hand-picking as long as pickers would come and there was much to be said for their attitude. " Hopping " still provided a paid and healthy holiday for thousands of Londoners who could not otherwise afford to get away from home.

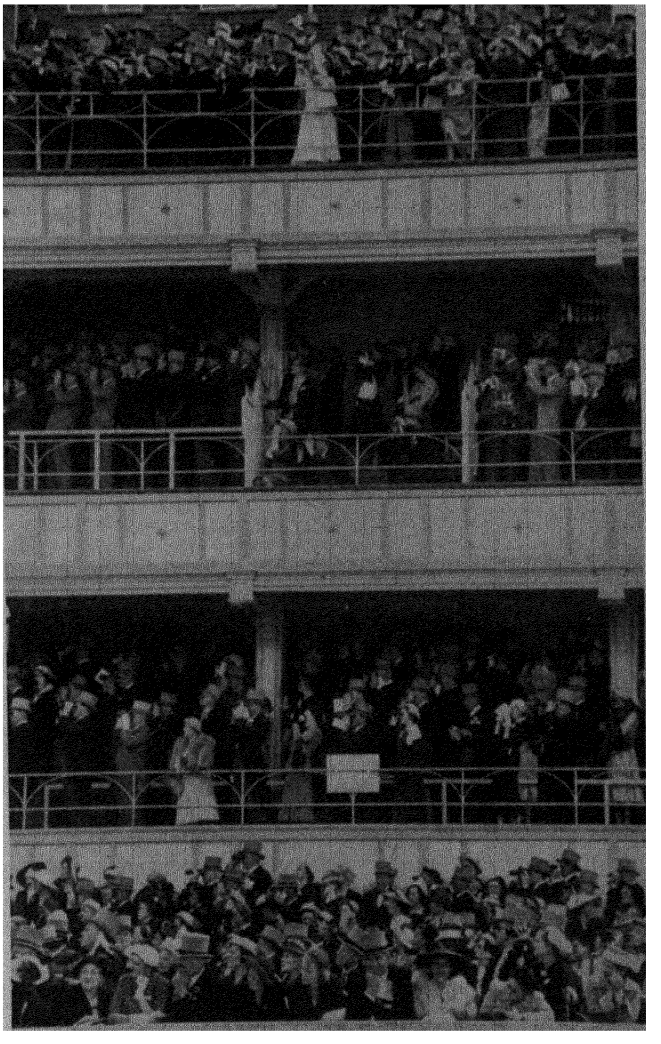
Demands for English hops amounted to 15,205 tons, of which 2,651 tons were required for export. The nominal average price of hops per cwt. in 1951 was £26 2*s.* 6*d.*, compared with £21 in 1950; the area under cultivation was 22,460 ac. (22,198 ac. in 1950); and the total production of hops available for the fulfilment of contracts was 295,215 cwt., the total production in 1950 being 365,250 cwt. (*See* also BREWING AND BEER.) (X.)

HORSE RACING. Unusually wet weather produced excellent conditions for racing in Britain for most of the year, though there was some interruption to National Hunt racing during the early months through flooding. The Cheltenham gold cup had to be postponed for a month and, with Cottage Rake, the winner of the previous three years, unable to compete through injury, was won by the 12-year-old gelding Silver Fame, who had been running honestly in the top class for over five years without being quite good enough to be champion. He was the oldest horse to win this race. The Grand National produced an extraordinary race. The going was apparently perfect, the field numbered only 36 as opposed to the record of 66 and yet at half-way, after one 2¼-mi. circuit, only five horses were left. After another mile only two remained, the mare Nickel Coin and the Irish gelding Royal Tan, and they finished in that order, followed at a considerable distance by Derrinstown who had been remounted after falling. The most acceptable theory submitted for the exceptional number of casualties was that many riders were taken unawares by a premature start and could not balance their mounts properly before reaching the first fence, which did in fact bring down 11.

The flat racing season would be remembered both in Britain and France for the repeated disappointments in the running of the classic three-year-olds in both countries. Throughout the season they maintained an inconsistency which brought the inevitable conclusion that they were an unusually poor lot. There were numerous impressive performances, but never were they confirmed next time out. The form of the early months was particularly confusing. Marcel Boussac's powerful string at Chantilly, near Paris, began the season moderately, though it was eventually to place him at the top of the list of winning owners in Britain for the second year in succession. The first of the classic races, the Two Thousand Guineas and the One Thousand Guineas, were won by Ki Ming and Belle of All respectively. Both were of obvious sprinting stock and unlikely to have the stamina for the later races. The French Two Thousand Guineas was won by Sicambre who was to prove the best of his age in France.

The Derby at Epsom seemed to have produced a colt of outstanding ability, for Arctic Prince was one of the easiest winners of this race for many years. Belle of All finished third in the Oaks to Neasham Belle and the Grand Prix de Paris was won by Sicambre, who, however, never raced outside France. These results were of particular interest this year, since there was to be run at Ascot on July 21 the King George VI and Queen Elizabeth Festival of Britain stakes which, with its first prize of £25,322 10*s.*, was the most valuable race ever staged in Britain. Three-year-olds and upwards were eligible and the distance was 1½ mi. The winner was an English bred and trained three-year-old, Supreme Court, owned by Mrs. T. Lilley, trained by E. Williams at Kingsclere, Berkshire, and ridden by E. C. Elliott. Supreme Court had been considered of so little merit as a yearling that he had not been entered for any of the classic races. He was sent to the stud after this race, as was Arctic Prince who broke down in running and finished lame.

The last two classics, the St. Leger at Doncaster and the French equivalent, were run on successive days in September and were both won for Boussac. At Doncaster the winner was

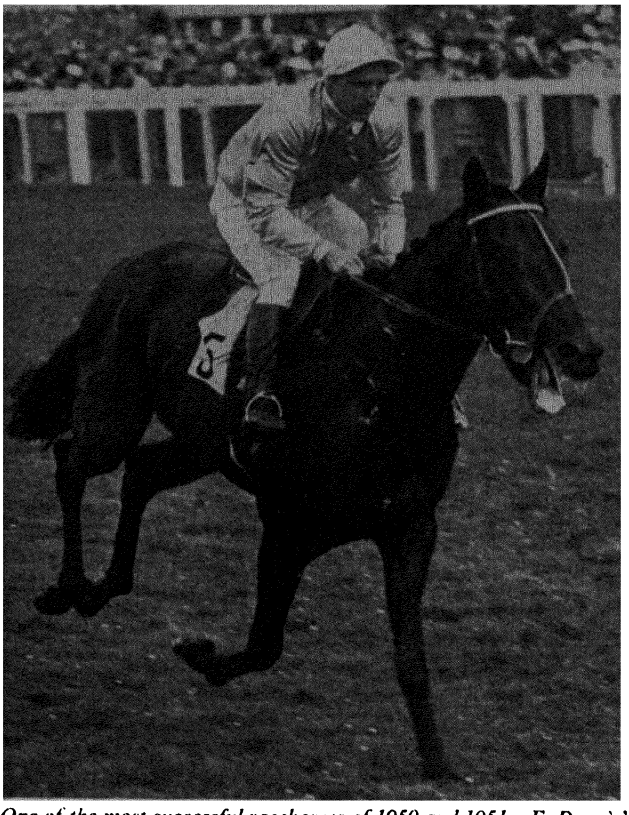


The royal enclosure at Ascot during the 1951 June meeting. For the first time since World War II, grey hats and morning suits were compulsory.

Talma II with ridiculous ease by ten lengths, and at Longchamp the same jockey W. Johnstone won on Stymphale. In the following month, however, it was shown that neither of these was yet of exceptional ability. Talma was only just able to beat a second class English horse, Eastern Emperor, at Ascot and Stymphale could only finish third in the Newmarket St. Leger to Sybil's Nephew, who had started favourite at Doncaster but had finished far behind Talma.

The King George VI stakes established in 1946 by the Ascot authorities was not run this year at the second autumn meeting, giving way to the Festival of Britain stakes. It had anyhow tended to become overshadowed by the Prix de l'Arc de Triomphe, which had become the most valuable race in Europe. For three-year-olds and upwards, it was fittingly won by Tantième, a four-year-old whose performances in France during 1950 and 1951 seemed to have established him as the best horse over 1½ mi. in Europe. He had won the same race in 1950 and had done all that was asked of him in France since, though he had shown himself to be a poor traveller and in one of three races in England had been beaten: this was in the Festival of Britain Stakes when he could only finish third to Supreme Court. It was much regretted in France that Supreme Court was not kept in training for the Prix de l'Arc de Triomphe. Second to Tantième in this race was the Italian horse Nuccio.

The Ascot gold cup and the Goodwood cup were won by



One of the most successful racehorses of 1950 and 1951—F. Duprès's Tantième, ridden by J. Doyasbère—who won the Prix de l'Arc de Triomphe in 1950 and 1951.

a French four-year-old, Pan II, who thus proved himself the best of a moderate lot of stayers among the older horses. Gordon Richards (*q.v.*) was champion jockey in England once again and the season was marked by the advance of a number of promising young jockeys recently out of their apprenticeship, notably E. Mercer, S. Clayton and F. Durr. Mercer rode the Cesarewitch stakes winner, Three Cheers, and Clayton the Oaks winner, Neasham Belle. The 16-year-old L. Piggott who had enjoyed remarkable success in 1950 was kept out of the saddle for a month in the spring and for three months at the end of the season by falls. In France W. Johnstone, with the advantage of riding all Boussac's horses, and P. Blanc were among the most successful. (M. A. Me.)

United States. Limited to two races because of an injury the year before, Counterpoint came back to gain three-year-old laurels and recognition as the outstanding U.S. horse of 1951. Counterpoint ran with his more highly rated stablemate Mameluke in the Kentucky Derby at Louisville, Kentucky, on May 5 and was a disappointing 11th, with Mameluke last in the field of 20. Honours in that event, which grossed $126,100 (richest in the history of the race), went to Count Turf. A crowd of 100,000 saw Royal Mustang run second, four lengths back, with Ruhe a close third.

Eddie Arcaro scored his fourth victory in the rich Preakness at Pimlico in Baltimore, Maryland, on May 19, with Brookmeade stable's Bold. Arcaro got his mount in front early to win by seven lengths and this time Counterpoint ran second, with Alerted third.

Counterpoint found himself in the Peter Pan handicap at Belmont park on June 9 when he broke the New York track's record in defeating the heavily favoured Battlefield by two and three-quarter lengths. A week later, Counterpoint won the Belmont stakes ($82,000 to the winner), defeating Battlefield by four lengths. Among Counterpoint's achievements later in the season were victories over C. T. Chenery's Hill Prince in major stake runs. On Oct. 13, Counterpoint won the Jockey Club Gold cup at Belmont by a head to add $35,600 to his earnings. Then, on Oct. 20, at Jamaica, he led home Hill Prince by a length and a quarter in the Empire City Gold cup race.

With Hill Prince gaining honours among colts in the handicap division, Alfred Vanderbilt's Bed o' Roses was best of the fillies and mares in that group. Walter M. Jeffords' Kiss Me Kate, winner of the Delaware Oaks, Acorn stakes, Gazelle and Alabama, was champion of the three-year-old fillies.

A survey by the Associated Press showed that $1,629,239,777 was betted at the nation's tracks. Attendance rose by 6·01%, and was 24,302,020. (T. V. H.)

HORTICULTURE. The winter and early spring of 1951 would be remembered by gardeners in Great Britain for their excessive rain and prolonged greyness, with the result that all early flowering plants bloomed much behind their normal seasons. Nevertheless, special efforts were made for the Festival of Britain year, and in spite of the late season the Chelsea show of the Royal Horticultural society (May 22-25) was larger than ever. A single vast marquee covered the central avenue. This was filled with magnificent plant groups. The area was 3·5 ac., which probably represented the largest area ever placed under one marquee. Exhibits were brought from many famous English gardens and a large group of very spinous cacti had been specially brought from the Italian riviera. The Southport Flower show was held during Aug. 22-24 and there were also two special exhibitions of market flowers and floral displays at Covent Garden, organized in connection with the Festival of Britain.

A number of large trees were successfully moved into position for the site of the South Bank exhibition and tulips and later stocks and polyantha roses formed a feature of the Festival pleasure gardens at Battersea, prepared and planted to the design of Russell Page.

Earlier in the year, from April 24 to May 4, the second International Rock Garden conference took place and included a special show both in London and in Edinburgh. This very successful conference was organized jointly by the Alpine Garden society and the Scottish Rock Gardens club.

An amateur Orchid society was founded under the chairmanship of C. H. Curtis and the Geranium society held its first meeting combined with a small exhibition. The National Rose society expanded further its new trial grounds near St. Albans.

A tour of famous Scottish gardens was organized by the Scottish National trust and took place from May 11 to 19. A special tour of Italian gardens was also organized in conjunction with the *Gardeners' Chronicle* and took place during Sept. 9-22. These tours to famous gardens were a very popular feature of the horticultural year. A greater number of gardens were open to the public during 1951 than ever before and attracted many visitors. The famous collection of rhododendron species formed by the late J. B. Stevenson at Tower court, near Ascot, Berkshire, was being moved to the Windsor Great park where it would be preserved and where there was space for its expansion as the plants grew. Already the plants in several series had been moved. After many years of experimental work on behalf of the Cornish cut-flower and bulb industry, the Gulval research station, near Penzance, closed. Research work carried out there in connection with the low-temperature cooling of bulbs before planting had proved of real value to the growers in Cornwall as well as other regions.

Famous horticulturists who died during the year included George Monro, for many years a member of the council of the Royal Horticultural society and a leading figure in the

flower trade at Covent Garden; W. E. Arnold-Forster, an authority on shelter belts and trees and shrubs suitable for the milder counties; C. P. Raffill, who had charge of the temperate house in the Royal Botanic garden, Kew, for many years; and George Russell, the originator of the famous strain of lupin which bears his name.

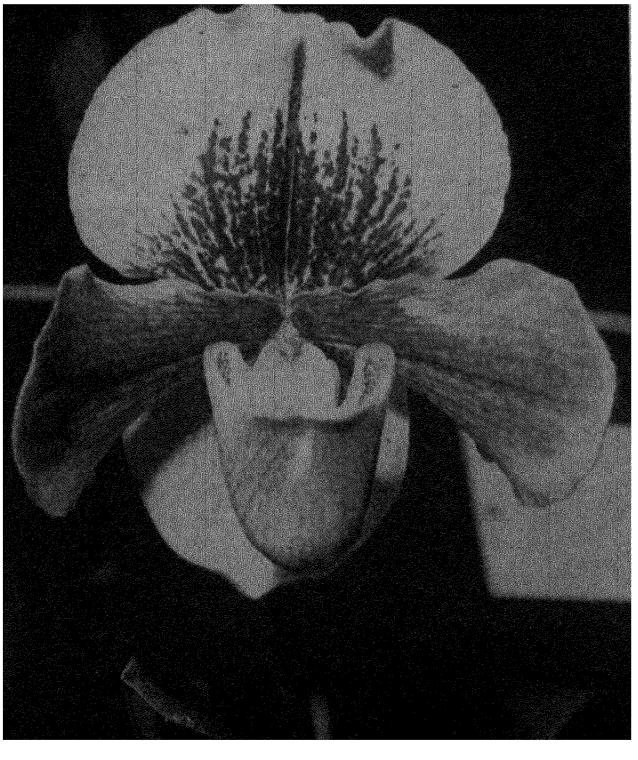
The council of the Royal Horticultural society awarded the Victoria medal of honour, their highest award, to Maurice Amsler, Clarence Elliott, George Johnstone and Lieut. Col. P. Crichton Kay. Gold Veitch Memorial medals were awarded to Wilfrid Blunt for his book *The Art of Botanical Illustration* and to J. Macqueen Cowan for his work in connection with rhododendrons. The Reginald Cory Memorial cup for the raiser of a hardy hybrid, of which one parent was a true species, was awarded during the year to Robert James for his lily " St. Nicholas."

The R.H.S. *Dictionary of Gardening* was published in December by the Oxford University press in four volumes. This was edited by F. J. Chittenden until his death in 1950 and was completed by the editorial and library staff of the society.

An International Plant Quarantine conference in Rome (September) was attended by delegates from 24 countries; the purpose of the conference was to perfect the rules governing the import and export of plants.

Germany. Deutsche Gartenbau-Gesellschaft, the German horticultural society, was revived under the presidency of Professor E. Werdermann and held its first meeting in west Berlin. King George VI gave a large number of trees, shrubs and seedling plants to stock an English garden in that city. A flower show at the Kiel industrial exhibit was visited by 90,000 people. (P. M. S.)

United States. Unprecedented construction of new suburban and country homes in the U.S. during 1951 brought prosperity to nurserymen and seedmen through heavy buying of trees, shrubs and other planting stock, and seeds. Grass seed sales were the highest since World War II. Merion grass seed, developed at the Beltsville (Maryland) agricultural station, was sold in limited quantities at high prices but gave promise of better lawns in districts where grass was hard to maintain.



A new hybrid orchid, " Winston Churchill," which won the award of merit at the Bristol Orchid Growers' association show, March 1951.

Floods in Missouri and adjoining states caused heavy losses to fruit and vegetable growers. The middle west had the coolest summer on record. In some north central states the ground froze before bulbs and late vegetables had been dug. The European earwig was found to be spreading rapidly on both east and west coasts. Chlordane offered the best control. The mistaken use of D.D.T. on evergreens was partly responsible for widespread infestation by the red spider mite because of the killing of their parasites. New remedies for the control of this pest were offered after millions of dollars had been spent in research, but their value was not fully proved. Progress was made in the feeding of plants through their leaves, giving quicker results with the use of less material.

Increasing numbers of shipments of lily bulbs were received from Japan. There were large imports of tulips, narcissi and other bulbs from the Netherlands and France. The year's domestic narcissus crop was ample, but dry weather reduced the size of the bulbs. (*See* BOTANY; BOTANICAL GARDENS.) (E. I. F.)

HOSPITALS. International. The second postwar congress of the International Hospital federation was held in Brussels from July 15-21 under the presidency of Dr. René Sand. It was attended by 520 persons representing 25 countries. The main theme for the congress was " The Care of the Chronic Sick and the Aged." Papers were given on a number of subjects including " Integrating Acute and Chronic in a combined Hospital and Home Pattern " and " The Care of the Chronic Sick and the Aged." Group discussions took place on national and regional planning; planning, construction, equipment and maintenance; organization, administration and finance; and medical and nursing care, rehabilitation, social service, intellectual and spiritual care. The draft constitution of the federation, prepared by the provisional executive committee, was approved by the general assembly of members on July 17, and 21 members were elected to the council of management to hold office for four years. Those elected were A. Andersen (Denmark), Dr. O. Binswanger (Switzerland), Dr. R. F. Bridgman (France), G. Bugbee (U.S.A.), Dr. P. van De Calseyde (Belgium), Avv. L. Colombo (Italy), M. W. Doran (Ireland), E. Faucon (France), Sir George Henderson (Scotland), Drs. J. van Der Leen (Holland), Miss H. G. McArthur (Canada), M. E. Molander (Sweden), G. Montpied (France), Prof. F. Pulcher (Italy), Dr. Y. S. Raafat (Egypt), Dr. René Sand (Belgium), Dr. P. M. Sangani (India), Dr. H. H. Schlink (Australia), Dr. D. C. Smelzer (U.S.A.), Capt. J. E. Stone (England), treasurer and honorary secretary, and Dr. O. Stub (Norway). Three study and research committees were appointed by the council of management as follows: hospital planning and construction, G. Birch-Lindgren (Sweden); hospital administration, Sir Allen Daley (England); patient care, Mrs. B. A. Bennett (England) and Mlle. M. Bihet (Belgium). It was also proposed that a study tour should be held in Italy, in 1952, with the Italian Hospital federation as host, and that the next congress should be held in Great Britain in 1953. A bulletin, issued four times a year, was to contain items of interest to members of the federation; the headquarters were situated at the offices of King Edward's Hospital Fund for London.

Great Britain. By the beginning of 1951 much of the excitement that marked the first two and a half years of the work of the hospitals within the framework of the national health service was dying down. It seemed probable that it would be possible to stabilize the cost of the hospital service

somewhere near the figure of £270 million (the amount estimated in 1950); in fact, the sum voted in March 1951 was £285 million. In January, Aneurin Bevan ceased to be minister of health; he was succeeded by Hilary Marquand, and the functions of the Ministry of Health were revised so as to retain hospitals and other strictly medical matters under the Ministry of Health, while many other functions were transferred to the Ministry of Town and Country Planning. A further change occurred in the autumn when a Conservative government came into power and H. F. C. Crookshank became minister of health. Improvements of 1950 were carried further and numbers and grading of medical appointments throughout the service were reviewed. Although few complete new hospitals were proceeded with, many old hospitals made progress with " up-grading " old accommodation for use as acute general hospitals, by provision of additional theatres, expansion of X-ray, physiotherapy and other departmental facilities, and modernization of systems for registration of patients and keeping of medical records.

The year was notable for the number of important reports published. The Scottish Health Services council issued a final report on the organization of hospital out-patient facilities; this report dealt with the functions of the department, facilities to be provided, its relationship to outside agencies, and internal organization. (*See* R.H.B.S. 50/28, Department of Health for Scotland and *The Hospital*, London, Jan. 1951.) In May were issued reports of eight committees which, under the chairmanship of Zachary Cope, had dealt with the control of the training and qualifications of almoners, chiropodists, dieticians, laboratory technicians, occupational therapists, physiotherapists (including remedial gymnasts), radiographers and speech therapists. The reports outlined proposals for a central council to ensure that the development of the various propositions should be properly related to the hospital service as a whole (*see* C.M.D. 8188, H.M.S.O., London, 1951). King Edward's Hospital Fund for London issued a report on the supervision of nurses' health and a survey of work done by convalescent homes, with statistics to show how long different categories of patients requiring beds had to wait for them. The Eleventh Report from the Select Committee on Estimates (H.M.S.O., London, 1951) expressed a number of definite opinions about the working of the financial machinery and recommended the adoption of a system of grants-in-aid whereby the hospital authorities would be given a much larger measure of freedom to spend within a total allocation. The committee also recommended that each hospital management committee should issue a statement of the committee's activities during the year, including the main operational statistics and the salient figures in the accounts. A report on hospital administration was also issued by the Institute of Hospital Administrators (London, 1951), which emphasized what was felt to be the undue encroachment of the regional hospital boards upon the work of the Hospital Management committee. A committee of the Central Health Services council continued to examine many aspects of the internal administration of hospitals; some of the more important principles involved were discussed in the annual report of King Edward's Hospital Fund for London for 1950. Finally, a report was issued by the Scottish Standing Advisory Committee on Hospital and Specialist Services (see *The Reception and Welfare of In-Patients at Hospitals*, H.M.S.O., 1951).

A staff college for hospital administration was opened in London in April by King Edward's Hospital Fund for London. With the warm support of the Ministry of Health the college undertook the systematic provision of refresher courses for hospital administrators; by the end of 1951 some 80 administrators had participated in the courses. The college also invited applications from those employed within the hospital service for a two-year training course, to begin in April 1952. It was widely felt that the establishment of the college would be likely to influence considerably contemporary thought on the subject of hospital administration. King Edward's Hospital Fund for London also opened in May a pioneer school of hospital catering at St. Pancras hospital. (A. G. L. I.)

United States. In 1951 a two-year programme was launched by the American Hospital association to study the best means of providing high quality hospital care at the lowest possible cost to the public. Competing with industry and with the armed forces, hospitals faced, in 1951, a shortage of staff similar to that felt during World War II. The need for nursing staff was particularly acute, and hospitals in co-operation with other interested organizations concentrated on a nation-wide student nurse recruitment campaign.

Despite curtailed U.S. federal expenditures for non-defence needs, the Hill-Burton hospital survey and construction programme proceeded. The programme provided for carefully planned hospital expansion throughout the nation. Hospital construction grants, as from Aug. 31, 1951, totalled 1,611 projects with preliminary or final approval, comparing favourably with the 1,476 projects in 1950. Of the 1951 projects, 490 were in operation and the remainder under construction or approved. When completed, these hospitals would provide 77,940 hospital beds, in addition to 248 health centres.

Construction figures from a report of the hospital facilities division of the Public Health service indicated some of the 1951 trends: most of the approved project applications were for general hospitals, and about 60% of all approved projects were for completely new facilities. The new hospitals that had been built were relatively small in bed capacity, half having fewer than 50 beds. Of the new projects, 58% were in communities of less than 5,000 population.

Operating costs were on the rise, and patient income lagged farther behind the cost of patient care. For the general hospital, the average cost of care per patient day was $15·62, an increase of $1·29 over the previous year. Of this, patients paid $13·11, or $1·09 more than they had paid the previous year. During 1950 general hospitals needed $2·51 per patient day, or more than $341 million, to make up the difference between working expenses and patient income.

Admissions in 1951 totalled 18,483,185. This meant that an average of 51,000 people passed through U.S. hospital admitting offices every day of the year. The percentage of occupancy, however, continued to be smaller than in the two previous years. The average length of patient stay in all U.S. hospitals in 1950 was 8·1 days.

Canada. The widening of the federal hospital construction grants programme during 1951, to give financial assistance for the building of nurses' residences, outpatient departments and laboratory services, encouraged another aspect of the building programme. The year was marked by a large number of hospital projects completed. Since the inception of the federal aid programme, grants had been approved for 34,000 additional beds in 350 projects.

Another important development was the formation of the trans-Canada medical services which, when effected, would permit an interchange of prepaid medical care benefits between all provinces; thus a nation-wide prepaid hospital and medical care " package " would become possible under voluntary auspices. (*See* also NURSING.) (GE. BU.)

HOTELS, RESTAURANTS AND INNS. The chief influences affecting hotels, restaurants and inns in the two previous years became more pronounced in 1951. These were the rising costs of operation, which, in turn, necessitated an increase in charges to the public by many establishments,







Three examples of inn signs shown at an exhibition in London in 1951 organized by the Brewer's society. (Left) "The Old Prince of Orange" at Gravesend, (above) "The Blue Boy" at Hertford, (right) "The Green Man" at Harlow, Essex.

and the high level of taxation in most countries, particularly in Great Britain, which reduced the spending power of the public.

The vigorous efforts, by governments, public bodies and the trades directly concerned, to develop the tourist traffic continued and propaganda in this field reached a new high level by means of attractive and informative leaflets and posters in colour. In Great Britain, for the first six months of 1951, the Festival year, the latest figures issued by the British Travel and Holidays association showed an increase in the number of tourists of 8% over 1950; it was estimated that a total of 281,952 visitors arrived from overseas during that period. In the latter part of 1951, the association submitted a memorandum to the government suggesting reform of the licensing laws, insofar as they directly affected the public—in particular, visitors from overseas.

The advantages of operating establishments in the United States and Europe, as compared with Great Britain, became more obvious during 1951, and in the competition for tourists British managements continued to be severely handicapped at a time when the tourist trade, as a dollar-earning invisible export, was of considerable importance. Establishments were still subject to strict food rationing, and there remained the heavy purchase tax on essential articles of equipment and furnishings. Also, complications and anomalies resulting from the orders under the Catering Wages act continued to hamper establishments by their rigid application to businesses very varied in character, size and appeal and offering a wide range of personal services.

The food position deteriorated during 1951. The difficulty of maintaining a really good cuisine was illustrated in the figures given by a prominent hotelier, who pointed out that a first-class chef needed $2\frac{3}{4}$ oz. of butter for one person's meal; he was allowed $\frac{9}{28}$ oz. He required 2 oz. of sugar per meal; he was allowed $\frac{5}{32}$ oz. A leading London hotel before the war would take 5,000-6,000 shell eggs a week; during 1951 it was allowed 180. An interesting reaction to the food position was indicated in the remark of a visitor to his companion, "I don't see why they take the trouble to make up a programme [menu] when you have to take what they give you." Much of the pleasure of eating out disappeared and, at the end of the year, there was little evidence of an improvement.

The government's approved scheme for some alleviation of purchase tax to help establishments catering primarily for tourists, although beneficial, was not far-reaching enough in its effects. As regards the Catering Wages act, increases in the minimum rates to staff were made, but the most serious effect of the regulations was still the failure to encourage adequate service to the public, a trend with which efficient managements were as much concerned as ever, mainly because of the heavy payments required for spread-over and overtime work, and work during holiday periods and on Sundays. At a London terminus, one of the station's restaurants providing popular meals on a week-day was closed on Sundays, even during the Festival of Britain, leaving a choice of another restaurant serving a somewhat expensive table d'hôte meal, or the tea counters serving sandwiches, buns and cakes, where it was necessary to join a queue during the recognized eating hours. An innovation by the railways was a table d'hôte container for the service of individual meals in trains without a restaurant car. The development of railway catering continued and some 700 regular week-day trains were equipped with dining and buffet cars.

A feature in all countries, particularly as regards hotels in the more important towns, was the substantial business arising from the increase in meetings and conferences of all kinds, national and local, brought about by the exigencies of modern life, on political, economic, social and practical day-to-day problems in industries and trades. In all countries, too, there was an increase in the number of persons who took advantage of improved travel facilities; air travel developed considerably. These were important factors in maintaining receipts in establishments in most parts of the world.

(H. C. Ce.)

United States. The U.S. hotel industry in 1951 increased its accommodation sales by 8% to 9% over the previous year, while food and beverage sales increased by 5% to 6%. Despite these rises, however, the average hotel's net income before taxes had been deducted dropped by 5% to 10%, mainly because of increased costs of labour and materials. Average room occupancy was about 2% lower, but an 8% to 9% increase in the average daily rate per occupied room yielded an almost proportionate rise in total accommodation sales. Most hotels depended largely on more efficient operating methods to help compensate for increased costs.

Probably the most significant long-term trend in the hotel industry was the progressive lengthening of the seasons at resort hotels. Many resorts which previously had remained

open only for 2 months in the winter or summer were able in 1951 to maintain occupancy above the " break-even " point for the full 12 months of the year. This trend benefited holiday-makers as well as hotels, since it had the effect of increasing the facilities available to resorts, and also made possible economies in off-season holiday-making.

As a result of their $2,000 million post-World War II modernization programme, hotels had greatly improved their facilities and services for motor travellers and travelling families, both of which comprised increasingly greater proportions of the average hotel's guests. The improved facilities for motorists included motor entrances and special motor lobbies, attached storage garages or adjacent car parks and travel information desks which supplied road maps, route information and weather reports. Special hotel services for family groups included " baby-sitting " services and nurseries in some hotels, and sections of dining rooms set aside for groups which included children. (*See* also BREWING AND BEER; TOURIST INDUSTRY.) (C. A. HH.)

HOUSING. By Sept. 30, 1951, 1,456,721 new houses, flats and other units of accommodation had been provided in the United Kingdom since the end of World War II. In addition to the temporary house programme, which resulted in 156,611 dwellings, 961,484 new permanent houses and flats had been built. The other accommodation provided was represented by conversions and adaptations, the repair of war-damaged dwellings and the reconditioning of service camps.

In the quarter ended Sept. 30, 1951, 43,902 homes were provided in England and Wales, and 5,142 in Scotland, bringing the total number of new houses up to the yearly average of 200,000 houses, which was the avowed aim of the Labour government, in whose view no greater number of houses could be built without making serious inroads on the building programme for factories, hospitals and schools.

At the general election the Conservative party was bound by the conference decision at Blackpool in 1950 when the delegates, in spite of advice from their leaders, insisted on naming 300,000 houses a year as the minium target for the party. Despite the fact that, since the war, more than one out of every ten families had been provided with a brand new house to live in and although this compared favourably with the over-all performance in the 20 years between the wars, it was, nevertheless, clear that the Labour government's performance had not caught up with the waiting lists of people anxiously requiring houses, compiled by the local authorities. On the contrary, in many instances, the waiting lists were increasing in length. As a result of the general raising of the standard of living of the British people the working class demanded as a matter of right housing conditions which, in an earlier period, were regarded as the exclusive privilege of the middle class. The large Victorian family, too, had practically disappeared as a social phenomenon; the nation, instead of being made up of a comparatively small number of large families was now made up of a large number of small families. Each family, however, continued to demand its separate dwelling. Whatever the reasons might be, there was no doubt that when Clement Attlee decided to appeal to the country there were still large unmet housing demands. Second only to the cost of living, housing was the main issue at the general election.

After the general election, Harold Macmillan became minister of housing and local government in succession to Hugh Dalton. The minister immediately announced the suspension of all new building for three months, presumably in order to allow him to prepare a programme for the disposition of building labour and materials. Shortly afterwards he issued a circular permitting a ratio—which under the previous government had been one house for sale as against four to let—of one house for sale to one house to let. In the House of Commons during the first important debate on the subject of housing, on Dec. 4, 1951, the minister explained that this was not an instruction to local authorities,



Houses built at Delapré, Northampton, in 1951 at a cost of £1,083 for each house. In Nov. 1951 "The Builder" (London) organized a competition for houses under £1,000 which was won by the borough architect and the deputy borough architect of the county borough of Northampton. The entrance and service doors are both at the front of the house.

it merely increased the area of their discretion. The minister said that in England and Wales 170,000 houses had been built on the average in the previous three years. He hoped that, if 200,000 houses were built in 1952, some 50,000 of these might be for sale. If that were achieved then the number of houses to let would remain the same although the proportion of houses for sale would be increased.

The chief criticism of the government's policy came from that section of the community which had long given specialist concern to the place of housing in the provision of a satisfactory environment for families. The executive of the Town and Country Planning association welcomed the intention to speed up housing but reiterated its fundamental belief that the new houses should be of the right kind and in the right places. This view was also taken by *The Times* which, in a leading article (Nov. 20), said " Present stringencies do not justify the building of houses by anyone of a quality which the nation will come to regret 20 years hence." Clearly, the new minister was faced with a task at once complex and difficult. It was obvious that the Labour government could have achieved a greater production than 200,000 houses a year had they not adopted the standards of housing laid down in the Dudley report during the war which represented enormous advances in space standards as compared with prewar. The average prewar house had a superficial floor area of 750 sq.ft. to 850 sq.ft. The postwar house had a superficial floor space of over 1,000 sq.ft. To revert to the prewar standards would permit of a substantial additional number of houses each year. The wisdom of this course was, of course, debatable, but while a perfectionist policy had its attractions there could be little doubt that the families who impatiently awaited their turn in the housing queue would infinitely rather have a smaller house than no house at all.

It is certain that there was no universal welcome for the " houses-for-sale " policy. When Glasgow corporation—the authority controlling what was, in spite of spectacular developments over 25 years, still the worst-housed town in Great Britain—announced that 600 of the municipally built houses would be offered for sale, the announcement was greeted with scenes of wild disorder both in the council chamber and in the streets outside.

One point in the changeover from a Labour to a Conservative government received inadequate attention. During World War II Winston Churchill set up a Ministry of Works and Planning and this later became the Ministry of Town and Country Planning. After the 1950 election the housing and local government functions of the Ministry of Health were amalgamated with the functions of the Ministry of Town and Country Planning, which became known as the Ministry of Local Government and Planning. In appointing Harold Macmillan, Winston Churchill created a Ministry of Housing and Local Government—which virtually meant that planning had once again become a sub-section of a vast department. This, indeed, must have been a great disappointment to all those who tried to achieve the co-ordination of housing and planning policies in order to produce better living standards and adequate decentralization from the mother towns of both population and industry. In the meantime, flats continued to be built in London providing inadequate living space of a mere 650 sq.ft. floor area, subsidized to the extent of £2,900 as compared with the normal subsidy of £600 on the 1,000-sq.ft. house. Progress with the New Towns continued to be pitifully slow. The government announced its intention, however, to introduce legislation to repeal those provisions of the New Towns (Licensing) act, 1949, which extended state management to new towns. This would cause little regret since the act, a flagrant denial of the principles involved in the original New Towns act, was, at the best, a hasty and ill-conceived measure.

France. In France, from the end of the war up to June 1951, there had been built 174,900 houses (of which 110,245 were new houses and the rest reconditioned houses) in addition to 119,260 temporary houses.

Netherlands. In 1950, the Netherlands built 47,300 houses. By Aug. 31, 1951, an additional 36,324 houses had been completed and 43,109 houses were under construction.

Norway. In 1950, Norway needed 123,000 houses to provide every family with a separate dwelling. In 1950, 22,400 homes were completed. For the year 1951 a lower target was set because of the needs of the defence programme and in the first six months 7,800 new houses were completed as compared with 10,000 in the same period of 1950.

Sweden. At the end of World War II, Sweden decided on a policy of house-building aiming at providing a national floor space standard of not more than two persons to a room within 10 to 15 years. In order to achieve this it aimed at producing 60,000 housing units a year of which 45,000 were to be in the cities and 15,000 in the rural areas.

In 1950, 43,937 units were in fact completed, 12,803 as houses and the rest as apartment dwellings. Loans were available to potential house owners up to a maximum of 90% of construction cost. Community-owned blocks of flats might borrow up to 100% of the capital value. A subsidy was given to families of two or more children under 16 years of age and coming within a specified but relatively high income limit. The subsidy amounted to $36 or £13 each year for each child under 16. Sweden was at least conscious of the " stone deserts " which had been built in the cities and which, it was declared, became cities for "sleeping and eating only," lacking a proper balance between homes, shops, recreation centres, libraries, motion picture theatres, etc., which together give an area a complete and living character.

U.S.S.R. According to L. P. Beria, in his report at the meeting of the Moscow soviet, to celebrate the 34th anniversary of the October revolution, held on Nov. 6, 1951, during the year 270 million sq.ft. of family living space (presumably 300,000-400,000 apartment dwellings) had been provided in cities and in industrial settlements; and 400,000 new houses were being built by collective farmers in the rural areas. (G. McA.)

United States. The total number of dwellings started during the year, exclusive of farm housing, estimated at about 1,100,000 non-farm units, was second only to the record total of 1,396,000 in 1950. The volume of home construction was considerably in excess of expectations. It was expected that the curtailment of credit for the financing of housing through regulation X of the board of governors of the federal reserve system, instituted in Aug. 1950, would have a sharply restricting effect upon the ability of families to purchase homes and would result in a severe reduction in the volume of new construction. The uncertainties accompanying the outbreak of the Korean war, however, stimulated housing demand. Increased inflationary pressures gave rise to expectations of further increases in costs and prices, and renewed prospects of housing shortages served to buttress demand for new construction.

In September, congress enacted the Defence Housing and Community Facilities Services act of 1951 (public law 139) which made provisions for special Federal Housing administration (F.H.A.) mortgage insurance aids, federally financed defence housing, assistance to localities in the provision of community facilities and services, and acquisition and site development in connection with defence installations in isolated areas. The provisions of the act applied only to critical defence housing areas which the president might designate according to existing conditions.

The direct provision of defence housing by the federal government could be undertaken only if private enterprise was

unable to provide for the need or if the requirement was of temporary duration. The act provided that federally financed permanent housing should consist of one- to four-family structures which might be sold separately to private owners. Temporary dwellings must be of mobile or portable character so that they might be used again elsewhere to serve other temporary needs. The act authorized an appropriation of $50 million for federally financed defence housing and an additional $60 million for loans or grants for the provision of necessary community facilities and services needed in connection with the construction of defence housing in critical areas.

As at Dec. 29, 1951, credit restrictions had been suspended and housing had been planned for private construction in 112 critical defence housing areas, involving a total of 65,295 units of which 45,770 were rental units and 19,525 were dwellings available for sale. Temporary housing to be provided with federal funds, planned as from Dec. 27, 1951, in 22 critical defence areas, amounted to 4,575 units consisting of 2,850 trailers and 1,725 temporary portable dwelling units. All the temporary units were assigned to military bases: 1,350 to army posts, 1,790 to the air force and 1,435 to various naval establishments.

An interesting aspect of the Defence Housing act was that it modified by legislation the regulations of an administrative agency. Under the act, regulation X was changed in non-defence areas to allow veterans to purchase a home costing $7,000 or less with a down payment of only 4% while non-veterans were required to place a 10% down payment. In addition, the mortgage amortization period for homes priced at $12,000 or less was extended from 20 to 25 years. (*See* ARCHITECTURE; BUILDING AND CONSTRUCTION INDUSTRY; LOCAL GOVERNMENT; TOWN AND COUNTRY PLANNING.) (CH. RA.)

HUMPHREYS, SIR TRAVERS, English judge (b. Aug. 4, 1867). The son of a London solicitor, Humphreys was educated at Shrewsbury school and Trinity hall, Cambridge, and was called to the bar by Inner Temple in 1889. He was appointed junior Treasury counsel (criminal) in 1908 and in 1916 became senior Treasury counsel, a position he retained until he was made a judge of the King's Bench division of the High court in 1928. He had never taken silk as, by tradition, Treasury counsel are always junior counsel, and he was the first junior counsel to be elevated straight to the bench. While a Treasury counsel he appeared in most of the important criminal trials of the period, among them the Crippen case (1910) and that of Horatio Bottomley. He was successively recorder of Chichester and Cambridge and, after becoming a judge, he served for long periods as acting chief justice. When he retired in 1951 at the age of 83 he was the senior judge of the King's Bench division, and the king granted him an annuity for life of £2,625.

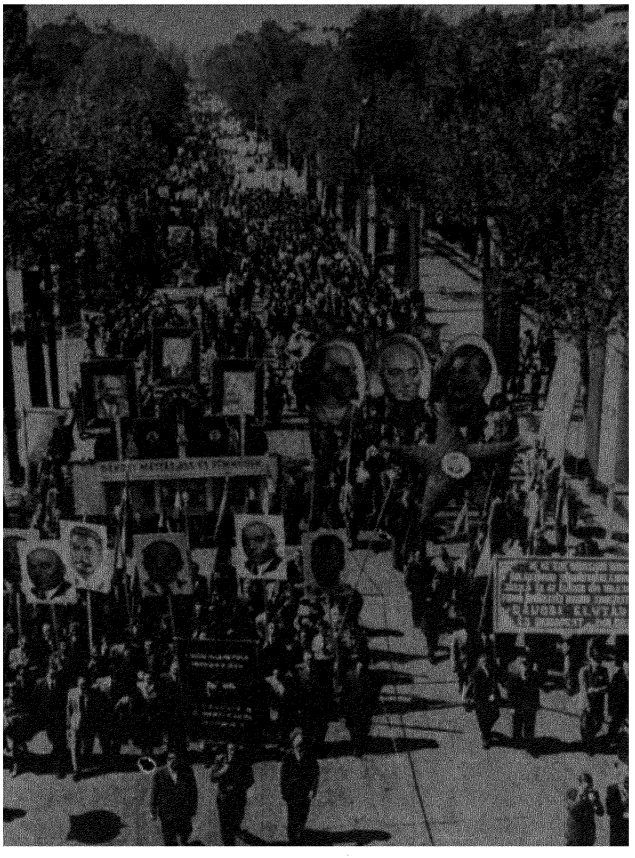
HUNGARY. People's republic of southeastern Europe bounded W. by Austria, N. by Czechoslovakia, E. by Rumania and S. by Yugoslavia. Area: 35,893 sq.mi. Pop.: (1938 est.) 9,021,000, (Dec. 31, 1950, est.) 9,313,000. Language: (1947 est.) Hungarian 92·9%, German 5·1%, Slovak 0·8%, Serbo-Croat and Slovene 0·6%, Rumanian 0·2%. Religion: (1947 est.) Roman Catholic 65·6%, Greek Catholic 2·5%, Calvinist 20·8%, Lutheran 6%, Greek Orthodox 0·4%, Jewish 4·3%. Chief towns: (1941 census) Budapest (cap., 1,164,963; 1948, 1,058,288); Szeged (136,752); Debrecen (125,933); Miskolc (109,433); Kecskemét (87,269); Pécs (78,512). Chairman of the presidium of the National Assembly, Sándor Rónai; prime minister, István Dobi.

History. The Hungarian five-year plan was revised in 1951. Much higher output targets were set and the pace was to be much quicker than originally intended. Official spokesmen maintained that the increase was made possible by the unexpected successes already achieved, by the toiling enthusiasm of the masses and by the exceptionally generous help of the Soviet Union and the people's democracies with which Hungary's trade was rapidly developing. Other official speeches however stressed the need to develop a heavy industry as a foundation for national defence, threatened by the western imperialists. The connection between the war in Korea, the "peace" movement and the revision of the plan was evident. Details of the new output targets were given in a speech by Ernö Gerö to the National Assembly on May 15. The total value of investments under the five-year plan period was increased from F. 51,000 million to F. 85,000 million. The proportion allotted to industry, which was to have been 41% under the original plan, was raised to 52%. In comparison with the original plan the targets for chemical and electric power production were almost doubled, those for machine production trebled. The increase in the industrial labour force over the plan period was to be not 480,000 but 650,000.

In Dec. 1950 there were some apparently important changes in the machinery of government. A new Ministry of Food was created and was entrusted to Imre Nagy. Two new industrial ministries were Metallurgical and Machine Industry (Sándor Czöttner) and Mining (Arpád Kiss). During 1951 the only important change in leading political personnel was the replacement of Sándor Zold as minister of interior by Arpád Házi (April 20).

The industrial project which received most publicity was the construction of the new Danube Iron works at Dunapentele on the Danube. At least some sections of this works were due to begin operating in June. In 1949 Dunapentele was only a village. By Nov. 1951 its population was 35,000 and it was a model of people's democratic town planning. On Nov. 7, the 34th anniversary of the Great October Socialist revolution, a signal honour was bestowed on Dunapentele. As the iron works, which would greatly increase the potentialities of Hungary's war industry, was "the biggest peace project of the five-year plan," it was decided to rename the new city after "the leader of the peace movement of all mankind." The city's new name was to be Sztálinváros, and the Danube works were to become the Stalin works.

Hungary suffered from labour problems: 62,000 new workers were to have been brought into industry by the end of June, but this target was far from fulfilment. The police were empowered to stop citizens in the streets and question them on their employment. The building industry was in an especially unsatisfactory condition. In the first quarter of 1951 one-third of its labour force changed. According to an official spokesman, if the workers had stuck to their jobs, the June target for the bricks and tiles industry would have been achieved to the extent of 96%, instead of 88%. The same speaker estimated that during June 70,000 working hours were wasted in the machine industry by chattering in working time. One of the causes of the labour difficulties was the fact that many factory workers owned small plots of land and were more interested in cultivating them than in doing permanent jobs in industry. Government spokesmen attached great importance to increasing the number of women in industry. Antal Apro told the Trade Union council on July 27 that though women formed nearly 52% of the population they supplied only 27% of the industrial workers. A government decree of June laid down that 50% of new recruits into industry as a whole, and 80% in transport, commerce and public services, should be women. The number of women in universities, technical and economic institutes must be increased. All factories employing more



May day celebrations in Budapest in 1951. Large portraits of Lenin, Stalin and Mátyás Rákosi, secretary general of the Hungarian Communist party, were carried in the parade.

than 250 women must provide crèches. The official monthly organ of the Workers' (Communist) party, *Társadalmi Szemle*, in June welcomed the fact that women were now employed in the coal mines, electric energy production, the timber industry and printing. In building 13% of the workers were women. Though a great increase in comparison with pre-revolutionary Hungary, it was still far too little.

Pressure on peasants to join collective farms continued. On March 10 a ban on the formation of new collectives was imposed, but this was removed on July 22. During the summer delegations of Hungarian peasants visited Soviet *kolkhozy*, and on their return the campaign was renewed on a more intense scale. It was announced that tens of thousands of people's agitators would visit the villages, to bring to every peasant home knowledge of the merits of collective farming. At the end of October it was announced that 15% of Hungary's arable land was held by collectives—slightly more than twice as much as at the beginning of the year.

The congress of the Workers' party, held at the end of February, was uneventful. Speeches followed familiar propaganda lines. One speaker, István Hidas, revealed that the party had set up special political departments in the Hungarian railways and in the agricultural machine-tractor stations. The latter institution played an important part in the completion of collectivization of agriculture in Russia in 1933-34. It seemed probable that its Hungarian counterpart would be an important instrument of Communist control over the countryside. Another interesting statement made at the congress was that of Mihály Farkas, the war minister, who declared that the proportion of officers in the present army who had obtained their commissions since 1945 was now 80%, but in 1949 had been only 5%.

In July a new State Secrets law was introduced. It was so phrased as to make almost any conversation with a foreigner or unauthorized person capable of being interpreted as espionage. During May and June considerable numbers of persons were deported from Budapest. A Ministry of Interior statement of June 17 declared that 918 families had been so deported and claimed that they were former aristocrats, landowners, politicians, businessmen, army and police officers. At the end of June Archbishop József Groesz of Kálocsa, who had signed on behalf of the Catholic episcopate the agreement of Aug. 1950 with the government, was tried for treasonable conspiracy and currency offences and sentenced to 15 years' imprisonment.

Recent building in Hungary provoked the criticism from the Ministry of Building that it was still infected by the influence of "the non-national architecture of Right-wing Social Democracy of the 1920s, which had been adopted by imperialist America and had been propagated for cosmopolitan spiritual export." Even those Hungarian architects who had learned Marxism-Leninism had failed to apply it in their work. The ministry was however confident that when Hungarian architects had realized the importance of Soviet architecture they would find a form of expression worthy of the Hungarian working class. (*See* also EASTERN EUROPEAN ECONOMIC PLANNING.) (H. S.-W.)

Education. Schools (1950-51): elementary 6,185, pupils 1,229,957, teachers 36,819; secondary 405, pupils 95,930; universities and institutions of higher education 21, students 32,790, professors and lecturers 7,113. Illiteracy (1941) 6·0%.

Agriculture. Main crops ('000 metric tons, 1948): wheat 1,583; maize 2,862; barley 692; oats 334; rye 786; rice 37; sugar, raw value (1950) 255; potatoes (1950) 1,224; tobacco 27; linseed (1949) 10; flax fibre 1·7; hemp fibre 8·6; dry beans (1950) 41; dry peas (1949) 32; grapes (1949) 770. Livestock ('000 head, Feb. 1949): cattle 1,441; sheep 650; pigs 3,250; horses 569; chickens (1950) 15,000. Livestock products: meat exports (million lb., 1950) 3·6; eggs (millions, 1948) 750; milk ('000 metric tons, 1948-49) 1,100. Wine production (1949): 3,173,000 hl.

Industry. Manufacturing establishments (1947): 4,342; persons employed 349,500. Fuel and power: coal and lignite ('000 metric tons, 1949) 11,500; electricity (million kwh., 1949) 2,200; crude oil ('000 metric tons, 1950; 1951, six months, in brackets) 500 (250); natural gas (million cu. m., 1947) 100·7. Raw materials ('000 metric tons): iron ore, iron content (1947) 61; pig iron (1949) 404; crude steel (1949) 874; bauxite (1948) 374; gold (kilograms, 1947) 62; sawn wood ('000 cu. m., 1947): softwoods 20, hardwoods 106. Manufactured goods: cement ('000 metric tons, 1947; 1948, six months, in brackets) 281 (73); cotton piece-goods (million m., 1947; 1948, six months, in brackets) 148 (79); woollen piece-goods (million m., 1947; 1948, six months, in brackets) 13 (7); cigarettes (1949) 6,323 million.

Foreign Trade. (Million forints, 1948): imports 1,975; exports 2,965.

Transport and Communications. Roads (1951): 15,976 mi. Licensed motor vehicles (Dec. 1950): cars 16,000, commercial 15,500. Railways (1951): 7,100 mi.; passenger-mi. (1948) 2,983 million; goods ton-mi. (1948) 2,036 million. Air transport (1948): flights 4,447; miles flown 625,800 mi.; passengers carried 36,111; goods carried ('000 metric tons) 356. Danube shipping (Dec. 1947): merchant vessels 514; gross tonnage 118,717. Telephones (1948): subscribers 106,768. Wireless licences (1949): 525,000.

Finance and Banking. (Million forints) Budget: (1950 est.) revenue 17,537, expenditure 17,454; (1951 est.) revenue 29,623, expenditure 29,516. Currency circulation (Feb. 1949; Feb. 1950 in brackets): 2,888 (2,805). Bank deposits (Feb. 1949; Feb. 1950 in brackets): 4,625 (6,914). Monetary unit: *forint* with an official exchange rate (Nov. 1951) of F. 33·15 to the pound and F. 11·74 to the U.S. dollar.

See C. A. Macartney, *Origin of the Hun Chronicle and Hungarian Historical Sources* (Oxford, 1951).

ICE HOCKEY. As usual, the Autumn cup and the National league competitions were held during the 1950-51 season. Six teams competed for the Autumn cup which was won by the Brighton Tigers with Streatham one point behind. The National league was eventually won for the first time by the Nottingham Panthers, with Brighton Tigers one point behind.

Six teams also competed in the Intermediate league, which Wembley Terriers won, Streatham Royals being second; and the Junior league was won by Streatham Indians. In the Northern Amateur tournament with all games again played

at Durham, the Durham Wasps finished first in the regular schedule of league games. The first four teams then played for the cup but the local team was beaten by Wembley Terriers in the first round, with Glasgow beating the Falkirk team in the same round. Wembley Terriers beat the Glasgow team in the final game and won the cup for the first time.

The high spot of the season was the new international invitation tournament for the Winston S. Churchill cup, with Canada, the United States and a representative England team competing. Unfortunately, the U.S. team was much weaker than the other two and in the final game Canada beat England to win the trophy.

The World and European championships were played in Paris in March. Canada retained the world title and Sweden won the European trophy.

In Scotland, the Autumn cup was won by Fyfe Flyers with Ayr Raiders runners-up. The Canada cup was won by Dunfermline Vikings with Falkirk Lions runners-up. The National league was won by Paisley, who also won the play-offs for the Anderson cup (J. F. A.)

United States and Canada. The Detroit Red Wings won the National league title for the third successive season with a record total of 101 points. They were, however, eliminated in the semi-finals of the Stanley cup play-offs by the Montreal Canadians. Montreal won the first two cup contests, 3-2, 1-0; Detroit the next two, 2-0, 4-1; but the Canadians gained the third pair, 5-2, 3-2, and moved into the final against the Toronto Maple Leafs, who had eliminated the Boston Bruins in the other semi-final. Toronto triumphed in the final series; the wins registered being: Toronto, 3-2; Montreal, 3-2; Toronto, 2-1; Toronto, 3-2; Toronto, 3-2.

Other champions were: American league, Cleveland Barons; United States league, Omaha Knights; Pacific Coast league, Victoria Cougars; Amateur Hockey association senior open, Toledo Mercurys; Amateur Hockey association senior, Crookston Pirates; Eastern league, Johnstown Jets; International league, Toledo Mercurys; World amateur, Canada; New York Metropolitan league, Manhattan Arrows; Atlantic league, New York Metropolitans; Pentagonal league, Brown university; National Collegiate Athletic association, Michigan.

ICELAND. Island republic of the northern Atlantic. Area 39,768 sq.mi. Pop.: (1940 census) 121,474; (1950 census) 144,263. Language: Icelandic, closely akin to Old Norse. Religion: Lutheran. Capital: Reykjavik (pop., 1950 census, 56,096). President of the republic, Sveinn Björnsson; prime minister, Steingrímur Steinthórsson.

History. The herring season of 1951 was the seventh in succession that fell short in the production of herring oil and meal. Consequently more stress was laid on other fishing and for this purpose 10 modern trawlers were ordered from Great Britain in addition to 30 purchased after World War II. Eight of these new trawlers were delivered during the year.

Two large hydro-electric plants were being built, one in the north and one in the south of the country. These undertakings were made possible by E.R.P. aid. By Sept. 1951, Iceland received aid amounting to $22,950,000.

The winter of 1950-51 was one of exceptional snow, causing a serious shortage of fodder for farm animals, but a new type of snowtruck helped to avert a catastrophe.

The production of books, amounting yearly to an average of 300, somewhat diminished in 1951 because of the increasing prices of paper and printing. The most remarkable book of the year was the edition of the classic work *Heimskringla* by Snorri Sturluson.

Education. Schools (1950-51): elementary 214, pupils 16,218, teachers 690; secondary 58, pupils 4,721, teachers 298; grammar schools 2, pupils 769, teachers 48. University of Iceland, students 620, professors and lecturers 57.

Livestock and Fisheries. Livestock (Jan. 1950): sheep 401,688, cattle 42,412, horses 41,735, poultry 122,725. Fisheries: total catch (metric tons, 1950; 1951 nine months in brackets): 323,027 (329,678).

Foreign Trade. (Million krónur, 1950; 1951, nine months, in brackets): imports 543·3 (628·6), exports 421·1 (463·3). Main sources of imports (1950): U.K. 22·3%, U.S. 19·7%, Netherlands 13·8%, Denmark 7·5%, Poland 6·1%, Italy 5·4%. Main destinations of exports: U.K. 11·9%, U.S. 13·2%, Italy 7·6%, Sweden 7·05%, Denmark 4·2%, Germany 6·8%.

Transport and Communication. Roads (1950): 6,215 km. Motor vehicles licensed (Jan. 1951): cars 6,327, commercial 4,389. Shipping (Jan. 1951): vessels of 100 gross tons and over 130; tonnage 74,262. Other registered vessels 534, tonnage 17,058. Telephones (Jan. 1951): 17,258. Radio receiving sets (Jan. 1951): 35,000.

Finance and Banking. (Million krónur) Budget (1950 actual): revenue 306·2, expenditure 265·1; (1951 est.) revenue 298, expenditure 261·1. National debt (Dec. 1950): internal 218, external 107. Note circulation (Sept. 1950; Sept. 1951 in brackets): 192 (202). Deposit money (Sept. 1950, Sept. 1951 in brackets): 149 (197). Monetary unit: *króna* (pl. krónur) with the exchange rates of £1=Kr. 45·70 and $1=16·32. (H. Jn.)

ICE SKATING. The amateur speed championship of Great Britain for the King Edward VII cup was won by R. Sheer in 4 min. 38·8 sec., a new British record. In the Duddleston cup, over one mile, G. Welham was successful in the British record time of 2 min. 54 sec. The world speed championships at Davos were won by H. Andersen (Norway), with T. Cronshey (Great Britain) second.

The British figure skating championships were held at the Empress hall, Earl's Court, in early December, when M. Carrington won the men's event with I. T. Small (Scotland) second. Miss J. Altwegg won the ladies' championship, with Miss B. Wyatt second. In the pairs, John and Jennifer Nicks gained their fifth successive victory, with John McCann and Miss Williams (Scottish champions) second. The free skating competition for ladies was held at the Nottingham ice stadium, and won for the second time by Miss B. Wyatt. Miss Altwegg did not compete. The British junior championships were held at the Sports-Drome, Richmond, in April, when A. D. Swan, an Australian, won the men's event. Miss Clema Cowley won the ladies', and the ice dancing champions, T. Slater and Miss J. Dewhirst, of Manchester, gained a narrow victory over R. Lockwood and Miss Peri Horne in the pairs. In the ladies' open professional championship, the holder, Miss J. Macdonald, was narrowly beaten by Miss M. J. Hoskins. The pairs were won by B. Spencer and Miss O. Robinson, L. A. Liggett and Miss P. Murray of Liverpool being second. The Scottish championships were held at Dunfermline in April and won by I. T. Small, Miss S. Balfour and J. McCann and Miss Williams.

The European championship was held at Zürich in February and was won by H. Seibt (Austria), with H. Feber (Germany) second; M. Carrington was placed fourth. Miss J. Altwegg won the ladies with Jacqueline d'Ubief second and Miss B. Wyatt third. The pairs were won by Ria Baron and P. Falk (Germany), with A. Colame and Miss E. Steinemann second; John and Jennifer Nicks were third.

The world championships took place at the Palazzo del Ghiaccio, Milan, and were won by R. Button (United States) with J. Grogan second; M. Carrington (Great Britain) was eighth. Miss J. Altwegg won the ladies' title with Miss J. d'Ubief second. In the pairs, Ria Baron and P. Falk were first with Peter and Karol Kennedy (U.S.) second and John and Jennifer Nicks third.

The British amateur and the professional ice dancing championships were both held at the ice stadium, Nottingham, in March, the former being won by J. Slater and Miss Dewhirst of Manchester, while A. M. Readhead and Miss J. Hawkins became professional champions. (T. D. R.)

North America. In 1951 Richard Button of Harvard university continued his domination in figure skating by winning, at Seattle, Washington, the national championship for the sixth year in succession. Sonya Klopfer, 16-year-old

star from Brooklyn, won the women's senior title for the first time when she defeated Tenley Albright of Boston. Karol and Peter Kennedy of Colorado Springs retained the senior pairs title. Other U.S. winners at Seattle were Dudley S. Richards, Boston, junior men; Frances Dorsey, Seattle, junior women; Noel Ledin, Chicago, novice men; Carol Heiss, New York, novice women; Mr. and Mrs. Edward Bodel, Berkeley, California, gold dance team; Caryl Johns and Jack B. Jost, Baltimore, Maryland, silver dance team; and Caryl Johns and Jack Jost, junior pairs.

In the North American figure skating championships, at Calgary, Alberta, Richard Button won the men's title and Sonya Klopfer the women's title. Ken Bartholomew, Minneapolis, again won the national outdoor speed skating championship. (T. V. H.)

IDRIS I (MOHAMMED IDRIS EL-MAHDI ES-SENUSSI), first king of the United Kingdom of Libya (b. Jarabub oasis, 1890), was the grandson of Mohammed ben Ali ben es-Senussi (?1791-1859), an Algerian from Mostaganem who from 1843 onwards lived in Cyrenaica and founded a powerful Moslem fraternity known as Senussiya, and the son of Senussi el-Mahdi (1845-1902). Since Idris was a minor at the time of his father's death the chieftainship passed to his cousin Ahmed esh-Sherif who fought against Italy in the Italian-Turkish war of 1911-12 and in World War I. In 1917 Idris secured an agreement with the British and Italian governments, was recognized by the Senussi chiefs as Grand Senussi and in Nov. 1920 acknowledged Italian suzerainty over Cyrenaica. He was given the hereditary title of emir with jurisdiction over the oases of Kufra, Jaghbub, Jalo, Aujila and Jedabia. On the rise of fascism in Italy he withdrew in Jan. 1923 to Egypt with his family, while his lieutenants continued to rule in the oases. In 1940, under an agreement with the British government, he organized an auxiliary military force which fought with the British Eighth army. In Nov. 1947 he returned to Cyrenaica and the following year was installed in the palace of the former Italian governor at Benghazi. On June 1, 1949, he was recognized by Great Britain as ruler of Cyrenaica. He visited London in July 1950 and on Dec. 3 was chosen by the National Assembly representing Cyrenaica, Tripolitania and the Fezzan to be king of Libya when that state came into being. On Dec. 24, 1951, Great Britain and France relinquished their administrative authority and Idris proclaimed the independence of Libya.

IFNI: *see* SPANISH COLONIAL EMPIRE.

IMMIGRATION AND EMIGRATION. The Commonwealth conference in Jan. 1951 discussed the policy of inter-commonwealth distribution of population. Opinions were divided on the question of the over-population of the British Isles and the economic and strategic necessity of building up the British populations of the dominions.

Great Britain. Influx into Great Britain was relatively small during the year: about 2,000 displaced persons of various nationalities were received and about 19,000 persons from Ireland entered for temporary purposes. The outflow was, as normally, far in excess of inflow, mainly to Australia and Canada, smaller numbers to the United States, South Africa and New Zealand.

Canada. This dominion received 1,000 to 1,500 applications for entry daily, and planned to receive some 120,000 "new citizens" yearly for the next ten years. Of the ceiling set, about 80,000 arrived during the first six months of the year, consisting of persons of 40 different nationalities: 26,000 from the British Isles, 3,700 from the United States, 11,000 from the Netherlands, and nearly 2,300 from France.

Australia. The Australian federal government reduced the immigration ceiling for 1951 from 200,000 to 150,000, of whom it was hoped 85,000 would be settlers from the home country. Food producers, rural workers and the men and women required to build up Australia's secondary industries, especially those relating to defence, were sought. About 10,000 Italians were expected during the year. A relatively small number of technicians were selected from Western Germany, including some hundreds to help in the running of diesel trains between Adelaide and Perth. There was a substantial import of prefabricated houses to help to meet the increased problem of housing the workers.

South Africa. The Union required craftsmen and hoped to secure about 30,000 in three years. A liaison committee was formed to work with the Ministry of the Interior to secure immigrant artisans. There was a movement from Union territory to the Rhodesias, and Southern Rhodesia introduced an assisted passages scheme. In the first five months of the year there were nearly 8,000 new entries bringing capital estimated to exceed £2 million.

New Zealand. New Zealand looked to an immigration figure not exceeding 10,000 which was to include 2,000 persons from the Netherlands.

Germany. Of the 37,000 displaced persons accepted into the economy of Western Germany in 1950, about 6,500 emigrated during 1951 to the United States and more than 1,500 to Canada. The influx of about 20,000 persons a month from Eastern Germany and Czechoslovakia into Western Germany created great difficulties for the federal government and the Länder. Emigration from Germany was still difficult for several reasons, though statistics showed that unemployment, lack of housing and social conditions generally were driving many Germans to try to emigrate. During the first three months of the year there were 32,549 requests registered. More than 22,000 sought an outlet in the northern and central parts of the American continent, the next largest group being those seeking emigration to Australia.

Israel. The government of Israel decided in March 1951 to step up immigration to 25,000 persons a month. Of the first 100,000 entries 70,000 were from Iraq, 20,000 from eastern Europe, 4,000 from Persia and 6,000 from north Africa. By arrangement with the International Refugee organization Israel agreed to accept 5,200 sick, elderly and infirm Jewish refugees. (*See* also ISRAEL.) (B. L. B.)

United States. Since World War II there had been a rising trend in immigration, largely the result of the migration of war brides, political *émigrés* and displaced persons. This acceleration was sufficient to raise the number of immigrants admitted to 249,187 in the year ended June 30, 1950. In 1951 there were 205,717 immigrant admissions. The decrease was due to a 22% reduction in the number of displaced persons admitted and to a less marked decline in the number of immigrants of other classes.

IMMIGRANTS TO U.S. BY COUNTRY OF BIRTH, YEAR TO JUNE 30, 1951

	Admitted		Admitted
All countries	205,717	Yugoslavia	8,254
Europe	161,177	Other Europe	43,502
Germany	26,369	Asia	4,406
Great Britain	11,651	Canada	20,809
Italy	7,348	Mexico	6,372
Latvia	10,588	West Indies	5,553
Lithuania	4,028	Central America	1,970
Poland	37,484	South America	2,724
U.S.S.R.	11,953	Other countries	2,706

SOURCE: U.S. Department of Justice Immigration and Naturalization Service.

There were 95,920 displaced persons charged to quotas (limited immigration), and 595 non-quota displaced persons (chiefly orphans) who were admitted to the United States in the fiscal year 1951. Other quota immigrants numbered 60,627. Thus, quota immigration in the fiscal year 1951 exceeded the annual quotas by 2,270. As a result of the

provision in the Displaced Persons act authorizing the mortgaging of 50% of future quotas, more than four times as many quota immigrants came from southern and eastern Europe as were authorized under the quota of 24,719 for that region. Several countries, such as Estonia, Latvia and Lithuania, with small quotas, used up half of their quotas for many years into the future. The 48,575 non-quota immigrants (except displaced persons) were chiefly wives of United States citizens and natives of the independent countries of the western hemisphere, which are not subject to quotas.

During the fiscal year 1951, there were 26,174 emigrants, including 11,477 who returned to Europe, 1,902 to Asia, 3,202 to Canada, 2,897 to the West Indies and 2,817 to South America. (*See* also ALIENS; REFUGEES.) (A. R. MACK.)

INCOME AND PRODUCT: *see* NATIONAL INCOME.

INDIA. Republican self-governing member of the Commonwealth of Nations in southern Asia, a union of states. Areas and populations of the states are:

Name of State	(Area sq.mi.)	Population 1941 census	Population 1951 census
Part A (governor's) states			
1. Assam	54,084	7,593,037	9,129,442
2. Bihar	70,368	36,545,575	40,218,916
3. Bombay	115,570	29,506,968	35,943,559
4. Madhya Pradesh	130,323	19,631,615	21,327,898
5. Madras	127,768	49,847,508	56,952,332
6. Orissa	59,869	13,767,988	14,644,293
7. Punjab	37,428	12,593,628	12,638,611
8. Uttar Pradesh	112,523	56,516,622	63,254,118
9. West Bengal	29,476	21,837,295	24,786,683
Total part A states	737,409	247,840,236	278,895,852
Part B (rajpramukh) states			
1. Hyderabad	82,313	16,338,534	18 652,964
2. Madhya Bharat	46,710	7,151,502	7,941,642
3. Mysore	29,458	7,329,140	9,071,678
4. Patiala-E. Punjab (PEPSU)	10,099	3,424,060	3,468,631
5. Rajasthan	128,424	13,282,105	15,297,979
6. Saurashtra	21,062	3,430,892	4,136,005
7. Travancore-Cochin	9,155	7,492,893	9,265,157
Total part B states	327,221	58,449,126	67,834,056
Part C (centrally administered) states			
1. Ajmer	2,425	588,960	692,506
2. Bhopal	6,921	785,322	838,107
3. Bilaspur	453	110,336	127,566
4. Coorg	1,593	168,726	229,255
5. Delhi	574	917,939	1,743,992
6. Himachal Pradesh	10,600	935,359	989,437
7. Kutch	8,461	500,800	567,825
8. Manipur	8,620	512,069	579,058
9. Tripura	4,049	513,010	649,930
10. Vindhya Pradesh	24,600	3,353,019	3,577,431
Total part C states	68,296	8,385,540	9,995,107
Part D territory			
Andaman and Nicobar Islands	3,143	33,768	30,963
Sikkim	2,745	121,520	135,640
Grand total	1,138,814	314,830,190	356,891,624

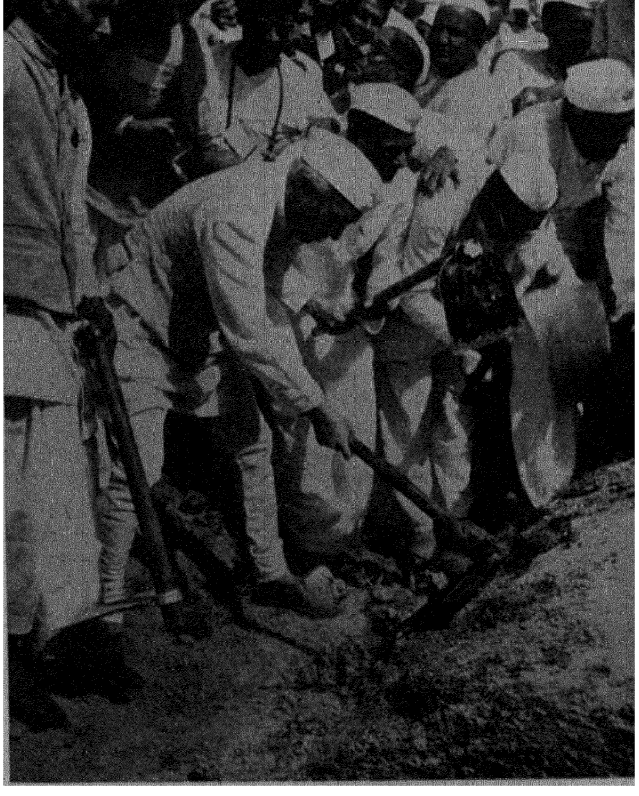
SOURCE: *India Record* (London, April 25, 1951); provisional totals for the census held on March 1, 1951. No census was ever taken in Kashmir (*q.v.*), owing to special conditions prevailing there, and in the part B tribal areas of Assam, which had not been included in any former census and whose population was estimated as 560,000. Sikkim, an Indian protectorate, had been included in former censuses and was also included in the 1951 census.

Language: two main groups, Aryan or northern (incl. Hindi used approximately by 47% of the total population, Bengali 8%, Marathi 7% and Gujarati 5%), and Dravidian or southern (incl. Telugu 9%, Tamil 7·5% and Kanarese 4·4%). English is the official language of the Union to be displaced by Hindi in the Devanagari script by 1964. Religion: Hindu (about 80%), Moslem, Christian, Sikh, Buddhist, Parsee, Jewish, etc. Chief towns (pop.; first figure, 1941 census; second figure, 1951 census): New Delhi* (cap., 93,960; 279,063); Delhi* (521,849; 914,634); Calcutta† (2,108,891; 2,549,790); Bombay (1,489,883; 2,840,011); Madras (777,481; 1,429,985); Hyderabad (739,159; 1,085,074); Ahmedabad (591,267; 788,310); Kanpur or Cawnpore (487,324; 704,536); Amritsar (391,010; 320,465); Lucknow (387,177; 497,594); Nagpur (301,957; 449,441). President, Rajendra Prasad; prime minister, Jawaharlal Nehru (*q.v.*).

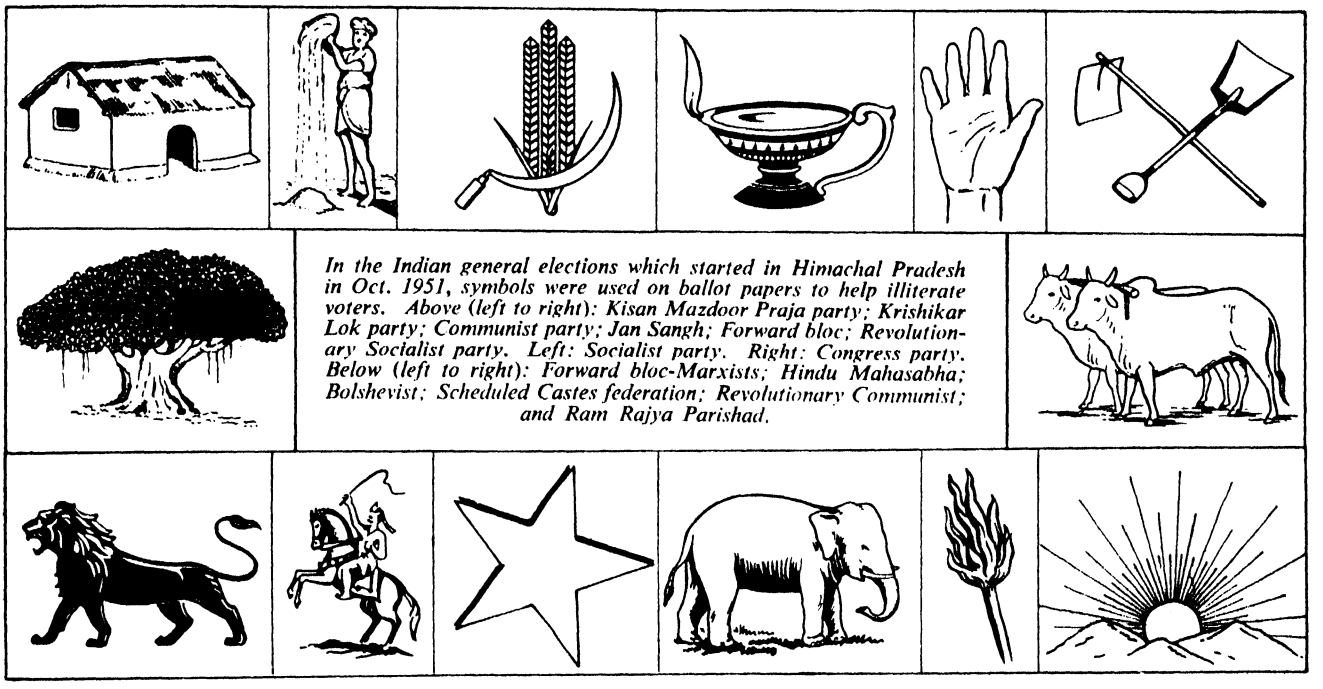
History. *The Threat of Famine.* The year 1951 dawned with the spectre of famine darkening the horizon. This was due to a variety of causes. The fertile province of Assam, with its extensive ricefields, had been devastated by a series of disastrous earthquakes, and northern India and Pakistan were visited by a plague of locusts. For three years in succession, the monsoon had failed over wide areas of central and southern India. The ensuing scarcity was worst in north Bihar, though many areas in Madras, Hyderabad, Gujarat, Cochin and Travancore were also affected, and there were no reserves to meet it. Foodgrains in the rationed areas were cut down from 12 oz. to 9 oz. a day, and it was estimated that 6 million tons of food from outside would be necessary to cope with the situation if disaster was to be averted. Offers of help poured in from all sides. The British government at once released consignments of Australian wheat and made arrangements for shipping to convey 90% of the 4 million tons that were being imported from outside. There was still, however, a deficit of 2 million tons, and this the government of the United States offered to supply at the cost of $190 million, the Indian government being responsible for ocean

* New Delhi and Delhi are counted as two cities. Put together they had in 1951 a total population of 1,193,697 and ranked as the fourth largest urban agglomeration of India.

† Greater Calcutta, including Howrah and suburbs, had in 1951 a total population of 3,490,281.



Jawaharlal Nehru, prime minister of India, beginning the digging of a nullah, or irrigation channel near Bulandshahr, April 29, 1951.



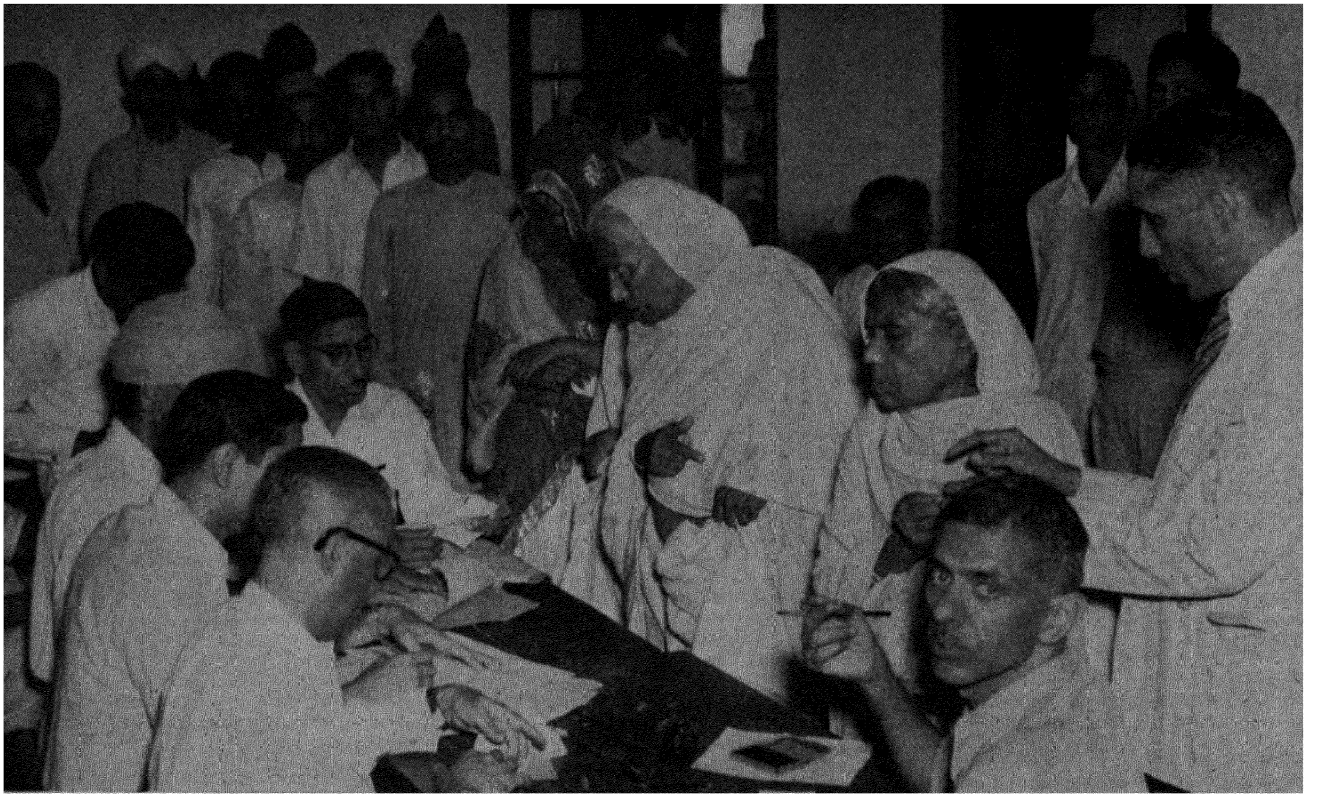
In the Indian general elections which started in Himachal Pradesh in Oct. 1951, symbols were used on ballot papers to help illiterate voters. Above (left to right): Kisan Mazdoor Praja party; Krishikar Lok party; Communist party; Jan Sangh; Forward bloc; Revolutionary Socialist party. Left: Socialist party. Right: Congress party. Below (left to right): Forward bloc-Marxists; Hindu Mahasabha; Bolshevist; Scheduled Castes federation; Revolutionary Communist; and Ram Rajya Parishad.

freight expenses. The government of Pakistan arranged for grain steamers to bring supplies down the Brahmaputra river to Assam, and the Indian Tea association of Calcutta flew in 10,000 tons by air. This greatly eased the situation and, despite bottlenecks and other transport difficulties, the supply of grain to the stricken areas rose from 36,000 tons in February to 112,000 tons in May. The Bihar government opened relief works in the shape of road and tank construction and the sinking of wells, but many of the villagers, owing to prolonged malnutrition, were incapable of undertaking hard manual work. A further complication arose from the fact that the supplies arriving from outside were mainly wheat, whereas the staple food of south India was rice, only obtainable in limited quantities from Burma, Thailand and China.

It was realized, however, that these measures were only palliatives: the real remedy lay in pursuing projects such as the Damodar Valley scheme, and in bringing into cultivation large undeveloped areas by co-operative tractor ploughing, the use of fertilizers and other modern methods of cultivation. The population was fast outrunning the available supplies, and this could only be met by the limitation of families. Another problem arose from the distribution of land: despite the abolition of landlords, 50% of the 15 million peasants in north Bihar were still landless. The National Planning commission's first five-year plan envisaged an expenditure of Rs. 17,930 million of which Rs. 1,910 million would go on agriculture and Rs. 3,880 million on transport and communications. It included a programme involving the irrigation of 8 million ac. by major works, 7 million ac. by minor works, and the restoration of 4·5 million ac. by restoring fallow lands to cultivation through a central tractor organization. This scheme, which would not come into operation before 1955-56 at the earliest, would, it was estimated, increase the production of food grains by 7 million tons, besides large quantities of jute, cotton oilseeds, sugar and other consumer goods. Unfortunately the monsoon of 1951 showed little improvement on those of previous years.

The Rift in the Congress. Up to 1950, the Indian National congress had been able to present a united front, mainly on the prestige it had won as the organizer of liberation from British rule, and Jawaharlal Nehru was regarded as the unquestioned leader of the nation by all but a small body of irreconcilables on the extreme right and left. But towards the end of that year, rifts began to appear. The first indication of these was the election as president of the working committee of Purshottamdas Tandon (*q.v.*), an outspoken critic of Nehru's policy. The death on Dec. 15, 1950, of V. J. Patel had been a disastrous blow. He was a man of outstanding character, who had great influence among the millowners and the members of the orthodox right wing. J. B. Kripalani (*q.v.*), who had been defeated by Tandon, broke away from congress altogether and was joined by R. A. Kidwai, minister of communications. They and their colleagues determined to form a new party styling itself the Kisan Mazdoor Praja: their main objects were a sweeping overhaul of the administration, the abolition of corruption, profiteering and food hoarding, a drive for ending illiteracy and a return to the principles of Mahatma Gandhi. In addition to this, there were sharp criticisms of Nehru's actions in tightening up control over the press and his temporary suspension of constitutional government in the East Punjab. Many Hindus, as Mrs. Vijayalakshmi Pandit herself acknowledged in Washington, had never really reconciled themselves to the two-nation theory or the idea of a secular state, and were deeply suspicious of any appearance of appeasement in dealings with Pakistan. The upshot was that Nehru decided to resign from the working committee. The triumph of the dissidents was, however, shortlived. On Sept. 8 it was announced that Tandon had resigned and that the working committee had re-elected Nehru by an overwhelming majority. This left him with the leadership of the party as well as the government, with a free hand to choose his own executive. Among these he included his opponent Tandon; the veteran Chakravarti Rajagopalachari, the former governor general, resigned for reasons of health. Nehru appealed to all to forget the past and build for the future: he warmly invited the return of all former colleagues who through disillusionment had lately seceded. He exhorted them to rid the country of faction and cultivate a spirit of fair dealing and integrity.

Ambedkar's Resignation. The most prominent dissentient was the law minister, Bhimrao Ramji Ambedkar, who had played a leading part in framing the Indian constitution. He resigned on Sept. 27 by way of protest against the policy of the high-caste Hindus who composed the right wing of the Congress party and had shelved the Hindu Code bill,



Men and women voting in the capital, Delhi, in the first general election ever held in India.

the object of which was to abolish caste and reform Hindu society on Gandhian lines. He painted a distressing picture of the disabilities of the scheduled classes, of which he was a member, and particularly of women, under the existing régime. He denounced the government's attitude towards Pakistan, which had resulted in vast expenditure on armaments and had brought both countries to the verge of war; he suggested that the Kashmir dispute, the root of all the trouble, could be settled by the partition of the country on the lines proposed by Sir Owen Dixon. He urged that the funds required for nation-building projects could be raised by reduction of armaments, the abolition of prohibition, the nationalization of insurance and the reimposition of the salt-tax. He declared that the foreign policy of the government had alienated all India's friends, particularly the United States, whose financial support was indispensable.

The General Election. Meanwhile preparations were being made for holding the first general election for the central and state legislatures. In November, polling in the Himalayan border states had already begun. (*See* also KASHMIR.) (H. G. RN.)

Education. Recognized schools (1948-49): primary 192,725, pupils 15,998,860, teachers 477,100; secondary 18,857, pupils 4,351,003, teachers 179,100; vocational 16,160, pupils 586,500. Higher education: universities 26, including 455 arts and science colleges with 264,483 students and 199 professional colleges with 58,719 students, professors and lecturers 16,244. There were also 10,890 unrecognized schools with 425,200 pupils. Illiteracy: 82%.

Agriculture. ('000 metric tons) Main crops (1949; 1950 in brackets): wheat 5,741 (6,390); barley 2,241 (2,246); maize 2,299 (1,925); rice 34,709 (32,000); tea 266 (275); cotton, ginned 518 (580); potatoes 1,498 (1,500); groundnuts 3,463 (3,384); rapeseed and mustard 786 (839); cottonseed 1,030 (1,265); linseed 432 (391); sesame seed 385 (428); jute 566 (610); coffee 21 (20); tobacco 257 (250). Wool, greasy basis 21 (23). Sugar, raw value 3,617 (3,738). Citrus fruit production (1948) 505. Livestock ('000 head, 1950-51): cattle 180,200; sheep 38,900; pigs 3,700; horses 1,550; (1945) mules 45; asses 1,131; buffaloes 40,732; camels 656; goats 46,302; chickens 54,666. Fisheries: total catch (1949) 513,764 metric tons.

Industry. Industrial establishments (1945): 103,400; persons employed 1,843,797. Persons employed in factories (1949): 2,413,000. Number of trade disputes (1949) 914; numbers of workers involved 684,188; number of days lost 6,560,887. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 32,820 (17,632); electricity (million kwh.) 5,100 (2,861); crude oil ('000 metric tons) 252 (132). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): pig iron 1,704 (904); steel ingots and castings 1,464 (749); copper, refined 6·72 (3·43); lead, smelter basis 0·6 (0·45); aluminium 3·6; manganese ore (1949) 656; asbestos 0·1; rubber 15·8 (6·6); superphosphates 52·0; mica (1949) 7·7; ilmenite (1949) 254; salt 2,600; gold ('000 fine oz.) 188. Manufactured goods (1950; 1951, six months, in brackets): cement ('000 metric tons) 2,652 (1,523); cotton yarn (million m.) 525·6 (285·2); cotton piece-goods (million m.) 3,300 (1,848); jute manufactures ('000 metric tons) 850 (432); sheet glass ('000 sq.ft.) 9,600; paper and board ('000 metric tons) 111; cars and trucks (number) 14,600; bicycles (number) 104,000; radio receivers (number) 44,500.

Foreign Trade. (Million rupees, 1950; 1951, six months, in brackets): imports 5,051 (3,578); exports 5,432 (4,105). Main sources of imports (1950-51): U.K. 21·7%; U.S. 20·5%; Persia 6·5%; Australia 5·9%. Main destinations of exports: U.K. 23·2%; U.S. 19·0%; Singapore 5·4%; Australia 5·3%. Main imports; grains, pulses and flour 17·5%; raw cotton and waste 17·1%; machinery 14·0%. Main exports: cotton yarns and manufactures 24·0%; jute yarns and manufactures 20·4%; tea 14·0%.

Transport and Communications. Roads (1950): 245,000 mi. Licensed motor vehicles (Dec. 1950): cars 132,000; commercial 112,000. Railways (1950): 33,086 mi. Traffic (1950; 1951, six months, in brackets): passenger-mi. 39,722 (20,349) million; goods, ton-mi. 26,546 (13,400) million. Shipping (merchant vessels of 100 gross tons and over, July 1950): 180; total tonnage 421,267; vessels with cargo in external trade ('000 NRT, 1950; 1951, six months, in brackets): entrances 7,692 (4,382); clearances 6,936 (3,967). Air transport (1950): passenger-mi. 233·4 million; cargo ton-mi. 13·9 million; mail carried (metric tons) 3,800. Telephones (1949): 113,466. Wireless licences (1949): 299,000.

Finance and Banking. (Million rupees) budget: (1950-51 est.) revenue 3,872·1, expenditure 3,792·8; (1951-52 est.) revenue 4,011·4, expenditure 3,754·3. National debt (March 1951; March 1952 in brackets): 25,615 (25,874). Currency circulation (Aug. 1950; Aug. 1951 in brackets): 12,200 (12,600). Bank deposits (Aug. 1950; Aug. 1951 in brackets): 6,800 (7,100). Gold and foreign exchange (million U.S.$, Sept. 1950; Sept. 1951 in brackets): 1,942 (1,961). Monetary unit: *rupee*, with an exchange rate of Rs. 13·33 to the pound and Rs. 4·775 to the U.S. dollar.

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INDIA, FRENCH: *see* FRENCH INDIA.

INDIA, PORTUGUESE: *see* PORTUGUESE OVERSEAS TERRITORIES.

INDOCHINA. Until 1946 this name covered four French protectorates and the colony of Cochinchina, bounded N. by China, W. by Burma and Thailand and S. and E. by the South China sea. From 1949 Indochina had no legal existence, being replaced by the three associated states of the French Union. Areas and populations are:

	Area	Population (1936 census)	Population (1948 est.)
Vietnam	126,608	18,972,000	22,663,000
Tongking (Bac-Ky)	44,660	8,700,000	9,851,000*
Annam (Trung-Ky)	56,974	5,656,000	7,184,000*
Cochinchina (Nam-Ky)	24,974	4,616,000	5,628,000
Cambodia	69,866	3,046,000	3,748,000
Laos	89,320	1,012,000	1,169,000†
Total	285,794	23,030,000	27,580,000

* 1943 estimates. † 1947 estimates.

Three-quarters of the population live on the coastal plain, on one-tenth of the total area. Annamites of Vietnam speak Annamese and are Confucians; Cambodians (or Khmers) are Buddhist and Hindu-influenced; the Mois of the southern highlands of Annam and Laos are mostly Indonesian, akin to Dayaks of Borneo, and are pagan; Laotians are Thais speaking a dialect different from Siamese. In the northern highlands of Laos and Tongking there are tribes of different origins (Man, Meo, Kha). In 1936 the population of Indochina included 326,000 Chinese and 42,000 Europeans; in 1946 there were only 26,000 Europeans, incl. 23,000 French or *assimilés*. Chief towns (pop., 1949 est.): Saigon, capital of Vietnam, with the seaport of Cholon (1,700,000); Hanoi (166,000); Haiphong (92,000); Pnom-Penh, capital of Cambodia (128,950); Vientiane or Vien-chan, capital of Laos (13,700). Rulers and commissioners. *Vietnam:* ruler, Bao Dai; high commissioner and commander in chief, General Jean de Lattre de Tassigny. *Cambodia:* ruler, King Norodom Sihanouk; commissioner, vacant. *Laos:* ruler, King Sisavang Vong; commissioner, Miguel de Pereira.

History. The situation in Vietnam remained dominated by the war against Vietminh. Combatant forces were increased in March to 51,000 French troops, 18,000 foreign legionaries, 25,000 north Africans and 35,000 Vietnamese. By this time 30,000 people had been killed and more than 20,000 seriously wounded since the beginning of hostilities. The Vietminh offensives, to the north of Hanoi in January, to the east in March and to the southwest in May, collapsed. In the last of these battles, around Ninh Binh, Lieutenant de Lattre de Tassigny, son of the high commissioner, was killed. Vietminh could not invade the agricultural areas of the delta. A Franco-Vietnamian offensive, by taking Hoa-Binh (to the southwest of Hanoi) in November made Vietminh communications between upper Tongking and northern Annam difficult. Vietminh offensives in December failed to retake it. In the mountainous Thai country of the northwest further Vietminh attacks were stopped.

The Vietnam government remained provisional, with Bao-Dai chief of state and Tran Van Huu prime minister, yet without any elected assembly but supported by various semi-independent religious feudalities (Cao-Dai, Hoa-Hao and the Catholic bishoprics). The Dai-Viet party, mainly Tongkingese, refused to collaborate, and 8 of the 11 ministers were from Cochinchina. France handed the police and all administrative services over to the Vietnamese authorities. Life in the towns was rather more secure, though the large record of assassinations included that of the French commissioner for southern Vietnam. Excursions into the bush country were always accompanied by armed escorts.

Vietnam sent 19 delegates to the Assembly of the French Union and appointed an ambassador to Thailand. In August Bao Dai announced a census for purposes of mobilization.

In May General Jean de Lattre de Tassigny took part in the Singapore conference on the defence of southeast Asia. In October he went to the United States to obtain the despatch of war material: his contention was that the operations in Vietnam constituted not a colonial war but a vital aspect of world defence against Communism.



French soldiers conversing in Feb. 1951 with a tribesman and woman on the road from Saigon to Dalat.

In the Vietminh zone a reform of the currency was set in motion. This gave rise to discontent, and there was a shortage of agricultural resources. Nevertheless the number of new adherents to Bao Dai was slight.

In Cambodia elections for the new assembly took place in September. The Democrats got 53 seats, the Liberals 19 and the smaller parties 6. Half of the electorate did not vote. In November Jean de Raymond, the French commissioner, was murdered in his sleep by a Vietnamese servant boy. The Cambodian insurgent movement (Issarak) seemed in decline.

In Laos elections were held in August and resulted in a majority for the Progressives (14) and the Independents (17); the opposition got only 3 seats. In the mountains security had been threatened by Vietminh infiltrations but was gradually being restored.

In accordance with the decisions of the Pau conference (Dec. 1950) the economic services were transferred to the three associated states. The French interest was maintained, however, in the Scientific Research committee, in the Plan d'Equipment (Monnet plan) committee, in the Rice office and the Bank of Issue with the three states' joint participation.

The three states took part in the San Francisco conference for the Japanese peace treaty. The United States signed an agreement for economic co-operation with Vietnam and Cambodia.

Paddy production increased, thanks to the improvement in the military situation; in Tongking there were 250,000 ha. under cultivation in 1950 as against 86,000 in 1949; and in Cambodia output rose from 900 to 1,200 metric tons. There were 52,000 ha. under rubber, output being 47,780 metric tons in 1950 as against 42,000 tons in 1949. The revival of business was mainly discernible in the increased number of imports for war purposes and in the fresh accumulation of stocks.

Education. Schools (1945): elementary, pupils 830,000; *lycées* and *collèges* 8, pupils 6,000; University of Hanoi, students (1948) 753.

Foreign Trade. (Million metropolitan Fr. 1949: 1950 in brackets): imports 66,823 (73,761, incl. 59,000 from the French Union); exports 19,303 (25,887). Principal exports: rubber 13,197; rice 5,143; pepper and pimentos 1,676; maize 946; kapok 525; coal 429.

Transport and Communications (1950): Serviceable roads 7,000 km.; motor vehicles 29,700. Ships entered (Saigon-Cholon), 854. Aircraft landed, 822.

Finance. Budget (1950 actual): expenditure, excluding the cost of military operations, Piastres 1,385 million. Monetary unit common to the three states: *piastre* = M.Fr. 17. (HU. DE.)

INDONESIA. The independence of Indonesia was proclaimed at Jakarta (Batavia) on Aug. 17, 1945, but the republic of the United States of Indonesia came into being on Dec. 27, 1949, when Queen Juliana of the Netherlands signed the charter transferring to the Indonesian people the sovereignty of the territories of the Netherlands East Indies—with the exception of Irian or Dutch New Guinea (*see* NETHERLANDS OVERSEAS TERRITORIES). The provisional constitution of 1949 stipulated that the republic was to be a federation of seven states and nine autonomous territories. On Aug. 14, 1950, the parliament of the republic decided that the principle of federalism should be abandoned and that Indonesia should be a unitary nation-state divided into ten provinces. Total area (excluding Dutch New Guinea): about 583,000 sq.mi. Total pop.: (1930 census) 60,727,000, incl. 1,238,000 Chinese; (mid-1951 est.) 80,000,000; two-thirds of the total population live on Java. Language: Bahasa Indonesia, a scientifically adapted version of Malay, was being propagated as the official language; 25 major languages and some 250 dialects are spoken by the different racial groups scattered over the archipelago. Religion: Moslem about 90%, Christian 3·4%, Hindu 1·4%. Chief towns (pop., 1951 est.): Jakarta (cap., 2,800,000); Jokjakarta (1,848,886); Surabaya (714,898); Bandung (659,213); Semarang (310,942); Surakarta or Solo (266,365). President of the republic, Ahmed Sukarno; prime ministers in 1951, Mohammed Natsir and (from April 20) Sukiman.

History. In 1951, the second year of its existence as an independent state, the republic of Indonesia made some progress in consolidating its position internally as well as in its international relations.

Two main political groups, competing for popular support with an eye to electoral favour in the future, coalesced in the Masjumi (Moslem) party and the Partai Nasionalis Indonesia. The Natsir cabinet was supported by the former. A few smaller groups, among them the Socialists, appealed mainly to sections of the intelligentsia.

A political group of the Communist persuasion constituted an increasing threat to the political stability and economic rehabilitation of the country, especially through its affiliation with a Communist-led trade union federation (Sentral Organisasi Buruh Seluruh Indonesia, or S.O.B.S.I.). The latter kept going a systematic country-wide campaign of excessive labour demands and strikes, designed to paralyse the ports and the agricultural and industrial enterprises. In February the government countered this by proclaiming a strike ban, on the basis of martial law, combined with compulsory mediation of official committees in labour disputes.

Resentment on the extreme Left caused by this drastic measure, and certain grievances of the Nationalist party against the cabinet controlled by its Masjumi rivals, brought together an *ad hoc* majority against Natsir who was forced to resign in March. Not until April 20 did a new cabinet emerge, led by Sukiman as premier and Suwirjo (then mayor of Jakarta), of the Nationalist party, as vice premier. The new administration was based on a working agreement between the rival parties, on which the president exercised personal influence, but which was attractive to neither of them and did not lessen their growing mutual dislike.

In August evidence came to hand of the Communist plans to exploit the national independence day celebrations (Aug. 17) for widespread agitation and subversive actions. The government thereupon ordered extensive preventive arrests of Communist party leaders and S.O.B.S.I. officials, including a number of members of parliament. In October a motion tabled in parliament to censure this action was defeated; the inherently weak coalition cabinet thereby gained a further lease of life.

Like its predecessor the Sukiman-Suwirjo administration steered Indonesia along a course of neutrality between the two opposed power blocs, but circumstances gradually caused it to lean slightly towards the western democracies. In May the government adhered, though reluctantly, to the embargo recommended by the U.N. against the "aggressor" countries in the Korean conflict, and later in the year Indonesia appeared in San Francisco among the signatories of the Japanese peace treaty. In the relations with Holland the lingering instinct still to lay the blame for disappointments and reverses at the door of the former colonial power remained a political factor of some significance. The wish to replace the Netherlands-Indonesia union, concluded at the Round Table conference in 1949, by a less intimate treaty of the customary international pattern was more or less actively supported in various sectors of articulate opinion. The Netherlands government declared itself willing to go along with such a revision, provided it would not harm co-operation in practical matters to mutual advantage, and a date was set for a conference in November to begin negotiations. Then, however, the dispute over New Guinea once more became acute, in connection with proposed constitutional reforms in Holland involving this remnant of Netherlands territory in the Pacific. Though the reforms would not prejudice the

possibility of a change of status of New Guinea, misunderstanding of their purport caused commotion in some Indonesian circles and the Jakarta government felt compelled to insist that the New Guinea problem should be included on the agenda of the conference. The Netherlands government raised no objection.

Throughout the first half of 1951 the Indonesian economy benefited from high prices in world markets for its export products, especially rubber, tin and copra. This type of boom was not a stable foundation for prosperity, as appeared later in the year when strategic stockpiling in the United States diminished and prices began to drop. Moreover the total export values at the prevailing high prices did not yet exceed 65% of the prewar level, nor the total volume 47% of the prewar average. Imports at 54% of the prewar level, low labour productivity and increasing labour unrest indicated that the economic and social situation was still far from satisfactory. A huge and inefficient bureaucracy and the excessive numbers of former guerrillas incorporated in an unwieldy army constituted a heavy drain on the revenues of the government, which consequently was forced to continue a policy of deficit budgetting. In a determined effort to forestall runaway inflation the government, however, used the largest available part of its increased current revenues during the boom period to redeem part of its swollen indebtedness to the central Java bank, and purchased gold bullion in the United States to back the paper money in circulation. The latter did not increase disruptively during the year. In a realistic appreciation of the prerequisites for a more lasting economic improvement, strong measures for the restoration of law, order and security, longer working hours and higher efficiency were advocated in ever-widening Indonesian circles. These counsels did not fail to reach the ear of the government, but execution of the principles was slow. (W. G. P.)

Education. Schools (1950): primary 23,700, pupils 4,174,031, teachers 72,891; secondary 1,250, pupils 165,399, teachers 7,500; teachers' colleges 397, pupils 21,023. Universities: faculties 14, students 3,238. Chinese schools 681, pupils 162,315, teachers 3,421.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): rice, paddy 9,288 (9,867); maize (Java and Madura only) 1,600 (1,850); sweet potatoes (Java and Madura only) 1,140; cassava (Java and Madura only) 6,067; sugar, raw value (Java and Madura only) 244 (277); groundnuts (1949) 382; palm kernels (exports) 28·7 (24·1); soya beans 264 (274); copra (exports) 315 (287); palm oil (exports) 102 (97); tobacco (Java and Madura estates only) 10; tea 27·3 (35·3); coffee (estates only) 10·9 (10·6). Index of agricultural production (1949; 1934-38=100): 83. Livestock ('000 head, 1950): sheep 2,334; cattle 3,618; pigs 1,254; horses 616; buffaloes 2,773; goats 7,474. Fisheries: total landings (1948) 472,000 metric tons; men employed 258,000; boats 25,000.

Industry. Fuel and power ('000 metric tons, 1950; 1951, three months, in brackets): coal 799 (224); crude petroleum 6,408 (1,801). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): tin 32·6 (15·4); natural rubber 698 (431); bauxite 678.

Foreign Trade. (Million rupiah, 1950; 1951, six months, in brackets): imports 1,527 (1,004); exports 2,742 (2,305). Main sources of imports (1950): U.S. 21%; Netherlands 17%; Japan 10%. Main destinations of exports: Malaya and Singapore 36%; Netherlands 24%; U.S. 16%; U.K. 4%. Main imports: textiles 28%; rice 9%; machinery 7%; petroleum and products 7%. Main exports: rubber 42%; petroleum and products 20%; copra 8%; tin 7%. Volume of exports (1950, 1937=100): rubber 142; tin 79; copra 61.

Transport and Communications. Roads, main (1948): 2,400 mi. Licensed motor vehicles (Dec. 1950): cars 20,000, commercial 19,000. Railways (1950): 3,960 mi.; passengers 105 million; goods carried ('000 metric tons) 5,316. Shipping regularly serving Indonesia (1947): merchant vessels 154, gross tonnage 757,000. Air transport (1950): passenger-mi. 92 million; cargo, ton-mi. 4·0 million. Telephones (1940): subscribers 51,606. Wireless receiving sets (1951): 150,000.

Finance and Banking. Budget (million rupiah): (1950 est.) ordinary revenue 6,414, ordinary expenditure 7,798; (1951 est.) ordinary revenue 7,530, ordinary expenditure 7,806. Short term national debt (Aug. 1950; Aug. 1951 in brackets): 3,200 (2,100). Total national debt. (Dec. 1949; Dec. 1950 in brackets): 4,385 (6,086). Currency circulation (May 1950; May 1951 in brackets): 1,978 (3,137). Gold reserves (million U.S. dollars, Sept. 1950; Sept. 1951 in brackets): 178 (229). Bank deposits (May 1950; May 1951 in brackets): 1,206 (2,514). Monetary unit: *rupiah* with a basic selling exchange rate (Nov. 1951) of 10·64 rupiah to the pound sterling and 3·81 to the U.S. dollar.

See N. A. Douwes Dekker, *Tanah Air Kita: A Book on the Country and People of Indonesia* (The Hague, 1951); P. S. Gerbrandy, *Indonesia* (London, 1951).

INDUSTRIAL HEALTH. On June 1, 1949, the prime minister (Clement Attlee) announced the appointment of a committee to examine the public and industrial health services in Great Britain. The report of this committee, known as the Dale committee, was presented by the prime minister to parliament in Feb. 1951 (*see* Cmd. 8170, H.M.S.O., London, 1951). The committee laid stress on the importance of the existing industrial health services to industry. They advised that such services should be encouraged to expand and recognized the importance of the co-ordination of national health, public health and industrial health services. Industrial health services in Great Britain in the main had been provided by employers and the committee felt that further expansion along such lines should be encouraged. They made reference to the report of the Committee of Enquiry into Health, Welfare and Safety in Non-Industrial Employment (the Gowers committee, Cmd. 7664, H.M.S.O., London. 1951), and stated that eventually there should be some comprehensive provision for occupational health, not only in small industrial establishments but also in the non-industrial establishments.

The problem of the co-ordination of the industrial and general health services received careful consideration and it was proposed that a standing joint advisory committee should be formed consisting of representatives from the Ministry of Health, the Ministry of Labour and National Service, the Ministry of Fuel and Power, employers, workers, doctors and nurses, and that there should be an equivalent committee for Scotland. The committee stressed the need for making further surveys and experiments in dealing with the large number of small factories in Great Britain employing less than 50 workers. It also stressed the need for the further training of doctors and nurses intending to enter the field of industrial health.

The report of the Medical Research council, for the years 1948 to 1950, was published in July 1951 (*see* Cmd. 8387, H.M.S.O., London, 1951). Among the important subjects dealt with in the field of occupational health were minor injuries and skin diseases and toxic chemicals used in agriculture. The vast problem of pneumoconiosis received due attention and there was no doubt that the council was exercising every effort to solve this grave problem. In July 1950, the minister appointed a working party "to make recommendations for the promotion of the safety of workers in the agricultural use of substances which are toxic or harmful to human beings." Two groups of substances were carefully considered by the working party. They were the aromatic dinitro weedkillers and the organo-phosphorus insecticides. Of the first group, dinitro-ortho-cresol was perhaps the best known, and most widely used, and Parathion, TEPP and HETP amongst the organic phosphorus compounds.

The term "stress diseases" had come to be used with increasing frequency and, amongst these, peptic ulcer had been assumed to occupy a place of some importance. The occupational factors in the aetiology of gastric and duodenal ulcers were investigated by the Medical Research council (Special Report Series 276, H.M.S.O., London, 1951). The report stressed the very considerable incidence of gastric and duodenal ulcers among the population and it was estimated that, of the persons living in Great Britain, about 1·5 million had, or had had, peptic ulcers, and that 638,000 men complained of symptoms each year. Significantly high incidences were found amongst members of the medical

profession and in a residual group of unskilled workers. High incidences were also found amongst foremen and business executives, both groups composed of workers in responsible positions in industry. A significantly low incidence was found among agricultural workers and sedentary workers. There was no unusually abnormal incidence amongst bus conductors and drivers of motor vehicles, nor did irregularity of meals superficially appear to be of much importance. The report stated that no evidence was to be obtained of any harmful effect from shift work. Anxiety over work, however, was complained of much more frequently by men with proved ulcers than by men without symptoms of dyspepsia. Duodenal ulcers occurred commonly between the ages of 20 and 64 and their incidence was directly related to responsibility and anxiety over work. Gastric ulcers, on the other hand, although uncommon before the age of 35 were less frequent among the wealthy.

The possibility of ill health arising from welding was considered in many quarters and the Chief Inspector of Factories decided that the matter should be investigated by his department. Those chosen for this work were A. T. Doig and L. N. Duguid, and their report, *The Health of Welders*, was published by the factory department of the Ministry of Labour and National service (H.M.S.O., London, 1951). In general, the report concluded that the health of welders was little different from the rest of the general population. There was no evidence to show that the liver was damaged in any way or that endocrine disturbances were more frequent in welders than in other workers. (A. J. Ar.)

During the year the International Congress of Industrial Medicine met in Lisbon. Representatives from most of the countries of western Europe and North and South America participated.

United States. Because of increasing tightness in the United States labour market during 1951, the Office of Defence Mobilization, through its health resources advisory committee, undertook to determine measures to extend industrial health services. A committee with representatives from the public health service and the Departments of Labour and Commerce was instructed to formulate minimum standards of health and safety under which federal contracts must be performed and to develop guide lines for industrial health throughout the nation. In its report the committee mentioned the necessity for convincing both management and labour of the need for conserving the country's work force through the application of industrial health measures, and for making these avenues of service more attractive to physicians and nurses. Meanwhile, the Council on Industrial Health of the American Medical association prepared a report on manpower conservation which inquired into the sources of additional production workers and attempted to estimate the demands that the special needs of women, older workers and the handicapped might place on the medical profession. It also recommended methods for the recruitment and training of additional industrial health staff needed to maintain workers at peak production.

Because of its expanded objectives, the name of the division of industrial hygiene in the public health service, Federal Security agency, was changed to the division of occupational health. The Association of Industrial Physicians and Surgeons was renamed the Industrial Medical association. This latter association assumed the inspection and approval of industrial medical departments according to standards previously administered by the American College of Surgeons. Steps were also taken to create an American board of occupational medicine to promote improved educational opportunities for eligible physicians and to certify them as qualified on the basis of training, experience and examination.

During the year the American Academy of General Practice pointed out the importance of the general practitioner to the small-plant health programme. To improve the general practitioners' contribution, a plan of training was set in motion through the postgraduate education machinery of the academy.

Noise in industry and associated acoustical trauma continued to attract interest. Several conferences were jointly sponsored by the American Academy of Otolaryngology and Ophthalmology, the American Medical association and the Acoustical Society of America to improve the understanding of the measurement of noise, the determination of its harmful effects, the treatment of hearing loss and rehabilitation. These same organizations began basic studies to revise procedures for evaluating percentage hearing loss in medico-legal cases.

There was expanding interest in human relations in industry with better *rapprochement* between the several scientific disciplines involved. It became clear that final solutions depended upon teamwork between the social, engineering and biological sciences and that progress would depend upon the removal of interprofessional barriers. (*See* also Accident Prevention.) (C. M. Pn.)

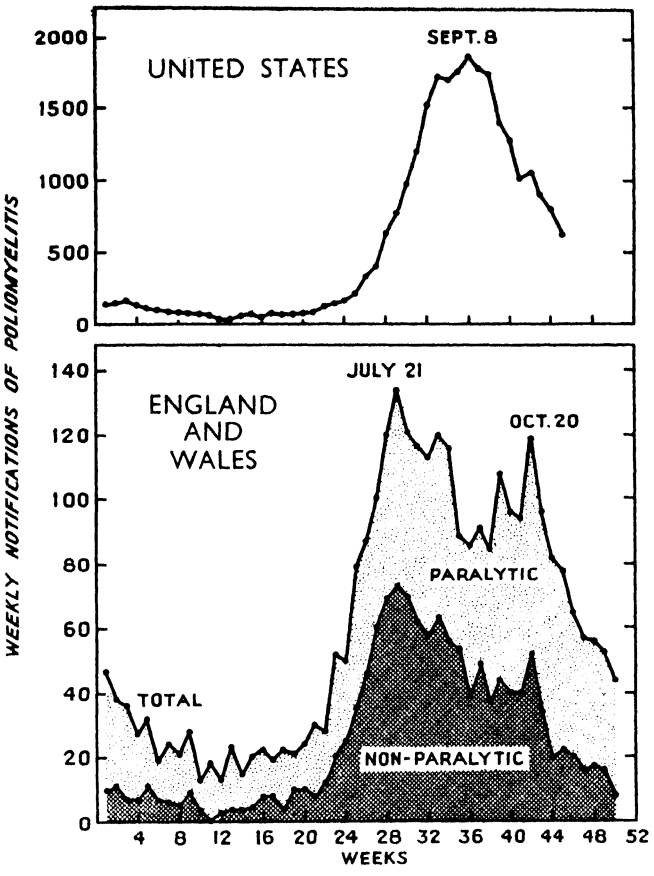
INFANTILE PARALYSIS. In the United States, 1951 was another bad year for poliomyelitis, though fewer cases were reported than in 1950 (30,000 against 33,350) and many fewer than in 1949 (42,375, highest total on record). The outbreaks of 1951 began to decline earlier than in 1950 when the peak week was unusually late (Sept. 23); in 1951 the weekly totals of all but two of the seven regions, west north-central, and east north-central and Pacific states, were declining by Sept. 8, the peak week for the whole country.

England and Wales had a comparatively good year, with 3,100 cases notified against 8,700 the year before. For 1951 the incidence was seven cases in each 100,000 of population. The weekly totals formed a curious irregular "plateau" extending from the peak at July 21 to a secondary peak at Oct. 20, suggestive of some freak in environmental conditions. Dr. Ian Taylor, epidemiologist to the London County council, had shown (*Lancet*, 1951, vol. i, p. 355) that the weekly total always began to rise in London when the mean atmospheric temperature reached 60°F, so it seemed reasonable to look first for a late heatwave to explain this peculiar relapse.

To an outside observer, the vast amount of research done on poliomyelitis seemed to produce disappointingly little in the way of a cure or reliable preventive measures. But the gigantic research projects had thrown a flood of light on the mode of spread of the disease and the distribution of paralytic cases, which hitherto had seemed strangely haphazard. When delegates from 37 countries met at Copenhagen in Sept. 1951 for the second International Poliomyelitis conference, their optimism was a striking constast to the general gloom at the first conference held in New York three years before. Then research seemed hopelessly bogged, largely because of its dependence on experiments on monkeys.

By 1951, however, Dr. J. Enders and his colleagues at the Boston Children's hospital had opened up a new field of inquiry by growing poliomyelitis virus in culture-tubes containing various embryo and adult tissues. This tissue-culture technique could be used for isolating polio virus from a patient's faeces; and it was possible that it might supplant the costly and difficult methods involving injections into animals. Moreover, Enders had observed that repeatedly subculturing the Lansing strain of polio virus took away its normal power to attack mice without destroying its immunizing effects; it was hoped that developments on these lines might produce an attenuated virus suitable for immunizing human beings.

A promising laboratory test to distinguish polio from other



virus infections was described to the 1951 conference by Dr. Casals and Dr. Olitsky, of the Rockefeller institute, New York. They had trained the Lansing strain of polio virus, which normally grew well only in full-grown mice, to grow strongly in *baby* mice, thereby obtaining a culture rich enough for use in a complement-fixation test. This was expected to tell whether a patient's blood contained antibodies to any of the three known strains of polio virus—Brunhilde and Leon (human) and Lansing (mainly animals)—as it would if the patient had been a past or present case of polio or had recently been in contact with a case. The need for such a test had become increasingly urgent since the discovery of the large family of Coxsackie viruses. These resembled true polio viruses and were found in healthy people, in patients with the eruptive illness named herpangina, in cases of Bornholm disease (epidemic myalgia), and a great variety of other complaints. They also occurred so often in the faeces of patients carrying true polio virus that they were known as "fellow travellers." Whether they helped to cause paralysis was still unknown. (*See* also EPIDEMICS.) (E. C.-Js.)

INFANT MORTALITY: *see* VITAL STATISTICS.

INNS: *see* HOTELS, RESTAURANTS AND INNS.

INSANITY: *see* MENTAL DISEASES.

INSECTS: *see* ENTOMOLOGY.

INSURANCE. Trading accounts published in 1951 were the first to reflect the revaluation of sterling over a complete year. The combined fire and accident premium income of 24 representative British offices rose in 1950 by £35,156,000 to £321,231,000 and resulted in an underwriting surplus of £23,132,000, or 7·2% of the premiums, to compare with £25,350,000, or 8·9%, in 1949. Marine premiums in 1950 were higher by £2,002,000, at £40,248,000, and provided a surplus greater by £808,000, at £3,854,000, while the total marine funds were advanced by £3,307,000 to the new high level of £63,434,000.

New ordinary life sums assured expanded in 1950 by £60 million to a record total of £600 million, and an increase of £1,213,000 took the total new industrial life sums assured of eight leading industrial life companies to £172,204,000, the average sum assured per policy being £43·8 against £39·5 in 1949. The aggregate industrial life premium income of the eight leading companies was advanced by £2,883,000 to £98,295,000 and the total industrial life funds were £679,371,000, showing an increase on the year of £30,122,000.

The inflow of new life business continued at a high level throughout 1951. There was a sustained demand for endowment assurance plans for "executive and non-controlling directors" and for term assurance in connection with gifts *inter vivos*. Much new business took the form of "income" assurance, it being increasingly realized that, in most cases, dependants really needed an income and not a lump sum. Educational and children's assurances were again sought, but life assurance in connection with house purchase plans was restricted by increased selectivity in the granting of loans by the companies. Deferred annuities were effected as provision for individual retirement and on a larger scale by groups in connection with pension schemes. There was a tendency among managements toward a broader investment policy, and the higher level of interest earnings on invested funds, combined with continued favourable mortality experience, enabled many companies to announce reductions in premium rates for certain business.

Losses on the fire account remained heavy throughout the year, and included many important industrial fires in the United Kingdom and overseas. The claims experience was also noticeably affected by a considerable volume of belated claims from the 1950 windstorm in the eastern states of America. The acute underwriting difficulty presented by insurance against windstorm was further emphasized by the Jamaican hurricane in mid-1951. Cover against hurricane in this area was not favoured by the companies and much of the small property destroyed or damaged remained uninsured, but the insurance loss was conservatively estimated at £4 million. Tension in the middle east emphasized another peril, with catastrophic possibilities, from riot insurance. The British fire and marine markets were also heavily involved, as a result of a fire in unginned cotton which occurred at Hassa Heisa, Sudan. The insurance loss was estimated at £2 million and again drew attention to the hazard presented in present-day bulk storage methods. Conditions in Burma and Indonesia were not favourable to profitable operation, and the attack on the Malayan economy now took the form of arson in large rubber factories in or near main towns.

The over-all result of the accident departments was again dominated by a world-wide unsatisfactory underwriting experience in the automobile section; the increase in U.K. premium rates at mid-year was generally considered inadequate. Employers' liability business had to contend with more frequent and more costly claims at common law, and a hardening of insurance rates was indicated. Workmen's compensation business transacted overseas continued costly to underwriters. Group accident and sickness insurance for employees met with increased demand. Burglary, fidelity, surety, and plate glass insurance, and a number of risks associated with machinery were again sought, and underwriting proved profitable.

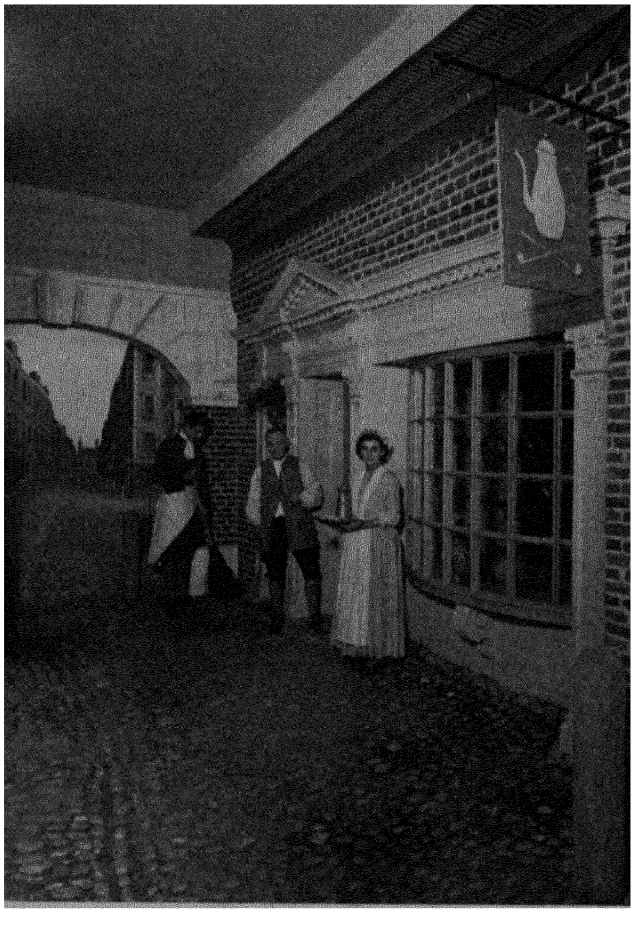
The disturbance of fire and accident insurance by the changed pattern of the U.K. economy since World War II was less marked, and insurance arrangements with state-owned monopolies ran smoothly.

Heavily increased values of hulls and enhanced cargo values were a feature in the marine insurance market. Rates for cargo business were highly competitive, due, in the main, to an absence, in the years immediately before 1951, of major casualties affecting cargo interests, and were a matter for underwriting concern. Risks on land, prior to delivery of goods, showed improved results. In the hull market, underwriters were again confronted with the problem of deferred claims and the increased cost of repairs occasioned thereby, against which contingency the marine funds were generally strengthened. (P. Ss.)

North America. During 1951 the legal reserve life insurance companies of the United States and Canada paid over $4,000 million in benefits to policy holders or beneficiaries. At the end of the year, the insurance owned by the 91 million policy holders amounted to about $270,000 million. The premiums paid for life insurance and annuities totalled about $8,000 million during the year, and the assets of United States and Canadian legal reserve life insurance companies increased by $4,800 million and reached $73,400 million. (L. A. L.)

United States. At the end of the year, portfolios of U.S. life insurance companies included: mortgages $19,500 million; corporate securities $28,300 million; and U.S. government securities $11,000 million.

The year 1951 witnessed the greatest volume of premium income ever produced in the history of casualty and fire insurance. Estimates for 1951 indicated a 10-15% premium increase over 1950. Inflation, high levels of industrial employment and activity, greater insurance consciousness, and the pressure of additional state automobile financial responsibility measures contributed to this result. It was also a year of very heavy losses in certain of the principal casualty lines, particularly automobile insurance, in which premium income and loss expenditures reached new heights. There were more cars on the road, more of them were insured and more of them were involved in accidents than ever before. The estimated average paid claim costs for bodily injury in 1951 showed an increase of almost 70% over 1941. For property damage claims, the average increase over the decade was about 150%. Judgments for claimants were almost double the average for 1941. Hospital and medical fees had risen considerably in this period. To offset the heavy drain of losses, premium rates were increased during the year. The average country-wide rate increase for bodily injury was 14·4%; for property damage, 11·0%.



The exterior of the coffee house where Lloyd's was founded in 1691; a reconstruction made for a festival exhibition at Lloyd's in 1951.

In workmen's compensation insurance, premium volume reversed the slight downward trend of the previous two years. Claim experience kept pace with the premium increase. Hospital and medical costs continued their upward spiral. Further, in 1951, 28 states raised the benefits for injured employees. From 1948 to 1950 the incurred loss ratio rose from 60·9% to 70·9%. Premium rates lagged behind these adverse loss results. But in 1951 there were upward rate revisions throughout the country.

Burglary insurance, unprofitable in 1946, turned towards the profit side for the following five years. Premiums had increased by about 35% since 1946. Fidelity insurance premiums rose very steeply in 1951, principally because a considerable portion of the business is written for a three-year period, and 1951 happened to be a large renewal year. There was expected to be a profit for the year, but a smaller one than in previous years.

In accident and health insurance loss ratios were rising but it continued to be a profitable line. Premiums for 1951 were estimated to show a 20% increase over the previous year. A significant innovation was the catastrophe insurance coverage for extraordinary medical and hospital expense. The loss ratios had been rising in this field, but it continued to be profitable.

Fire and marine premiums for 1951 were expected to establish a new record volume, with an approximate increase of 15% over the previous year. Losses, however, reached their highest point. (L. J. AN.)

INTERIOR DECORATION. The Festival of Britain—the centenary celebrations of the Great Exhibition of 1851—drew the world's eye to Great Britain in 1951, and British developments in interior decoration justified special attention. Despite the danger that interest in 1851 might strengthen the backward look to past styles, the year was notable for the confidence shown in contemporary work; in fact, there were grounds for stating that the so-called contemporary style reached lively maturity. It now certainly enjoyed wide popularity instead of being the cult of a few. However, the annual Furniture and Allied Trades exhibition showed that production of " over-inflated " upholstery and glossy structures distinguishable one from another only by unhappy elaborations in door and drawer furniture still occupied most of the industry. But the few exhibitors producing good contemporary designs drew the crowds on public days even when their stands were small and poorly sited. Similarly, chance visits to wallpaper showrooms found as many people studying bold designs as those engrossed in the " porridge " book which sales assistants still tended automatically to place first before customers.

Notable during the year were the activities of three women's organizations. The National Federation of Women's Institutes showed at the *Daily Mail* Ideal Homes exhibition a farm-worker's house planned and furnished on the basis of a Gallup-type enquiry among 400,000 of its members;



A modern example of interior decoration. This room, which was part of an exhibition prepared by the Council of Industrial Design, was furnished almost entirely with furniture from the utility price range.

the style of interior decoration was tastefully contemporary. The National Council of Women provided reinforcements in the battle against the ubiquity of the stock retail three-piece suite. The Co-operative union launched an ambitious scheme of discussion groups on " Design and Our Homes " among its women members.

There had been a tendency for the contemporary style to be the preserve of London; the organizations just mentioned covered the whole country. " Show " houses in new building estates had been frequent in the south of England since World War II, but 1951 saw, for example, the demand for and the success of such a house in the new town of Peterlee, Durham; and the contemporary furniture for this house came from local stores. In fact, not only did more stores in London open " contemporary " departments, but many shops in the provinces also did so. Greater interest from retailers was also indicated; some 150 representatives from more than 80 stores in over 50 towns attended four week-end courses organized by the Council of Industrial Design.

Most notable among the Festival exhibitions of interior design were the rooms in the Homes and Gardens pavilion at the South Bank exhibition, London. The chairs exhibited spoke of comfort achieved rather than of anatomical experiment. The other furniture was on the whole simple in outline, relying on form and wood-grain for elegance and interest. Its unpretentiousness looked well against spirited backgrounds. Colours were worthy of the name and "muted" pastels were refreshingly few. Pattern, too, whether on wallpapers, fabrics or floor-coverings, was either wholehearted or merely an impression of colourful texture, with few " muddy " or niggling effects. The smaller accessories showed more humanity than in previous years. Light fittings, for example, turned from chrome and glass to warmer materials; lampshades were of woven wicker, pleated buckram or wood veneers. In such things, the " craft-made " article was introduced in happy contrast to the machine-made.

Except for one group, these rooms avoided the self-conciousness common in their kind. Even so, because practice is more powerful than precept, of greater influence on public taste were the other exhibition pavilions and the Pleasure gardens in Battersea park, London, where functionalism was not so much needed. Much of the outdoor equipment represented considerable advances in the handling of metals for garden furniture. One restaurant on the South Bank was the outcome of an interesting idea; its furnishing included products of the Festival Pattern group—26 leading manufacturers of domestic commodities who collaborated in a project to draw inspiration for patterns from diagrams of crystal structure.

The contemporary style was also seen in use in a large number of newly designed or re-designed interiors for shops, restaurants, schools, travel bureaux and even government offices. The foundation of a readership in the subject at the Royal College of Art, London, was a further sign of the re-emergence of interior decoration as a more seriously creative profession. (S. C.E.)

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT. During 1951 the bank continued to focus its attention on underdeveloped areas both through its loans and through technical assistance. The year was marked by many new developments: for the first time some loans were made entirely in non-dollar currencies; the bank participated with private investors in financing a development project; bank bonds were publicly offered and sold in European markets; a sizable loan was made for the development of an overseas territory of a member country; and various new techniques were employed in giving technical aid to member countries.

Lending Operations. From Jan. 1, 1951, to Dec. 7, 1951, the bank made 17 loans amounting to $208,408,000. Iceland was the first borrower to receive a loan entirely in non-dollar currencies. A loan consisting of European currencies amounting to the equivalent of £875,000 ($2,450,000) was made to help to finance two hydro-electric power projects to relieve the country's critical shortage of power. A loan of £360,000 ($1,008,000) was also made to further Iceland's

programme for increasing agricultural production by financing the import of materials to build or modernize farms and farm buildings and to improve grasslands. Another non-dollar loan amounting to the equivalent of $28 million was made to Yugoslavia to provide equipment for electric power distribution, coal-mining, extraction and processing of non-ferrous metals, manufacturing industries, use of forest resources, farm and fisheries production and transportation.

Two loans totalling $50 million were made for development projects in South Africa; $30 million to the Electricity Supply commission and $20 million to the Union government for the development of transport. Simultaneously with the bank loan, private banks in the United States also extended a $10 million credit to the Union government for transport purposes.

Loans amounting to $70 million were made to help the ten-year development plan of the Belgian Congo. A loan of $40 million to the Congo was the first the bank made to an overseas territory of a member country. It covered the foreign-exchange costs of capital goods needed for the development plan and of raw materials and consumer imports needed in the Congo as a result of higher employment resulting from the plan. At the same time the bank made a loan of $30 million to Belgium to help to finance imports of raw materials and consumer goods which the country needed as a result of its increased production of goods for the Congo. The bank made a loan of $10 million to Cassa per il Mezzogiorno to aid in the development of southern Italy. A loan of $1,500,000 was made to Ethiopia to improve telecommunications.

Two loans were made for development purposes in Colombia: $16,500,000 for highway construction and rehabilitation; and $2,400,000 for the Lebrija hydro-electric power project. Nicaragua received three loans during the year: $3,500,000 for highways construction; $1,200,000 for the purchase of agricultural machinery; and $550,000 for the construction of a grain-storage plant. A loan of $1,300,000 was made for the exploration and use of underground water resources of the Rio Elqui valley in Chile. A loan of $5 million was made to Paraguay to help to increase agricultural production by providing equipment and supplies to improve cultivation methods and farm-to-market transportation. The loan of $75 million to the Brazilian Traction Light and Power Co., Ltd., made in 1949, was increased by $15 million.

Technical Assistance. Missions went to Iraq, Ceylon and Surinam. Among new methods used to meet particular needs of individual countries were specialized missions to study and make recommendations on specific aspects of a country's development programme; seminars in which representatives from member countries exchanged views with bank staff on specific problems; the assignment of bank officers to member countries for protracted periods as government advisers; and bank participation in institutes for training in techniques of development programmes and project control.

Other Operations. The bank's subscribed capital was increased to $8,438,500,000 by the admission of Sweden to membership on Aug. 31. The bank in 1951 sold its bonds in the financial markets of the United States, the United Kingdom and Switzerland in amounts equivalent to $175,634,671, bringing total borrowings to the equivalent of $436,222,222. The U.S. sales were $50 million of 25-yr. 3% bonds and $100 million of 30-yr. 3¼% bonds. The Swiss issue was Fr. 50 million ($11,634,671) 12-yr. 3½% bonds; the sterling issue was £5 million 20-yr. 3½% stock. First full repayment of loans occurred during the year when loans totalling $5 million to Yugoslavia and Finland were repaid. Total funds available to the bank, which had not been committed on loans, amounted to about $85 million at the end of the year.

The bank's net income for the fiscal year ended June 30, 1951, was $15,156,947. This amount was allocated to a general reserve, increasing it to $42,155,217. Total reserves amounted to $62,280,965 on June 30, 1951. (E. R. Bk.)

INTERNATIONAL COURT OF JUSTICE.

During the year 1951, the court gave the following advisory opinions and judgments:

Convention on Genocide. On May 18 the international court advised the general assembly of the United Nations that a state which had made and maintained a reservation to the Convention on the Prevention and Punishment of the Crime of Genocide, such reservation having been objected to by one or more of the parties to the convention but not by others, could be regarded as a party to the convention if the reservation was compatible with the object and purpose of the convention; otherwise, that state could not be regarded as a party to the convention.

Diplomatic Asylum, Columbia-Peru. (See *Britannica Book of the Year 1951.*) The court declared that, although the asylum granted by Colombia to Haya de la Torre, leader of A.P.R.A. (Alianza Popular Revolucionaria Americana) in Peru, was irregularly granted, Colombia was not bound to surrender him to the Peruvian authorities. The court could not give any practical advice as to the various courses which might be followed with a view to terminating the asylum, since, by so doing, it would depart from its proper judicial function.

Anglo-Iranian Oil Company. On May 26, 1951, the United Kingdom began proceedings against Persia in the case of the Anglo-Iranian Oil company. On June 22, 1951, the United Kingdom asked the court to indicate interim measures of protection so as to preserve the respective rights of the parties pending the court's decision. The Persian government contended that the court had no jurisdiction in the case "because of the legal incompetence of the complainant and because of the fact that the exercise of the right of sovereignty is not subject to complaint."

On July 5, 1951, however, the court (the Polish and Egyptian judges dissenting), pending its final decision in this case, did indicate the following provisional measures which "will apply on the basis of reciprocal observance":

(1) That the Persian government and the United Kingdom government should each ensure that no action was taken which might prejudice the rights of the other party in respect of the carrying out of any decision on the merits, which the court might subsequently render; (2) that both governments should each ensure that no action of any kind was taken which might aggravate or extend the dispute submitted to the court; (3) that each government should ensure that no measure of any kind should be taken designed to hinder the carrying on of the industrial and commercial operations of the Anglo-Iranian Oil company as they were carried on before May 1, 1951; (4) that the company's operations in Persia should continue under the direction of its management subject to such modifications as might be brought about by agreement with the board of supervision; and (5) that there should be established by agreement between the two governments a board of supervision composed of two members nominated by each of the governments and a fifth member chosen by agreement between the two governments or by the president of the court. The board would have to ensure that the company's operations were carried on in accordance with the provisions laid down by the court.

The Persian government refused to give effect to these measures.

Anglo-Norwegian Fisheries. The dispute between the United Kingdom and Norway over the right to fish in the long, mountainous and jagged Norwegian coastal zone caused dangerous incidents to arise on the high seas and a number of British trawlers were arrested in 1948 and 1949. Negotiations between the two governments having failed, the United Kingdom government began proceedings before the court.

On Dec. 11, 1951, the court gave judgment in favour of Norway. The crux of the dispute concerned the legality of a Norwegian decree of 1935 which delimited the Norwegian fisheries zone by drawing straight base lines between a number of fixed points. The court ruled that the relevant line in northern Norway was not the mainland itself but the whole range of islands, islets and reefs. It rejected the submission that the base line should always follow low water mark and held that the 1935 delimitation, drawn geometrically between appropriate lines on this low water mark and departing from the physical coastline to a reasonable extent, did not violate international law. The court also thought that it might be necessary to consider certain economic interests peculiar to a region, when their reality and importance were clearly established by long usage.

In a dissenting opinion, Sir Arnold McNair commented that the manipulation of territorial waters for the purpose of protecting economic and other social interests had no justification in law and that approval of such a practice would have a dangerous tendency in that it would encourage states to adopt a subjective appreciation of their rights instead of conforming to a common international standard regarding these rights.

Judge Philadelpho de Azevedo, the Brazilian member of the court, died on May 7, 1951. His successor was to take office in 1952. (F. E. J.)

INTERNATIONAL LABOUR ORGANIZATION. The International Labour conference and the Migration conference, convened by the I.L.O., were the chief events of 1951. The 34th session of the Labour conference met at Geneva, June 6-29; 60 of its 65 member states were represented. Delegates and advisers totalled 603 and included representatives of the United Nations and its other specialized agencies. The report of the director general gave the usual world-wide review of economic and social policies affecting labour and industry. The question of wage policy in conditions of full employment was emphasized and discussed by 109 speakers from 52 countries at 12 of the 26 plenary sessions. Many other topics were discussed, and there was general agreement that wages under full employment must permit the raising of living standards. The director in his reply said that some part of increased productivity should be reserved to reduce prices for those whose incomes were relatively stable in terms of money; also that I.L.O. legislative work, its technical assistance and operational activities, must be kept at a high level in order to achieve the indirect as well as the direct benefits of the international labour code. Universality, implying universal service to undeveloped countries as well as to highly industrial ones, was the aim that had enabled the I.L.O. to make a positive contribution to world peace, the ultimate goal of all its work.

The conference voted a budget for 1952 of $6,224,922; elected the governing body for a three-year term; and adopted two new conventions, bringing the total to 100, and four new recommendations. Equal pay for women for work of equal value and minimum wage fixing machinery for agricultural workers were the new conventions. Two of the recommendations were supplementary to the conventions, and two dealt with voluntary conciliation of industrial disputes and collective bargaining machinery, bringing the total of recommendations to 92.

The Migration conference met at Naples, Oct. 2-16, with less satisfactory results. The United Nations asked it to prepare a comprehensive plan for carrying on migration work after the International Refugee organization ended its operations at the close of the year. To discuss a modest, well-adapted plan was the chief reason for convening the Migration conference. The plan proposed moving 1·7 million of Europe's excess population in the next five years. It suggested a migration administration within the framework of the I.L.O. under a migration council composed of the countries interested in immigration and emigration, who would contribute to a special budget for this purpose.

The United States was expected to take a large share in this contribution but unfortunately the only funds available from that source were the $10 million for migration purposes provided by the Mutual Security act signed by President Harry S. Truman on Oct. 17, 1951, and with the proviso that no funds should be made available to any international organization with Communist members. The I.L.O. had six Communist members though none attended the Naples conference or was a member of the governing body or any other policy-making I.L.O. authority. Yet the U.S. delegates to the Migration conference were instructed to oppose the I.L.O. plan, and even abstained from voting, as did Canada and Australia on the substitute plan adopted. This plan set up a Consultative Council on European Migration to advise governments. (S. McC. L.)

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INTERNATIONAL LAW. The consequences of the conventional outlawry of aggressive war were subjected to much juristic comment during the year 1951, especially in connection with the Korean operations of the United Nations. It was pointed out that rapid decision by a competent international agency to distinguish the aggressor from the defender is essential and that this involves ready availability of the facts and also general criteria for determining aggression. Jurists emphasized particularly the necessity of confining the concept of aggression to the initiation of hostilities for objects other than necessary defence or international policing. If a government initiating hostilities is permitted to plead moral, political, economic, legal or other grievances as justification for its action, as was the case with the mediaeval distinction between just and unjust war, the determination of the aggressor becomes practically impossible. The International Law commission of the United Nations, in a proposed code of offences against the peace and security of mankind submitted to the general assembly in 1951, while declining to define aggression, declared that it includes "the employment by the authorities of a State of armed force against another State for any purpose other than national or collective self-defence or in pursuance of a decision or recommendation by a competent organ of the United Nations."

There was renewed interest among jurists in the law concerning the conduct of war. It was pointed out that even if hostilities originate in illegal aggression and, therefore, are not war, in the sense of a state of hostility in which the belligerents have an equal status under international law, this by no means implies that limitations on the conduct of such hostilities in the interest of humanity are unimportant. The United Nations, for example, recognized that the hostilities it was conducting in Korea were limited by rules of war even though in a legal sense these hostilities were not war. The Geneva conventions of 1949, in extending the guarantees of previous Geneva conventions in respect of prisoners of war, the sick and wounded and Red Cross agencies, and in providing new guarantees for civilians in belligerent countries, accepted this position.

The problem of regulating hostilities was also involved in proposals for limitation of armament. Official discussion of this topic was renewed in the general assembly in 1951 by a

broadcast by President Harry S. Truman and the presentation of a detailed project by the United States, Great Britain and France. This proposed unified consideration of atomic and conventional armaments and progressive restrictions as systems of inspection and control were established. The project was accepted as a basis for further discussion in a resolution of the assembly. The Soviet Union voted against this proposal and presented a counter-proposal looking toward extensive prohibitions of the use and manufacture of atomic weapons, and limitation of other armaments to be followed by the establishment of inspection systems.

The Individual and International Law. The United Nations charter, in demanding respect for human rights and fundamental freedom, and the Nuremberg charter, in providing for the punishment of offences against peace, humanity and the law of war, implied that in principle the individual was a subject of international law with rights and duties defined by that law, irrespective of the law of his own state. The action of the general assembly in proclaiming the Universal Declaration of Human Rights and a convention defining the crime of genocide in Dec. 1948, and the action of the International Law commission in submitting to the general assembly in 1951 a draft code of offences against the peace and security of mankind were steps towards implementing this concept.

The proposed Covenant of Human Rights as submitted by the Human Rights commission to the Economic and Social council which transmitted it to the general assembly in 1951, though defining many of these rights and obliging parties to the covenant to respect them, did not give the right of petition to individuals or non-governmental agencies, nor did it provide an international court with competence to declare national action violative of human rights null and void. Such provisions were indeed proposed to the Council of Europe, but the Convention for the Protection of Human Rights and Fundamental Freedom, signed at Rome, in Nov. 1950, under the auspices of that council, did not provide automatically for individual petition to a European commission nor for consideration of cases by the European Court of Human Rights.

Although national courts sometimes apply international standards of human rights, especially when incorporated in treaties (*Fujii* v. *California*, 217 Pacific Reporter [2nd], 481), they are more likely to be guided by standards of national law. The United States circuit court of appeals applied the latter standards in a claim of a Puerto Rican to be exempted from the draft on the ground, among others, that military conscription was contrary to the rights assured to peoples of non-self-governing territories by article 73 of the United Nations charter. In denying the application, the court expressed the opinion that the armed forces of the United States were necessary for the protection of Puerto Rico as well as continental United States and consequently it was not unjust to expect the Puerto Ricans to contribute to that effort. (*Ruiz Alicea* v. *U.S.*, 180 Fed. [2nd], 870.)

The Mutual Security act passed by the congress of the United States in 1951 appropriated funds to assist selected persons " residing in or escapees from " the Soviet Union or its satellites to form " elements of military forces " supporting the North Atlantic Treaty organization, in case the president found such assistance would " contribute to the defence of the North Atlantic Area and to the security of the United States." The Soviet Union protested against this legislation in Nov. 1951 on the ground that it was an effort to stimulate sedition in the Soviet area in violation of international law. The United States defended the act on the ground that the Soviet government had misconstrued its purpose, which was to assist persons who wished to escape the oppressions of the Soviet zone.

The Régime of the High Seas. The United States in 1945 claimed the exclusive right to exploit sub-surface resources as far as the continental shelf beyond its territory, and other states followed its lead. The International Law commission in 1951 discussed the matter and concluded that the sea bed and subsoil beyond a state's territorial waters should be distinguished from the waters themselves and should be subject to the control and jurisdiction of the littoral state for the exploration and exploitation of natural resources. The seaward limit of such control needed definition but was not dependent on any geographical conception of the continental shelf. This opinion held that the sea bed was neither *res nullius*, subject to acquisition by discovery and occupation as is land, nor *res communis*, subject to common use by all, as are the high seas, but was automatically within the jurisdiction of the littoral state. It also rejected a suggestion that such title existed only in so far as the littoral state actually claimed and exercised control. The problem was important because of the possible exploitation of extensive resources of oil in shallow water distant from the shore. The freedom of the seas in time of war, traditionally defined by compromise between neutral interests in continuing peacetime trade and belligerent interests in isolating the enemy, was greatly modified by the changed conception of hostilities which implies that if the aggressor has been determined, states should not be neutral but should prevent his access to resources. This was illustrated in the general assembly resolution of May 18, 1951, calling for embargoes on trade with Communist China because of its intervention in the Korean hostilities.

The Recognition of States and Governments. The issue of " What is a state? " is to be distinguished from the issue of " What is the government of a state? " The latter issue continued to occupy the attention of the United Nations during 1951 in connection with China. The general assembly rejected efforts to establish criteria for deciding between contending governments, leaving the matter to the political judgment of the general assembly giving due consideration to the purposes and principles of the charter. It continued to recognize the national government in Formosa as the representative of China. However, it conducted negotiations for an armistice in Korea with the government of the People's Republic of China.

Debate on the legal status of Germany continued among jurists, though the admission of the Federal Republic of Germany to the Food and Agricultural organization appeared to amount to a recognition that it was a state for United Nations purposes. The United States terminated the state of war with Germany on Oct. 24, 1951, by presidential proclamation based upon a congressional resolution, and the western allies proceeded with the negotiation of contracts to convert the warlike occupation into a peaceful military assistance. Jurists expressed differing opinions on the status of Germany from the time of its unconditional surrender in May 1945 to the recognition of the statehood of the Federal republic in 1951. Discussion of the topic during the year suggested general acceptance of the opinion that Germany continued as a state during this period, but with its sovereignty vested temporarily in the four powers to which it had surrendered unconditionally. These powers operating, at first actually and later theoretically, through the Control council constituted the government of Germany. This government was justified in exercising powers far beyond those of a military occupant because the powers' " completed conquest " of Germany established a situation in which their occupation was no longer precarious and consequently, apart from such limitations as might be deduced from the Kellogg-Briand pact and the Atlantic charter, they would have been free to declare its annexation. They could, therefore, take

the lesser step, as they did on June 5, 1945, of declaring that they would for the time exercise German sovereignty but not annex the country. The subsequent disagreement of the Soviet Union and the western allies resulted in the *de facto* transfer of German sovereignty to rival governments in Eastern and Western Germany, the latter being recognized as the government of Germany by the United Nations.

Procedures of International Legislation. The United Nations had increasingly utilized the general assembly as an agency of international legislation through its drafting of general treaties or passing of resolutions, and in their respective technical fields similar action proceeded in the technical agencies of the United Nations. The process of developing international law and adapting it to changed conditions was, however, greatly assisted by the activities of private international organizations such as the Institute of International Law which met at Bath, Somerset, in Sept. 1950 and the International Law association which met at Copenhagen in Aug. 1950. National associations such as the American Society of International Law which met in Washington in April 1951 and the writings of individual jurists also contributed to this process although binding rules of law are contingent upon the express or tacit consent of the states to be bound. The Human Rights commission of the United Nations had prime responsibility for developing international law in this field, and submitted a draft Covenant of Human Rights to the general assembly. Its work led to special conferences which drafted conventions on freedom of communications.

The most important instrument in this process, however, was the International Law commission of the United Nations which functioned under the authority of the general assembly both to codify and to develop international law. This commission submitted to the general assembly in 1951 draft articles on offences against the peace and security of mankind, and on the continental shelf and related subjects. It also codified the Nuremberg principles and made reports on the sources of customary international law, the régime of the high seas and reservations to multilateral treaties. Its discussions of an international criminal court led to a conference in Geneva in Aug. 1951, which submitted a draft on this subject to be considered by the states and eventually by the general assembly.

An important problem connected with the conclusion of general treaties of international legislation was the problem of reservations. The International Court of Justice gave an advisory opinion at the request of the general assembly to the effect that states making reservations to the Genocide convention were to be considered parties if their reservations were compatible with the object and purpose of the convention. Any other party to the treaty could, however, if it thought that a reservation was incompatible with that object and purpose, consider that the reserving state was not a party to the convention. The International Law commission thought this conclusion too vague for general application and proposed more definite rules on the subject. (*See* also INTERNATIONAL COURT OF JUSTICE.) (Q. W.)

INTERNATIONAL MONETARY FUND.

The admission of Sweden in Aug. 1951 brought the International Monetary fund's membership to 50 countries and members' quotas to a total of $8,136 million. Major asset items consisted of about $1,529 million in gold, $5,732 million in members' currencies and $859 million in capital receivable from members whose par values had not yet been established.

As from Jan. 1, 1951, the par values expressed in gold and U.S. dollars had been established for the currencies of 37 of the fund's members. This number increased during the year as a result of the establishment with the fund of initial par values for the Pakistani rupee (March 19), the Finnish markka (June 27) and the Swedish króna (Nov. 5). The executive board concurred in a devaluation of the Paraguayan guarani (March 5), accompanied by measures to simplify the country's exchange system. Approval was given (March 20) to a proposal by the government of Colombia to reduce restrictions on imports and to establish a new buying rate to apply to all exchange receipts except those from coffee exports. Later there was agreement to a plan for unifying the exchange structure by gradually bringing the coffee rate, too, into line.

The fund continued to send missions of staff officials to its member countries and to provide individual consultants for members seeking special technical advice for longer periods. Among the countries which it was able to serve in this way during 1951 were Brazil, Colombia, Costa Rica, Ecuador, El Salvador, Greece, Iceland, Panama, Paraguay, the Republic of the Philippines and Yugoslavia. In response to a request from the United Nations, staff officials were also made available for studies of Libya's currency, banking and financial problems.

From the start of fund operations in March 1947 up to Dec. 14, 1951, 20 member countries had obtained short-term financial assistance by purchasing foreign exchange from the fund with corresponding amounts of their own currencies. These transactions reached a total of $814 million on Nov. 13, when the government of Persia arranged to purchase U.S. $8,750,000 against Persian rials. The government of Brazil purchased £10 million British sterling on Jan. 9, 1951, in exchange for cruzeiros. The following countries repurchased amounts of their own currencies from the fund during 1951 with payments of gold or dollars or both: South Africa $9,985,000; Ethiopia $300,000; Mexico $22,498,000; Chile $3,434,000; Lebanon $855,800; and Norway $9,560,948. With these payments, repurchases totalled $80,650,000.

The fund's board of governors held its sixth annual meeting in Washington, D.C., from Sept. 10 to 14, 1951. At that time the executive board, in reporting on the fund's activities, noted that development of policy on the use of the fund's resources had been affected by the distorted and confused postwar payments situation. It outlined, however, a programme under which the fund's resources might be made available to members willing to undertake agreed, practical programmes to make more rapid and significant progress toward the achievement of the fund's objectives, which included the achievement of monetary stability, the adoption of realistic rates of exchange, the relaxation and removal of restrictions and discrimination and the simplification of multiple currency practices.

The fund's views on international gold sales at premium prices were first expressed in a policy statement sent to members in June 1947, when the executive board held that these transactions diverted gold from central monetary reserves into private hoards and tended to undermine exchange stability. In a statement published in March 1951, the board said gold sales at prices above the official $35 an ounce appeared to be increasing. The staff was directed to consult with the members concerned and suggest corrective measures. After receiving the staff's report, the board concluded that it was impracticable to expect all members to take uniform measures to achieve the objectives of the fund's premium gold policy. The fund reaffirmed its belief in the principles involved and urged members to support them, but added in its decision of Sept. 28 that it would leave to its members the practical operating decisions involved in their implementation.

A new schedule of charges on the fund's currency transactions was adopted in November for use during the period

from Dec. 1, 1951, to Dec. 31, 1952. Its continuance thereafter would depend on further decision of the executive board. Charges for longer term transactions were raised and those for shorter terms lowered, the purpose being to make it more expensive for members to make extended use of the fund's resources and to encourage use for short periods.

On April 10, 1951, the executive board announced the appointment of a new managing director, Ivar Rooth, head of the Central Bank of Sweden (Sveriges Riksbank) from 1929 to 1948. He assumed his new duties on Aug. 3, 1951, succeeding Camille Gutt of Belgium, the fund's first managing director, who served a full five-year term from May 6, 1946, to May 5, 1951. (*See* also INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.) (A. N. O.)

INTERNATIONAL RED CROSS: *see* RED CROSS.

INTERNATIONAL REFUGEE ORGANIZATION: *see* REFUGEES.

INTERNATIONAL TRADE. The value of world exports in the first half of 1951 rose to approximately $77,000 million at an annual rate. This was about a 35% increase over the value of exports in 1950 when they totalled $56,000 million. Because of substantially higher prices for many commodities, the volume of world trade did not rise nearly so sharply, but there probably was an increase in volume of from 10% to 15% in the first half of 1951 over the preceding year.

As the war in Korea continued throughout 1951, the North Atlantic Treaty organization increased its efforts to build western Europe's defences, and many other nations began to strengthen their defence programmes. All countries tried to replenish depleted stockpiles. A wide demand was created in world markets for grain, fibres and textiles, and for all kinds of metals, metal manufactures and machinery. Prices of many strategic raw materials, which had already risen sharply in 1950, continued to increase in the first quarter of the year, and then declined towards more reasonable levels. The latter part of 1951 saw new price increases, although rarely to the levels of the earlier part of the year.

The progress which had been achieved towards a dollar balance between the United States and the rest of the world was inevitably stopped, as the United States increased its exports at a much faster rate than its imports. Based on the first ten months of the year, the U.S. trade surplus was running at approximately $3,300 million, as compared with $1,300 million in 1950. United States military and economic assistance together with U.S. capital investment enabled other countries to increase their gold reserves between June 30, 1950, and March 31, 1951, by an estimated $3,000 million. On the latter date, they stood at $19,630 million, or at about the same level as in June 1945.

Restrictions on world trade tended to increase as export and import controls were reintroduced or extended. The tense international situation was responsible for expanded controls by many of the free nations on trade in strategic commodities with the Soviet bloc. The volume of trade between the west and the Soviet bloc declined significantly during 1951. United States trade with China was completely cut off, following a presidential order issued at the end of 1950. Some nations, including Canada, Western Germany and Pakistan, relaxed certain import restrictions, but others felt compelled to tighten controls over less essential imports. The closing months of the year brought a serious decline in the gold and dollar reserves of the United Kingdom and a new government programme was instituted to reduce imports.

United Kingdom. A sharp deterioration in the terms of trade of the United Kingdom during the first nine months of 1951 helped to bring on a third serious post-World War II financial crisis. The value of total imports for Jan.-Sept. 1951, at £2,919 million, was 53% above the average for the same period of 1950. Against this, United Kingdom exports, at £1,896 million, increased by only 21% between January and September. This left an excess of imports over exports of £1,023 million, as compared with £341 million in Jan.-Sept. 1950, to be paid for by other earnings and withdrawals from reserves. The large increase in import values represented only a 14% increase in the volume. The remainder was accounted for by higher prices. Prices of raw materials imported by the United Kingdom increased by nearly 90% between June 1950 and June 1951.

TABLE I. UNITED KINGDOM OVERSEAS TRADE BY COMMODITIES
(£ million)

	Imports		Exports	
	1950	1951	1950	1951
Food, drink and tobacco	1,030·0	1,298·9	134·9	161·0
Grain and flour	159·9	246·7	3·1	2·4
Meat	203·7	213·1	1·2	2·4
Dairy produce	156·3	165·6	2·4	4·0
Fruit and vegetables	95·0	111·9	1·1	2·0
Beverages and cocoa products	133·1	169·2	47·5	52·1
Tobacco	64·6	81·5	19·4	24·5
Raw materials	996·9	1,715·4	105·3	95·2
Coal	·03	8·8	49·9	29·2
Iron ore and scrap	39·3	46·3	·1	·07
Non-ferrous ores and scrap	48·8	79·2	1·3	1·5
Wood and timber	93·8	220·6	·2	·3
Cotton and waste	160·6	258·9	2·0	3·0
Wool and waste	191·1	246·1	27·8	35·5
Silk and waste	2·5	4·8	3·0	2·6
Oil seeds, nuts, fats, etc.	210·4	352·7	5·8	5·7
Paper-making	53·0	144·8	1·4	1·6
Rubber	59·9	161·3	1·2	2·1
Manufactured articles	564·0	884·6	1,883·0	2,273·2
Coke and fuels	·2	·2	10·6	4·9
Iron, steel and products	24·7	42·7	155·7	159·6
Non-ferrous metal group	109·8	167·4	76·9	70·5
Electrical goods	4·9	6·7	84·0	96·6
Machinery	44·6	54·9	319·4	365·2
Cotton, incl. yarns	28·9	56·4	158·4	209·2
Woollen, incl. yarns	23·8	30·4	140·4	176·8
Silk and artificial	12·7	26·1	50·1	64·3
Other textiles	16·6	43·6	30·3	40·3
Chemicals, drugs and dyes	36·1	65·9	107·5	142·7
Oils, fats and resins	128·4	156·6	20·1	41·9
Paper, etc.	29·9	84·8	28·2	42·4
Vehicles, incl. ships and aircraft	21·2	20·3	404·7	480·3
Total, all products	2,608·2	3,914·2	2,171·2	2,580.0

In an effort to improve Britain's economic position, the chancellor of the exchequer announced in Nov. 1951 that certain measures were to be taken which would enable savings of £350 million on external payments. Chief among these measures were new import restrictions, tightening controls over certain commodities, particularly unrationed food and semi-luxury items. The principal countries affected by this action were the Organization for European Economic Co-operation countries (O.E.E.C.), their dependencies and other non-sterling areas.

Britain's unfavourable balance of trade with the O.E.E.C. countries and their dependencies, which in 1950 averaged about £5,500,000 a month, was running in the first nine months of 1951 at £26,800,000 a month. As a result of the continued dollar drive, exports to the United States and Canada were increasing and reached in Jan.-Sept. 1951 an annual rate 19% higher than in 1950. Imports from North America, however, were rising even faster. Britain's trade deficit with the entire western hemisphere rose from £19 million a month in 1950 to about £40 million a month in the January-September period of 1951. Britain's trade with the rest of the sterling area, which in 1950 showed a surplus of about £5 million a month, changed in the first nine months of 1951 to a monthly average deficit of nearly £14 million.

Western Europe. Both the value and volume of the combined foreign trade of the western European countries

comprising O.E.E.C. rose to record levels in the first seven months of 1951. The value of exports averaged $2,200 million a month, as compared with $1,644 million a month in 1950. The value of imports was about $2,800 million a month in those months of 1951, as compared with $2,013 million on the average a month in 1950. These export value figures for 1951 represented an export volume 50% above the pre-World War II level and about 12% above the average 1950 export level. Imports were still being kept down by controls, but the volume of goods imported by the group as a whole rose during the first seven months of 1951 to 14% above prewar. This represented an increase in volume of about 6% above the 1950 average.

About three-fifths of western Europe's exports moved to countries within the O.E.E.C. during the months of 1951 for which data were available at the close of the year. Of the remainder, about 7% was sent to the United States and 7% to Latin America. A larger percentage of the O.E.E.C. countries' imports came from non-participating countries. A little over half represented intra-European (O.E.E.C.) trade, and about 48% came from other areas. The United States was the source of 12% of western Europe's supplies in Jan.-July 1951, a slightly smaller percentage than in 1950.

TABLE II. FOREIGN TRADE OF O.E.E.C. MEMBER COUNTRIES
($ million)

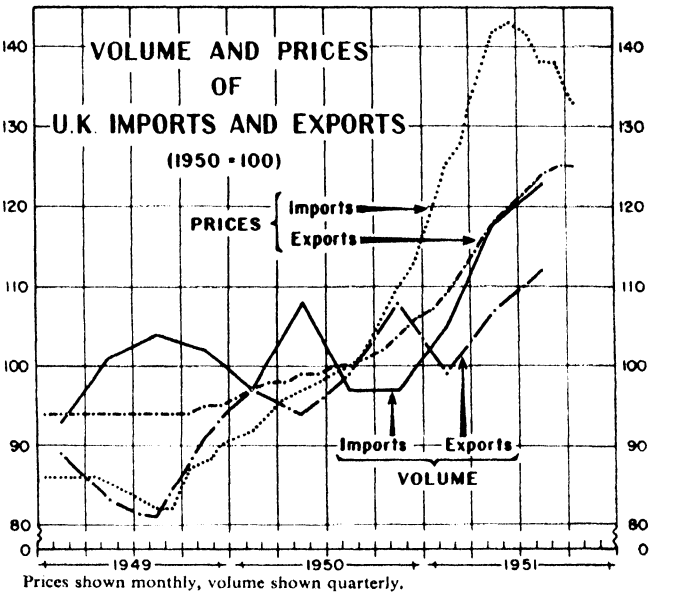
	Imports		Exports	
	1950	1951*	1950	1951*
Total, all countries	24,209	33,440	19,736	26,297
United Kingdom	7,285	10,899†	6,311	7,441†
Iceland	35	52	28	37
Ireland	447	560	203	196
Austria	483	639	326	437
Belgium-Luxembourg	1,937	2,488	1,641	2,588
Denmark	849	1,013	652	784
France	3,065	4,456	3,065	4,147
Western Germany	2,704	3,457	1,981	3,352
Greece	428	405	93	88
Italy	1,442	2,123	1,199	1,575
Netherlands	2,037	2,616	1,390	1,841
Norway	674	844	389	584
Portugal	272	320	183	251
Sweden	1,178	1,781	1,102	1,644
Switzerland	1,049	1,372	905	1,047
Trieste	41	48	8	13
Turkey	283	367	261	272

* Est. based on first nine months. † See Table I for actual.

There were many variations in the positions of individual countries. Between April and Sept. 1951, Western German exports rose above the value of its imports for the first time since World War II. However, a liberalization of import quotas caused a sharp rise in imports in September, and the favourable balance was reversed. Western German exports made great strides upwards during 1951, however, and by the middle of the year were more than 40% above prewar in volume, as compared with an average of 10% below prewar in 1950. The foreign trade of France which was in balance in 1950 showed a small excess of imports over exports in the first eight months of 1951, as France built up its defence programme. Belgian exports in 1951 continued to rise steadily over those of 1950, especially to other O.E.E.C. participants. They were not compensated for by imports, so that Belgium built up a substantial trade surplus during the second and third quarters of 1951.

United States. Trade values in the first nine months of 1951 continued the upward trend which had characterized them in the last half of 1950. International tensions stimulated demands for larger exports from the United States, particularly by western European nations, and also greatly increased U.S. imports of certain types of goods. These demands led to substantial price rises for many commodities.

Total U.S. exports between Jan. 1951 and Sept. 1951 were $11,037,700,000, about a 50% increase over the comparable period of 1950. In terms of volume it was estimated that ex-



Prices shown monthly, volume shown quarterly.

ports of U.S. merchandise were about 30% greater than in 1950.

United States general imports likewise showed substantial increases in value, rising in the nine months of 1950 and 1951 from $6,207,700,000 to $8,503,500,000 or by about 35%. This rise in value was almost entirely accounted for by increases in the prices of imported goods. The index of the quantity of goods imported for consumption rose by only about 3%.

The countries in the western hemisphere received about 45% of the total U.S. exports in Jan.-Sept. 1951, a slightly smaller percentage than in the first nine months of 1950. The countries participating in the European Recovery programme and their dependencies took about one-third of U.S. exports, or nearly $4,000 million, compared with $2,600 million in Jan.-Sept. 1950.

TABLE III. GEOGRAPHIC DISTRIBUTION OF UNITED STATES FOREIGN TRADE ($ million)

	Exports* Jan.-Sept.		General imports Jan.-Sept.	
	1950	1951	1950	1951
Total	7,326·5	11,037·7	6,207·7	8,503·5
Canada	1,412·5	1,984·7	1,385·7	1,666·3
Japan	303·1	442·1	122·9	160·6
Latin-American republics	1,928·5	2,772·6	2,148.2	2,570·9
Brazil	224·0	495·1	500·7	651·6
Colombia	172·8	173·8	231·2	256·6
Cuba	322·9	406·7	324·7	337·1
Mexico	351·4	523·8	221·7	240·4
Venezuela	281·8	348·6	245·1	240·9
O.E.E.C. and dependencies†	2,559·4	3,901·6	1,368·4	2,289·1
Belgium and Luxembourg	193·8	252·9	88·2	171·9
France	233·4	304·6	75·3	219·1
Germany	327·6	371·8	58·1	178·4
Italy	257·9	352·7	66·8	105·7
United Kingdom	355·9	599·4	220·5	357·3
Sterling area†	919·9	1,474·4	1,100·9	1,784·7
India	160·6	272·5	188·3	241·5
Australia	72·2	111·8	98·7	302·2
Malaya	13·7	44·0	198·9	353·8

* Grand totals and group totals include "special category" exports; country figures exclude them. † Total includes United Kingdom and dependencies and Ireland.

The western hemisphere was the source of 50% of U.S. imports in the first nine months of 1951, a little less than in Jan.-Sept. 1950. E.R.P. countries and their dependencies were supplying the United States with 5% more of its imports in 1951 than in 1950. About 27% came from these countries in Jan.-Sept. 1951.

In 1950 the values of U.S. imports and exports were more nearly in balance than in any year since 1940. In the second quarter of 1951 the trend toward a balanced U.S. trade reversed itself, and, by the end of the third quarter, exports

had already exceeded imports by $2,500 million. The only major area which was selling to the United States more than it was buying was the sterling area. In the first nine months of 1951, sterling area net dollar earnings from trade were $310 million.

Canada. Canada's foreign trade reached new high levels during the first nine months of 1951. Total imports for Jan.-Sept. 1951 were $3,142 million (in terms of Canadian dollars used throughout this section) and exceeded exports and re-exports by $324 million. This was a reversal of the 1950 trade picture when exports for the year slightly exceeded imports. Canada's trade unbalance with the United States for the nine-month period rose to $430 million, or nearly six times the 1950 nine-month figure of $71 million. Large United States investments in Canadian industry and U.S. government defence and military expenditures in Canada more or less offset the trade account drain on foreign exchange reserves.

Canada's other principal trading partner, the United Kingdom, increased the magnitude of its unbalance during 1951. The nine months' excess of Canadian exports to the United Kingdom over its imports was $112 million, as compared with $56 million for Jan.-Sept. 1950. Canada's exports to Britain were still limited to such essential commodities as wheat, metals, iron ore and lumber.

Reserves of gold and United States dollars had declined somewhat from their high levels of a year earlier but were still large at U.S. $1,610 million on Sept. 30, 1951.

Latin America. The foreign trade of the Latin-American republics continued to show a surplus in the first six months of 1951 of about $1,000 million at an annual rate. The value of both exports and imports increased, but imports rose somewhat more rapidly so that the favourable trade balance was less than in 1950.

Latin-American imports from the United States in the first six months of 1951 rose by 46% from the level of Jan.-June 1950. Purchases by one of the largest markets of the group, Brazil, were more than twice as great in 1951, as were those of the smaller markets of Chile and Uruguay. Leading imports into Latin America from the United States showed the following increases in value between the periods Jan.-June 1950 and Jan.-June 1951: machinery 47%; motor cars and parts 122%; chemicals 59%; and iron and steel mill products 39%.

TABLE IV. PERCENTAGE DISTRIBUTION OF LATIN-AMERICAN IMPORTS FROM SELECTED AREAS

Source of imports		Latin-American dollar area*	Latin-American non-dollar area†	Total Latin America
Sterling area	1948	5·5	16·5	11·3
	1950	5·5	16·1	10·6
Western Europe	1948	7·6	24·8	16·6
	1950	11·1	32·1	21·2
United States	1948	78·6	38·9	57·8
	1950	75·4	27·6	52·5
Latin America	1948	5·0	15·4	10·4
	1950	3·4	17·7	10·2
Rest of world	1948	3·3	4·4	3·9
	1950	4·6	6·5	5·5

* Central American republics, Colombia, Ecuador, Bolivia, Mexico, Venezuela.
† Argentina, Brazil, Chile, Paraguay, Peru, Uruguay.

Incomplete data for the early months of 1951 indicated that the trend, already noted in 1950, for western Europe to become a more important supplier for the Latin-American countries was continuing, primarily at the expense of the United States. This represented a return towards a pre-World War II pattern of trade. Latin-American imports from Western Germany rose spectacularly from early 1950, increasing from $44 million in Jan.-June 1950 to $162 million in Jan.-June 1951.

Near East. Incomplete data for the first half of 1951 indicated that the value of trade for countries in the near east was expanding.

Egypt's trade increased steadily in value through the first three-quarters of 1951. The world shortage of cotton, which accounted for 85% of Egypt's export trade, brought increased demand. Israel's imports in the first six months of 1951 showed little change from their 1950 level, but the value of exports increased about one-third. Nevertheless, strict controls over imports continued to be maintained because collections available from abroad declined from levels of earlier years. Turkey's exports rose sharply in the last quarter of 1950 and the first quarter of 1951, while imports also rose, but only slightly, leaving Turkey with a favourable trade balance. After the dissolution of the customs union between Syria and Lebanon in March 1950, these countries established trade restrictions, but each remained the major trading partner of the other.

South Africa. The Union of South Africa's trade in 1951 was being sustained at levels substantially higher than in 1950. For the first six months of 1951, imports totalled £S.A. 299 million, as compared with £S.A. 128 million for the corresponding period of 1950. Exports, including open market sales of gold, amounted to £S.A. 180 million, as compared with £S.A. 93 million in the same period of 1950. Imports from the dollar area rose from £S.A. 38 million in Jan.-June 1950 to £S.A. 56 million in Jan.-June 1951, and sterling area imports for the same period increased from £S.A. 83 million to £S.A. 145 million.

Far East. The far eastern trade situation was characterized in 1951 by further steps toward correcting the serious trade unbalance of the early postwar years; by booming export demands for raw materials as a result of the defence programmes of all the major nations of the world; by fluctuating prices for important materials; by the further emergence of Japan as a major supplier, supplanting to some extent both the United States and the United Kingdom; and by new controls on trade with the Soviet bloc, including China.

Japan's trade soared above 1950 in value during the first nine months of 1951, despite a decline in the third quarter. Preliminary estimates for Jan.-Sept. 1951 showed exports of $972 million, as compared with $533 million for a like period of 1950, and imports of $1,688 million, as compared with $695 million. Japan's heavy postwar dependence on the United States for imports continued to decline, until in 1951 the proportion purchased from the U.S. was roughly equivalent to that before World War II, or about 33%.

The foreign trade of the Philippines during the first six months of 1951 climbed significantly over that of Jan.-June 1950. Imports totalled 410 million pesos in 1951, as compared with 380 million pesos in 1950. Of the 1951 six-month total, 279 million pesos, or 68%, came from the United States. Exports increased by 72% between these two periods, rising from 282 million pesos in Jan.-June 1950 to 484 million pesos in the like period of 1951. The United States took 67% of Philippine exports.

The tremendous increase in export values, which had characterized Malaya's trade since the beginning of the war in Korea, was checked after the price of rubber, which had more than quadrupled since 1949, began to fall in April 1951. Malaya's export totals for the first six months of 1951 were, however, nearly three times those of Jan.-June 1950. The country's favourable trade balance rose from 95 million Malayan dollars in the first half of 1950 to $M 981 million in the first six months of 1951.

Indonesia, likewise influenced by the boom in rubber, reported exports and imports for the first nine months of about the same volume as in 1950, but exceeding that year in value by 60% to 65%.

Burma, Ceylon and Thailand were all running substantial trade surpluses in the months of 1951 for which data were available. The trade of Hong Kong declined greatly in the third quarter of 1951, as a result of the colony's anti-Communist trading controls. Trade with China was drastically reduced,

exports falling to 89 million Hong Kong dollars in September from a high point of $HK 245 million in March 1951. Trade with the United States continued despite the existence of stringent U.S. controls. Nevertheless, exports to the U.S. during the summer months (latest available at the close of the year) averaged no more than one-third the 1950 average.

India's trade in 1951 was influenced particularly by the strong world demand for raw materials and by generally higher prices for both imports and exports. Increased grain imports were responsible for substantial increases in import totals in the second quarter of the year. As the political differences between India and Pakistan over Kashmir remained unsolved, trade between these countries remained relatively limited.

Pakistan continued during the first nine months of 1951 to run a sizable surplus trade balance. Exports of raw jute and raw cotton, both in short world supply, provided the major part of Pakistan's incoming revenue, and cotton manufactures were again the major import. Trade agreements were negotiated during the year with Western Germany, Iraq and Australia.

Australia and New Zealand. The value of Australian exports in the first three-quarters of 1951—£A 739 million—was more than 50% above the comparable period in 1950, and reflected the spectacular rise in wool prices in Australian markets late in 1950. The value of imports rose steadily throughout Jan.-June 1951, and very sharply during the third quarter. The adverse trade balance for July-September of £A 112 million was larger than any previous deficit for an entire year.

New Zealand's trade continued through the first six months of 1951 to show a surplus with the world. Exports were valued at £N.Z. 130 million and imports at £N.Z. 82 million from Jan. to June 1951. This was a substantial rise over the period of 1950, particularly on the export side. At that time exports were £N.Z. 108 million and imports £N.Z. 74 million. (*See* also BALANCE OF PAYMENTS; BUSINESS REVIEW; EASTERN EUROPEAN ECONOMIC PLANNING; EUROPEAN RECOVERY PROGRAMME; INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL MONETARY FUND; TARIFFS.) (F. HL.)

INVENTORS, AWARDS TO. The Royal Commission on awards to inventors under the chairmanship of Lord Justice Cohen continued to deal with claims referred to it by government departments about the crown's use of inventions, designs, drawings or processes.

PRINCIPAL AWARDS TO INVENTORS, NOV. 1, 1950-OCT. 31, 1951

Recipient	*Heads of Terms of Reference*	*Subject*	*Award*
Commander H. de V. Leigh	3	Anti-submarine searchlight	£6,000
J. F. Baker	3	Morrison shelter	£3,000
P. M. Otway	3	Method of forming transverse longitudinal and oblique joints in concrete structures	£6,000
Commander J. S. Mullock	3	Ramp extension for landing craft	£1,250
N. A. de Bruyne	3	Strip heating	£1,000
Major O. J. Marstrand	3	Twin contact tyre	£2,250
Lieut. Commander H. Blundell	3	(*a*) Tubular scaffolding for shore defences (*b*) Tubular scaffolding (knife-rest) defences	£1,000
C. L. Field and A. Peace	1	Ammunition box cradle clamp	£3,000 (jointly)
Capt. T. A. Hussey	3	Pontoon causeways and self-propelled ferries	£1,000

The commission's first and second reports (command papers 7586 and 7832) contained a survey of principles governing the decisions of the commission. The commission dealt with claims under (1) head 1, which provides an alternative to the procedure under the Patents and Designs acts, whereby a claimant is entitled to apply to a judge of the High court for the settlement of the terms of use (about £175,000 had been awarded under this head); and (2) head 3, where the inventor may have no legal right to compensation but where the invention has been used by or on behalf of the crown and been of exceptional utility, its value having been tested in practice (about £314,000 had been recommended under this head, the majority of claims coming under it). (R. G. L.)

INVESTMENTS ABROAD. The Bank of England continued in 1951 the good work it initiated in 1950 with the publication of a pamphlet entitled *United Kingdom Overseas Investments—1938 to 1948*, containing statistics of British investments abroad through the medium of stock exchange securities. In 1951 this publication was followed by a supplement which carried the statistical material forward to 1949. As in the previous tables, the capital values were nominal, which gave little indication of the actual value of the investment but were a convenient basis for investigating changes in ownership.

TABLE I. ESTIMATES OF UNITED KINGDOM INVESTMENT ABROAD BY CATEGORIES, 1938-48
(in £ million at end of year)

	1938	*1940*	*1944*	*1946*	*1948*	*1949*
Government and municipal loans	1,521	1,458	978	859	795	793
U.K. companies:						
share capital	817	806	768	748	583	587
loan capital	367	335	279	255	120	110
Overseas companies:						
share capital	473	422	327	303	311	373
loan capital	368	318	192	164	158	173
Total	3,545	3,338	2,544	2,329	1,967	2,037

NOTE: Totals may not add because of rounding.

During 1949 the nominal value of British investments overseas increased by some £70 million. This was entirely the result of the devaluation of sterling in Sept. 1949, leading to the writing up of the sterling equivalent of dollar securities and other foreign currency securities by £84 million. But for the devaluation there would have been a net decline of £14 million in the nominal value of investments, largely through sales of securities to non-residents. There was also net capital repayment totalling £2 million. This represented the difference between gross capital repayment of £75 million and gross new investment abroad of £73 million. Substantial loan redemptions were carried out by the governments of Australia and Nigeria, and companies operating railways in Uruguay and Portuguese East Africa were liquidated.

An increase in the nominal capital invested in Mexico arose from capitalization of reserves. There was also a substantial increase in the holding of United States securities, resulting mainly from the replacement of non-U.S. dollar securities by U.S. securities. Other countries in which British holdings of securities increased included South Africa, Malaya, British Central Africa and the British West Indies.

There was virtually no change in the yield of British overseas investments in 1949 as compared with 1948, but there were big changes in the amount received from individual countries. Owing to the loss of income from the Argentine railways, sold in 1948, and to the restrictions on the remittance of profits from other British investments in the Argentine, receipts from that country fell by £4·4 million. The yield of British investments in the U.S. increased by £1·9 million, largely as a result of the devaluation of sterling. Higher dividends from rubber companies were mainly responsible for the increase of the yield on investments in Malaya by £1·5 million.

The estimates for 1948 were revised, in the light of later

TABLE II. UNITED KINGDOM INVESTMENT ABROAD, ALL SECURITIES BY COUNTRIES: (a) NOMINAL CAPITAL AT END OF YEAR; (b) INTEREST AND DIVIDENDS

	1938		1948		1949	
Commonwealth	(a)	(b)	(a)	(b)	(a)	(b)
British West Africa	55	4·3	47	3·6	42	3·9
Anglo-Egyptian Sudan	17	·9	11	1·0	11	1·0
British East Africa	24	1·0	16	1·4	18	1·4
British Central Africa	73	5·9	79	7·5	85	8·3
South Africa	199	17·5	132	15·5	150	15·9
India	388	18·5	60	5·7	61	6·2
Pakistan			9	·6	9	·8
Ceylon	28	1·7	26	2·4	26	2·5
Malaya	67	4·0	64	3·8	68	5·3
Australia	520	22·2	401	17·3	386	16·5
New Zealand	134	5·8	68	3·3	68	2·9
Canada	420	15·9	168	7·6	172	6·9
British West Indies	21	1·3	23	1·6	27	1·9
Other	18	·9	8	·5	6	·6
Total	1,962	99·8	1,111	71·8	1,130	74·1
Foreign Countries						
Republic of Ireland	16	·8	20	·9	21	·9
France	11	·4	7	·4	7	·4
Germany	45	2·0	42	—	45	—
Austria	11	·5	9	·7	9	·1
Denmark	14	·6	7	·3	7	·3
Norway	11	·4	4	·4	5	·5
Hungary	16	·4	14	—	15	—
Rumania	19	·4	16	—	15	—
Greece	26	·4	24	*	24	·1
Rest of Europe	64	2·4	44	1·8	48	1·6
Burma	20	2·1	13	·5	13	·5
China	37	1·5	36	·1	36	·1
Japan	50	2·6	46	·1	47	·1
Netherlands East Indies†	24	1·2	23	·1	23	·3
Persia	34	5·2	34	7·2	34	7·2
Egypt	10	·6	9	2·1	11	2·7
United States	268	7·1	75	8·0	115	9·9
Mexico	66	·4	30	·9	47	·9
Cuba	28	·1	24	·1	24	·1
Argentina	368	7·8	44	4·9	42	·5
Brazil	164	1·6	79	2·6	79	2·2
Chile	63	·9	47	·7	46	1·0
Peru	25	·4	22	·3	22	·3
Uruguay	23	·4	23	·4	9	·5
Rest of South America	37	1·7	32	1·5	33	1·9
Other	40	1·5	34	1·7	32	1·5
Total	1,491	43·2	759	35·8	809	33·6
Not Classifiable	93	12·5	96	8·6	98	8·6
Total	3·545	155·4	1,967	116·2	2,037	116·3

* Less than £50,000. † Indonesia.

NOTE: Totals may not add because of rounding.

SOURCE of material in Tables I and II: *United Kingdom Overseas Investments—1938 to 1948*, Bank of England, London, 1950; ibid., *Supplement to 1949*, London, 1951.

information available, to ensure comparability in nominal capital figures and greater accuracy in net repayment estimates. Some £9 million was added to the figures for South Africa, Australia and the West Indies, to represent United Kingdom investment in 1948 in overseas-registered companies first quoted in London in 1949. A reduction of £7 million in the Argentine and of nearly £1 million in Brazil represented changes reported as having previously been made in the investment field of some U.K.-registered land and property companies. Revised estimates of Canadian investments resulted in lower figures for the share capital of commercial, electricity and land companies, and higher figures for railway loans. As a net result, the revised figure of total nominal capital for 1948 was £7 million higher.

Detailed figures of British investment abroad were only available up to 1949. A round figure for 1950, contained in the annual official publication *National Income and Expenditure of the United Kingdom—1946 to 1950* (H.M.S.O., London, April 1951), covered all classes of investment abroad, including the changes in foreign exchange assets and sterling liabilities. On this basis, net investment abroad in 1950 was £368 million, as compared with £184 million in 1949 and £108 million in 1948. In 1947 there was a net disinvestment of £515 million, in 1946 a net disinvestment of £344 million, and in the last full prewar year disinvestments exceeded new investments by £70 million. All the postwar figures do not take into account net grants from abroad, under the European Recovery programme and from various dominions. Their total was £30 million in 1947, £138 million in 1948, £154 million in 1949 and £139 million in 1950.

In 1950 interest, profits, dividends and rent received by the U.K. on overseas investments amounted to £233 million, which showed a considerable increase as compared with the revised figure of £191 million in 1949, £179 million in 1948, £174 million in 1947, £154 million in 1946, and £205 million in 1938. Against these figures it is necessary, however, to set off the amounts paid on overseas investment in the United Kingdom. And the relevant item in the white paper included other elements besides these payments.

The annual report of the Council of Foreign Bondholders for 1950, published in 1951, stated that there was no addition during 1950 to the list of countries in default on their obligations to the United Kingdom. On the positive side payments were resumed by Turkey on the government-guaranteed City of Constantinople sterling loan. A temporary settlement was concluded with Czechoslovakia in respect of its share of the external debt of the former Austro-Hungarian monarchy. Nicaragua, which had suspended regular debt remittances for several years, although it had provided the payment of its debt service from funds already in London, resumed regular monthly remittances.

Towards the end of 1951 an agreement was reached in respect of the settlement of certain categories of German debts.

During the first half of 1951 there was a certain amount of investment overseas, mainly in countries of the Commonwealth. In view of the adverse change in the balance of payment position during the second half of the year overseas investment ceased almost completely. (P. EG.)

United States Investments Abroad. The value of United States investments in foreign countries (and international organizations) was about $35,660 million on June 30, 1951, or about $1,000 million higher than at the end of 1950. Although the outflow of private and U.S. government capital in the first half of 1951 of about $725 million was more than double the volume during the same period a year earlier, the movement for the year as a whole probably was well below the preceding year because of a sharp decline in private investment in the second half of the year. As a result, the increase in the total value of U.S. investments abroad in 1951 was probably much less than the rise of $2,000 million that occurred in 1950. The bulk of the growth was for the account of private organizations and individuals as in the previous year.

New investments and claims by the U.S. government on foreigners increased by about $140 million in the first half of 1951 and by a small amount during the third quarter, or at about the same rate as a year earlier. Investment of private capital in the first nine months of the year was $583 million or $476 million less than for the same period of 1950, a year in which a postwar record outflow of more than $1,300 million was reached. The decline, primarily in long-term capital, was due to a falling off in net lending (portfolio investments) and the completion of various projects abroad that were controlled in the United States (direct investments).

During 1951, a larger net volume of new Canadian bonds, whose interest and principal were payable in U.S. dollars, was sold in the latter country than in any year since 1930. Up to Nov. 1951 there were 20 major Canadian new issues sold in the United States (not including issues of direct-investment companies) of which the amount taken by U.S. investors was about $280 million. Apparently the principal reason for the large amount of borrowing by Canadian

investors was that credit controls had a greater effect on bond yields in Canada than similar restraints had in the United States. Apart from Canada, the outflow of United States portfolio investments was mainly to the International Bank for Reconstruction and Development, and there was no apparent revival of interest in large-scale lending to other foreign borrowers. International Bank issues totalled $150 million in 1951, nearly all taken by U.S. investors.

U.S. capital flowing to controlled enterprises in the first nine months of 1951 was $440 million, a decline of $125 million from the same period a year earlier. An important factor in the decrease was the completion of major foreign projects of the oil industry. As a consequence, the rate of investments in the third quarter was at about $260 million for the year—only about a third of the average rate in 1949-50. In 1951 the flow of capital to a number of foreign enterprises was reversed as they turned over to their parent enterprises cash proceeds of sales of petroleum and other products.

The intensive search for mineral deposits in foreign countries continued during 1951 and U.S. capital was invested in ventures in Canada and elsewhere. The extensive exploration of potentially rich iron ore properties in Canada was financed by steel and other companies in the United States. Work was in progress during the year on a railway from the Gulf of St. Lawrence to the iron ore fields astride the Quebec-Labrador boundary. In Venezuela a contract between that government and a subsidiary of a leading U.S. steel producer called for the initial investment of $250 million for the extraction and movement to tide water of high-grade ores from the Cerro-Bolivar deposits. Other developments in mining included the granting of rights to an American company to develop important sulphur deposits in Mexico and Ecuador, investment in Jamaica to develop bauxite deposits by two rapidly expanding American aluminium companies, copper investments in Peru, Chile, South Africa and Canada, and further investments in asbestos in Canada.

The value of new U.S. investments in the former enemy countries, Germany and Japan, remained relatively small during 1951. Among the investments coming to the attention of the public were the opening of a branch bank in Germany and several investments in Japan.

Long-term loans to foreign governments by the United States government remained relatively low during 1951, totalling only $152 million during the first nine months of the year, mainly reflecting the low volume of credits under the declining European Recovery programme. Drawings against Export-Import bank loans declined somewhat in this period compared with a year earlier, although several fairly large loans were authorized to Latin American borrowers. To the end of August about $46 million of additional loans were authorized by the U.S. government to individual Spanish enterprises for projects having prospects for contributing substantially to the improvement of the Spanish economy. These included railways, fertilizer and steel plants, minerals production, electric power plants and the purchase of certain commodities.

TABLE III. U.S. INVESTMENTS ABROAD AT DEC. 31, 1950, BY TYPE AND AREA* ($'000,000)

Type	Canada	American Republics	E.R.P. Area	Other Europ.	Other	Total
Total	7,309	6,528	13,415	1,141	2,645	34,694†
Direct	3,850	5,065	2,833	349	1,453	13,550
Dollar bonds	1,113	159	71	17	115	1,702†
In local currencies	1,911	34	376	38	61	2,420
Other long-term	174	256	990	197	88	1,705
Short-term deposits	145	70	284	36	64	598
Other short-term	105	489	272	26	151	1,043
U.S. government	11	455	8,590	478	713	13,676†

* Direct investments at book value; others at market or stated value. Portfolio securities of former enemy countries, or where realistic value unobtainable excluded. † Totals incl. $227 million dollar bonds to international institutions and $3,429 million from U.S. government to international institutions.
SOURCE. U.S. Department of Commerce.

TABLE IV. FOREIGN INVESTMENTS IN U.S. AT DEC. 31, 1950, BY TYPE AND AREA* ($'000,000)

Type	Canada	American Republics	E.R.P. Area	Other Europ.	Other	Total
Total	3,178	2,625	9,373	239	1,951	20,149‡
Direct	876	141	2,176	25	75	3,293
Stocks	608	392	2,041	20	129	3,190
Bonds	72	52	310	27	10	474‡
Other	140	218	1,003	53	86	1,500
Short-term deposits	393	1,549	2,434	72	1,255	5,831‡
Other short-term	34	123	433	22	15	671‡
U.S. government	1,055	150	976	20	381	5,190†‡

* Direct investments at book value, others at market or stated value. † Incl. $772 million of U.S. currency held abroad not allocable by area. ‡ Incl. by international institutions bonds $3 million, short-term deposits $128 million, other short term $44 million, U.S. government obligations $1,836 million.
SOURCE. U.S. Department of Commerce.

On Oct. 1 the British government paid the final instalment on its $390 million loan from the Reconstruction Finance corporation contracted in 1941. With the payment of this debt the British Treasury regained U.S. securities valued at $1,000 million. This was about twice their value at the time the loan was made. On the last day of 1951 the British government made the first payments of interest ($87 million) and principal ($51·5 million) due on loans granted after World War II totalling $4,350 million.

Foreign Investments in the United States. The value of foreign investments in the United States rose to about $20,570 million on June 30, 1951, or by about $420 million during the first six months of the year. The change in 1951 was in sharp contrast with the increase of about $2,500 million in the value of foreign investments in the United States during 1950. In the latter year, the strong demand for basic products by the United States from other countries in connection with the rising military mobilization programme had resulted in sizable increases in both foreign short- and long-term dollar assets in the United States.

In the first half of 1951 foreigners had acquired about $950 million of gold from the United States in addition to acquiring $109 million of short- and long-term investments. In the third quarter of the year foreigners lost almost $300 million of gold to the United States and neither acquired nor lost capital to the United States on balance.

The aggregate value of foreign long-term investments in the U.S. rose by almost $250 million in the first half of 1951, to $10,100 million. This increase was less than the rise in value resulting from increased security price quotations which was partly offset by a net sale of foreign-held securities. The value of corporate shares rose $290 million of which all but $23 million represented an 8·4% rise in the stock market prices of the $3,190 million of shares held at the end of 1950. The balance represented new capital invested in the United States.

During the year the United Kingdom firm of Courtaulds Ltd. returned to the United States after a lapse of 11 years. In 1940 the company dramatically sold its American assets to provide Britain with foreign exchange with which to finance the British war effort. At that time, it gave up its subsidiary, the American Viscose corporation with a book value of over $100 million, for a price that yielded it a net amount of about $60 million. The company's new investment in 1951 involved the erection of a $7 million plant to be completed in 1952 in Alabama, to produce rayon staple fibre from wood pulp.

Another British enterprise, the Matador Land and Cattle company with over 800,000 ac. of cattle ranches in Texas,

received about $19 million for its acreage from American interests who were also to share the mineral rights to the property with the former Matador shareholders. (*See* also BALANCE OF PAYMENTS.) (M. AB.)

IRAN: *see* PERSIA.

IRAQ. Independent Arab kingdom of Mesopotamia, bounded by Syria, Turkey, Persia, the Persian gulf, Saudi Arabia and Jordan, watered by the Tigris and Euphrates. Area: 168,043 sq.mi. Pop.: (1935 est.) 3,560,456; (1947 census) 4,799,500. Language: Arabic 67%, Kurdish 25%, others 8%. Religion: Moslem 91% (Shiah Arabs 45%, Sunni Arabs 15%, Sunni Kurds 25%, etc.); Christian 5%, falling into three main groups (a) Roman Catholics of Chaldean, Syrian and Armenian rites, the strongest community (*c.* 100,000) being Chaldean, (b) Greek Orthodox and (c) free churches (Syrian Jacobite, Gregorian Armenian, etc.); others 1·5% (Yezidi, Sabaean, etc.); by the end of 1951 all 107,000 Jews had left for Israel. Sunni Arabs are the ruling class. Chief towns (pop., est. 1947): Baghdad (cap., 552,000), Mosul (279,400), Basra (206,000), Kirkuk (148,300). Ruler, King Faysal II (born May 2, 1935); regent, Prince Abdulilah; prime minister, Nuri Pasha as-Sa'id.

History. At the Jan. 1951 meeting of the Arab league in Egypt, Iraq qualified its acceptance of the league security pact by maintaining its independence in financial matters. In April during the Israeli-Syrian conflict on the upper Jordan the Iraqi government announced its support of Syria and published a decree which deprived emigrating Jews of their remaining property. In the following month, on May 16, a reinforcement of Iraqi aircraft was despatched to Damascus at the request of the Syrian government. In May the regent, the Emir Abdulilah, accompanied by Nuri Pasha as-Sa'id, the prime minister, visited Jordan.

On March 20 a law was published authorizing the building of a state oil refinery near Baghdad and in July an Iraqi Development board was appointed. Its five-year plan included projects for the reclamation (with the U.S. Fourth Point assistance) of land in the Tigris and Euphrates valley, and the completion of the Wadi Tartar scheme for the control of the annual Tigris floods.

On Aug. 13, after five months' negotiations, the government reached agreement with the Iraq Petroleum company and its subsidiaries, the Mosul Petroleum company and the Basra Petroleum company, for the revision of their existing concessions. The agreement stipulated that the government would receive half of the three companies' profits (before the payment of foreign taxes) which were derived from their operations in Iraq. Part of this 50% of the profits would be paid in crude oil for local purposes. It was also agreed that if at any later date a neighbouring government should receive under a subsequent arrangement a higher revenue per ton of oil than that received by Iraq, the Iraqi government would have the right to demand a similar increase from all three companies. Further clauses laid down that the boards of the three companies should be reinforced by a number of Iraqi directors and that the three companies would themselves finance the organization of facilities for Iraqis to study oil subjects both in Iraq and Great Britain; that in future no foreigners would be employed if suitable Iraqis were available; and that the agreement was subject to ratification by the Iraqi parliament. On Sept. 3 the prime minister visited England. On his return it was announced that another new oil refinery with a capacity of 100,000 tons would be built south of Basra. Meanwhile the Basra Petroleum company had brought a new oilfield into production, from which a pipeline had been laid to the Iraqi port of Fao at the mouth of the Shatt el-Arab on the Persian gulf where there was deep sea anchorage for tankers. On Oct. 11 an official communiqué announced that, while in London, Nuri Pasha had brought to the notice of the British government the necessity for a revision of Anglo-Iraqi relations. No action, however, would be taken without the sanction of the Iraqi parliament and in the meantime Iraqi political leaders would be consulted.

The four powers—Great Britain, France, Turkey and the United States—whose invitation to Egypt to participate in the organization of a joint middle east defence command had been refused by Egypt on Oct. 25, informed Iraq and the other members of the Arab league and Israel on Oct. 29 that these plans would be proceeded with irrespective of their rejection by Egypt.

On Oct. 31 the leader of the People's Socialist party (Salih Jabr), of the United Popular Front party (General Taha al-Hashimi) and of the National Democratic party (Kamil Chadirchi) made a joint announcement which, after expressing full support for Egypt, asserted that the Anglo-Iraqi treaty of 1930 had been signed under duress, was outdated and should be abrogated.

Early in November the regent left Baghdad for London and on Nov. 17, accompanied by the prime minister, called on the British foreign secretary, Anthony Eden. On Nov. 23 the Soviet government warned Iraq—and the other members of the Arab league and Israel—that they would forfeit Soviet goodwill if they accepted the proposed defence scheme which would only rob them of their independence.

A new agreement was signed in Baghdad on Dec. 25 between the government and the Anglo-Iranian Oil company's two Iraqi subsidiaries. The government purchased distribution facilities in Iraq and the Alwand refinery. The Khanaqin Oil company was to be the distributing agent for the government until 1961 and would also operate the Alwand refinery until the proposed government refinery at Baghdad was erected. (O. TW.)

Education. Schools (1949-50): primary 1,194, pupils 196,336, teachers 6,740; intermediate 133, pupils 22,899, teachers 492; secondary 71, pupils 7,222, teachers 983; vocational 10, students 1,275, teachers 64; institutions of higher education 10, students 5,200, lecturers 124.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): barley 800 (900); wheat 500 (600); rice 220 (250); dates 170; tobacco 7·7 (8); cotton, ginned 2 (8); cottonseed 2 (10); wool, greasy basis 12 (13). Livestock ('000 head, 1948-49): sheep 7,055; goats 1,849; cattle 822; buffaloes 130; camels 291; horses (1950) 184; mules 52; donkeys 413.

Industry. Industrial establishments (1948): 1,762; persons employed 27,246. Fuel and power: crude oil production ('000 metric tons, 1950; 1951, six months, in brackets) 6,480 (4,031); electricity (million kwh., 1948) 69.

Foreign Trade. Million dinars, 1950; 1951, first three months, in brackets: imports 40·6 (10·9); exports, excluding oil 22·6 (7·0), including oil 44·6 (15·3). Main sources of imports (1949): U.K. 43·2%; U.S. 11·4%; Italy 7·6%; Ceylon 6·3%. Main destinations of exports, excluding oil (1948): India 19·2%; U.K. 17·1%; U.S. 13·4%; Egypt 7·7%. Main imports (1949): textiles 18·0%; tea and sugar 12·6%; iron and steel 12·1%; boilers 11·1%. Main exports, excluding oil (1949): cereals 45·5%; dates 22·4%; wool 3·7%.

Transport and Communications. Roads (1949): 4,500 mi. Licensed motor vehicles (Dec. 1950): cars 8,789; commercial 10,292. Railways (July 1949): 1,027 mi. Traffic (1947-48): passenger-mi., 329 million; ton-mi., 367 million. Air transport (1949): passenger-mi., 5,861,000; cargo net ton-mi., 118,600. Telephones (March 1949): 14,595. Radio receiving sets (1950): 30,000.

Finance and Banking. (Million dinars) Budget (1949-50): revenue 27, expenditure 32; (1950-51 est.) revenue 27, expenditure 28. Currency circulation (Aug. 1950; Aug. 1951 in brackets): 34·4 (31·7). Bank deposits (April 1950; April 1951 in brackets): 11·9 (13·0). Monetary unit: Iraqi *dinar* at par with the pound and with an exchange rate of 0·357 dinars to the U.S. dollar.

See Majid Khadduri, *Independent Iraq* (London, 1951).

IRELAND, NORTHERN: *see* NORTHERN IRELAND.

IRELAND, REPUBLIC OF. Independent republic on an island W. of Great Britain. Area: 26,601 sq.mi. Pop.: (1946 census) 2,955,107; (1951 census) 2,958,878. The

increase in population between 1946 and 1951 of 3,771, when deducted from the natural increase of 125,402, gives a figure of 121,631 for the net emigration. Language: English *c.* 76%, Erse (Gaelic) *c.* 24%. Religion (1936 census): Roman Catholic 93·4%, Episcopalian 4·9%, Presbyterian 1%, Methodist 0·3%, Jewish 0·1%. Chief towns (pop. 1951 census): Dublin (cap., 521,322), Cork (74,577), Limerick (50,823), Dun Laoghaire (47,963), Waterford (28,689). President, Séan Thomas O'Kelly; prime ministers (1951): John A. Costello and (from June 13) Eamon de Valera (*q.v.*).

History. Ever since the Anglo-Irish treaty of 1921 the only real issue separating the two main political parties had been tempo. At what speed should political separation from Britain proceed? 1950 had seen all that settled, and the matter of leaving the Commonwealth as well, John Costello's inter-party government having adroitly stolen Eamon de Valera's clothes. But in 1951 de Valera had his (very limited) revenge. The inter-party government, which looked like running its full term to 1952, suddenly began to disintegrate, largely through internal disruption in Séan MacBride's Clann na Poblachta (party of the republic). The crisis arose, in a manner too complicated to be briefly explained, over the Catholic hierarchy's objections to a medical welfare scheme proposed by the minister of health, Dr. Noel Browne, a member of Clann na Poblachta and supposedly MacBride's right-hand man. Dr. Browne broke with MacBride, the equilibrium of the inter-party government was destroyed and in the election that followed de Valera's Fianna Fáil party was returned as the strongest single party. The results were, with the seats held at the dissolution in brackets: Fianna Fáil 69 (67), Fine Gael 40 (30), Labour 16 (20), Clann na Poblachta 2 (6), Clann na Talhman (Farmers') 6 (5) and Independents 14 (17).





The 1951 general election in Ireland returned to the Dail the sons of two prime ministers. (Above) Vivion de Valera after his election for North Central Dublin and (below) Declan Costello, who was elected for North West Dublin, being congratulated by his father.

But if de Valera's supporters expected the triumphs of the day before yesterday they were disappointed. The new government depended for its painfully small working majority in the Dail on almost exactly the same set of independents who before the election had sided with Costello; the cost of living, with which de Valera's ministers had made great play in opposition, went on rising obstinately and the balance of payments tilted further against the republic. In such circumstances it was difficult for the new government to be strikingly different from that of Costello, and with the question of the real *versus* the " dictionary " republic already settled, more and more Irishmen began to ask themselves exactly what now divided the two main Irish parties, apart from bitter memories.

The year 1951 provided an answer and a partial foreshadowing of the issue likely to divide the Irish liberals and conservatives of to-morrow. The agency behind this possible regrouping of Irish politics might prove to be the report of the central bank, issued in the autumn. The report called upon the Irish people to produce more, save more and generally to conduct themselves according to the ethos of central banks everywhere. Its reception by sections, and extremely vocal sections, of the Irish people was ironical, in the best Irish manner. There was, as Arland Ussher, the author of that brilliant study, *The Face and Mind of Ireland* (London, 1949), pointed out, a reservoir of radical financial thought in Ireland, an outcrop across the Irish sea of the tradition created by A. R. Orage and the *New Age* in Britain. It is the Irish radical's alternative to socialism and its philosophy was soon apparent in certain pointed questions asked by MacBride in the Dail about the central bank and its financial stewardship. At first the government looked like accepting the bank's advice, but in the end it weakened and washed its hands of the report. Whether it had merely washed its hands in public and would in fact implement the policy of restricting credit to the point of hampering works of capital construction already started remained to be seen. Meanwhile MacBride, whose battered Republican party had advocated a new financial deal as its central policy, came back into the limelight and looked, moreover, like carrying a section of the once supposedly conservative Fine Gael party with him. His main point was that the rate of the Irish pound against the British should be variable, as it was right up to the third decade of the 19th century. The historical departure was that Irish politicians had at last begun to face the issues of the 20th century and had ceased to carry on a protracted post mortem on the Anglo-Irish treaty and the civil war.

Trade returns issued by the central statistics office, reflected the adverse conditions common to much of western Europe. For the first nine months they showed an adverse balance on merchandise trade of £97 million, as compared with £65 million for the same period of 1950. Imports for the nine months were valued at £150 million and exports at £53 million. An interesting item was the increase in the export of cotton piece goods, woollen and worsted tissues and clothing. More than £2 million worth of meat, fresh, chilled, frozen or canned, was exported in the same period. Most of the chilled and frozen meat went to America and a contract for 4 million lb. of frozen beef for U.S. forces in Germany was secured by a Waterford firm. Tourism, second only to agriculture as a 26-county industry, remained the republic's second most prolific source of dollars. 1951 saw further co-operation between the six and the 26 counties in an

agreement on the joint purchase of the Great Northern railway by the governments of the Republic of Ireland and of Northern Ireland. Each government contributed an equal share of the purchase price, and a joint board was to be responsible for operating the undertaking.

The United States and Great Britain sent new ambassadors: Francis P. Matthews, from the United States, was secretary of the navy before his appointment to Ireland; Sir Walter Hankinson, from Great Britain, had already served as a diplomatist in Dublin. Ireland continued to play her part both in the council of ministers and the consultative assembly of the Council of Europe, and in the Organization for European Economic Co-operation. An Irish military mission, led by Major General Liam Archer, chief of staff, made a tour of inspection of U.S. army and air force bases in Germany.

At home, in spite of new vistas in politics, probably the most dramatic public event was the fire that destroyed the Abbey theatre in the early hours of July 18. As a permanent institution the Abbey dated from 1904, but its roots were in the Irish literary renaissance of the 1890s. It was to the Abbey theatre that George Bernard Shaw, in 1904, first offered *John Bull's Other Island.* With the death of Shaw and the burning of the theatre there seemed to be a definite break in dramatic tradition, both Anglo-Irish and Irish. Fortunately, while awaiting the re-building, the Abbey company found a temporary home just across the Liffey. But there was still no sign of new dramatists of the stature of Yeats, Synge or O'Casey. (D. I.)

Education. Schools (1949-50): elementary 4,896, pupils 445,183, teachers 12,821; secondary 416, pupils 47,065. Universities 2, (the National university has 3 constituent colleges) students 7,448, professors and lecturers 499.

Agriculture and Fisheries. Main crops ('000 metric tons, 1949; 1950 in brackets): wheat 367 (333); oats 568 (537); barley 162 (121); rye 4 (3); potatoes 2,735 (2,920); sugar, raw value 100 (100); flax fibre 2·1 (1·4). Livestock ('000 head, June 1951) cattle 4,381; sheep 2,702; pigs 548; goats 50; horses (1949) 402; mules (1949) 5; poultry 18,570. Wool production ('000 metric tons, greasy basis, 1949; 1950 in brackets): 6 (6). Food production ('000 metric tons, 1949; 1950 in brackets): meat 141 (148), of which beef and veal 58 (62), pork 68 (71), mutton and lamb 15 (15); butter from co-operative creameries 34·9 (37·4); cheese 3·1 (3·2). Fisheries (wet fish, 1950; 1951, six months, in brackets): weight (metric tons) 9,415 (2,963); value, including shell fish £436,901 (£187,753).

Industry. Persons employed in industrial establishments (1948) 197,550. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 169·2 (90·5); manufactured gas (million cu.m.) 153·6 (85·8); electricity (million kwh.) 903·6 (528·7). New houses constructed under state aid (1950; 1951, six months, in brackets) 12,048 (6,003). Index of industrial production (1937=100, 1950; 1951, three months, in brackets): 162 (167).

Foreign Trade. (£ million, 1950; 1951, six months, in brackets): imports 159·6 (106·4); exports 72·4 (32·7). Main sources of imports (1950): Great Britain 51·3%; U.S. 13·2%; Canada 3·7%; India 3·0%. Main destinations of exports: Great Britain 74·0%; Northern Ireland 11·5%; Netherlands 2·5%; Germany 2·0%. Main imports (1950): food, drink and tobacco 24·2%; textiles, excluding apparel 13·7%; machinery and vehicles 15·6%; non-metalliferous mine and quarry goods 8·2%. Main exports: live animals 40·4%; food, drink and tobacco 40·6%. Index of volume of trade (on basis of 1937=100, 1950): imports 134; exports 94.

Transport and Communications. Roads (1950): 49,170 mi. Licensed motor vehicles (Dec. 1950): cars 85,140, commercial 40,748. Railways, two principal railways including cross-border operations (1950): 2,460 mi.; passengers carried 21 million; goods carried ('000 metric tons) 4,476; goods, ton-mi. 327 million. Air transport (1950): passenger-mi. 50 million; cargo, ton-mi. 495,000. Inland waterways: 566 mi. Telephones (1950): subscribers 49,429. Wireless receiving sets (1950): 296,388.

Finance and Banking. Budget (£ million): (1950-51 est.) revenue 77·4, expenditure 85·4; (1951-52 est.) revenue 80·5, expenditure 81·6. National debt (March 1949; March 1950 in brackets) 113·0 (130·6). Currency circulation (Sept. 1950; Sept. 1951 in brackets): 54·5 (57·4). Bank deposits (quarterly average, July-Sept. 1950; July-Sept. 1951 in brackets): 249·7 (252·7). Gold and foreign exchange (million U.S. dollars, Sept. 1950; Sept. 1951 in brackets): 213 (204). Monetary unit: Irish *pound* at par with the pound sterling.

IRON AND STEEL. For western Europe, 1951 opened with a note of military alarm which the course of the year accentuated. Huge defence programmes were launched in almost every country, though it was widely recognized that their completion would depend upon adequate supplies of materials, components and machine tools.

The turn of the year saw the British steel industry already decreasing its tempo for lack of scrap and pig iron; production in the first three months averaged 10,000 tons a week less than in 1950; a production of 15·64 million tons was finally achieved in 1951, as against 16·3 million tons in 1950.

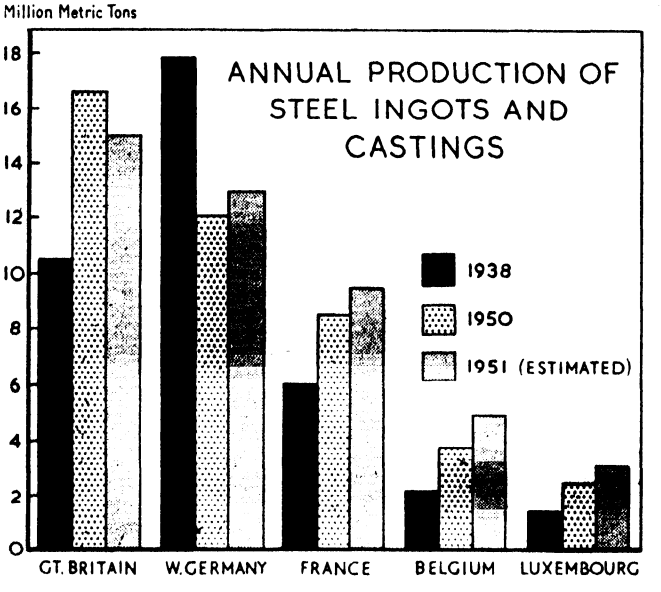
The Western German iron and steel industry, although not directly concerned with rearmament at home, was directly interested in western defence as a whole, since only for this purpose might production of 11·1 million tons a year be exceeded. This relaxation in the original ruling by the occupying powers had only officially been made in Nov. 1950, but in fact German steel production had been steadily above the permitted rate since early in 1950, and at the beginning of 1951 was at the rate of 12·5 million tons a year.

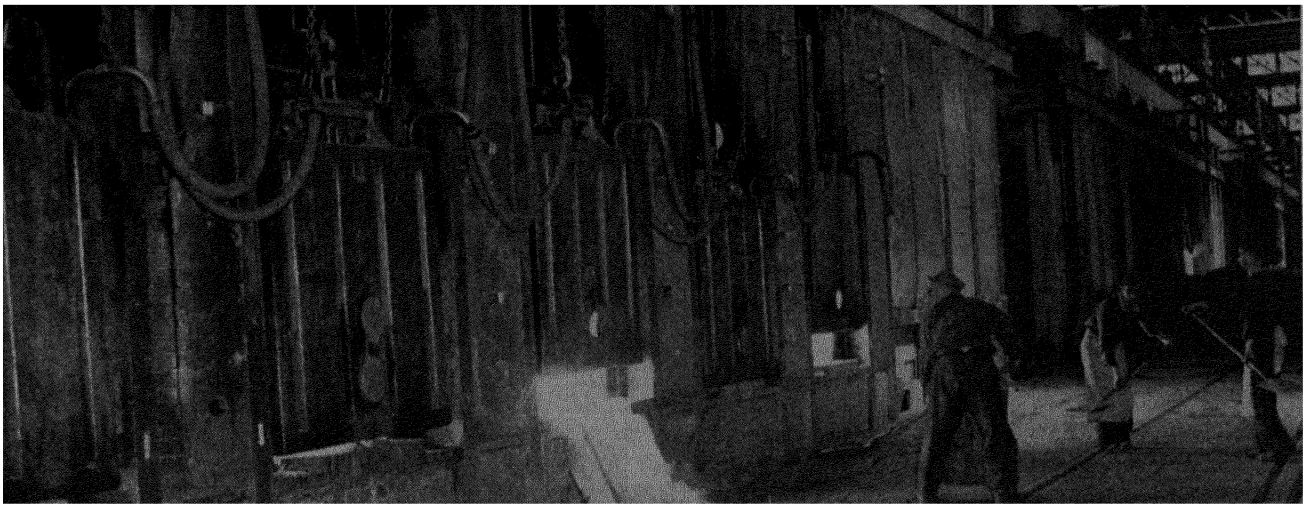
French steel production at this time was at almost as high a rate, 10 million tons, and this, the French government stated, was sufficient for defence needs. It was doubtful, however, if this rate could be maintained in face of the always threatening shortage of coking coal.

Belgian and Swedish producers likewise worked at a high level and likewise felt themselves to be precarious in the matter of material supplies, the Belgians needing to import more rich ore and the Swedes more coal and coke.

It was generally felt, in fact, that the U.S. Marshall plan organization (Economic Co-operation administration) no less than European countries had placed too much emphasis on investment in industries with a high value production, neglecting the longer-term possibilities of investment in raw material sources. Pending correction of this tendency by, among other things, development of ore fields in Africa, Labrador and South America, United States pressure on European ore sources, especially Swedish, had an appreciable effect on European blast furnaces, which were in many places thrown back to a greater extent on leaner domestic ores, with a resulting increase in coke consumption per ton of iron made. The first shipments of ore from Liberia and Venezuela to the U.S., however, were made during the year, and good progress was made towards opening up the huge field in Labrador, so that there was good prospect of U.S. pressure on European sources slackening during the following few years.

The chief shortages to threaten or affect European iron





The open hearth furnaces at the Abbey steelworks at Margam, near Port Talbot, South Wales. The steelworks, the largest in Great Britain, was opened by Hugh Gaitskell, chancellor of the exchequer, on July 17, 1951.

and steel production in 1951 were those of sulphur, scrap and coking coal. Interruption owing to sulphur shortage was temporary, as increased U.S. supplies became available during the year, but scrap and coke shortages were graver and remained unresolved at the year's end. Imports of scrap into the United Kingdom during the first nine months of the year, for example, totalled less than 500,000 tons, against nearly 1·75 million, mostly from Western Germany, during the same period in 1950. In October an agreement was reached between the German Federal republic, Great Britain and the United States, whereby Western Germany was to export the first 50,000 tons of scrap in excess of 325,000 tons collected monthly, the U.S. and U.K. between them taking 60% of the exports. But, although the U.S. quickly waived its rights under this agreement in favour of Great Britain, collection difficulties in Germany continued to make its value doubtful. With a smaller proportion of scrap used in steelmaking, a larger proportion of pig iron was called for (in Great Britain the proportion of scrap fell from 63% in 1950 to about 50% in 1951), and this in turn increased the blast furnaces' requirements of coke.

In Great Britain, supplies of metallurgical coke were maintained, though with some difficulty and in face of complaints of high ash and sulphur content in many cases. But in France and Western Germany coke shortage was the most significant limiting factor in production. The coke deficiency in the French iron industry during the last three months of the year was 400,000 tons out of a requirement of 2 million tons. This was despite increased coke production both in France (12·3 million tons against 10·5 million in 1950) and Western Germany (32·2 million against 27·3 million) and despite imports into France of coking coal from the U.S. amounting to 250,000 tons a month by the end of the year. The limiting factor of coke production in Germany was the low productivity of German miners; in France it was rather shortage of equipment suitable for coking the low-grade Lorraine coal available, but there was a prospect of this deficiency being made good during the next two or three years, and, in the event, French steel production in 1951 exceeded that of 1950 by ¾ million tons.

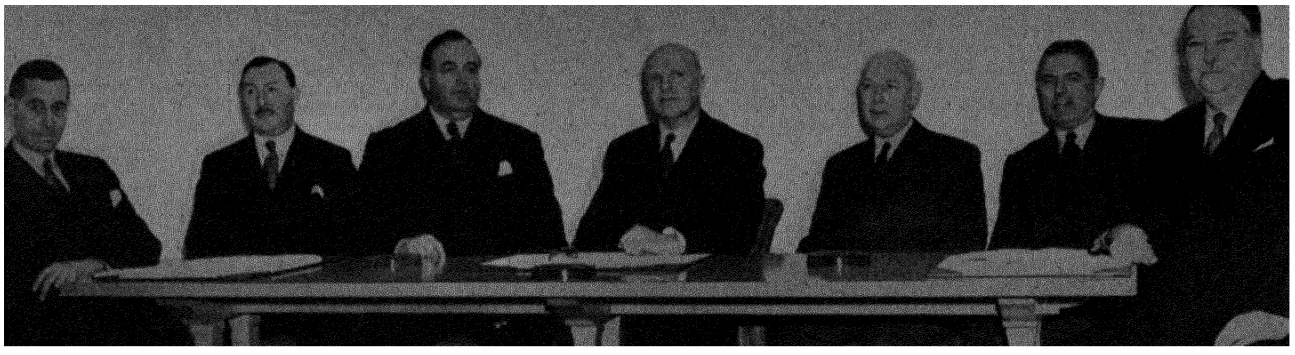
The year's end brought little immediate prospect of reduced stress either by smaller defence demands or easier raw material supplies. Promising trials were in progress, with the help of the Organization for European Economic Co-operation, at Liège and Oberhausen of low-shaft blast furnaces which might point a way towards iron-making techniques demanding less high grade fuel, but any such development would necessarily take several years to have an appreciable effect. The pressure on available steel supplies was shown by the steady rise in Belgian export prices, always a barometer. Merchant bars in free markets reached Fr. 7,000 a ton (about £50) at the year's end, as compared with Fr. 5,625 (£40) in January. Prices of iron and steel had in fact been raised during the year in every country in Europe. In Great Britain it was announced on Nov. 12 that steel allocation would be reimposed from Feb. 4, 1952, under a similar scheme to that which had been discontinued from May 1950. In these conditions of stringency it was fortunate that U.S. demand for European steel had diminished from April onwards, after having risen during the whole of 1950.

The most notable new plant to come into operation during the year was the superb Abbey works in south Wales, with a capacity of 20,000 tons of continuous rolled wide strip a week. This works was officially opened by the chancellor of the exchequer in July. The complementary tinplate mill, to take about one-third of the Abbey works' output of strip, at Trostre, south Wales, was also coming into production as the year drew to a close. In France, new capacity included slabbing and continuous hot strip mills at Denain (Union

TABLE I. WORLD PRODUCTION OF IRON ORE
(in thousands of short tons)

	1945	1946	1947	1948	1949	1950
Algeria	1,326	1,842	1,715	2,065	2,798	2,836
Australia	1,750	2,046	2,414	2,290	1,636	2,649
Austria	357	520	976	1,320	1,640	2,049
Brazil	789	1,102	1,022	1,589	1,641	2,094
Canada	1,135	1,581	1,919	1,337	3,675*	3,648*
Chile	1,042	1,491	1,772	2,806	2,863	3,280
Czechoslovakia	304	1,230	1,502	1,575	1,550?	1,765?
France	8,502	17,893	20,634	25,363	34,639	33,293
Germany	?	4,674	5,232	8,296	10,320	12,356
Great Britain	15,902	13,634	12,422	14,660	15,005	14,490
India	2,536	2,697	2,798	2,559	3,146	3,300?
Japan	1,495	624	550	618	859	1,003
Luxembourg	1,550	2,477	2,196	3,749	4,560	4,238
Morocco, French	—	138	172	335	393	350
Morocco, Spanish	843	868	958	997	1,040	948
Newfoundland	1,103	1,393	1,617	1,644	3,675†	3,648†
Philippines	—	—	—	18	408	660
Sierra Leone	926	817	941	1,067	1,075	1,306
South Africa	885	1,044	1,281	1,283	1,369	1,311
Spain	1,291	1,760	1,669	1,798	2,068	2,292
Sweden	4,332	7,570	9,805	14,647	15,155	15,352
United States	98,982	79,344	104,263	113,124	95,130	109,945
U.S.S.R.	20,000?	23,000?	26,000?	?	?	?
Yugoslavia	—	439	814	969	921	880?
Total	179,000	170,000	206,000	239,000	242,000	270,000

* Including Newfoundland. † Included in Canada above.
Incomplete data; figure shows annual rate maintained during the months for which data were available.



The board of the Iron and Steel corporation at its first meeting, Feb. 1951. Left to right: S. S. Wilson (secretary), J. W. Garton, Sir John Green, S. J. L. Hardie (chairman), Sir James Steele, Sir Henry Vaughan Berry and A. R. McBain.

Sidérurgique du Nord de la France) and a continuous cold reduction mill at Montataire. Significantly, demands were heard from Western German industrialists for more investment in the German iron and steel industry, where previously the emphasis had been on dismantling. It was expected that the termination of the occupation of Western Germany would not be long delayed after the end of the year and that some of the plans suggested would then be put into effect. A future capacity of 19 million tons was mentioned as a possibility. The change in the German Federal republic's status, however, was not expected to make any difference to de-cartellization. Nineteen of the successor companies had been nominated by the end of the year, but their responsibility for their predecessors' liabilities was still not determined. The total number of successor companies had also not been finally decided but was likely to be either 24 or 26.

Great Britain's iron and steel industry was subjected to changes in structure against the sombre background of international rearmament and dispute. In the upshot, the industry was as uncertain of its future at the end of the year as it had been at the beginning. On Feb. 15, the Iron and Steel corporation of Great Britain, whose composition had been announced in the previous September, began to function. A total compensation of £213 million in guaranteed Treasury 3½% stock compensated previous shareholders of 92 scheduled companies, comprising the great majority of the British steel industry. The corporation became the sole shareholder in these firms, but, in view of the precarious tenure of the Labour government, was not expected to attempt any immediate reorganization. This proved to be the case, except for some changes in company boards and accounting procedures. The corporation's relations with the Iron and Steel federation could be described as an armed neutrality.

The Conservative government, elected in October, immediately reiterated its pledge to restore the industry to " free enterprise, but with an adequate measure of public supervision." To this, the opposition responded with a statement that it would " restore it at the first opportunity." As no legislation was possible before the new sitting, which was not to begin until Feb. 1952, the industry ended the year under the threat of becoming a shuttlecock of debate for an indefinite period. It was generally felt, however, that the traditional good sense of British politics would find a way of reconciling the two viewpoints sufficiently to avoid this deplorable eventuality.

TABLE II. WORLD PRODUCTION OF PIG IRON
(in thousands of short tons)

	1945	1946	1947	1948	1949	1950
Australia	1,257	979	1,268	1,384	1,170	1,214
Austria	107	64	307	676	924	973
Belgium	810	2,382	3,105	4,331	4,133	4,071
Canada	1.956	1,521	2,120	2,372	2,366	2,491
Czechoslovakia	635	1,058	1,569	1,822	2,067	2,076
France	1,320	3,852	5,393	7,230	9,210	8,647
Saar	?	272	720	1,250	1,744	1,854
Germany	1,238	2,711	2,922	5,340	8,146	10,767
Great Britain	7,960	8,692	8,457	10,389	10,641	10,786
India	1,570	1,632	1,728	1,647	1,842	1,862
Japan	1,085	233	405	922	1,791	2,520
Luxembourg	349	1,504	2,004	2,896	2,615	2,755
Poland	252	800	956	1,249	1,370?	1,378
U.S.S.R.	9,600	11,000?	12,500?	15,500?	18,400?	21,500?
United States	54,956	46,323	60,141	61,966	54,868	66,378
Total	87,000	87,000	111,000	124,300	128,000	147,000

Incomplete data; figure shows annual average maintained during the months for which data were available.

TABLE III. WORLD PRODUCTION OF STEEL
(in thousands of short tons)

	1945	1946	1947	1948	1949	1950
Australia	1,565	1,220	1,502	1,545	1,304	1,543
Austria	189	206	394	714	921	1,044
Belgium	826	2,532	3,177	4,321	4,243	4,176
Canada	2,878	2,327	2,946	3,200	3,190	3,384
Czechoslovakia	1,045	1,839	2,520	2,921	2,767	3,016
France	1,831	4,859	6,319	8,009	10,040	9,537
Saar	?	321	780	1,354	1,937	2,090
Germany	322	3,351	4,428	7,844	10,864	14,634
Hungary	142	389	658	818	936	1,127
India	1,515	1,448	1,407	1,407	1,515	1,584
Italy	435	1,271	1,864	2,342	2,265	2,604
Japan	2,295	621	1,037	1,889	3,429	5,344
Luxembourg	285	1,428	1,890	2,704	2,504	2,700
Poland	546	1,344	1,741	2,154	2,541	2,700?
Sweden	1,326	1,325	1,313	1,386	1,510	1,585
U.S.S.R.	13,200?	14,500?	15,400?	20,300?	25,400?	29,800?
United Kingdom	13,243	14,218	14,251	16,662	17,420	18,249
United States	79,702	66,603	84,894	88,640	77,978	96,836
Total	124,000	122,300	149,900	172,000	175,300	205,000

Incomplete data; figure shows annual rate maintained during the months for which data were available.

Commonwealth. *South Africa.* Perhaps the most important development in the Commonwealth (outside south Wales in Great Britain) was the bringing into operation of Iscor's new works at Vanderbijl park. Only ten tons of steel from this plant reached industry in 1950, but by the end of 1951 it was operating at the rate of 350,000 ingot tons a year. This, added to Iscor's Pretoria works, brought South Africa's output of finished steel up to 1,050,000 tons a year, making it almost independent of imported supplies as home supplies plus imports in 1950 amounted to 1,086,696 tons.

Australia. Although production of the iron and steel industry had increased by 32% since World War II, reaching 1·45 million tons in the year ending June 30, 1951, coal shortage continued to restrict production in 1951 to an average rate of about 114,000 tons a month, as compared with nearly 120,000 tons in 1950. Good progress was made with development at Port Kembla, but Newcastle, it appeared during the year, was not going to relinquish supremacy without a struggle, and a big new expansion programme including new coke ovens, a blast furnace and rolling mills was announced in October.

Canada. A record steel production level was maintained,

and development plans in hand were expected to overcome the dominion's steel shortage by 1953. Meanwhile, iron and steel imports (including machine tools) from the U.S. continued to increase, reaching a value of $595 million in the first half of 1951, as compared with $402 million in the same period of 1950. A significant development was the bringing into action of one furnace for titanium production from the ilmenite ores of Quebec. This was a step towards the commercial exploitation of this metal, hitherto only a valuable alloying element. Pig iron was a by-product of the process, the ores containing some 40% iron. By the end of 1952 five furnaces were expected to be in operation. (M. Ds.)

United States. Production of iron ore in the U.S. in the first ten months of 1951 totalled 121,227,000 short tons, as compared with 109,810,000 tons in the full year 1950. Blast-furnace production in 1951 was 71,232,761 tons, of which 70,487,380 tons was pig iron and 745,381 was ferro-alloys. With a steel output of 96,240,773 tons up to the end of Nov., 1951 was the first calendar year in which output exceeded 100 million tons. (*See* also EUROPEAN COAL AND STEEL POOL; METALLURGY.) (G. A. Ro.)

ISLAM. The drive for literacy made considerable progress in most Islamic countries in 1951. The two most important cultural events were the World Moslem conference at Karachi in February and the 21st Congress of Orientalists at Istanbul, during September. For the first time in the long history of the congress the eastern Moslem orientalists banded themselves together into an independent congress of their own. Everywhere in the Islamic sphere of influence there was a craving for knowledge and an immense amount of journalistic activity often combined with a striving towards political unity and social equality. Religious revival in Turkey attracted the attention of the world of Islam, several new Islamic periodicals making their appearance.

In all Moslem countries there was to be discerned on the platform, in the pulpit and in the press a tendency towards a closer understanding of the problems of the component parts of the Islamic world. A reaction against what was described as occidental materialism was noticeable. There were also signs to be observed among the intelligentsia, that they realized that extreme poverty was a breeding ground for Marxist materialism. Many books dealt with this matter, the most notable being *Ma'rakat al-Islam wa al-Raasmaliyyah* (The Struggle of Islam and Capitalism) by Sayyid Qutb, a young Egyptian.

In Egypt steps were taken towards implementing the Ministry of Education promise of free education for all. Thus, the budget for education was raised from £E 23 million in 1950 to £E 30 million in 1951. Of this £E 3,457,205 was spent on school meals. Apart from education of the young, a literacy campaign catered for over 400,000 students. The Egyptian government opened an institute of Islamic studies in Madrid and aimed at opening another at Tangier. Syria devoted £S 30 million, 20% of its budget, to education; the number of elementary schools had risen from 658 in 1946 to 1,576 in 1951. In Iraq part of 12,618,000 dinars allocated for the school building programme was expended, and it was hoped that the University of Baghdad would at last become a reality. In Kuwait and Saudi Arabia, education received a great stimulus as a result of increased oil revenues. The Palestine Arabs with their high standard of education played a large part in helping Jordan to evolve towards a constitutional monarchy: King Talal (*q.v.*) made a promising start to his reign and his friendly attitude towards Egypt gave a tremendous stimulus to the Arab cultural ties. Lack of revenue, due to the oil crisis, prevented expansion of education in Iran where there was a great desire for modern technical instruction.

In the French-administered north African states, there was great enthusiasm for publications in Arabic and for information about the Islamic world, particularly about the new independent Islamic countries. North African Arabs under French rule continued their struggle to get recognition of their right to education in their native tongue. In Algeria, the 'Ulamas, continuing the work of the great Sheikh 'Abd al-Hamid bin Badis, played an important part in keeping education in Arabic alive. In Nigeria, where the bulk of the 11 million population in the northern provinces are Moslem, and in Senegal, Mauritania, Zanzibar, Oman and Aden there was increasing demand for Arabic literature. The 60,000 Moslem community in Mauritius talked of setting up an Islamic cultural centre.

Pakistan added a university to its already existing four when parliament passed an act to establish a federal university at Karachi. A tremendous stimulus was also given to education in East Pakistan whose government set up a committee to advise on reorganization of the educational system. Another committee, the East Bengal Language committee, was charged with standardizing the Bengali language. Free primary education, formerly provided in over 14 districts, was extended to the whole of East Pakistan. U.N.E.S.C.O. officials carried out a 3-yr. survey of education in Afghanistan, and published the first detailed account of education in that country. An intensive campaign was carried out to educate the nomadic Afghan tribes. There were 400 students in the University of Kabul, while increasing numbers of students went to America for specialized education.

In Indonesia, where six years previously 93% of the population were illiterate, an active campaign was pursued to wipe out illiteracy. In 1949, 513,626 people had been taught to read and write. The problem of finding the necessary number of teachers was vigorously tackled. The universities of Jakarta and Jokjakarta were enlarged to 14 faculties and English was substituted for Dutch as the compulsory second language. (A. MJD.)

See Roger Le Tourneau, *L'Islam contemporain* (Paris, 1950).

ISLE OF MAN: *see* MAN, ISLE OF.

ISRAEL. A republic, proclaimed on May 14, 1948, at Tel Aviv, bounded N. by Lebanon, E. by Syria and Jordan, S. by Egypt and W. by the Mediterranean. According to a partition plan adopted on Nov. 29, 1947, by the general assembly of the United Nations, the state of Israel was to cover 5,579 sq.mi. (with Negev); after armistices concluded with all the neighbours during 1949 the *de facto* area of Israel was estimated at about 8,084 sq.mi. Pop.: (Nov. 1948 census) 782,000, incl. 713,000 Jews; (Sept. 1951 est.) 1,555,000, incl. 1,383,000 Jews. Religion: mainly Jewish but by 1951 there were 125,000 Moslems and 46,300 Christians, mainly Arabs (Roman Catholic rites: Greco-Melchite 20,000, Latin 5,100, Maronite 1,200, Armenian 1,200; Greek Orthodox 17,000; Protestant 1,500). Chief towns (pop., 1950 est.): Jerusalem (Israel-held new city, cap., 130,000; *q.v.*); Jaffa-Tel Aviv (over 300,000); Haifa (over 150,000). President, Chaim Weizmann; prime minister, David Ben-Gurion.

History. Set in the middle east, which during 1951 showed increasing signs of instability, the young state of Israel pursued its course determined to surmount whatever obstacles it might encounter, and its highly diversified population displayed courage and resoucefulness. Although immigration and development projects continued to make progress the enormous disparity in the balance of trade brought increasing hardship on the population. In the field of foreign relations, while Israel was able to improve its friendly relations with the western powers, the " cold war " with the surrounding Arab states grew more bitter.

The number of immigrants during the year totalled 174,000 of whom the greatest number (87,916) came from Iraq; Rumania provided over 37,000, Persia 9,000 and the Moslem countries of Africa 13,000. The influx of this large number of new arrivals increased the strain on the country's economy. The weakness of the Israeli currency, principally due to the disequilibrium of the country's economy, was illustrated by the fact that the Israeli £, nominally equivalent to the £ sterling, was quoted in Dec. 1951 on the free market in Tel Aviv at one-fifth its official value. The cost of living index (100 in 1939), which was 319 in May 1950, stood at 388 in Oct. 1951. The problem of maintaining an adequate food ration, in view of the fact that the bulk of supplies had to be imported, caused grave concern, and the shortage of consumer goods placed an increasing strain on the population.

Dissatisfaction with Ben-Gurion's government's handling of the economic problems was again, as on Oct. 18, 1950, the underlying cause of his second resignation when, on Feb. 14, he was defeated in the Knesset on a motion dealing with religious education in immigrant camps. As no alternative government could be found after a fortnight of strenuous negotiations between the parties, Ben-Gurion announced that his government would remain in office until fresh elections could be held. These took place on July 30 and resulted in a loss of one seat by the prime minister's Mapai (Labour) party and a gain of 13 seats by the General Zionists, a centre party, who thus became the second largest party in the Knesset. (*See* ELECTIONS.) The General Zionists offered to join Mapai in forming a coalition, but it was found impossible to achieve a common programme. Negotiations between the parties continued for many weeks, but it was not until Oct. 7 that Ben-Gurion, as leader of the largest party, was able to form his new coalition cabinet. For his third administration Ben-Gurion relied upon a combination of his own party with the Religious parties which had been immediately responsible for his two parliamentary defeats. His supporters in the Knesset numbered only 65 out of a total of 120 and included 5 representatives of Arab parties affiliated to Mapai.

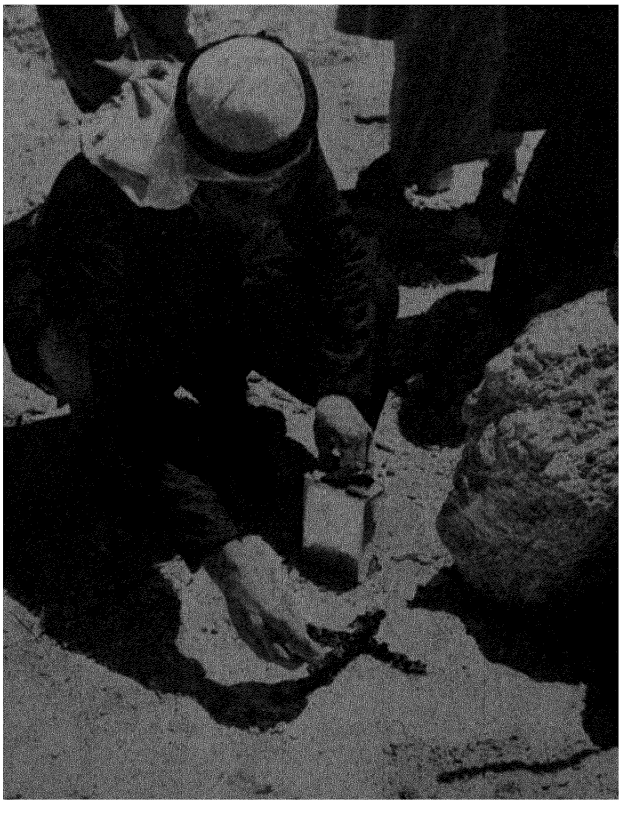
Chaim Weizmann, whose failing health gave cause for serious anxiety at the beginning of December, was re-elected president on Nov. 19 for a further period of five years by 85 votes to 11 in the Knesset.

The 23rd World Zionist congress met in Jerusalem from Aug. 14 to 30. The meeting was principally notable for the lively discussion on the position and functions of the Zionist organization in relation to the state of Israel, which was not in existence at the time of the previous congress. The attempt to enunciate a new programme, comparable to that laid down by the first congress in Basle in 1897, failed for lack of agreement among the 480 or so delegates, and a new formula was adopted which stated that the task of Zionism was to strengthen the state of Israel, to ingather the exiles in Israel and foster the unity of the Jewish people. Disagreement showed itself most strongly when the Israeli delegate tried to insist that it was the duty of all Jews to come to Israel, an exhortation which was strongly resented by the U.S. delegates in particular, who claimed that their obligations did not extend beyond assisting the state by all means in their power from the other side of the Atlantic.

In foreign affairs the outstanding feature was the continued tension between Israel and the Arab states. Minor border incidents between Israel and Jordan were frequent. Between Israel and Syria a serious situation arose towards the end of March as a result of the latter's objection to Israel's drainage works at Lake Hulah. In retaliation for the shooting of seven Israeli policemen in the area on April 4, the Israeli air force the following day bombed a Syrian position at El Hamma. The matter was referred to the U.N. Security council and on May 15 both parties agreed to accept the council's cease-fire resolution. Another dispute which came before the Security council concerned the Egyptian embargo on all shipping in the Suez canal which carried goods destined for Israel. This led to the adoption on Sept. 1 by the council of a resolution condemning Egypt's action, but the latter, supported by the states of the Arab league, declared its refusal to execute the decision. In a further endeavour to improve relations between Israel and the Arab states the U.N. Palestine Conciliation commission convened a conference in Paris, which opened on Sept. 10. These efforts proved abortive and the conference closed on Nov. 20 " since neither party had indicated a willingness substantially to recede from their rigid positions."

Israel's relations with the western powers continued to be friendly and a number of courtesy visits were exchanged with the United Kingdom. On Aug. 23 Israel signed a treaty of friendship with the United States, and trade agreements were concluded with a number of countries including Poland, Yugoslavia and Finland. On May 3 the prime minister paid a three weeks' visit to the United States to help the campaign for selling Israeli bonds and was accorded an enthusiastic welcome. Israel's position in relation to the U.S.S.R. remained delicate in view of the fact that Israel strove not to be implicated in the east-west diplomatic struggle and that it strongly desired to obtain facilities for Jewish immigration from the Soviet Union, a matter which was discussed by the foreign minister, Moshe Sharett, with Andrey Vyshinsky in Paris in December. (D. F. K.)

Education. (1950-51) Government schools: kindergartens 1,325, pupils 51,485, teachers 1,748; elementary 703, pupils 130,721, teachers 6,175; secondary 113, pupils 12,923, teachers 1,234; vocational schools 37, pupils 4,027, teachers 390; agricultural schools 31, pupils 4,425, teachers 344; teachers' training colleges 16; theological schools 135, pupils 7,337. Arab schools 97, pupils 24,240, teachers 536. Non-government schools: Jewish religious schools 37, pupils 4,300; secondary 2; teachers' training college 1; trade schools 8. Institutions of



A representative of Jordan marking the Israel-Jordan border in March 1951.

higher education 4; Hebrew university (Jerusalem), students 1,862, professors and lecturers 290.

Agriculture. Main crops ('000 metric tons, 1948; 1949 in brackets): wheat 16 (22); barley 9 (20); maize and durra 10 (10); oats 1 (1); potatoes (1949; 1950 in brackets) 26 (40); sesame (1949) 1·1; grapes (1948) 18; olives (1948) 11; olive oil (1949) 3; (1949; 1950 in brackets) oranges and tangerines 189 (173); grapefruit 38 (36); lemons 5 (4); plums and prunes 2·3; apricots 5·0; bananas (1948) 8. Wine production ('000 hl., 1948; 1949 in brackets) 50 (70). Livestock ('000 head, 1949): cattle 33; sheep and goats 70; horses and mules 8; asses 2; chickens (1950) 4,750. Fisheries, total catch (1948-49); weight 3,500 metric tons; value £I 1,583,900.

Industry. Electricity sales (million kwh., 1950; 1951, first four months, in brackets): 460·8 (168·4). Manufactured goods ('000 metric tons): cement (1950) 380·4; margarine (1949) 7·4; wheat flour (1949) 98·7; soap (1949) 5·4; beer ('000 litres, 1949) 8·936; cigarettes (millions, 1949) 1,031.

Foreign Trade. (Million £I, 1950; 1951, six months, in brackets); imports 102·6 (52·5); exports 13·2 (11·1). Main sources of imports (1951, six months): U.S. 34·5%; U.K. 9·3%; France 5·1%; South Africa 4·7%. Main destinations of exports: U.K. 39·8%; U.S. 17·8%; Denmark 6·7%; Holland 5·0%. Main imports: machinery, grain and flour, vehicles, iron and steel manufactures, fuel. Main exports: food, drink and tobacco (62% in first half 1951).

Transport and Communications. Roads (1951): 2,126 mi. Licensed motor vehicles (Dec. 1950): cars 9,300, commercial 15,200. Railways (1950): 260 mi.; goods, ton-mi. 43·9 million; goods carried 708,000 metric tons. Shipping (Dec. 1949): merchant vessels 27; total tonnage 78,649; passengers transported by merchant vessels (1950) 80,000; cargo carried (1950) *c.* 200,000 tons. Air transport (1950): passengers carried *c.* 100,000. Telephones (1950): 24,984. Wireless licences (1949): 143,907.

Finance and Banking. Budget (£I million): (April 1950-March 1951) balanced at 59·5; (1951-52) balanced at 198·5 including 85 for development and 38 for defence. Currency circulation (July 1950; July 1951 in brackets): 58·2 (87·5). Bank deposits (Nov. 1950): 133·8. Foreign exchange (million U.S. dollars, July 1950; July 1951 in brackets): 56·8 (7·7). Monetary unit: Israeli *pound* theoretically at par with the pound sterling.

ITALIAN LITERATURE. During 1951 Italian literature continued to find its best expression in the novel. Two of the most distinguished Italian novelists, Alberto Moravia and Riccardo Bacchelli, each published a new novel occupying a very important place in the year's literature. Moravia's *Il Conformista*, was, however, somewhat disappointing when compared with previous works and particularly with *La Romana*. On the other hand, Bacchelli's *La Cometa* was certainly not disappointing and displayed a lively sense of humour and a sensitive appreciation of the tragic element in life.

Although the above novels were by acknowledged masters of the craft, the greatest success of the year was achieved by Francesco Seratini with his *L'Osteria del gatto parlante*, in which a theme of passion was most successfully blended with some definitely picaresque motives. A most civilized and accomplished piece of writing inspired by a genuinely spontaneous morality was provided by Dino Buzzati's *Quel preciso momento*, which was awarded the Gargano prize for 1951. Other notable novels published during the year were the strange *70 volte 7* by Eugenio Vaquer, and R. M. de Angelis's *Panche gialle, sangue nero*. In the latter the obvious influence of D'Annunzio fortunately did not prevent the author from expressing admirably the sentiments of our age. Another novel of interest was *Il Brigante*, by Giuseppe Berto, the author of *Il Cielo è rosso*. Although Berto failed to recapture in *Il Brigante* the powers that made his former novel so outstanding, he succeeded in portraying the immediately postwar period in Italy well. *Amore e Morte* by Libero de Libero was another notable novel.

Gente in famiglia, by Bino Samminiatelli, the first book published since 1942 by this well-known writer, was a collection of short stories remarkable particularly for its powers of observation and its balanced treatment of human passions. In the field of autobiography, Corrado Alvaro's *Quasi una vita*, was reminiscent of André Gide's diaries. It was nevertheless a striking piece of work not without original observations and quite successful in its evocation of human experience. Another notable autobiographical work, *Le mie stagioni* by Giovanni Comisso, showed a definitely poetic approach. It was fortunate here that D'Annunzio's influence did not also extend to style.

An interesting and valuable collection of essays on Italian history and politics was provided by A. Jemolo's *Italia tormentata*. On the other hand, the love letters of Guido Gozzano to Amalia Guglielminetti were rather disappointing. Since Gozzano's death in 1916, no poet of his calibre had appeared in Italy up to 1951; nevertheless, Ugo Fasolo's *Accettazione della notte* was rich in spiritual emotion and the book of poems *Settentrione* by Raffaele Carrieri exhibited powers and values absent from his earlier verse.

The important " Premio letterario Viareggio " was awarded to Domenico Rea's *Gesù fate luce;* the " Premio letterario Versilia " for the best book of poems was given to *Capanna indiana*, by Achille Bartolucci; and the award of the Inez Fila prize for 1951 to Renato Simoni for his long and distinguished literary activity proved very popular.

Periodicals continued to play a prominent role in literary life. The *Quaderni della Critica* still occupied a unique place in criticism thanks to Benedetto Croce's contributions. Other periodicals, such as *Il Ponte*, *Belfagor*, *L'Italia che scrive* and *La Fiera letteraria*, continued to appear. On the other hand, *Il Mondo* seemed to have ceased publication.

(R. Ws.)

ITALIAN SOMALILAND. Italian trust territory (former colony) in east Africa, bounded S.E. by the Indian ocean, W. by Kenya and N.W. by British Somaliland and Ethiopia. Area: 216,310 sq.mi. Pop. (1951 est.): 1,100,000. Religion: Moslem. Capital, Mogadishu (pop. *c.* 74,000). Administrator, Giovanni Fornari.

History. The year 1951 was the first full year of trust administration designed to lead the territory to independent sovereign status within ten years. Italy, the administering authority, prepared machinery and plans to achieve this ideal. Activities were mainly concerned with picking up the threads of administration severed by a nine-year British interlude. By Somali standards the country was peaceful during the year.

Constitutional progress was initiated by the formation of a council, nominated by the administrator. It consisted of representatives of all the main interests and of provincial and municipal councils. These bodies had been given advisory powers only. An administrative school was opened in Mogadishu to train selected Somalis as future governing elements. The advisory council for the trusteeship administration of the United Nations consisting of representatives of three member states continued to function during the year. The Somali Youth league, which had strenuously opposed the re-entry of Italy to the colony, extended reluctant co-operation to the administration, but their spokesmen outside the territory continued to complain in petitions to the United Nations Trusteeship council of victimization.

The report by Italy was examined by the Trusteeship council in July, and received a favourable, although not uncritical, reception. It emphasized the country's economic instability, the need for capital investment to develop its scanty resources and the political immaturity of the people. (*See* also TRUST TERRITORIES.) (F. E. S.)

Education. Schools (1951): 68 elementary (6,892 pupils); 11 secondary (550 pupils). School of administration, 37 pupils.

Finance and Trade. Currency: *Somalo* (one Somalo = 1s.). Budget 1950-51 (in Somali): revenue 55,907,454, incl. grant-in-aid from Italy, 30,527,324; expenditure 55,907,454. Foreign trade (April 1-Dec. 31, 1950, in Somali): imports 43,632,289; exports 18,816,107. Principal exports (value in Somali, April 1-Dec. 31, 1950): bananas 5,504 447, cotton 2,139,351, hides 4,928,583.

ITALY. A republic of southern Europe, bounded on land N.W. by France, N. by Switzerland and Austria and N.E. by Yugoslavia. The country includes not only the whole of the Apennine peninsula, but also the large Mediterranean islands of Sicily and Sardinia and a number of smaller islands. Area: 116,226 sq.mi., excluding Venezia Giulia, Zara and the islands (2,843 sq.mi.) ceded to Yugoslavia, the five small areas in the Alps ceded to France (273 sq.mi.) and the Free Territory of Trieste (*q.v.*). Pop.: (1936 census) 42,444,588, in the territory of the date of census; (Nov. 4, 1951, census) 47,020,536. Language: mainly Italian, but in Venezia Tridentina there were *c.* 210,000 German-speaking Tyrolese, and *c.* 10,000 Romansch-speaking Ladins; in the area east of Udine there were *c.* 11,200 Slovenes and the population of Val d'Aosta (*c.* 6,600) was French-speaking. Religion: mainly Roman Catholic (99·6%). Chief towns (pop., first figure, 1936 census; second figure, 1951 census): Rome (cap., 1,562,580; 1,606,739); Milan (921,515; 1,264,402); Naples (739,349; 1,003,815); Turin (608,211; 711,492); Genoa (512,313; 678,200); Palermo (339,497; 482,594); Florence (271,975; 375,392); Bologna (232,980; 338,710); Venice (170,830; 315,291); Catania (241,462; 297,773); Bari (197,918; 267,726); Messina (192,051; 218,593). President, Luigi Einaudi; prime minister, Alcide De Gasperi.

History. *Political.* Italy was the scene of much political excitement during 1951. Late in January the still-powerful Italian Communist party witnessed the defection of two ex-partisan leaders, Valdo Magnani and Aldo Cucchi, active and respected members of the party in the "red" region of Emilia and both deputies. The ground for their action was provided by the dictation of Moscow against which they were determined to protest. Public opinion expected something like a landslide to follow, and many people hoped that the splintered anti-Communist Socialist party would reap the benefit. The permanent Socialist crisis in Italy became more than usually acute in the next few months, in the course of fresh efforts to reunite the party. The left-wing groups led by Ignazio Silone and Giuseppe Romita made it the condition of their co-operation with the right wing led by Giuseppe Saragat that the latter, together with his following, should resign from the government, which was, except for three "Republican" ministers, Christian Democratic and anti-Socialist; in return Silone and Romita were prepared to abandon their opposition to the North Atlantic treaty. On this basis the anti-Communist Socialist party theoretically re-united on May 1. This reunion was, however, obviously brittle as the local elections in May and June were to prove.

The last elections in the 8,000-odd communes of Italy had been held in 1946 and had placed local authority under Communist or pro-Communist control in many of Italy's most important cities. De Gasperi's government naturally wished to alter this situation. For this purpose a new electoral law was made according to which, in communes with more than 10,000 inhabitants, party lists could be linked; further, whichever group of lists gained the majority was to be awarded at least two-thirds of the seats on the communal *giunta* or council. These local or, as the Italians call them, administrative elections, which included the election of provincial authorities, were to be held in three rounds, the first taking place on May 27 and the second on June 10. On June 3 the autonomous region of Sicily elected its legislative assembly.

The results of the voting brought above all Christian Democratic losses, heavy by comparison with the general election of 1948. The old Liberal party made slight but noticeable gains in cities like Milan and Turin, but scored less than the neo-Fascists of the Movimento Sociale Italiano, which increased sharply, especially in the south and in Sicily where Communist and anti-Communist extremists polled equally well, leaving a centre composed of about one-third of the deputies. On the other side the Communists, to every one's surprise, stood firm, and the pro-Communist Socialists led by Pietro Nenni made gains while the anti-Communist Socialists made no headway in spite of "reunion." Thus, while the control of many big communes—thanks to the list-linking system—passed to the pro-government parties, the Communists and their allies held the chief Emilian cities and with a two-thirds majority on the town councils; the actual voting figures showed a swing-back towards those of 1946 as compared with 1948. The government decided to pospone the third round of local elections until the following year.

These elections had far more than merely local significance and they provoked a crisis in the government and the Christian Democratic party. Its so-called left wing, a small group led by Giuseppe Dossetti, who was authoritarian rather than democratic, complained that the government's economic policy was too cautious and conservative. On the extreme right of the party Catholic Action, led by Luigi Gedda, seemed almost to be looking towards the M.S.I. rather than to the leadership of De Gasperi. The sphinx-like attitude of the Vatican suggested a desire to be less definitely associated with the pro-Atlantic powers policy of De Gasperi. Both extreme right and extreme left were "anti-Atlantic"; indeed a streak of neutralism ran right across Italian public opinion.

On July 15 the minister of the Treasury, Giuseppe Pella, who had successfully steadied the lira but had long been criticized from all sides for his policy of restricting credit, resigned suddenly. This brought about the resignation of the cabinet. By July 26, however, De Gasperi had formed his eighth government which in fact differed singularly little from its predecessor, consisting again of a large majority of Christian Democrats with three Republicans, and with Pella as minister of the budget. The "Republicans" now carried even less weight than before for De Gasperi himself superseded Count Carlo Sforza (Republican) at the foreign office, with Paolo Emilio Taviani practically in charge. Though Sforza remained as a minister without portfolio it was felt by many that the rising nationalist outcry against him had succeeded and that De Gasperi would find it necessary to give more weight to nationalist demands. Amintore Fanfani (*q.v.*), who refused to join the seventh De Gasperi cabinet, returned to power as minister of agriculture.

Foreign Affairs. After De Gasperi's and Sforza's meeting with their French opposite numbers at Santa Margherita in February they both paid what was considered a successful visit to London from March 12 to 16. The Italian sense of grievance was, however, not relieved, the feeling of having no real voice in world affairs which took the form of an exaggerated indignation against the Italian peace treaty which Sforza found it necessary to declare "morally extinct" in a speech at Genoa on May 20. Italy's entry into the North Atlantic Treaty organization made the treaty, with its restrictions upon the armed forces and its encroachments upon Italian sovereignty, a complete anachronism. Further, the Soviet Union had consistently vetoed what was to have followed upon the treaty—Italian membership of the United Nations. Finally the peace treaty had outraged Italian sentiment by the creation of the Free Territory of Trieste which on March 20, 1948, the United States, Great Britain and France had suggested should be restored to Italy unconditionally. Since then, as the Italians saw it, Yugoslavia had become important to the three powers in their "cold war" with the U.S.S.R., and Italy's claims had been forgotten. Great Britain, it was difficult to know exactly why, was blamed most for this "perfidy." On July 18 the Italian



Alcide De Gasperi (left), prime minister of Italy, and Count Carlo Sforza, foreign minister, who in March 1951 visited London for discussion with Clement Attlee and Herbert Morrison.

ambassador in London handed to the British Foreign Office a memorandum which reverted to the revision of the Italian treaty. Towards the end of September De Gasperi was well received when he visited Washington.

On Sept. 26 indeed the three western powers again issued a statement condemning the Italian peace treaty and advocating Italian membership of the United Nations. To this the U.S.S.R. responded on Oct. 12 by saying that it was willing for the treaty to be revised provided that Italy left the North Atlantic treaty; if Italy were admitted to the U.N. then Bulgaria, Finland, Hungary and Rumania should receive the same treatment. On Dec. 7 the Italian government published its request to the 21 signatories of the peace treaty for its revision.

It was pointed out that the satisfaction of Italian claims for treaty revision and even of the more excessive demands to be heard from neo-Fascist quarters would in effect do nothing to resolve the real problems of Italian life. It was hoped at one stage that western rearmament might be utilized to provide employment in Italian factories but the latter proved on the whole to be inadequately equipped and Italy seemed more likely to have to import arms from overseas. When De Gasperi returned from the United States at the end of September he announced that the International Bank for Reconstruction and Development would be making a ten-year loan for the development of southern Italy and that it would also offer credits to small and medium-sized Italian industries.

Agrarian Reform. The problem of southern Italy overlapped very largely with the problem of agrarian reform which, however, in varying degrees affected the whole country. In spite of much grumbling and opposition real progress was made with the settling of landless peasants in southern Italy on land of their own with decent housing and access to implements and advice. The 30 families who were settled on the Sila plateau in Calabria in Sept. 1950 had increased to something like 8,500 by Oct. 1951, according to a speech made by the minister of agriculture in the Chamber on Oct. 26, and plans for the expropriation of about 800,000 ac. in the other backward areas were worked out during the year, nearly 1,500 ac. near Rome being distributed to 156 peasants on Dec. 2. At the same time a good deal of solid preparatory work on roads, drainage and the clearance of stony tracts was carried out and some tractor centres established (a great novelty in southern Italy), while in Lucania, the most derelict region of all, the foundations of three model villages were laid—the first at the beginning of September. On Oct. 11 the International bank, a fortnight after De Gasperi's visit to the United States, announced a loan of $10 million to promote the work of developing southern Italy. It should on the other hand be noted that the third and more ambitious of the agrarian reforms, which was to have affected the whole country and was expected to provide for the assignment to peasant proprietors of some 3·7 million expropriated ac., was by common consent considered to have been dropped, as was also the special programme for the Po delta. Near here, especially in the province of Rovigo, castastrophic floods towards the end of November ruined some 301,000 ac. of cultivable land apart from grave losses of life and house property; there was a generous response both at home and abroad to appeals for relief.

Economic Position. It cannot be said that the Italian industrial situation changed very much in 1951. Government boring for oil continued with reasonable success but without sensational results. The substitution of the use of natural gas for that of coal was extended to include Novara and Turin in Piedmont in the network centred on Milan and spread over Lombardy. But apart from this the difficulties of scarce raw materials and too many hands combined with bad management involving obsolete plant (for which industrialists were inclined to blame Pella's short credit policy) remained. They involved permanent tension between employers and employed, especially in the mechanical industries. The most conspicuous and characteristic struggle of the year was waged over the Reggiane railway rolling stock concern at Reggio Emilia. In spite of government subsidies the management tried to dismiss most of the 3,000 employees before the end of 1950 with the usual result that the employees —under Communist inspiration—occupied the factory. In May 1951, just before the local elections, the government declared that the Reggiane were to be finally closed down, but the local Communist-controlled chamber of labour successfully held out until October in order to get a special bonus from the government for the men. The final result was a great increase of unemployment in a town notorious for its Communist sympathies, though also the home of the rebel Magnani.

In the country as a whole the unemployment position remained fairly constant since the increase in population was approximately balanced by the effects of the authorities' efforts to create work; a noticeable quantity of the houses planned several years earlier began to take shape, for example, in a town such as Bari where housing conditions had been particularly bad.

The curse of over-population leading to unemployment and above all to under-employment and inadequate pay was equally apparent among white-collar workers. Throughout the year the inflated and underpaid civil service, which

included many more categories of officials than in an English-speaking country, was extremely restive. On May 8 there was a one-day strike of civil servants throughout the country, a strike which was backed by all the trade unions—Communist, Catholic and Socialist alike—and which was observed by large numbers. Later in May and in June there were teachers' strikes, so that in May, for instance, many secondary schools were closed for half a week. (It should be emphasized that Italian teachers of all kinds were particularly badly paid.) On Sept. 19 there was another 24 hours' strike of the civil servants in which, this time, the railwaymen but not the teachers participated. Towards the end of the year the government completed the draft of a bill intended to restrict the right to strike very drastically.

Also concerning the country's teachers, Guido Gonella, Christian Democratic minister of public instruction, had since 1947 been carrying out an enquiry as to what educational legislation was needed. On July 13, two days before Pella's resignation induced the cabinet crisis, the ministers approved the project for educational reform finally drawn up under Gonella's direction. Some of the state teachers' discontent which contributed to strikes was due to the feeling that Gonella intended to favour the private or convent schools at the expense of the state schools. Thus when De Gasperi reshuffled his cabinet Gonella left office in order to concentrate his energies upon his duties as secretary general of the much disturbed Christian Democratic party.

Another much talked-of reform matured in October. Tax evasion, especially by large concerns, but also by individuals, had long been a crying abuse; moreover it resulted in exorbitant demands from the inevitably suspicious authorities. Ezio Vanoni, minister of finance (and Pella's successor at the Treasury in July), decided to try to create a hitherto unborn confidence between the government and the public by asking for honest individual declarations of income by Oct. 10 in return for which he undertook to overlook past evasion and to reduce the rate of taxation; dishonest statements were to lead to great severity. It was too early by the end of 1951 to judge the success of this—for Italy—revolutionary measure.

(E. Wi.)

Education. Schools (1948-49): elementary 38,766, pupils 4,878,149, teachers 165,399; secondary 1,192, pupils 374,616 (boys 207,302, girls 167,314), teachers 31,668; technical secondary 2,161, pupils 342,706 (boys 242,103, girls 100,603), teachers 30,312; schools of art and academies of music 93, pupils 11,562 (boys 8,205, girls 3,357), teachers 1,734; universities and institutions of higher education 27, students 167,978, lecturers 3,890.

Agriculture. Main crops ('000 metric tons, 1950; 1951 in brackets): wheat 7,614 (6,736); maize 1,918 (2,583); barley 291 (268); oats 553 (526); rye 130 (123); potatoes 2,380 (3,342); (1949; 1950 in brackets): rice 610 (690); sugar, raw value, 475 (610); dry beans 126 (118); cotton, ginned 2 (3), cottonseed 3 (7); flax fibre 5·6 (4·8); linseed 11 (12); hemp fibre 72·2 (63·5); rapeseed 11 (6); groundnuts 6 (7); tobacco 65 (67); olives 1,090 (898); olive oil 179 (150); oranges and tangerines 342 (578); lemons, limes and other citrus fruits 256 (332); grapes 5,981 (5,990). Wine production ('000 hectolitres, 1949; 1950 in brackets): 35,776 (35,790). Livestock ('000 head, 1949-50): cattle 8,331; sheep 10,376; pigs 4,375; horses 791; mules 391; goats 2,592; buffaloes 12. Livestock products ('000 metric tons, 1949; 1950 in brackets): wool, greasy basis 16 (16); meat 511, including beef and veal 266, pork 197, mutton and lamb 48; eggs (million) 4,550 (5,000); butter 55 (54); cheese 237 (261). Fisheries, total catch (1949): 152,000 metric tons.

Industry. Index numbers of employment in manufacturing, 1947 = 100 (1949; 1950 in brackets): 97 (97). Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 1,031 (587); lignite 780 (404); gas (million cu. m.): natural 504 (441), manufactured 1,584 (898); electricity (million kwh.) 24,684 (14,180); crude oil ('000 metric tons) 8·2 (6·3). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets); iron ore 442 (223); pig iron 572 (476); steel ingots and castings 2,364 (1,450); lead ore 63 (33); lead, smelter production 37·4 (19·5); zinc ore 180 (98); zinc, smelter production 38·2 (22·9); bauxite 153 (72); aluminium 37 (21); manganese ore 16 (11); raw marble 247 (125). Manufactured goods ('000 metric tons, 1950; 1951, six months, in brackets): cement 5,504 (2,801); cotton yarn 180 (99); cotton piece-goods 118·1 (65·4); rayon filament yarn 50·3 (34·7); rayon stable fibre 52·9 (34·1); paper 538, including newsprint 92; motor cars ('000) 115·0 (72·3) and commercial vehicles 13·4 (8·3). Index numbers of industrial production (1938 = 100, 1950): general index 120; mining 101, of which solid fuels 199; manufacturing 115, of which food 134; textiles 103; timber 58; paper 106; rubber 132; chemicals 121; oil and coal by-products 208; metallurgical 104; electricity and gas 159.

Foreign Trade. (Million lire, 1950; 1951, six months, in brackets): imports 897,648 (665,060); exports 746,328 (477,526). Main sources of imports (1950): U.S. 13·4%; Germany 8·3%; U.K. 5·6%; Argentina 5·4%; France 4·6%. Main destinations of exports: U.K. 11·5%; Germany 9·8%; France 8·7%; Switzerland 6·4%; U.S. 6·4%. Main imports (July-Dec. 1950): raw cotton and waste 10·1%; petroleum and products 6·9%; coal 6·8%; raw wool and waste 6·0%; wheat and flour 5·5%. Main exports: fresh and dried fruit 11·0%; artificial fibres and fabrics 10·2%; cotton yarn and fabrics 9·7%; machinery 7·5%; wool yarn and fabrics 5·3%.

Transport and Communications. Roads (June 1950): 108,237 mi. Licensed motor vehicles (Dec. 1950): cars 342,021, commercial 229,277. Railways (1950): 13·449 mi., of which state railways 10,137 mi. Traffic on state railways (1950): passenger-mi. 12,643 million; goods, ton-mi. 24,314 million. Shipping (merchant vessels of 100 gross tons and over, July 1950): 1,070; total tonnage 2,582,547. Air transport (1950): passenger-mi. 94·3 million; cargo, ton-mi. 1·9 million; mail, ton-mi. 0·6 million. Telephones (1949): 831,434 subscribers. Wireless licences (1949): 2,543,000.

Finance and Banking. Budget (million lire): (1950-51 est.) revenue 1,227,000, expenditure 1,397,000; (1951-52 est.) revenue 1,455,000, expenditure 1,824,000. Internal national debt (Aug. 1950; Aug. 1951 in brackets): 2,491,000 (2,820,000). Currency circulation (Aug. 1950; Aug. 1951 in brackets): 996,000 (1,090,000). Bank deposits (Aug. 1950; Aug. 1951 in brackets): 1,244,000 (1,433,000). Gold and foreign exchange (million U.S. dollars, June 1950; June 1951 in brackets): 898 (765). Monetary unit: *lira* (pl. *lire*) with an exchange rate of 1,750 lire to the pound and 625 lire to the U.S. dollar.

See E. R. Lingemann, *Italy: Economic and Commercial Conditions* (London, H.M.S.O., 1951); A. J. B. Whyte, *Evolution of Modern Italy* (Oxford, 1951).

IVORY COAST: *see* FRENCH WEST AFRICA.

JAMAICA. British colony and dependencies in the Caribbean sea. Dependencies: Cayman Islands (93 sq.mi.; pop. 6,670) and Turks and Caicos Islands (166 sq.mi.; pop. 6,138), with local legislatures and a large degree of internal autonomy. Area (colony): 4,411 sq.mi. Pop.: (1943 census) 1,237,063; (1949 est.) 1,388,900, mainly of African descent. Language: English. Religion: Christian, incl. (1943) Anglican 350,311, Presbyterian 92,975, Roman Catholic *c.* 70,000. Chief towns (pop. 1943 census): Kingston (cap. 201,911); Spanish Town (12,007), Montego Bay (11,547). Administration: governor, privy council, executive council, 3 *ex-officio*, 2 nominated and 5 elected members; legislative council, 3 *ex-officio*, not more than 2 official, not less than 10 nominated unofficial members; House of Representatives, 32 elected members. Governors (1951): Sir John Huggins and (from April) Sir Hugh Mackintosh Foot.

History. A severe hurricane struck the island on the night of Aug. 17, 1951, killing 168 persons and doing damage to property estimated conservatively at £15 million. Emergency relief measures were put in hand on the following day, and the Royal Welch Fusiliers gave invaluable assistance in feeding the destitute and opening communications to parts of the island which had become isolated. The British government gave £250,000 to the governor's relief fund which eventually exceeded £600,000 and included subscriptions from many colonial governments. Later, the British government gave £3,100,000 and a loan of £1,500,000 to assist in agricultural and housing reconstruction.

Sir Hugh Foot, the new governor, announced in opening the legislature in May that the government intended to establish agricultural and industrial development corporations. He emphasized that industrial harmony was required if the external capital that Jamaica needed for its development was to be attracted.

The Labour party, led by W. A. Bustamante, retained its working majority in the House of Representatives. The legislature affirmed its acceptance of the desirability of

federation of the British West Indies and recommend that a conference to be held early in 1952 in London to examine financial and other implications. It also appointed a joint committee of both chambers to advise on the extent to which the federal form of government recommended by the Standing Closer Association committee should be accepted. The governor held discussions with representatives of political interests on further constitutional changes in the colony.

Development of the bauxite industry proceeded. A third company, the Permanente Metals Incorporated, representing United States interests, made plans for extensive construction on the south coast. Textile mills began production after some stoppage of work caused by industrial disputes.

Education. *Colony:* schools in 1950, 425 denominational and 253 government primary (208,500 pupils); 25 secondary (5,800 pupils). *Cayman Islands:* 13 primary (952 pupils). *Turks and Caicos Islands:* 12 primary (964 pupils); 1 government senior school.

Finance and Trade. Currency: pound sterling with local notes. Budget (1951-52 est.): *Colony:* revenue £10,462,286; expenditure £10,049,129. *Dependencies:* revenue £85,000; expenditure £95,000. Foreign trade (colony 1950): imports £20,813,000; exports £16,424,000. Principal exports: sugar, bananas, rum, cigars, pimento, ginger, coffee, citrus and cocoa. Sugar crop (1951) 268,000 tons; bananas 5,773,000 stems for export; rum 2,219,000 gallons. Export from Turks and Caicos Islands, salt. (P. H.-M.)

JAPAN. Island nation in the western Pacific, under Allied military occupation following its defeat and surrender in 1945. In accordance with the Cairo and Potsdam declaration, Japan was stripped of its former overseas possessions and reduced to the following four main groups of islands:

Honshu (with 382 adjacent small islands)	88,919 sq.mi.
Shikoku (with 167 islands)	7,248 sq.mi.
Kyushu (with 373 small islands)	16,247 sq.mi.
Hokkaido (with 68 small islands)	34,276 sq.mi.
Total	146,690 sq. mi.

Population of Japan proper: (1940 census) 73,114,308; (Oct. 1, 1950, census) 83,199,637. Language: Japanese. Religion: Buddhist, Shintoist and Christian (in 1933 there were 191,000 Roman Catholics and 249,000 members of other denominations). Chief towns (first figure, 1940 census; second figure, 1950 est.): Tokyo (cap., 6,778,804; 5,385,071); Osaka (3,252,340; 1,956,136); Kyoto (1,089,726; 1,101,854); Nagoya (1,328,084; 1,030,635); Yokohama (968,091; 951,189); Kobe (967,234; 965,435). Supreme commander for the Allied Powers: Lieut. General Matthew B. Ridgway (*q.v.*). Allied council for Japan (an advisory body in Tokyo): William J. Sebald (U.S.), deputy for the supreme commander, chairman; Lieut. General Ho Shai-lai (Nationalist China); Lieut. General William R. Hodgson (representing jointly the U.K., Australia and New Zealand); Major General Aleksey P. Kislenko (U.S.S.R.). Emperor, Hirohito; prime minister, Shigeru Yoshida.

History. *Inter-Allied Policies.* During 1951 Japan continued under Allied military occupation. In April General Douglas MacArthur (*q.v.*), supreme commander for the Allied powers, was relieved by President Harry S. Truman and replaced by Lieut. General Matthew B. Ridgway. This step caused some initial uneasiness in Japan, which was later allayed by assurances that no changes in U.S. policies toward Japan were contemplated.

The signature of a Japanese peace treaty on Sept. 8 at San Francisco represented the climax of a year of diplomatic effort by the United States. The terms of the treaty had been worked out by consultation with the United States' allies and with the Japanese government, during which John Foster Dulles, ambassador at large, visited Japan, the Philippines, Australia, New Zealand, Great Britain and France. The United States sought a treaty of reconciliation, minimizing punitive and restrictive features, which would encourage Japan to make a positive and voluntary contribution to the strength of the non-Communist world. Many of Japan's neighbours were, however, concerned over the possible revival of Japanese militarism, aggression and economic competition. Agreement was eventually reached on a treaty which in general was considered satisfactory in Washington, Canberra, Wellington, Manilla, London and Paris. Although denounced by the Soviet delegate at San Francisco as a U.S. attempt to "enslave" Japan economically and to draw it into "aggressive military coalitions" directed against the U.S.S.R. and China, the treaty was signed by Japan and 48 other nations. (For an account of the conference *see* JAPANESE PEACE TREATY CONFERENCE.)

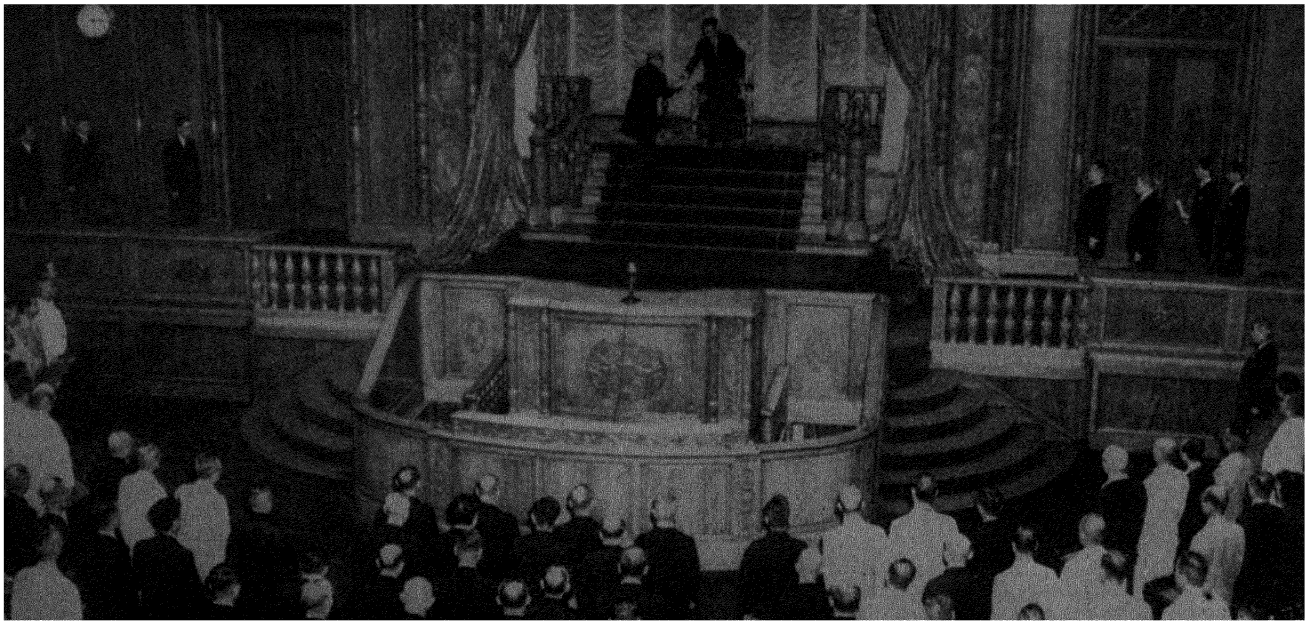
All occupation forces were to be withdrawn from Japan within 90 days after the treaty came into force. However, a supplementary treaty between Japan and the United States, also signed on Sept. 8, permitted U.S. forces to be stationed in Japan after this date, as a provisional measure for Japan's protection, with the expectation that Japan itself would increasingly assume responsibility for its own defence. The treaty contained no restrictions on Japan's domestic political institutions, economy or military establishment (though the maintenance of armed forces was still prohibited by the constitution of 1947). The treaty would come into force when ratified by Japan and by a majority, including the United States, of 11 principal Pacific countries.

On Aug. 30 the United States concluded a mutual defence treaty with the Philippines, and on Sept. 1 a similar treaty was signed with Australia and New Zealand. These served to allay apprehensions in these countries over a possible future threat by Japan to their security.

During 1951 the occupation continued its policy of gradually turning over more authority to the Japanese in preparation for the impending treaty, though it still kept close watch on Japanese government policies. This was especially true in the economic field, where the occupation urged the adoption of sound policies to curb inflation. During the year a number of Japanese trade and other missions visited various countries, and Japan became a member of the International Labour organization, the World Health organization and U.N.E.S.C.O. United States economic aid to Japan, which since 1945 had totalled about $1,800 million, was terminated on June 30. The resulting strain on Japan's balance of payments was largely offset by the United States' assumption of part of the occupation forces' expenses in Japan, previously borne by the Japanese government. However, the cessation of direct U.S. aid precluded further additions to the Japanese counterpart fund, which had been set up with the proceeds from sales of goods supplied by the United States and used to finance long-term industrial development. It also meant that Japan would have to purchase materials on its own behalf, possibly on less favourable terms.

Domestic Affairs. The Liberal party government headed by Shigeru Yoshida continued in office throughout the year, although the cabinet was reorganized in July and December. In November party strength in the House of Representatives was: Liberals 284, People's Democrats 63, Social Democrats (right wing) 29, Social Democrats (left wing) 16, Communists 22, Co-operative Farmers 8, others 19, with 25 vacancies. In local elections held in April the Liberal party gained at the expense of the Socialists, polling 25% of the vote for prefectural assemblymen against 15% for the Socialists. Although the Communist party was not formally outlawed, continuing arrests of its members diminished its strength and forced it to operate largely underground.

In May General Ridgway authorized the Japanese government to review ordinances issued by it since 1945 to carry out



The scene in the Diet in Aug. 1951 as the emperor handed his speech to the speaker of the upper house at the opening of the session.

occupation directives. This aroused wide interest as it seemed to permit the termination or modification of various reform programmes introduced by the occupation. The Japanese government acted promptly to review the " purge " orders, under which nearly 200,000 " militarists and ultra nationalists " had been barred from positions in government, politics, business, labour and the press. By the end of the year about 160,000 of these had been " depurged," including Ichiro Hatoyama, former head of the Liberal party. Their re-entry into politics was expected to strengthen the forces of conservatism. The government was also working on new legislation to modify other measures inspired by the occupation. Reports that it intended to institute stricter control over trade unions and the press, to lower labour standards and to modify laws designed to prevent monopoly and assure free competition led to widespread public comment, both favourable and unfavourable. In October a U.S. official, John M. Allison, while indicating that some occupation measures had served their purpose or proved impracticable, warned that the Japanese government should " proceed with the utmost care " in the economic field. During the year about 80% of the town and village police forces, set up under an occupation-sponsored reform in the interests of decentralization, were absorbed into the centrally controlled rural police force.

On Oct. 26 the Japanese House of Representatives voted to ratify the peace treaty by 307 to 47, and the Japanese-U.S. security pact by 289 to 71. No Liberals, and very few Democrats, opposed either treaty. The Socialists were almost solidly against the security pact, but their vote on the peace treaty was divided; this issue, in fact, caused a formal split in the party. The somewhat smaller majority favouring the security pact reflected uncertainty as to whether the conditions on which U.S. troops would remain in Japan would be such as to impair Japan's sovereignty. The question of rearmament was much debated, some Democratic party leaders demanding an army of 200,000 or more, while Socialist and trade-unionist spokesmen opposed rearmament. The Liberals took no clear position, but Yoshida expressed the opinion that Japan could not under existing conditions afford to maintain armed forces, and stated in November that the government was not considering rearmament at that time.

Under the stimulus provided by the Korean war, industrial activity expanded rapidly in 1951, especially in metals and machinery; textiles remained below pre-World War II levels. The resulting inflationary pressures were only partially curbed by government measures. Demands for higher wages led to strikes in coal, electric power and other industries. Imports more than doubled during the first eight months of the year, as Japan had to purchase raw materials from abroad at prices inflated by world rearmament. Exports increased much more slowly, leaving a large passive balance of merchandise trade. The cessation of U.S. economic aid was cushioned in 1951 by dollar payments for maintenance of the occupation forces and by procurement orders for the Korean war, but U.S. advisers warned that Japan could compete successfully in world markets only by adjusting its domestic prices downward to international levels.

Education. Nearly all Japanese adults are literate. Nine years of schooling are compulsory and free for boys and girls. Under the Allied occupation the schools were reorganized on the 6-3-3 system, that is, six years of primary school, three of junior high and three of senior high school. Above these are a four-year university course as well as various colleges and vocational institutions. In 1948-49 expenditures on education were: national and local governments, 78,307·9 million yen; private, 6,917·3 million yen. Schools (April 1951): elementary 21,313, teachers 315,216, pupils 11,419,267; secondary 14,301, teachers 302,191, pupils 7,319,978; universities (6) and other institutions of higher education (416), professors and lecturers 44,570, students 420,634.

Agriculture. Crops were good in 1951, although the output of staple foods was slightly below that of 1950. Production of staple foods in 1951 exceeded by nearly 10% the 1931-41 average, but population had increased by about 15% since 1940, and even before World War II Japan produced only about 80% of its own food requirements. Food imports since the war accounted for a large part of its trade deficit (25% of total imports in the first half of 1951).

TABLE I. AGRICULTURAL PRODUCTION

	Area ('000 ha.)		Production ('000 metric tons)	
	1950	1951*	1950	1951*
Rice	2.994	3,012	9,652	9,435
Wheat	764	735	1,338	1,487
Barley	1,020	979	2,115	2,007
Sweet potatoes	398	375	6,292	5,020
Potatoes	188*	194	2,363*	2,536

* Preliminary.

Industry. Industrial activity continued to expand in 1951. By Aug. 1951 the index of industrial activity (utilities, mining and manufacturing), based on 1932-36 as 100, stood at 146·9, against 109·7 in Aug. 1950. Other Aug. 1951 indexes, on the same base, were as

follows (Aug. 1950 figures given in brackets): utilities 187·3 (175·7), mining 124·2 (106·0), all manufacturing 140·2 (94·6), metals 185·3 (132·4), machinery 216·2 (110·3), textiles 54·0 (43·3), chemicals 148·4 (122·4), food, beverages and tobacco 100·0 (90·7). Non-agricultural employment in Aug. 1951 was 20,120,000, a gain of 2,200,000 over Aug. 1950. In the same period the number of persons reported as totally unemployed decreased from 200,000 to 150,000. Average monthly wages in manufacturing, after dropping from an unusually high seasonal peak in Dec. 1950, rose to 12,257 yen in June 1951, then fell to 11,572 yen in August.

TABLE II. INDUSTRIAL PRODUCTION

Monthly Average	1949	1950	1951 (Jan.-Aug.)
Coal ('000 metric tons)	3,172	3,205	3,449
Crude petroleum (metric tons)	16,500	24,800	29,400
Gas ('000 cu. m.)	80,940	94,960	120,400
Electricity (million kwh.)	3,415	3,741	4,000
Pig iron (metric tons)	129,057	186,075	246,451
Steel ingots and castings (metric tons)	259,284	403,210	537,387
Refined copper (metric tons)	6,170	7,062	7,451
Cement ('000 metric tons)	273·1	371·9	520·4
Motor vehicles (units)	5,538	6,265	8,763
Ships (gross tons)	14,639	19,674	27,647
Cotton yarn (metric tons)	13,124	19,861	27,347
Rayon staple fibre (metric tons)	2,253	5,658	8,868
Cotton fabrics ('000 sq.m.)	68,611	107,425	148,801
Raw silk (kg.)	819,341	752,501	809,040

Foreign Trade. Imports shot upward in the first eight months of 1951, while exports rose more slowly, bringing the unfavourable trade balance to an unprecedented height. The position was eased somewhat, however, by the U.S. procurement orders for the Korean war, which were paid for in U.S. dollars, and which from January to mid-Sept. 1951 amounted to about $258 million. The volume of Japanese exports was still far below prewar. In 1950 the U.S. provided 44% of Japan's imports, against 62% in 1949. Other leading suppliers in 1950, in order of importance, were Australia (8%), China (including Formosa), Malaya, the Philippines, India, Korea, Canada and Indonesia. Exports were more widely distributed, with the U.S. taking 22% of the total (against 15% in 1949); China (including Formosa) and Indonesia each 6%; the U.K. and Australia each 3%; and India, the Philippines, Korea and Malaya each 2%. Imports consisted chiefly of food and raw materials, notably textile fibres, while exports were mainly manufactured products, with textiles forming nearly half the total.

TABLE III. FOREIGN TRADE (U.S.$ '000)

	Imports	Exports	Balance
1948	684,220	258,271	—425,948
1949	904,844	509,700	—395,144
1950	974,188	820,055	—154,133
1951 Jan.-Aug.	1,637,851	877,627	—760,224

Transport and Communications. Traffic on state railways was as follows in 1950 (monthly averages): passenger-km. 5,750·3 million; revenue freight ton-km. 2,559·6 million. Corresponding monthly averages for Jan.-Aug. 1951 were 6,264·1 million and 2,869·7 million respectively. In addition, private railways carried a monthly average of 40·6 million ton-km. of freight in 1950 and 47·8 million ton-km. in Jan.-Aug. 1951. Japan's merchant fleet was about half its prewar size, though it had increased by 53% since 1945. In Aug. 1951 the country had 2,338,693 gross tons of steel vessels of 100 tons or more. In the first eight months of 1951 about 30% of Japan's imports and 16% of its exports were carried in Japanese vessels.

Finance. National government ordinary expenditures were budgeted for 1951-52 at 657,400 million yen, a decrease of 7,200 million yen from the previous year. The principal items, aside from general administration, were 110,000 million yen for local government, 102,700 million yen for war termination expenses and 100,100 million yen for public works. Revenues were expected to balance expenditures, with 444,500 million yen coming from taxes and stamp revenues and 151,500 million yen from government enterprises. Total expenditures, including the extra-ordinary (government enterprises, etc.), were set at 1,506,300 million yen, against 2,070,000 million yen in the previous year. Supplementary appropriations later in the year brought the total ordinary budget up to 793,700 million yen. The Bank of Japan's outstanding note issue at the end of Aug. 1951 stood at 414,706 million yen against 324,618 million yen a year earlier. In the same period the bank's holdings of government securities decreased from 203,828 million yen to 172,258 million yen, while total deposits of commercial banks rose from 817,293 million yen to 1,184,680 million yen. The official value of the yen continued at 360 to the U.S. dollar. Both prices and wages advanced during the year, as shown in Table IV. (M. S. F.)

TABLE IV. PRICE AND WAGE INDEX NUMBERS

	Wholesale prices (1934-36=100)	Consumer prices (1948=100)	Wages in manufacturing (1934-36=100)
1948	12,790	104·5	9,200
1949	20,880	137·9	14,770
1950	24,550	128·4	17,940
1951 (Jan.-Aug.)	33,870	148·2	21,560

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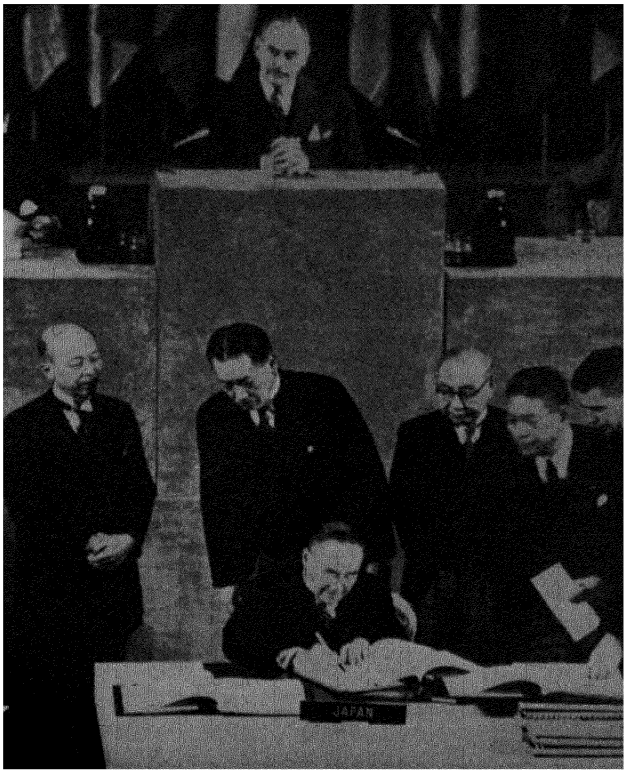
JAPANESE PEACE TREATY CONFERENCE.

On July 20, 1951, the United States invited all countries at war with Japan except China to a conference at San Francisco on Sept. 4 in order to sign the Japanese peace treaty, the draft of which had been published a week earlier after ten months of diplomatic talks among the chief belligerent Allies in the war against Japan. The exclusion of China from the conference resulted from the fact that the United States and the United Kingdom recognized different governments of China and was based on a compromise agreement between them to leave it to Japan itself, after the signature of the peace treaty and the restoration of its sovereignty, to decide whether to seek a separate peace treaty with the Chinese People's government in Peking or the Chinese Nationalist government in Formosa. Additional invitations to the San Francisco conference were extended on Aug. 22 to the Indochinese states of Vietnam, Cambodia and Laos.

All invited countries accepted except Yugoslavia, Burma and India. Yugoslavia declined on the grounds that no significant Yugoslav interests were involved in the peace treaty with Japan. The Burmese government declined the invitation on Aug. 23 on the ground that the draft treaty would enable Japan to evade its reparations obligations. India, in a note of the same date, declared itself unable to accept because of the "imperfections" of the treaty; it urged in particular that the Ryukyu islands (ceded in the treaty to U.S. trusteeship) should be retained by Japan, that Formosa and the Kurile islands (renounced by Japan but not finally allocated under the treaty) should be definitely ceded to China and the Soviet Union respectively and that no



Shigeru Yoshida, prime minister of Japan, signing the Japanese peace treaty at San Francisco, Sept. 8, 1951.

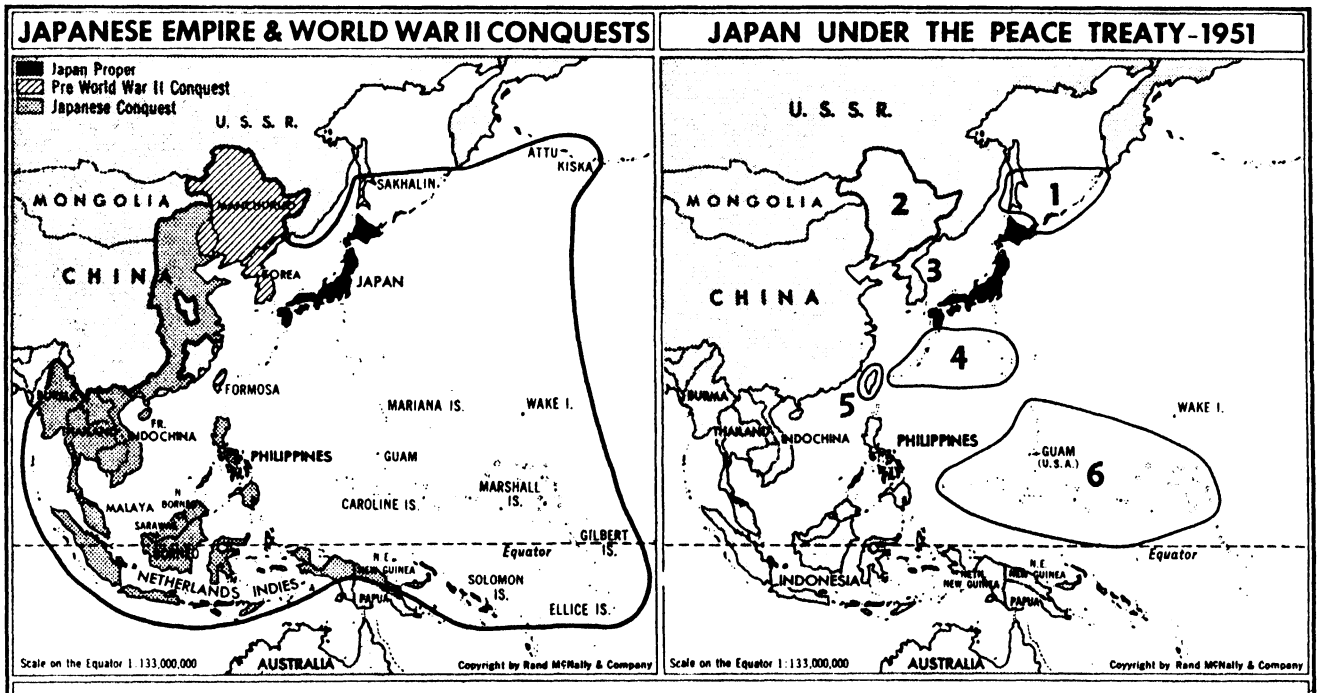
U.S. occupation forces should be allowed to stay on in Japan under a new U.S.-Japanese defence agreement. The U.S. government expressed its regret about India's non-participation and replied to India's objections to the treaty draft in a note on Aug. 26, but India confirmed its attitude in a further note on Aug. 30.

The acceptance of the invitation by the Soviet Union (on Aug. 12) caused some surprise, since the Soviet Union had up to then for more than five months refused to take part in the preparatory discussions of the Japanese peace treaty, which had been conducted, on behalf of the U.S. government, by John Foster Dulles. " In order that there should be no possibility of subsequent misunderstanding," therefore, the United States, in a note to the Soviet Union of Aug. 16, pointed out that " the invitation was to a conference for the conclusion and signature of a treaty of peace with Japan on the terms of the (previously circulated) text," " not a conference to re-open negotiations on the terms of peace."

The conference was duly opened in San Francisco on Sept. 4 by President Harry S. Truman, the following 52 countries being represented: Argentina, Australia, Belgium, Bolivia, Brazil, Canada, Ceylon, Chile, Colombia, Costa Rica, Cuba, Czechoslovakia, the Dominican Republic, Ecuador, Egypt, Ethiopia, France, Greece, Guatemala, Haiti, Honduras, Indonesia, the Indochinese states (Vietnam, Cambodia and Laos), Iraq, Lebanon, Liberia, Luxembourg, Mexico, the Netherlands, New Zealand, Nicaragua, Norway, Pakistan, Panama, Paraguay, Persia, Peru, the Philippines, Poland, El Salvador, Saudi Arabia, South Africa, the Soviet Union, Syria, Turkey, the United Kingdom, the United States, Uruguay, Venezuela and Japan.

On the second day, the conference, on a secret ballot, elected Dean Acheson, the U.S. secretary of state, president and adopted, by 48 votes to 3 (Soviet Union, Poland and Czechoslovakia), rules of procedure limiting speeches to one hour and forbidding the moving of amendments to the text of the treaty. Various resolutions tabled by the Soviet Union to rescind these rules, as well as a further Soviet-sponsored resolution calling for the participation of the Chinese People's republic in the conference were defeated by large majorities, the only support for the Soviet Union coming from Poland and Czechoslovakia. After two further days of speech-making, the treaty was signed on Sept. 8 by 48 Allied and associated nations and Japan—all the participants at the conference except the Soviet Union, Poland and Czechoslovakia, whose representatives had absented themselves from the final signing procedure. Immediately afterwards, on the same day, a bilateral U.S.-Japanese security treaty was signed by Dean Acheson and the Japanese prime minister, Shigeru Yoshida.

The peace treaty, consisting of a preamble, 27 articles and a declaration of the Japanese government, confirmed the territorial reduction of Japan to the four home islands laid down in the surrender terms of 1945, but restored Japanese sovereignty and did not impose any limitations on its self-defence, industrial production, trade or access to raw materials, and restricted general Allied reparation claims against Japan to Japanese assets abroad. It was this lack of punitive or restrictive clauses, and the waiver of any general reparations claim against the Japanese economy, which made President Truman characterize the treaty as an act " of reconciliation which looks to the future, not the past " and caused the Japanese prime minister to praise it as a " fair and generous treaty unparalleled in history." The Soviet delegate, Andrey Gromyko, on the other hand, denounced the treaty as an " aggressive " pact aimed at the Soviet Union and China, calculated " to sow the seeds of a new war in the



DISPOSITION OF FORMER JAPANESE EMPIRE

1. Southern Sakhalin and Kuril Islands to U. S. S. R.
2. Manchuria to China.
3. Korea—Site of 1950-51 Conflict, to be unified, Independent State.
4. Ryuku and Bonin Islands to be under U. N. Trusteeship, administered by the United States.
5. Formosa, occupied by Chinese Nationalists, future undetermined.
6. Former Japanese mandate of Marianas and Marshall islands to be under U. N. Trusteeship, administered by the United States.

far east." He based this attack mainly on the U.S.-Japanese security pact made possible by the peace treaty. Most other delegates, although voicing doubts and criticisms about this or that provision of the treaty, accepted it in view of the changed world situation and the need for security against new aggressive acts and threats in the far east.

The security clauses of the treaty (articles 5 and 6), read in connection with the bilateral U.S.-Japanese security pact, were widely regarded as the most important operative part of the treaty. Under these clauses, Japan accepted the obligations set forth in the U.N. charter to settle its international disputes by peaceful means, to refrain from the threat or use of force and to assist U.N. actions that might be taken in accordance with the charter. On the other hand, the Allied Powers recognized Japan's "inherent right of collective or individual self-defence," referred to in article 51 of the charter, and its right to enter voluntarily into collective security agreements.

While all occupation forces were to be withdrawn within 90 days after the coming into force of the treaty, nothing in its provisions would "prevent the stationing or retention of foreign armed forces in Japanese territory under any bilateral or multilateral arrangements that might be made between Japan and one or more Allied Powers."

Under the U.S.-Japanese bilateral security pact, U.S. land, air and sea forces were to be maintained "in and about Japan" until, in the opinion of both governments, international peace and security in the Japan area was otherwise satisfactorily provided for. These forces were to be utilized for general security purposes in the far east, for the defence of Japan and, at the express request of the Japanese government, for the suppression of internal disturbances in Japan instigated from abroad. Japan was not to grant similar rights to a third power without the prior consent of the United States.

The U.S. forces thus kept their physical position in Japan while changing its legal basis from conquest and occupation to agreement and alliance. This alliance formed both a limitation and a potential reinforcement—according to circumstance—of Japan's newly regained sovereignty and power. (S. HR.)

JAVA: *see* INDONESIA.

JERUSALEM. The capital of former Palestine, revered as a Holy City by Christians, Moslems and Jews alike, was divided by a demarcation line established in the Israel-Jordan armistice agreement of April 3, 1949. Pop. (1950 est.): Israel-held new city, 130,000; Arab-held old city, 30,000.

The two cities of Jerusalem, Arab and Jewish, remained rigidly divided. The growth of Jewish Jerusalem, outside the walls of the old city, proceeded rapidly in 1951. New quarters were springing up on the west and northwest and on the south: and by August the Jewish population was nearly double the number after the first cease-fire in 1948. The main immigration during the year was of oriental Jews from Iraq, Yemen and north Africa, and they were being settled in the former Arab and the new suburbs.

The Israeli government and the national bodies promoted a Jerusalem Economic corporation for the development of industries. New factories were erected in the Sanhedria quarter on the northwest. The most important of them was a shoe factory which would provide the needs of the country and also produce for export.

In Arab Jerusalem the most notable event was the murder in July of King Abdullah of Jordan in the Haram, the Moslem sacred area, as he was entering the mosque for prayers. Acting mayor of the Arab city was Anton Atallah, a Christian Arab. A former Arab mayor of Jerusalem in the mandate period, Ragheb Pasha el-Nashashibi, who had been a minister in the Jordan government, died in March.

The 23rd Zionist congress, the first held in Jerusalem, gathered in August, and was attended by over 300 delegates from all parts of the world. It took place in an assembly hall which was provisionally completed for the congress and is part of a convention centre for international gatherings.

The Zionist congress had as its main topic a fresh programme for the world movement, proposing to define the aim as the ingathering of the exiled Jewish people in the land of Israel. The American Zionists, who were second in number of delegates, objected, because they did not regard American Jews as in exile. In the end the resolution about aims was dropped. But it was agreed that the practical task of Zionism was to bring into Israel all those Jews who wished to live there.

Municipal elections were held in Jewish Jerusalem in Dec. 1950. They were fought with fierce party feeling. The system of proportional representation by lists, used for the election to the Israel parliament, was adopted and the chief parliamentary parties each had their list. The election showed a swing to the right. The General Zionists (Conservatives), the more right-wing Freedom party (Herut) and the Religious party gained at the expense of the Labour and Progressive parties. Daniel Auster, who had been mayor since 1949 and acting mayor for many years, elected as a Progressive, was unable to form a coalition; and a new combination of General Zionists and the Religious bloc elected as mayor S. Z. Shragai, an Orthodox Jew. (N. BH.)

See *Jerusalem Economy*, published by the Jerusalem Chamber of Commerce (Jerusalem, 1950); Paul Mohn, *Jerusalem and the United Nations* (New York, 1951).

JET PROPULSION AND GAS TURBINES. Not only were there several noteworthy events in 1951 concerning gas turbines for aircraft propulsion, but good progress was also maintained in their industrial applications.

Great Britain. *Turbo-Jets.* Outstanding engines were the Avon and the Sapphire. An Avon (6,500 lb. maximum sea level static thrust) displayed at the Society of British Aircraft Constructors' exhibition had an axial compressor and eight tubular combustion chambers. It was 42½ in. in diameter, 119 in. long and weighed 2,240 lb. Avons powered production Canberras and Britain's first four-jet bombers, Vickers Valiant and Short SA.4, also Supermarine Swift and Hawker P.1067 fighters and several prototypes. A Canberra B2, with two Avons, established a transatlantic record by flying 2,070¾ mi. from Belfast to Newfoundland in 4 hr. 18½ min. Arrangements were made for quantity manufacture of military Avons and a civil version was under development for the Mark II Comet.

The Sapphire, planned for production in both Great Britain and the U.S., continued in development but no increase on its 7,200-lb. m.s.l.s.t. rating was published. A Meteor 8, with two Sapphires, set up a world record, recently introduced by the Fédération Aéronautique Internationale, by climbing to 39,372 ft. in 3 min. 9·5 sec. from a standing start.

Derwent, Nene, Goblin and Ghost engines remained in production in Great Britain and in other countries under licence. The Ghost 50 accumulated many flying hours in Comets prior to operation by British Overseas Airways corporation. Development of Adder and Viper engines continued and Bristol disclosed that a new turbo-jet, Olympus, was in hand. Exhaust reheat was demonstrated in a Venom.

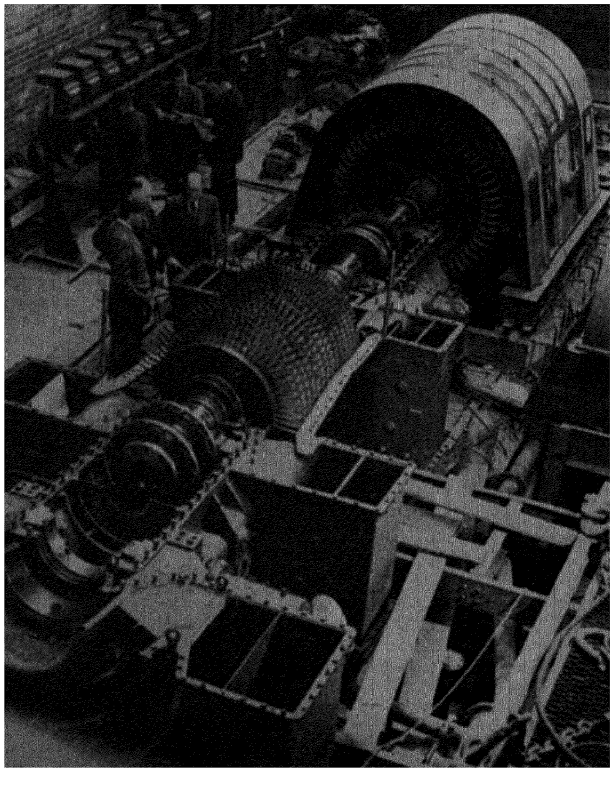
Ancillary equipment for aero-gas turbines was actively developed. Ultra displayed an electric regulator designed to

maintain jet temperature within 2°C. of a datum selected by the pilot. Rolls-Royce disclosed apparatus for recording and analysing turbine blade stresses in flight.

Turbo-Props. Python and Double Mamba engines remained in production for the Royal Navy. The Proteus and the Mamba were developed towards improved reliability. A Dart satisfactorily completed an arduous 500-hr. ground endurance test simulating operating conditions when installed in a Viscount 700 on European routes. A Mamba-Marathon made the world's first turbo-prop landing with braking propellers.

Composite Engine. After several years research and experiment Napier disclosed an unusual engine, the Nomad, designed for extreme fuel economy. A 12-cylinder, horizontally opposed, two-stroke, compression-ignition unit, supercharged by a mechanically driven centrifugal compressor, drove the rear half of a counter-rotating propeller through reduction gearing. The front half of the propeller was independently driven, through gearing, by a gas turbine fed by exhaust from the diesel unit. The turbine was also directly coupled to an axial compressor which boosted the centrifugal supercharger. Additional take-off power could be obtained by burning fuel in two combustion chambers, incorporated in the exhaust manifold, which fed an auxiliary turbine. Rated at 3,000 shaft h.p. plus 320 lb. static thrust at sea level, the maximum continuous fuel consumption was 0·36 lb./b.h.p./hr. Either kerosene or diesel fuel could be used. The net dry weight was 4,300 lb. Initial flights were made.

Gas-Turbine-Engined Helicopter. Experimental work started on the Fairey Rotodyne, a single-rotor helicopter propelled by twin turbo-prop engines, driving orthodox propellers, and supplying compressed air to rotor-tip jet propulsion units for take-off and hovering. Designed initially to carry between 20 and 30 passengers, it was expected to have a maximum speed of over 185 m.p.h. No technical details were published but elimination of torque reaction associated with mechanically driven rotors was clearly advantageous.



The gas turbine designed in 1951 for installation at the Trafford power station, Manchester.

Jet Propulsion Rocket Motors. The De Havilland Sprite (5,000 lb. static thrust) "cold" rocket made successful assisted take-off tests in a Comet. The Armstrong-Siddeley Snarler (2,000 lb. s.t.) liquid bi-fuel "hot" rocket was displayed. Of 215 lb. dry weight, it consisted of three separate assemblies comprising an engine-driven gear box carrying the fuel pumps, a servo-control and mixing valve unit and a combustion chamber and nozzle assembly. Each could be positioned to suit individual aircraft installations. The fuels used were liquid oxygen and methanol/water but details of operation were withheld. Flights in a Hawker fighter showed its value for assisted take-off, enhanced climb and increased manoeuvrability at altitude.

Power-Generating, Marine and Locomotive Gas Turbines. Manufacture of two identical 20,000-kw. plants, the largest British gas turbines yet attempted and intended for peak-load generation, started at English Electric where a 6,000-s.h.p. marine set was on test. Work continued on their 2,200-kw. stand-by gas turbo-alternator for the Metropolitan Water board and on their two 2,000-kw. sets for coal and firedamp burning respectively.

The historic 500-h.p. gas turbine, first run by C. A. Parsons in 1945, was converted to burn pulverized coal and ran preliminary tests. Their two gas turbo-alternator sets, to generate 15,000 kw. for the Dunster "A" power station and 10,000 kw. for the National Gas Turbine establishment, were in course of preliminary erection. Manufacture started on a new 2,500-kw. gas turbine designed with knowledge accumulated from five years' experimental work and intended as a basic design for many applications.

Components of Metropolitan-Vickers' 15,000-kw. plant were installed in Trafford power station. The 1,750-kw. natural-gas-burning set for Shell, the 2,000-kw. producer-gas-burning set for the Ministry of Fuel and Power and the 2,500-kw. oil-burning set for the Metropolitan Water board were in assembly. After bench tests, the 3,500-b.h.p. gas turbine was mounted on the chassis of locomotive no. 18100. Two 4,500-s.h.p. marine propulsion sets were on test. A compressor-exhauster plant with pre-coolers and after-coolers was being designed.

John Brown's 500-b.h.p. experimental unit, after conversion to closed cycle, had run 2,500 hr. before a peat-fired air heater was incorporated. Their 700-kw. closed-cycle waste-heat plant was modified to provide hot-process water without detriment to the efficiency of the power generation. Construction of a 1,000-b.h.p. gas turbine, to use their coal-fired air heater began and the 12,500-kw. closed-cycle plant was installed at Dundee.

Satisfactory tests of Ruston and Hornsby's 750-kw. gas turbine, with heat exchanger, showed a full-load thermal efficiency of 23·4%. Air cooling for the high-pressure turbine stator proved successful and enabled the plant to be brought from rest to full load safely in six minutes. Three similar turbo-alternators were ordered by the Air Ministry and a peat-burning plant was under construction. The Brush 2,500-kw. open-cycle peak-load set was in manufacture. Work continued at British Thomson-Houston on two 2,500-kw. open-cycle, 4·6:1 pressure ratio contrifugal compressor-gas turbo-alternators for Nairobi. Their 1,200-s.h.p. open-cycle gas turbo-alternator main propulsion set, constructed to obtain experience at sea, was installed in the tanker "Auris" after nearly 700 hr. of test running.

At Pametrada research station, the turbine and combustion laboratories approached completion and, for the latter, a 2,000-h.p. turbo-compressor was under construction. The problems of burning residual fuels were attacked and development towards reliability of the 3,500-s.h.p. marine gas turbine progressed satisfactorily. Rolls-Royce continued development of their 6,000-s.h.p. set for the Admiralty who announced

the launching of two new 120-ft. patrol craft designed to exploit the advantages of the gas turbine and powered by Metro-Vick sets in combination with diesels. Admiralty specification and technical details concerning W. H. Allen's 1,000-kw. auxiliary gas turbo-alternator were released. Calibrations of the 13-stage, 4·25:1 pressure ratio axial compressor and its two-stage turbine showed adiabatic efficiencies of 86% and 85% respectively at 8,000 r.p.m. designed speed. The set, without its heat exchanger, was on test throughout the year. Full speed and full load were achieved at an early stage and performance, governing and endurance tests were commenced.

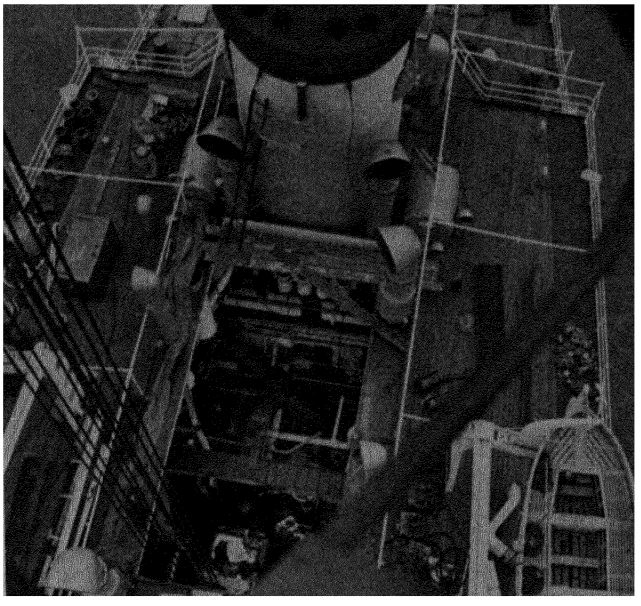
The Muntz-Pescara free-piston gas generator, intended for use with a gas turbine, ran initial tests. Designed to produce 400 gas h.p., measured fuel consumption was 0·33 lb./gas h.p./hr. which, in conjunction with a turbine of 80% efficiency, would give 33% overall thermal efficiency. A British gas turbine week was held in conjunction with the Festival of Britain. The historic R.N. motor torpedo boat no. 5559, formerly MGB.2009, with a Metro-Vick gas turbine, was shown together with a 51-ft. R.N. harbour launch propelled by a Rover 100-b.h.p. gas turbine similar to that used in the world's first gas turbine car. The Royal Automobile club awarded the Dewar trophy to Rover for pioneer work on automobile gas turbines.

Power Jets (R. & D.), Ltd., the government-owned company, were engaged on the exploitation of over 400 gas turbine inventions emanating from publicly financed research and development. They negotiated a $4 million payment from the United States for the use of about 200 British patents for 20 years. A gas turbine group, formed by the Ministry of Fuel and Power, promoted an active programme of research and experiment towards industrial gas turbines using coal, peat and firedamp. Coal consuming experiments proceeded broadly along three lines: the internal combustion of pulverized coal; two-stage internal combustion using a gas-producer; and external combustion in either a closed or open cycle. Because gas produced from poor coal seams might be suitable fuel for gas turbo-alternators, two alternative methods of underground gasification were under investigation.

Materials. More than one new chromium-molybdenum-vanadium steel was introduced having increased hardenability together with the good creep characteristics of previous molybdenum-vanadium steels. An austenitic steel, G.38, with properties closely approaching the well-known G.18.B but requiring no strategic elements such as cobalt or niobium, became available for turbine discs. G.19, developed from G.18.B, offered an improved material for turbine nozzles and G.34, a cobalt-based casting alloy, proved suitable for high temperature duty. The Nimonic nickel alloys continued in favour for turbine blades and flame tubes.

Commonwealth. The Canadian Orenda (6,000 lb. m.s.l.s.t.) axial flow turbo-jet was put into production for CF-100 and Canadian-built Sabre fighters. As a step towards coal-burning gas turbine locomotives, McGill university began building an experimental 500-h.p. open-cycle gas turbine incorporating a two-stage centrifugal compressor and an external coal-fired air heater, combustion air being that exhausted from the turbine. Australia designed a twin-jet fighter, developed the jet-propelled target aircraft and continued manufacture of turbo-jets. (R. H. SL.)

Europe. Aircraft engines were under development in France and Sweden. In France, Rateau, Société Nationale d'Étude de Construction de Moteurs d'Aviation (S.N.E.C.M.A.) and Société Constructions d'Equipments Mécaniques pour l'Aviation (So.C.E.M.A.) produced their own designs of medium-sized axial compressor turbo-jets, some of them provided with reheat. Also S.N.E.C.M.A. had a 1,500-h.p. turbo-prop intended for commercial aircraft. Turbomeca increased their range of small jet units which included the Piméné, Pallas and Marboré, together with the Orédon shaft-power engine and the Aspin ducted-fan unit. This latter was of special interest as it incorporated a ducted fan which, besides supercharging the main centrifugal compressor, produced an auxiliary cold-air jet stream. In Sweden the Svenska Turbinfabriks Aktiebolaget Ljungstrom (S.T.A.L.) were flight-testing the Skuten axial jet engine of about 3,000 lb. thrust. British engines of Rolls-Royce and De Havilland design were being made under licence in Sweden, Belgium, France and Italy.



The engine room of the "Auris," an oil tanker of 12,000 tons, from which in 1951 the diesel engine was removed and replaced by a gas-turbine.

Steady progress was made in the industrial and marine fields. In Sweden S.T.A.L. completed a 2,400-kw. portable set to be mounted on a railway truck. In Denmark tests continued on the small experimental marine set made by the Elsinore Shipbuilding company. Of the total of 17 plants which had been ordered from Brown Boveri in Switzerland (aggregate output exceeding 100,000 kw.) all those under construction or erection were intended to burn gas. They included three that had been ordered for the Anglo-Iranian oilfields, an additional plant for the C. A. Venezolana de Cementos, one for a Luxembourg steel plant, another driving a blast-furnace blower in Spain and a 10,000-kw. standby generating set for Rumania.

The 12,500-kw. closed-cycle set built by Escher-Wyss for the St.-Denis power station in Paris began operating. A group of French firms had taken a licence on this type of plant as had also a German group, but no construction was announced by either. Oerlikon received an order for a 730-kw. plant for installation at Bona, Algeria. The exhaust from this would be used in part to preheat combustion air for a steam boiler. Sulzer continued tests of their 20,000-kw. semi-closed-cycle set at Weinfelden. Work continued in France on various projects previously announced including the Mercier equi-pressure system, and open-cycle power-generating and marine sets being made by Creusot-Schneider, Rateau, Turbomeca and Alsthom. At the Paris motor show of 1951 Laffly exhibited a lorry powered by a 275-h.p. gas turbine, which had been undergoing road trials for six months. Construction of the 2,000-kw. set for Royal Dutch Shell by Gasturbine Maatschappij continued in Holland.

United States. During the year there was a big increase of orders for industrial gas turbines. In particular the General Electric company had on order over 60 sets. These included a repeat order for 10 locomotives similar to that which had been in service with Union Pacific. Also there had been great interest in natural gas pumping sets, a very favourable application for gas turbines. For example, the El Paso Natural Gas company, of Texas, ordered seven sets of 5,000 h.p. each with provision for 22 more later, and the Clark-Flader plant for the Tennessee Gas Transmission company underwent trials.

The Locomotive Development corporation reported successful tests with an experimental pulverized-coal-fired set including a 250-hr. run with negligible blade erosion. Tests on an Allis-Chalmers-built locomotive set were also begun by L.D.C. Elliott were building a second locomotive gas turbine for L.D.C. and their first, for the Santa Fé, began tests. A Westinghouse locomotive also underwent tests. This firm received an order for the largest U.S. industrial set (15,000 kw.), for use in Oklahoma, burning natural gas. Several power station units were in operation, including those at Belle Isle, Oklahoma, and Farmingdale and Bangor, Maine. The Edward M. Graham station at Bangor was the first all-gas-turbine power station in the U.S. Early in the year it was reported that the G.E.C. Belle Isle plant had satisfactorily completed over 10,000 hr. high temperature operation. The American Turbine corporation was formed by Escher-Wyss and Sanderson & Porter to exploit the closed-cycle gas turbine.

There was great interest in small units. Solar Aircraft published details of their 45-h.p. engine developed for the navy to drive a water pump. This was extremely simple and light and was started by hand. It had radial inward-flow turbine, a type increasingly favoured for small engines. Boeing received a naval contract for small sets, following their successful demonstration of a gas-turbine-powered truck. Solar also announced a 250-kw. unit. Continental Motors and Fairchild took licences to manufacture the French Turbomeca designs.

In aircraft engines, attention was concentrated mainly on jet engines in the 10,000-lb. thrust class. Few details were available but the engines were known to include the Allison J35-A23, G.E.C. J-53 and J-57 and Westinghouse J-40. American turbo-prop engines came to the fore and excellent performance was reported from the Allison T-38 and T-40 (a double T-38) and the Pratt and Whitney T-34. Curtiss-Wright in addition to holding a licence for the manufacture of the British Armstrong-Siddeley range, obtained a licence to manufacture the Bristol Olympus. Lines of development being followed included the use of higher temperatures and pressure ratios, and reheat applied to jet engines. These involved a search for better materials including ceramics and ceramic coatings, for metallic parts (such as the Solaramic process described by Solar aircraft) and methods of blade cooling. (*See* also AIRCRAFT MANUFACTURE; AIR FORCES OF THE WORLD; AVIATION, CIVIL.) (J. HOE.)

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JEWELS: *see* GEMS.

JEWRY, WORLD. "The hegemony of Diaspora Judaism has passed to the English-speaking countries," said Chief Rabbi Israel Brodie in an address delivered in London for the Jewish New Year (Oct. 1, 1951). "This hegemony," he said, "can be justified only by the quality of its religious and cultural life." All synagogues in Great Britain were crowded for the New Year and Day of Atonement, and there were many overflow services and well-attended children's services.

Bevis Marks synagogue, the chief synagogue of the Sephardic Community in Great Britain, celebrated its 250th anniversary in October. The Liberal Jewish synagogue in London, which was partly destroyed by bombing in 1940, was reconsecrated in October in the presence of over 1,000 worshippers. In June the most orthodox synagogue, the Machsike Hadass in Spitalfields, was reconsecrated by the chief rabbi.

In the United States proposals for a merger between Reform and Conservative (middle of the road) Judaism were put to the annual conventions of both Rabbinical bodies, but rejected by both as premature. The 1951 report of the Union of Orthodox Jewish Congregations in the U.S. claimed a continued rise of organized orthodoxy. Yet Rabbi Samuel Goldman, speaking to the convention of the American United Synagogue, complained that American Jews were not religiously observant.

In Israel religious life continued to grow in spite of large irreligious elements. To provide for the hundreds of thousands of new immigrants hundreds of improvised synagogues were set up in all parts of Israel. In Jerusalem 30 large temporary synagogues were set up for the High Holy Days in addition to the 230 existing ones. In May the Israeli parliament fixed Sabbath as the compulsory day of rest in the country.

In Germany there was no decline of Jewish population during the year. The numbers were still estimated at 28,000. A statement by the government of the German Federal (western) republic was published in October dissociating Germany from the nazi crimes against the Jews and declaring that many Germans felt ashamed that the good name of Germany should be stained and were prepared to help their Jewish compatriots. The statement was well received by the Jewish organizations in Great Britain, the United States and Israel. Rabbi Nathan Levinson, Liberal rabbi of Berlin, said in his New Year sermon that the statement opened the door for German-Jewish talks. The president of Western Germany, Theodor Heuss, and the chancellor, Konrad Adenauer, issued statements for the Jewish New Year promising to repair the wrongs done to the Jews under the nazis. They said: "We now live in a Germany liberated from racial discrimination."

According to a report issued in June by the Union des Associations Cultuelles Israélites, the supreme religious body of the French Jewry, religious life continued to expand in Paris and other large cities, but was said to be vanishing in smaller places.

Rabbi Elio Toaff of Venice was appointed chief rabbi of Rome in succession to David Prato, who died in March. The foundation stone of a new synagogue in Milan was laid in September, on the site of the former synagogue which was destroyed during World War II by air bombing.

South African Jewry grew during the year. The new Springs synagogue, the largest in the East Rand, was consecrated in September. The number of children attending Hebrew religious schools in South Africa increased from 3,249 in 1950 to 4,369.

A new Jewish day school, Hillel college, was being built in Sydney, Australia, and the Jewish religious college (Yeshiba) in Melbourne, the only one in Australasia, was being enlarged.

It was difficult to obtain reliable information about conditions in the countries behind the Iron Curtain. During the summer three Jewish women visited Moscow with a group of 20 Englishwomen and reported that they had been

to the Moscow great synagogue and had attended Friday night service there, with about a hundred men and ten women in the congregation.

From Poland, where there were about 55,000 Jews left, it was reported that the remnants of Jewish orthodoxy, mainly in Warsaw and Lódź, were making an effort to combat the determined attempt of the Communists to dominate Jewish life. Organized religious and educational activities were fast coming to an end. (J. LWH.)

See Léon Poliakov, *Bréviaire de la haine: le Troisième Reich et les Juifs* (Paris, 1951); Solomon M. Schwarz, *The Jews in the Soviet Union* (Syracuse, N.Y., 1951).

JORDAN. Independent Arab kingdom of the middle east bounded W. by Israel, N. by Syria, E. by Iraq and S.E. and S. by Saudi Arabia. Area (including Arab Palestine): about 37,100 sq.mi. Pop. (1951 est.): 1,267,000. Capital: Amman (pop., 1951 est., 170,000). Language: mainly Arabic. Religion: Moslem (chiefly Sunni), Christian about 8% (chiefly Arab-speaking Greek Orthodox). Kings in 1951: Abdullah Ibn Hussein (*see* OBITUARIES) and, from Sept. 6, Talal I (*q.v.*); prime ministers in 1951: Samir Pasha el-Rifai and, from July 20, Tewfik Pasha Abulhuda.

History. During 1951 there were a series of sporadic incidents between Jordan and Israeli forces up and down the armistice frontier; and on July 11 the Jordan government protested to the United Nations alleging that the Israeli authorities were damaging Jordan economy by reducing the supply of water in the Jordan valley by pumping schemes in the upper reaches of the river. On Aug. 5 the Israeli government expressed its readiness to the British and the U.S. governments to negotiate an agreement with Jordan to regulate the water of the River Jordan.

In September the Jordan government was represented in Paris at a meeting to discuss the proposals of the Palestine Conciliation committee for a settlement. The proposals were rejected by the Arab delegates and in November the commission announced the failure of its efforts. (*See* also ARAB LEAGUE.)

On March 3 an agreement was reached between the British and the Jordan governments on a series of financial questions connected with the termination of the Palestine mandate. By it £2·5 million were released from the Jordan account; and in November a financial and economic mission from Jordan visited London to discuss the possibilities of financing certain projects in Jordan which would create employment for the thousands of Arab refugees still in exile there.

These projects included the development of Aqaba port and its road and air communications with the interior; the erection of an oil refinery at Amman and the development of cotton cultivation in northern Jordan and of rice in the larger desert oases. In April Jordan became the second Arab country (the first was Egypt) to respond to the American Fourth Point offer of financial and technical assistance for local developments; and in June a trade agreement was signed with Egypt for an exchange of goods between the two countries via Aqaba port.

From May 15 to 27 King Abdullah visited the Turkish government at Ankara to strengthen the friendship between the two countries and on May 31 the Emir Abdulilah, regent of Iraq, accompanied by the Iraqi prime minister Nuri Pasha as-Sa'id, visited Amman.

On July 16 Riad es-Sulh, a former prime minister of the Lebanon, was assassinated in Amman; and on July 20 King Abdullah himself was shot dead by an assassin when entering El Aqsa mosque in the old city of Jerusalem. The murderer was shot dead and subsequently a series of arrests were made and the prisoners brought to trial by military court. Four were condemned to death and executed. Two more were also sentenced to the death penalty in their absence in Egypt; but subsequently the Egyptian government refused their extradition. After the king's murder, his younger son, the Emir Naif, in the absence in Switzerland of his elder brother, the Emir Talal, was proclaimed regent, and the cabinet of Samir Pasha el-Rifai was replaced by a new government under Tewfik Pasha Abulhuda. At the end of August there were new elections and on Sept. 6 the Emir Talal returned from Switzerland and was proclaimed king in succession to his father. On Oct. 29 a new Senate was appointed by royal decree; and in his speech from the throne, on Nov. 1, King Talal announced his country's absolute support of and sincere sympathy with the national aspirations of the Arab states. On Nov. 7 the new parliament unanimously approved the emendations of the constitution whereby the cabinet became responsible to parliament. On Nov. 10 King Talal went to Saudi Arabia on a state visit to King Ibn Sa'ud. On Nov. 16 there were large demonstrations in Amman in sympathy with Egypt's independence day ceremonies. (O. TW.)

Education. Government schools (1950) 328, pupils 56,425, teachers 1,462.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): wheat 139 (106); barley 56 (41); millet 15 (14); lentils 8·0 (8·1); kersennah 8·6 (8·2); tobacco 0·19 (0·20); dry beans 2. Livestock ('000 head, 1949): goats 332; sheep 113; horses 3; asses 26; cattle 64; mules 2; camels 4.

Foreign Trade. ('000 dinars, 1949; 1950 in brackets): imports 12,757 (10,767); exports, including re-exports 3,478 (1,982). Export figures include bullion (silver coins exported to the U.K. amounting to D. 409,650 in 1950). Main sources of imports (1950): U.K. 26·1; Syria and Lebanon 12·3%; Italy 8·7%; Persia 8·0%. Main destinations of exports (excluding bullion): Syria 95·3%; Egypt 2·1%. Main imports: textiles 11·3%; sugar 6·9%; building materials 5·9%; motor vehicles and spares 3·5%. Main exports (excluding bullion): cereals 29·3%; raw wool 14·1%; vegetables 13·6%; olive oil 9·9%; fruits 7·8%.

Transport and Communications. Roads (on eastern bank of the Jordan, all-weather, 1950): 395 mi. Licensed motor vehicles (Dec. 1950): cars 2,150, commercial 1,800. Railways (1950): 280 mi. There were two air transport companies, Arab Airways association and The Air Jordan. Miles scheduled per week by Arab Airways association (1950): 5,268.

Finance and Banking. Budget ('000 dinars): (1949-50) balanced at 3,400; (1950-51 est.) revenue 3,300, expenditure 3,800. Monetary unit: Jordan *dinar* at par with the pound sterling and with an exchange rate of 0·357 dinars to the U.S. dollar.

JOUHAUX, LÉON, French trade union leader (b. Paris, July 1, 1879), started work at the age of 16 in a match factory at Pantin-Aubervilliers where his father was employed. In 1906 the Matchworkers' union selected him as delegate to the Confédération Générale du Travail (C.G.T.). In 1909 he was elected the C.G.T.'s treasurer and a few months later secretary general. From an ardent revolutionary he changed during World War I into a supporter of evolutionary socialism. In May 1920 he organized a general strike aiming at the nationalization of industry and banking but failed. The next year a schism within the C.G.T. resulted in the formation of a rival Communist-controlled C.G.T.U. (Unitaire), Jouhaux remaining the secretary general of the old organization. In 1936, when the Comintern was recommending the Popular front tactics, the C.G.T. and C.G.T.U. were re-united. Jouhaux declined in 1936 a portfolio in the first Blum cabinet but joined the board of directors of the nationalized Bank of France. He was removed from this post by Daladier in 1938 because as secretary general of the C.G.T. he was responsible for a 24-hr. general strike organized against the introducing of the 48-hr. week in factories necessary for national defence. After the 1940 capitulation the Vichy government dissolved the C.G.T. and Jouhaux was interned at Evaux-les-Bains (Creuse) in Dec. 1941; later he was handed over to the Germans and interned at the Buchenwald concentration camp. He returned to France in May 1945 and became one of the secretaries general of the C.G.T., the other being Benoit

Frachon, a Communist. In Dec. 1947 an anti-Communist C.G.T.-F.O. (Force Ouvrière) was formed and Jouhaux became its leader. From its inception he was a member of the administrative council of the International Labour office and from 1945 to 1948 vice chairman of its governing body. He was also active in the international trade union movement. After the schism within the Communist-led World Federation of Trade Unions, he was one of the founders of the International Confederation of Free Trade Unions (London, Nov. 1949). On Nov. 5, 1951, he was awarded the Nobel Peace prize.

JUDICIARY, BRITISH. The year was marked by a very large number of personal changes. Four new *puisne* judges were appointed and there were two additions to the judiciary in the House of Lords. In the event, the composition of the Court of Appeal was substantially altered, and only four of the lords justices of appeal of 1950 would hold the same appointments in 1952.

Lord Justice Bucknill, the senior lord justice, retired in January after over five years in the appeal courts. He was succeeded by Mr. Justice Hodson, whose place in the Probate, Divorce and Admiralty division was taken by a leading practitioner there, Seymour Karminski. Next, in April, Lord MacDermott returned to Northern Ireland to become lord chief justice; he had been a judge there for three years before being created a lord of appeal in ordinary in 1947. The vacancy in the House of Lords was filled by Lord Asquith of Bishopstone, as he then became, and Mr. Justice Morris went to the Court of Appeal. The resulting deficiency in the King's Bench division was made good by the transfer of Mr. Justice Pilcher from the Probate, Divorce and Admiralty division, and the chain was completed by the appointment to the bench in the divorce court of C. R. Havers, a common law leader.

When Mr. Justice Humphreys (*q.v.*) retired in September, the High court lost its senior judge. He had, either as counsel or in the course of 23 years of presiding over trials, been connected with a great many of the leading criminal cases during 40 years and was perhaps England's most widely known judge. The King's Bench division was made up to full strength by the elevation of Colin Pearson, who had taken silk in 1949 after long service as junior common law counsel to the Ministry of Works.

The last series of changes was occasioned by the results of the parliamentary elections in October. Lord Jowitt was succeeded as lord high chancellor by Lord Simonds, who had been a lord of appeal in ordinary since 1945 and was not known as a politician. Lord Justice Cohen became a law lord, and Mr. Justice Romer, a chancery judge like his predecessor, was appointed a lord justice of appeal. Gerald Upjohn, a well-known leader in the Chancery division and attorney general to the Duchy of Lancaster, took the vacant place on the bench. (W. T. Ws.)

JUDICIARY, U.S. The United States Supreme court disposed of 1,216 cases during the 1950 term (Oct. 2, 1950-June 4, 1951) as compared with 1,308 during the previous term. There were 91 signed majority opinions, all but 12 of which involved either the federal or state governments. The 16 five to four decisions rendered represented an increase of 10 over the number of cases decided by 1 vote during the preceding term. The number of dissenting opinions—54—was the same. The number of cases filed was 1,181, a decrease of almost 100 from the previous term and 300 from the 1948 term.

The Supreme court was composed in 1951 of the following members (dates indicate year appointment was confirmed by the Senate): chief justice, Frederick M. Vinson (1946); associate justices, Hugo L. Black (1937), Stanley F. Reed (1938), Felix Frankfurter (1939), William O. Douglas (1939), Robert H. Jackson (1941), Harold H. Burton (1945), Tom C. Clark (1949) and Sherman Minton (1949). (H. B. Wy.)

JUGOSLAVIA: *see* YUGOSLAVIA.

JUIN, ALPHONSE-HENRI, French general (b. Bône, Algeria, Dec. 16, 1888), a policeman's son, attended Algerian *lycées*, enlisted in the army and won a place in the military academy at Saint-Cyr, where in 1911 he graduated first in a class that included Charles de Gaulle. In World War I, a lieutenant in the Moroccan division on the western front, he was cited in dispatches five times and twice wounded. Except for two spells at the Ecole de Guerre, Paris, first as a student and later as a teacher, he spent the whole of the period between the two World Wars in the French north African forces. In World War II he was given command of the 15th motorized division in the French First army which, with the British expeditionary force, took the main onslaught of the German armour in the battle of Flanders (May 1940). Taken prisoner, he was held in the fortress of Königstein until June 1941, when the Germans released him in the belief that he would help Vichy defend north Africa against the Allies. When the U.S.-British forces landed in Morocco and Algeria in Nov. 1942, Juin at first obeyed Pétain's order but after putting up some resistance joined the Allies. As general of the army he led his north African troops brilliantly against the Germans in Tunisia and Italy. After the liberation of France he became in Aug. 1944 the first postwar chief of staff and in May 1947 was appointed resident general in Morocco. On Jan. 25, 1951, he was appointed to the additional post of inspector general of the French forces; at the end of the month he accompanied René Pleven, the French prime minister, to Washington. On March 20, 1951, General Dwight D. Eisenhower, supreme allied commander in Europe, appointed Juin commander in chief of the allied land forces in Germany, France and the low countries, a post which he assumed in September.

JUTE. But for a trade agreement between Pakistan and India signed on Feb. 25, 1951, which provided for the supply of 350,000 bales of raw jute immediately and a million bales by the end of June, long closure of the Indian mills had seemed inevitable; at the end of the 1950-51 jute year (July) the Indian industry depended on Pakistan for more than half its raw material. In the same year the Indian mills consumed 5,125,000 bales and had 750,000 bales left in stock.

With a forecast of a raw jute crop from India of about 4 million bales, and an estimated 2·5 million bales to be imported from Pakistan, together with the stocks in hand at the end of July, the total raw jute supply available for the 1951-52 season was therefore expected to be 7·25 million bales. As a result of this information the Indian mills were able to step up their working hours from 42½ to 48 a week from Dec. 10, 1951.

The boom in commodity prices after the beginning of the Korean war did not immediately transmit itself to raw jute, since it was uncertain what action Pakistan was going to take towards supplying India. This delay caused an unnecessarily severe shortage of jute goods throughout the world, a black market for jute goods developed in India and prices rose to impossible levels. It was to counteract this black market that India doubled the export tax on hessian cloth in Oct. 1950. Thus about half the export price of hessian cloth consisted of duties—the Pakistan tax on raw jute exports and the Indian duty on manufactured goods.

Early in March the Indian authorities fixed prices of jute and jute products, resulting in a further price increase, which was to a great extent counter-balanced by the higher taxes.

European mills were to benefit by this heavy tax on the export of Indian goods, and such countries as Belgium, France, Germany and even Spain could sell their manufactures to the United States at cheaper rates than were being offered by India.

United States consumption of jute cloth, however, declined considerably during 1951, and by Oct. 31 had dropped to 38·6 million yd., as compared with 73·6 million yd. in the corresponding month of 1950. Stocks of material held in the United States also declined to 126 million yd. as against 154 million yd. in the previous year.

Despite this loss of business to the European mills, and to such substitutes as cotton sacks and bags made from paper and new coarse fibres, India remained adamant about the export tax and justified it by claiming that world demand was sufficient to absorb all the goods whatever the price. During the first five months of 1951 India's exports of jute cloth and bags were 144,767 tons as compared with 109,871 tons in the corresponding five months of 1950, the equivalent values being Rs. 67·71 crores (crore = Rs. 10 million) and Rs. 21·95 crores. Percentage increase in volume was 31·8% and in average tonnage price 133·8%. These were cost prices to which export duties had to be added.

Throughout the year Pakistan pursued a policy of independence and allocated raw jute to manufacturing countries with a certain fairness. However, it allocated many thousands of bales to countries like Italy, France and Spain under barter agreements, whereby these countries agreed to return 60% of the raw material to Pakistan in finished goods, which Pakistan sold to other countries. Pakistan was also establishing her own manufacturing centre and had already completed buying arrangements for 9,000 looms. Three mills of 1,000 looms each were scheduled for production in 1952 and the rest would come into being within the following eight years.

Although there were occasions during the year when the supply of jute goods to Great Britain from India was short, the deficiencies were made up by purchases from the continental European mills. However, the cost of raw jute increased considerably and it was estimated that manufacturing costs only accounted for one-third of the selling price, raw-material costs accounting for the rest. (*See* also HEMP.) (G. Hs.)

JUVENILE DELINQUENCY. Criminal statistics for England and Wales in 1950 indicated a fresh increase in juvenile crime. The diminution in the number of indictable offences proved against children and young persons in all courts in 1949, as compared with the previous year, was not maintained. The following are the relative figures:

	Under 14	14-17	Total
1948	26,727	17,707	44,434
1949	24,881	15,549	40,430
1950	26,232	16,183	42,415

Of the 42,415 young offenders, no less than 39,314, or 93%, were charged with offences against property. There was an increase over the previous year of 13% in the number of children aged 8 and under 14 found guilty of breaking and entering, and of 8% in young people aged 14 and under 17. There was an increase of 15% of children and young persons found guilty of receiving, but the most significant increase in juvenile crime was in the number of offences of violence against the person. In the age group 8 and under 14, the increase over 1949 was 51% and between 14 and under 17 it was 37%.

The *Sixth Report of the Work of the Children's Department*, issued by the Home Office in May 1951, referred to the continued high rate of juvenile delinquency as a cause of concern. "It was not surprising," the report stated, "that a major war with its disrupting effects on family life should, as in 1914-18, bring about an increase in the number of juvenile offenders. The serious aspect is that the number is still far above the pre-war level." The report reviewed the development of the remedial training of young offenders in approved schools and it was estimated that, on the basis of comparison with the total number of boys and girls who left these schools in 1947-49, there was 66% success with boys and 80% with girls.

The study of causation and of improved methods of diagnosis and treatment of young offenders exercised the attention of research workers from Oxford, Cambridge and London universities, but financial stringency made other than small scale enquiries impossible. A departmental committee of the Home Office, examining the subject of the cinema and juvenile delinquency, reported the general conclusion that the portrayal of lawless acts did not necessarily conduce to delinquency, but that the false values underlying some film stories, if seen repeatedly by children, played their part in weakening moral fibre. Two experiments were commenced; one, at a Home in Buckinghamshire, was directed towards new methods of residential treatment of difficult children in the younger age group, with children selected from those who came before the London juvenile courts, and the other, at a boys' approved school in Wiltshire, attempted to solve the problem of the persistent absconder.

Following the visit to London of three groups of German judges, prison administrators and social workers, invited by the government of the United Kingdom to study juvenile court methods, the federal government of Western Germany introduced a system of probation on the English model into the German penal code. One man and one woman social worker were appointed in each of six towns to supervise and assist young offenders, and this development, directed towards saving from prison the most hopeful of the German delinquent youths, was to be reviewed after two years. (G. J. M. J.)

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JUVENILE EMPLOYMENT: *see* YOUTH EMPLOYMENT.

KASHMIR. Native state in Indian subcontinent; bounded N.W., N.E. and E. by Afghanistan, Sinkiang province of China and Tibet respectively. Area (incl. Jammu and frontier districts): 82,258 sq.mi., Pop.: (1941 census) 4,021,616; (1950 est.) 4,370,000. Ruler, Lieut. General Maharaja Sir Hari Singh.

History. The endeavours of Sir Owen Dixon to arrive at an agreed settlement over Kashmir between India and Pakistan had met with the same fate as those of his predecessors. The Security council, however, was determined not to give up the attempt without a further effort, and at the instance of Sir Gladwyn Jebb, the British representative, it appointed in his place Frank Graham, a distinguished scholar and politician who had been president of the University of North Carolina and minister in charge of defence and manpower in the U.S. Department of Labour during World War II. His instructions were "to proceed to the subcontinent and after consultation with the governments of India and Pakistan to effect the demilitarization of Kashmir on the basis of the U.N. Commission for India and Pakistan resolutions of Aug. 13, 1948, and Jan. 1949." He was to report back to the council after three months on the success

of his undertaking, and any differences still outstanding would be then referred to a panel of arbitrators appointed by the International Court of Justice.

Meanwhile, Sheikh Abdullah, the *de facto* prime minister of Kashmir, was acting as though the ultimate fate of the country was already a *fait accompli*. A drive for the expropriation of feudal holdings had resulted in the confiscation of about 9,000 landlord's estates without compensation. In future no individual was to hold more than 22½ ac., to be cultivated in person, and in this way about 30,000 peasants obtained titles to their lands. In October orders were issued for convening a constituent assembly of 74 members, which claimed to be a sovereign body representing the people of Kashmir. Its primary duty would be to draw up a constitution, though Jawaharlal Nehru declared that it would not be competent to take a valid decision on the question of accession to the Indian union. These proceedings aroused intense resentment in Pakistan: in the words of the foreign minister, Zafrullah Khan, " the proposal to convene a constituent assembly was not only a prejudicial act, but it was deliberately designed to bypass the United Nations and to prevent the holding of a free and impartial plebiscite." As a preliminary to the holding of a plebiscite, Sheikh Abdullah demanded the evacuation of the whole of the Pakistan army of occupation and the liquidation of the Azad Kashmir forces: only after this had been done would the bulk of the Indian troops be withdrawn, the minimum necessary to maintain order and ward off invasion being retained.

In the circumstances, there was little that F. Graham could do, and he returned about a month before the time originally fixed to report upon the situation to the Security council. The council, however, instructed him " to continue his efforts to obtain an agreement of the parties on a plan for effecting the demilitarization of Kashmir," and it was understood that he would make a further endeavour to bring them together during the forthcoming meeting of the United Nations; it was hoped that the lessening of the tension between the two countries which had resulted from the shock at the murder of Liaquat Ali Khan would provide a more favourable atmosphere for the resumption of talks. Both sides agreed that the question of the future of Kashmir was one that could only be settled by the people of that country themselves; the difference of opinion between them was upon the question of the procedure to be adopted in order that these views might be impartially ascertained. The urgency for ending this long-drawn-out dispute became evident when it was realized that India was spending £127 million and Pakistan £60 million yearly on defence, at a time when the money was desperately needed for economic and social development. (H. G. RN.)

KENYA. British colony and protectorate in east Africa, bounded N. by the Sudan and Ethiopia, E. by British Somaliland and the Indian ocean, S. by Tanganyika and W. by Uganda. The protectorate, which constitutes the mainland dominions of the sultan of Zanzibar, extends 10 mi. inland from Tanganyika to Kipini and includes the Lamu archipelago. Total Area: 224,960 sq.mi. Pop. (1948 census): 5,373,231, incl. 29,660 Europeans, 90,528 Indians, 7,159 Goans and 24,174 Arabs. Languages: Bantu and Nilotic; Swahili as *lingua franca*. Religion: Africans mainly pagan, 300,000 Christian; Mohammedanism prevails among some northern tribes and on the coast. Principal towns: (pop., 1948 census): Nairobi (cap., 118,976); Mombasa (port, 91,893). Administration: governor; executive council, 7 *ex-officio* and additional appointed members (5, incl. 1 official, in 1951); legislative council (from May 1952), 7 *ex-officio*, 9 nominated official and 10 (incl. 1 Arab) nominated members from within or without the public service (official side, 26), 14 European, 1 Arab and 6 Indian elected and 1 Arab and 6 African nominated members (unofficial side, 28). Governor, Sir Philip Mitchell.

History. James Griffiths, secretary for the colonies, visited Kenya in May 1951 to discuss constitutional developments, about which talks had already taken place between the governor and the leaders of the European, African and Asian communities. The Europeans wanted to retain a voting power in the legislative council equal to that of the other communities combined, but the non-European groups were reluctant to concede this. As a result of Griffiths' visit the council was to be enlarged from May 1952 to 54 members, with 26 on the official side and 14 Europeans, 6 Africans, 6 Indians and 2 Arabs, a total of 28, on the unofficial side; the seat on the executive council designated as being in the African interest would be filled by an African when it next fell vacant. These changes, announced in the House of Commons on May 31, 1951, were interim measures pending a fuller constitutional review; such a review, Griffiths announced at the same time, would be made within 12 months from the opening of the next legislative council in May 1952. The commission that would be appointed for this purpose would be composed of representatives of all groups in the council under a chairman from outside Kenya. All sides welcomed this careful approach to a most difficult problem, particularly as there was growing support for various activities aimed at closer inter-racial association and co-operation.

An African defence facilities conference, convened by Great Britain and South Africa, was held at Nairobi in August. It was attended by representatives of Belgium, Ethiopia, France, Italy, Portugal and Southern Rhodesia and by a United States observer; Egypt had declined an invitation because of her disputes with Britain. Unanimous recommendations were made to ensure the rapid movement of troops and supplies, if required, to east and central Africa. An ordinance passed early in the year in Kenya provided for compulsory national service (military and civil) for all British subjects and protected persons. The military supply base at Mackinnon Road was closed during the year.

On Jan. 9, Viscount Jowitt, the lord chancellor, inaugurated at Nairobi a court of appeal for east Africa and was given the freedom of the city. Sir Barclay Nihill was appointed president of the court, which had jurisdiction covering Kenya, Tanganyika, Uganda, Zanzibar, Aden, Somaliland Protectorate and Seychelles. Progress in education was marked by the allocation of colonial development grants of £150,000 towards building an inter-racial technical college at Nairobi and another, of £100,000, towards establishing an Institute of Muslim Education at Mombasa. The budget was again a record. Thanks largely to the campaign being conducted in the countries to the north by the East Africa High commission, a locust invasion was on a small scale and crops were satisfactory. Unprecedented cloud bursts in April dislocated the railways and, at one time, flooded Nairobi with 5 in. of rain in three hours.

Education. Schools, 1949 (attendances in brackets): European, 9 primary (2,057), 3 secondary (1,070); Indian, 93 primary (2,050), 10 secondary (2,450); African, 2,697 primary (300,020), 136 secondary and post-primary (10,834); Arab, 6 primary (950), 1 secondary (39); trade and agricultural, 3.

Finance and Trade. Currency: East African shilling (20*s.* = £1 sterling). Budget (1951 est.): revenue £13,400,000; expenditure £12,500,000. Foreign trade (1950): imports £31,700,000; exports £19,700,000. Production (1950): wheat 126,000 tons, maize 135,000 tons, sisal 40,000 tons, pyrethrum 2,000 tons, tea 6,700 tons, sugar 13,700 tons, wattle extract 24,000 tons, gold 23,000 oz., silver 2,600 oz., kyanite 10,000 tons. Livestock (European-owned): cattle 600,000, sheep 289,000, horses 6,500, breeding pigs 9,200, poultry 258,000.

(K. G. B.)

See R. O. Hennings, *African Morning* (London, 1951); T. Askwith, " Community Development in Kenya," *Corona* (London, June 1951).

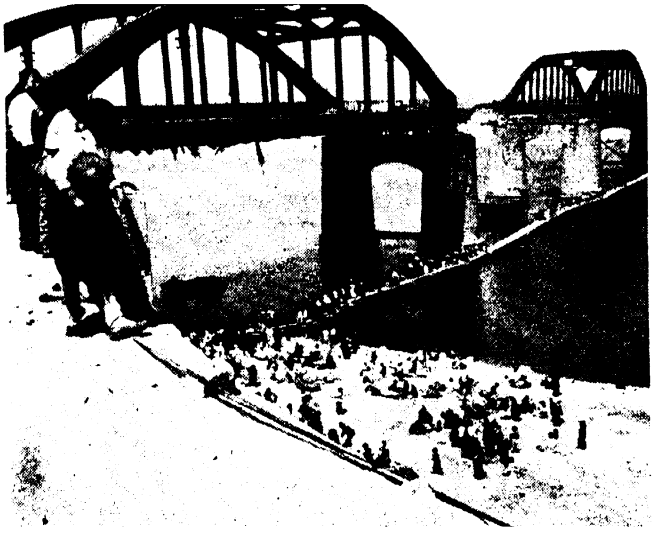
KOBELT, KARL, Swiss statesman (b. St. Gallen, Aug. 1, 1891), was educated at the Eidgenössische Technische Hochschule, Zürich, and obtained his civil engineer's diploma in 1914 and his *docteur ès sciences* degree in 1917. In 1933 he was elected to the cantonal council (parliament) of St. Gallen and appointed head of the public works department. In 1939 he was elected to the national council (federal parliament) and became one of the leaders of the Radical Liberal party. He attained the rank of colonel in the Swiss army and in Dec. 1940 was elected to the federal council (government) as minister of the army. In 1946 he was president of the Swiss confederation and afterwards returned to his previous office. On Dec. 14, 1950, Kobelt was elected vice president (prime minister) of the federal council for 1951. On Dec. 13, 1951, he was elected president of the confederation for 1952.

KOREA. Peninsula extending from Manchuria southward 600 mi. between the Yellow sea and the Sea of Japan: for 11 mi. it borders the U.S.S.R.; the rest of the boundary is with China (Manchuria). Total area: 85,225 sq.mi. Total pop.: (1944 census) 25,120,174; (1950 est.) 29,000,000. The 38th parallel N., chosen in 1945 to separate Soviet and U.S. forces accepting the surrender of Japanese troops, remained —until the Communist aggression on June 25, 1950—as the artificial division between Korean governments organized in each zone. The southern zone had 44% of the area, but its population (Sept. 1949 est.) of 20,189,000 was more than twice that of the northern zone (1949 est., 9,050,000). Religion: Buddhist, Confucian and a unique eclectic religion Tonghak; in 1939 there were about 500,000 Korean Christians. Chief towns in the south (pop., May 1949 est.): Seoul (cap., 1,446,049); Pusan (473,619); Taegu (313,705); Inchon (265,767). In the north: Pyongyang, the northern capital (pop., 1949 est. 450,000).

Republic of Korea (south): president of the republic, Syngman Rhee; prime minister, John Myun Chang.

People's Democratic Republic of Korea (north): chairman of the presidium of the Supreme People's assembly, Kim Du Bon; prime minister and commander in chief, General Kim Ir-Sung.

History. The intervention of Communist China on the side of the North Koreans toward the close of 1950 resulted in the United Nations general assembly declaring Communist China as an aggressor on Feb. 1, 1951, by a vote of 44 to 7 with 9 abstentions. The United Nations had established the U.N. Commission for the Unification and Rehabilitation of Korea on Oct. 7, 1950, to represent the U.N. in bringing about "the establishment of a unified, independent, and democratic government of all Korea." The U.N. had also established the U.N. Korean Reconstruction agency on Dec. 1, 1950, to provide for rehabilitation and relief in Korea. J. Donald Kingsley was appointed director general of the agency on Feb. 7, 1951.



Refugees crossing the Han river by a temporary pontoon bridge built beside a destroyed road bridge.

The inflationary situation that had plagued the Republic of Korea from its inception was aggravated by the war. The index of retail prices for all commodities in Pusan (1947=100) rose from 329 on June 23, 1950, to 2,974 on Nov. 23, 1951. The Joint Korean-American Economic Stabilization committee, established in 1950 to help stabilize the economy, helped the Republic of Korea to prepare a budget for the 1951-52 fiscal year that provided for increased revenue through increased taxes and for reduced government expenditures.

Economic assistance was furnished to South Korea by the U.S. government, beginning in 1945. The programme was the responsibility of the Department of the Army until Jan. 1, 1949, when responsibility was transferred to the Economic Co-operation administration. On April 7, 1951, E.C.A. disestablished its Korean mission and temporarily transferred its supply functions to the Department of the Army. The amount of economic aid which the United States made available through the army and E.C.A. to the Republic of Korea totalled about $500 million for the six years ending Aug. 31, 1951. The Republic of Korea was required to establish a counterpart fund to reflect U.S. aid that totalled $172 million (126,000 million won) in Aug. 1951. (*See* also KOREAN WAR; UNITED NATIONS.)

Education. The literacy rate for the native Korean script was in South Korea about 25% to 30% in 1951; for Chinese ideographs, substantially less.

Agriculture. The Korean economy is basically agricultural with more than two-thirds of the population depending upon farming for their livelihood. Two of the major factors adversely affecting 1951 food production were a shortage of commercial fertilizers and a loss of farm animals. Agricultural production in 1949 included (million bu.): rice (brown) 81·6, barley 34·0, wheat 4·2, rye 1·2, millet 5·8, sorghum 0·6, corn 0·9, buckwheat 1·9, soyabeans 7·2; also tobacco 13·6 million lb., cotton (unginned) 184 million lb., silk cocoons 14 million lb. Fish and marine production in 1949 totalled 299,964 metric tons. In 1951 South Korea had an estimated 350,000 work cattle, 250,000 pigs, 15,000 horses, 30,000 goats and 800,000 chickens.

Foreign Trade. In 1949 South Korea had imports valued at $109 million and exports at $14 million. Most imports came from the U.S. with Japan the second most important supplier; the major destination of South Korea's exports was Hong Kong, with Japan of secondary importance. Eighty-five per cent of South Korea's imports were financed through U.S. aid. Chief imports were fertilizer, cotton and cotton products and fuel; chief exports were foodstuffs and ores and minerals. North Korea's trade was chiefly with China and the Soviet Union.

Industry. The major mineral resources are found in North Korea where there are important iron ore, copper, lead, zinc, pyrites, coal and magnesite deposits. Production in 1949 (est. m. tons): pig iron, 9,000,000; synthetic fertilizers 332,000. Mineral production in South Korea in 1949 included (metric tons): coal (anthracite and lignite) 1,128,000; tungsten 1,342; graphite 39,863; copper 308; salt 189,900; gold 106 kg.; silver 589 kg.

Transport and Communications. Korea has about 3,500 mi. of railways, with the principal line extending from Pusan, through Seoul and Pyongyang to Sinuiju at the Yalu river. There are about 21,000 mi. of roads. On Jan. 1, 1950, South Korea had 9,700 lorries, 1,000 buses, 2,600 passenger cars and 1,500 taxicabs.

Finance. The budget of the Republic of Korea for the fiscal year ending March 31, 1951, was approximately balanced when originally adopted with 317,000 million won in expenditures and the same amount in expected revenues. However, with the outbreak of hostilities, six supplementary budgets caused actual expenditures to total about 612,000 million won and revenues to total about 472,000 million won. Currency in circulation increased from 60 million won at the end of May 1950 to 229 million won at the end of Dec. 1950 and 496 million won at the end of Oct. 1951. The official foreign exchange rate was (March 1951) 2,500 won to the U.S. dollar; the black market rate at the same time was 7,600 won to the U.S. dollar.

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U.S. Department of State, *Guide to the U.N. in Korea* (Aug. 1951), *United States Policy in the Korean Conflict* (Sept. 1951) and *The Conflict in Korea* (Oct. 1951). (S. NR.)

KOREAN WAR. Lieut. General Matthew B. Ridgway (*q.v.*) assumed command of the U.S. 8th army after the death of General Walton H. Walker on Dec. 23, 1950. At that time the military situation looked grim for the United Nations. Their forces were reorganizing in defensive positions near the 38th parallel in expectation of an all-out enemy attack.

On Jan. 1, 1951, a Communist offensive directed toward Seoul in the west, and Wonju in the centre, achieved penetrations of 10 to 12 mi., forcing a United Nations withdrawal. By Jan. 4 Seoul was occupied by the Communist forces and United Nations forces were organized on a line south of the Han river. The Wonju salient made the Han river line untenable, and on Jan. 7 new defensive positions were established on a line extending from Pyongtaek northeast to Wonju.

About Jan. 12 United Nations lines were generally stabilized. For the remainder of 1951, U.N. forward positions were north of this line, which ran generally from the west coast at Pyongtaek northeast to Wonju, southeast to Chechon, east to Yongwal, northeast to Chongson and to Samchok on the east coast. With the final stabilization of the front line about Jan. 24, the third phase of the Korean war, which had begun with Chinese Communist intervention in force on Nov. 3, 1950, came to a close.

During the period, United Nations naval forces conducted constant patrolling and reconnaissance operations, denying Korean waters to Communist warships and shipping. Surface units executed gunfire missions in support of troops, especially along the east coast and in the Inchon area. Minesweeping operations continued, mostly in the areas in which gunfire support ships were operated.

On Jan. 13, 1951, units of the United Nations air forces completed 200 consecutive days of operation and 100,000 sorties. Troops, tanks and artillery were the primary targets of supporting aircraft. Armed reconnaissance and night intruder missions comprised the bulk of the other flights. North of the battle area, communication centres and airfields were continually attacked. Limited objective attacks and reconnaissance in force by United Nations ground forces forced Communist troops into the open and United Nations ground support aircraft inflicted heavy casualties on them.

United Nations Counter-offensive, Jan. 25 to April 22, 1951. During this period United Nations forces, in a series of limited objective attacks, moved northwards from the Jan. 12 line to positions across the 38th parallel and approximately 50 mi. N. of the stabilized January line. Seoul was retaken on March 14. U.N. units crossed the 38th parallel in force on April 3.



***The United Nations delegates** to the armistice talks which opened in Kaesong, on July 10, 1951. Left to right: Major General L. C. Craigie; Major General Paik Sun Yup (South Korea); Vice Admiral C. T. Joy, leader of the delegation; Major General Henry I. Hodes; and Rear Admiral A. Burke.*

During this phase, United Nations efforts were directed toward "killing Chinese," as General Ridgway put it; the United Nations was not so interested in gaining ground as it was in local counter-offensives and air punishment aimed at prevention of the build-up for large-scale Communist offensive action. The U.N. plan consisted of constant movement, keeping the enemy off balance and limiting his initiative.

Intelligence reports indicated that Chinese units on the central front had been relieved and replaced by at least three refurbished armies. At the same time, a powerful reserve force was built up including 12 fresh North Korean divisions together with 15 Chinese Communist divisions and 12 additional Chinese Communist divisions recently withdrawn from combat. Communist forces totalled more than 60 divisions.

Communist resistance throughout the period had been strong in most areas and was characterized by greater use of artillery and the construction of strong entrenchments. At the close of the period, marked increase in activity in the Communist rear, accompanied by a continued deployment of combat forces into forward areas, gave warning of an imminent attack.

United Nations air dominance continued despite challenges by an increasing number of Soviet-built MIG jet aircraft. The first big air battle took place on April 12 when approximately 220 United Nations and Communist planes were engaged near Sinuiju, on the Manchurian border.

Both sea forces and air forces concentrated on an interdiction programme designed to prevent the Communist forces from building up sufficient forces and material for a large-scale attack. In this programme, bombardment from sea and air intercepted supplies and men on the long trip from the Manchurian border to the front lines. Rail traffic was bombed and shelled, forcing the Communists to rely upon lorry transport which then came under fire from U.N. aircraft.

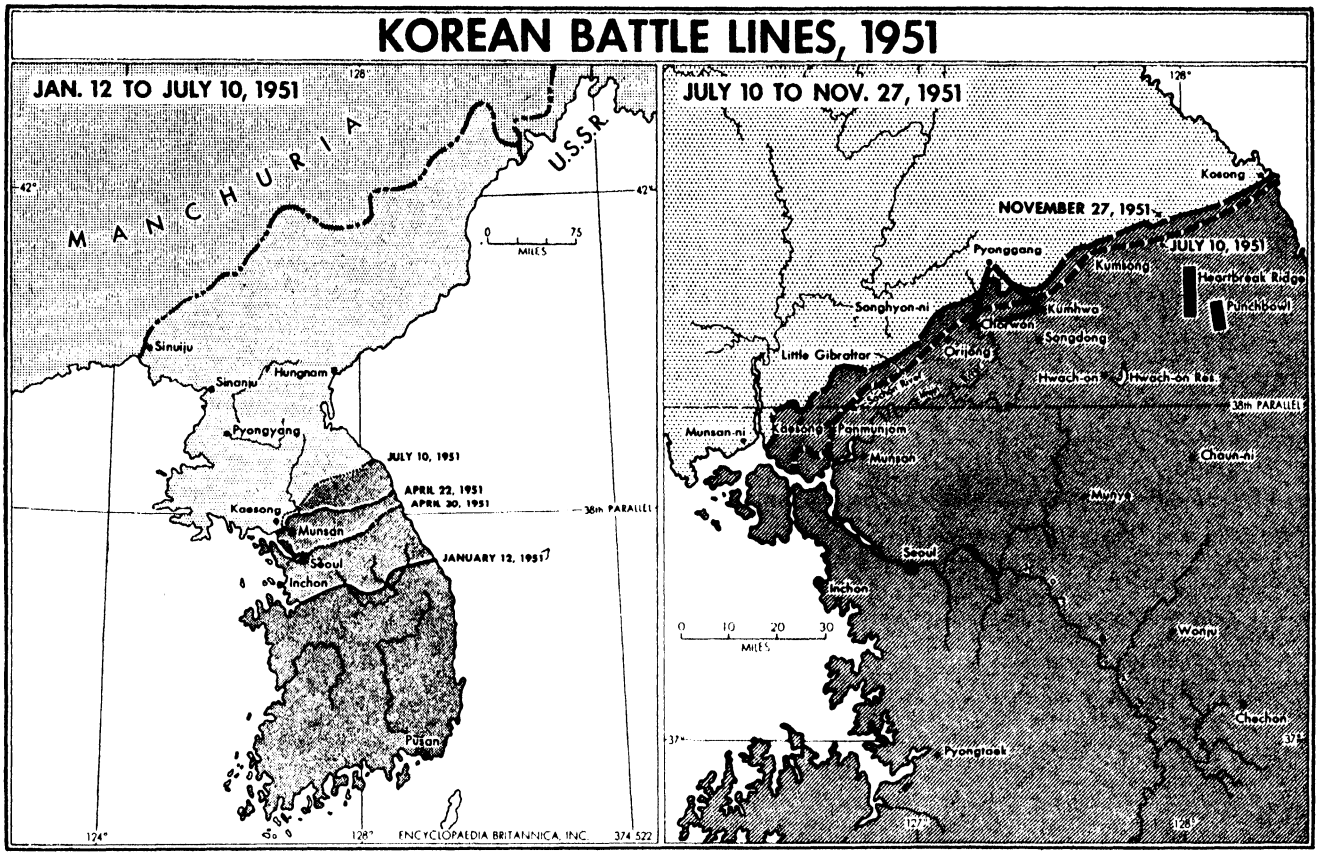
On April 11, 1951, General Douglas MacArthur was relieved by President Harry S. Truman as United Nations commander and replaced by General Ridgway. (*See* MACARTHUR, DOUGLAS.) Lieut. General James Alward Van Fleet (*q.v.*) was on the same day appointed commander of the 8th army (he was promoted general on July 9).

Chinese Spring Offensive, April 22 to 30. Chinese Communist forces, composed primarily of fresh troops massed along the western half of the front, launched the initial assault of a general offensive on April 22. By April 25 they had launched heavy attacks along the entire front from the Hwachon reservoir west to Munsan-ni in an effort primarily to pinch off Seoul in the west and in the centre to sever the east-west road from Seoul to Kansong, on the east coast.

U.N. ground forces with the assistance of ground support aircraft fought a determined defensive battle for the city of Seoul. By the end of April, the Communist thrust had been halted, but the U.N. line had been pushed back from 10 to 35 mi. on various parts of the front. About 600,000 North Korean and Chinese soldiers had been employed by the Communists in the west, the maximum forces available to them in Korea.

The front lines at the end of April ran almost due east from the Han river, passing 3 mi. N. of Seoul to Munye and northeast through Chaun-ni and Sori to Habond near the east coast.

Operations from May 1 to Dec. 31, 1951. On May 9 more than 300 United Nations fighters and bombers delivered the



most concentrated attack of the war on air installations at Sinuiju on the south bank of the Yalu river. On May 16, 21 Chinese Communist divisions launched an attack down the centre of the peninsula on a 75-mi. front. United Nations forces withdrew 12 mi., but by May 20 the attack had been contained, with the Communists suffering heavy casualties.

A powerful counter-offensive was launched by the United Nations forces on May 19 on the left side of the line, and on May 21 on the right. By the end of the month Communist forces were driven 20 mi. to the north. The front lines again approximated to those of Jan. 1, 1951, near the 38th parallel.

In the period May 15-30 the Communists suffered more than 100,000 casualties and lost 12,000 as prisoners. Their forces available for combat were reduced from 80 infantry divisions to less than 70, of which 16 were seriously depleted.

In the first two weeks in June, U.N. pressure forced the slow withdrawal of Communist forces. Heavy resistance in the "iron triangle" area (Kumhwa-Chorwon-Pyonggang) caused severe fighting, but by June 12 U.N. forces had seized the southern portion of the area. All along the line Chinese Communist forces gave up ground, varying from 5 to 12 mi. in different sectors. On June 13 U.N. forces entered Pyonggang, the northern tip of the triangle.

From the end of June truce discussions shared the headlines. Ground fighting, though heavy in such places as Heartbreak ridge, Little Gibraltar and the Punch Bowl, was conducted mainly, so far as the U.N. was concerned, to secure dominating features and to make the battle line as defensible as possible. In August, though the front was only moderately active, U.N. patrols and front lines again felt the impact of an increased strength in hostile artillery and mortars. By the end of the month, front lines remained almost unchanged.

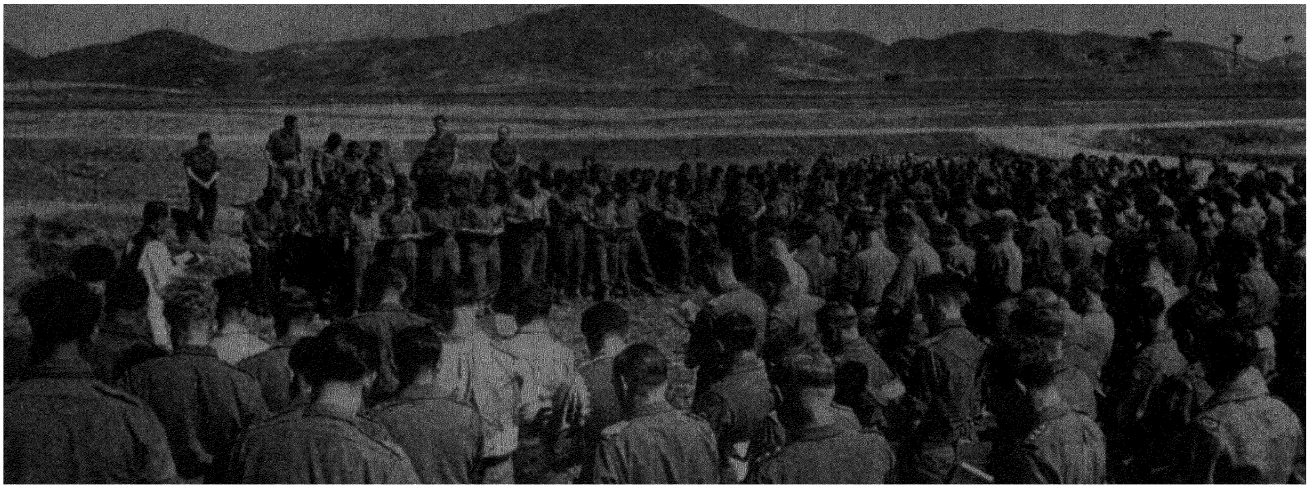
September's action was largely vigorous patrolling with a short aggressive drive by the Communist forces from Sept. 6 to 9. In October the Communists continued on the defensive with aggressive U.N. attacks concentrated in the western part of the front. Bitter fighting for high ground took place south and east of Orijong as commanding hills became of greater importance.

Front lines changed only slightly during November. Ground action in December followed the pattern of October and November, with few engagements larger than company size. Front lines at the close of 1951 remained at the same position agreed to on Nov. 27.

Peace Negotiations. At the conclusion of a U.N. radio address in New York city on June 23, 1951, Yakov Malik, chief Soviet delegate to the U.N., made the statement: "The Soviet people believe that, as a first step, discussions should be started between the belligerents for a cease-fire and an armistice providing for the mutual withdrawal of forces from the 38th parallel." Admiral Alan G. Kirk, U.S. ambassador to the U.S.S.R., after a conference in Moscow with Andrey Gromyko, Soviet deputy foreign minister, cabled the State Department that the peace feeler seemed authentic. President Truman instructed General Ridgway to make preliminary arrangements for talks.

On June 30 a message from General Ridgway was broadcast to the Communists inviting them to discuss an armistice and proposing a meeting aboard a Danish hospital ship in Wonsan harbour. On July 1 Peking radio broadcast a reply from General Kim Ir Sung, supreme commander of the North Korean army and General Peng Teh-huai, commander of the Chinese Communist army, stating that the Communist representatives would meet with United Nations representatives for talks concerning the cessation of military action. After a number of messages back and forth regarding details of the site, liaison officers of the two forces met at Kaesong on July 8 to discuss arrangements for the first conference to be held on July 10.

The United Nations delegation included Vice-Admiral C. Turner Joy, Major General L. C. Craigie, Major General Henry I. Hodes, Rear-Admiral A. A. Burke and Major General Paik Sun Yup (of South Korea). The chief Communist negotiator was Lieut. General Nam Il, North Korean chief of staff.



Officers and men of the 1st battalion, the Gloucestershire regiment, taking part in a memorial service in Korea for the men who fell in the battalion's gallant stand on the Imjin river in April 1951.

In the opening talks the U.N. delegation emphasized that it was empowered to discuss only military matters; it could not take up political or economic matters, or military matters unrelated to Korea. The U.N. delegation suspended talks from July 12 to 14 because the Communists refused to allow Allied newspaper correspondents in the neutral zone.

The Communist delegation at first insisted upon including on the agenda an item calling for withdrawal of foreign troops but on July 25 General Nam Il, chief Communist delegate, submitted an agenda which was agreed to by both parties. It included: (1) adoption of agenda; (2) fixing a military demarcation line between both sides so as to establish a demilitarized zone; (3) the composition, authority and functions of a supervising organization for carrying out the terms of a cease-fire and armistice; (4) arrangements relating to prisoners of war; (5) recommendations to governments on both sides.

Once the agenda had been agreed upon, the discussions turned to the second point and immediate disagreement resulted. The point of issue became the 38th parallel. The United Nations delegation proposed a buffer zone 20 mi. deep in front of the Allied line, while the Communists proposed a buffer zone 10 km. wide on each side of the 38th parallel. United Nations insistence upon a line based upon the existing battle positions was based primarily on the lack of military significance of the 38th parallel, the greater length of the line if the 38th parallel were used (210 mi. as opposed to 125 mi.), the fact that acceptance of the 38th parallel would have required a major withdrawal by U.N. forces and South Korean opposition to permanent use of a line originally adopted only for the surrender of Japanese forces.

The negotiations remained at a deadlock on this question throughout August, since the Communists would consider no other item on the agenda until it had been settled.

On Aug. 5 a company of armed Communist infantry was observed by the United Nations delegation not more than 100 yd. from the conference room. General Ridgway protested at this violation of the conference zone neutrality agreement and, after investigation, the Communists admitted the violation and promised to adhere to the agreement. In the succeeding days United Nations liaison officers were called upon to investigate alleged violations by the United Nations of the neutrality area. In each instance the investigation proved to the satisfaction of the United Nations commander that the charges were false and that evidence of violation had been manufactured by the Communists.

Six sub-committee meetings of lower-ranking officers of both sides were held between Aug. 17 and 22, but no progress was made. More alleged violations of the neutral zone were put forward by the Communists without substantiation, and on Aug. 23 the Communists suspended negotiations entirely.

On Sept. 6 General Ridgway proposed that liaison officers of the two forces meet at Panmunjom to discuss the selection of a new site where negotiations could be continued without interruption. After several exchanges concerning alleged violations of the neutral zone, General Ridgway proposed that both delegations meet approximately midway between the battle lines, in the vicinity of Songhyon-ni.

One United Nations violation of the neutral zone occurred on Sept. 10 when a B-26 attacked the neutral zone. United Nations apologies were immediately published. On Oct. 12 a United Nations jet aircraft made two ground attacks in the Kaesong area. General Ridgway apologized and accepted responsibility.

On Oct. 22 liaison officers of the two forces signed an agreement specifying terms for the resumption of armistice negotiations. Ratification followed on both sides. The conference site was a circular area with a radius of 1,000 yd. in the vicinity of Panmunjom. No armed personnel except designated military police were permitted in the area, nor were hostile acts of any kind to be carried out within its limits. Both delegations and their parties had free entrance to and movement within the area. The Communists were responsible for suitable joint facilities for a meeting place.

The meeting of the complete delegations on Oct. 25 was the first since the Communists suspended the negotiations on Aug. 23. Agreement was soon reached to resume regular delegation meetings for the purpose of discussing agenda item (2), the demilitarized zone. The controversy which arose in subsequent meetings centred about a fundamental divergence of views as to whether the cease-fire should be put into effect immediately a demilitarized zone was agreed upon or whether it should wait until agreement had been reached on other items of the agenda. The United Nations position was that a cease-fire should not go into effect until all items on the agenda had been agreed to by both sides.

This position was based primarily on possible jeopardy to the United Nations efforts in the event of long drawn-out peace conferences, giving the Communists an opportunity to build up ground and air strength in close proximity to the battle line under protection of a cease-fire. Further, it was considered necessary to continue pressure on the Communists to maintain a willingness on their part to conclude an early acceptable armistice.

On Nov. 27 both delegations ratified an agreement on the establishment of a demilitarized zone.

1. The principle is accepted that the actual line of contact between both sides will be made the military demarcation line and that at the time specified in the signed armistice agreement both sides will withdraw 2 km. from this line so as to establish the demilitarized zone for the duration of the military armistice.

2. If the military armistice agreement is signed within 30 days after the two delegations approve in the plenary session this agreement and the specific location of the military demarcation line and demilitarized zone determined by the sub-delegations on the basis of the above-stated principle and in accordance with the present line of contact, the military demarcation line and demilitarized zone shall not be changed, regardless of whatever changes may occur in the actual line of contact between both sides.

3. In view of the fact that hostilities will continue until the signing of the armistice agreement, if the military armistice agreement is not signed within 30 days after the two delegations approve in the plenary session this agreement and the specific location of the military demarcation line and the demilitarized zone as determined in paragraph 2 above, the sub-delegations shall revise, immediately prior to the signing of the military armistice agreement the above military demarcation line and the demilitarized zone in accordance with the changes which have occurred in the actual line of contact between both sides, so that the revised military demarcation line will coincide exactly with the line of contact between both sides immediately prior to the signing of the military armistice agreement and will constitute the military demarcation line for the duration of the military armistice.

The agreed line of contact ran in general from the Sachon river on the west, northeast to a point about 6 mi. N. of Chorwon, generally east to a point north of Kumwha, northeast to Kumsong, generally east to a point north of the Punch Bowl region and northeast to a point on the coast a few miles south of Kosong. By dropping their insistence upon the 38th parallel as an armistice line, the Communists gave U.N. negotiators a real indication that an armistice could be achieved by agreement. Thus, with the 30-day agreement, negotiations could turn to the next item on the agenda.

On Nov. 30 discussions began on agenda item (3), and controversy arose about the composition, authority and functions of a supervising organization for carrying out the terms of a cease-fire and armistice. The U.N. Command proposed that:

A. Both sides shall designate an equal number of members to form a military armistice commission which shall be responsible for supervising the execution of an adherence to the whole armistice agreement. The military armistice commission shall be provided with, and assisted by, observer teams which shall be responsible to, shall report to and shall be subject to the direction and supervision of the military armistice commission only. The observer teams shall be composed of representatives of nations neutral in the Korean War, such nations to be mutually agreed to by both sides.

B. Observation outside the demilitarized zone will be performed only by neutral observer teams. Observation within the demilitarized zone may be performed by neutral teams, by joint teams selected by the military armistice commission, or by the military armistice commission itself.

C. Neutral observer teams shall be located at such land, sea, and air ports of entry and communication centres as are mutually agreed to by both sides. These observer teams shall be permitted freedom of movement over principal lines of communication throughout all of Korea and each side shall afford these teams full assistance in the execution of the duties assigned them by the armistice commission. In addition, such periodic aerial reconnaissance and observation and photographic flights as are mutually agreed to by both sides will be performed by neutral teams.

D. Neither side shall increase the level of military units, military personnel, war equipment, or war material existing in Korea at the time the armistice becomes effective. The rehabilitation, expansion, and improvement of existing airfields and aviation facilities and construction of new airfields and new aviation facilities shall not be permitted.

On Dec. 3 two proposals were submitted by the Communists on agenda item (3):

1. In order to ensure the stability of the military armistice so as to facilitate the holding by both sides of a political conference of a higher level, both sides shall undertake not to introduce into Korea any military forces, weapons and ammunition under any pretext.

2. In order to supervise the strict implementation of the stipulation of paragraph (1), both sides agree to invite representatives of nations neutral in the Korean War to form a supervisory organ to be responsible for conducting necessary inspection, beyond the demilitarized zone, of such ports of entry in the rear as mutually agreed upon by both sides, and to report to the joint armistice commission the result of inspection.

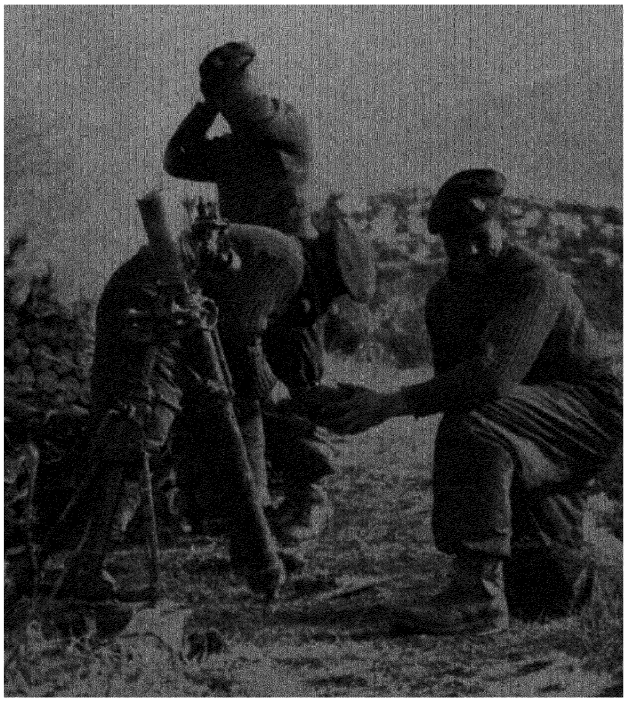
The Communist proposals would have stopped the U.N. rotation programme, stopped training programmes for lack of equipment and ammunition replacement and, with respect to the second proposal, would have confined inspection to the demilitarized zones and "ports of entry", which were not to include airfields and would not have prevented the construction and repair of military air bases by both belligerents.

In submitting a new "end of the year" proposal, the U.N. made several important concessions including: (1) limited, rather than unlimited troop rotation; (2) no U.N. air observation of North Korea; and (3) certain North Korean airfields to be repaired for civilian use. In return, the Communists were asked to agree not to construct or use North Korean airfields for military purposes.

On agenda item (4), arrangements pertaining to prisoners of war, the Communists agreed, after continued U.N. recommendations, to open negotiations before discussions on item (3) were completed. Discussions on item (4) started on Dec. 11.

On Dec. 18, after a Communist concession, prisoner lists were exchanged of 132,474 Communists and 11,559 U.N. troops (*see* PRISONERS OF WAR). The U.N. protested at the small number of names in view of the 88,000 South Korean and 11,000 U.S. troops carried as "missing in action," but the Communists would permit no inspection of their prison camps by the Red Cross, and no other means for verifying names or numbers of U.N. prisoners until after an armistice had been signed. The Communists protested that 50,000 names were missing from the United Nations command's list of prisoners.

Negotiations for exchange of prisoners, on an "all-for-all" basis as proposed by the Communist on a "one-for-one"



Men of the Royal Ulster rifles firing a three-inch mortar in the Wonju area of South Korea.

CASUALTY FIGURES FROM BEGINNING OF WAR TO DEC. 31, 1951, REPORTED TO SECRETARY GENERAL, UNITED NATIONS

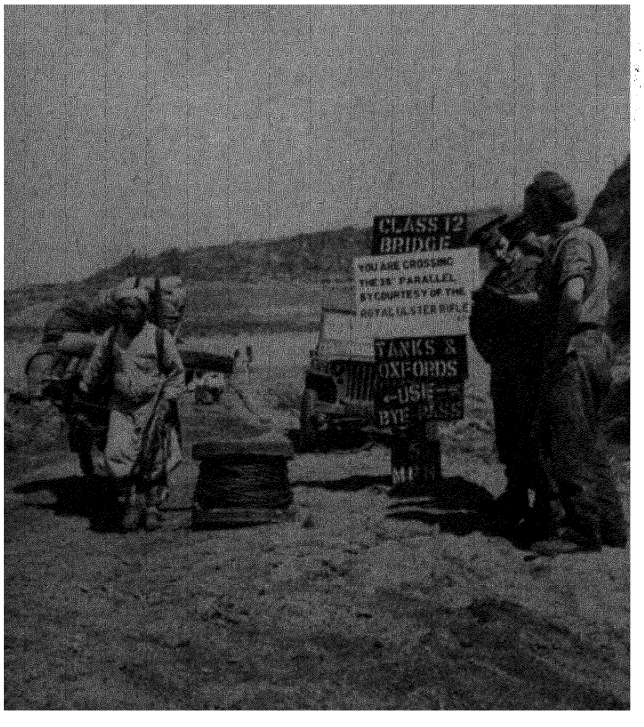
	Dead*	Wounded injured	Missing captured	Total
Australia	148	547	14	709
Belgium†	32	125	2	159
Canada	127	524	5	646
Colombia	32	99	—	131
Ethiopia	37	139	—	176
France‡	153	700	14	867
Greece	88	265	1	354
Netherlands	71	269	3	343
New Zealand	17	41	1	59
Philippines	49	197	58	304
South Africa	7	2	21	30
Thailand§	40	304	4	348
Turkey	456	1,352‖	404	2,212
United Kingdom	437	1,440	1,156	3,033
United States	17,754	73,392	12,593	103,739
Republic of Korea	27,690	103,887	61,383	192,960
Totals	47,138	183,273	76,659	306,070

* incl. killed in action, died of wounds, accidents, disease, etc. † incl. contingent provided by Luxembourg. ‡ at Dec. 15; the exact figure for "wounded" was not available, but was known to exceed 700. § at Nov. 4. ‖ number of cases of wounding; may include the same person more than once in accordance with the number of wounds he suffered.

basis with voluntary repatriation as proposed by the U.N. continued for the remainder of the year.

At the end of the year the following points were unresolved: on agenda item (3), rehabilitation of certain North Korean airfields for civilian use (U.N.) *v.* no control of airfields in North Korea, and replenishment of war material (U.N.) *v.* no replenishment; on agenda item (4), the exchange of prisoners on a one-for-one basis with right of individual choice (U.N.) *v.* exchange on an all-for-all basis.

The Emergence of a Powerful Chinese Air Force. The most significant development in air warfare in Korea during 1951 was the threat of the Chinese Communists' achieving air supremacy. Two things were making this possible: the superiority in certain respects of the Soviet-built MIG-15 over U.N. jets, principally the U.S. F-86; and the fact that Soviet planes were being distributed in quantity to the Chinese Communist air force.



Military police and a Royal Ulster rifleman standing at the 38th parallel while a Korean crosses.

On Nov. 1, 1950, in "MIG alley" between Sinanju and the Yalu river, U.N. pilots encountered MIG-15 jet aircraft for the first time. In succeeding months, it became necessary to escort B-29 aircraft on their bombing runs against bridges and rail facilities on the Yalu river because the MIG-15, capable of speeds up to and surpassing the speed of sound, could intercept and destroy unescorted B-29s.

The success of "Operation Strangle," the U.N. air interdiction programme designed to prevent or delay the movement of Communist reinforcements and supplies, brought a violent reaction from the Chinese, and they rushed jet aircraft into action.

Intelligence reported that the Chinese Communist air force had more than 1,400 aeroplanes in north China and Manchuria of which approximately half were MIG-15s.

On the sea, the Communists had no real capability because of the tremendous superiority of the U.N. sea forces. On the ground, superior numbers of enemy were countered by U.N. fire power. Only in the air, however, was the enemy's numerical superiority accompanied by a corresponding advantage in fire-power.

U.N. Participation. Countries other than the U.S. and Republic of Korea contributing forces as at Dec. 31, 1951, were, with forces contributed:

AUSTRALIA, ground troops, 3 destroyers, fighter squadron; BELGIUM, ground unit, air transport; CANADA, brigade group, 3 destroyers, air transport squadron; COLOMBIA, infantry battalion, frigate; COSTA RICA, sea or air bases; CUBA, infantry company; DENMARK, hospital ship; ETHIOPIA, contingent of 1,069 officers and men; FRANCE, unit of ground forces; GREECE, unit of ground forces, 6 transport aircraft with crews; INDIA, field ambulance unit; ITALY, 100-bed field hospital unit; LUXEMBOURG, infantry unit; NETHERLANDS, 2 to 3 infantry companies, destroyer; NEW ZEALAND, artillery unit, 2 frigates; NORWAY, merchant shipping, 100-bed mobile surgical hospital; PHILIPPINES, combat team of 5,000 officers and men, 17 Sherman tanks, 1 tank destroyer; SWEDEN, field hospital unit; THAILAND, regimental combat team, 2 corvettes and navy transport, 3 C-47 aircraft and 4 crews; TURKEY, force of 4,500 men; UNION OF SOUTH AFRICA, fighter squadron; and UNITED KINGDOM, infantry brigade and other ground units, naval forces.

Strengths of United States forces were secret and details of South Korean forces had not been reported by the end of the year. On June 9, 1951, however, the *New York Times* estimated total Allied forces in and around Korea at from 582,000 to 697,000. Of these, probably well over 250,000 were U.S. while the South Korean total strength was probably in excess of that of the U.S. although only about 120,000 to 160,000 South Koreans could be termed combat forces. (*See* also UNITED NATIONS.) (C. V. C.; G. S. B.)

KÖRNER, THEODOR, Austrian army officer and statesman (b. Komarno, Hungary [now Czechoslovakia], April 24, 1873), was a colonel on the general staff of the Austro-Hungarian army when World War I started. In May 1915, when Italy declared war on Austria-Hungary, he was appointed chief of staff and later commander of the Isonzo (Soča) army and was successful in stemming the Italian offensives. After the dissolution of Austria-Hungary in Nov. 1918 he was appointed inspector general of the new Austrian army. He retired in 1920, joined the Social Democratic party and sat from 1925 to 1934 as a delegate for Vienna in the *Bundesrat* (upper chamber of the federal parliament). After the Socialist rising of Feb. 1934 he was imprisoned for a year as one of the leaders of the Socialist para-military *Schutzbund.* After the *Anschluss* the Nazis tried vainly to enlist his support. He was twice arrested. He

reappeared on the political scene after World War II and in Aug. 1945 the Soviet military authorities appointed him burgomaster of Vienna but he made it clear that he was strongly opposed to Communism. He soon won popularity and prestige and as Socialist candidate for the presidency of the republic Körner was elected on May 27, 1951, by 2,172,806 votes to the 2,004,290 which went to Heinrich Gleissner, his Christian Democratic opponent.

KRIPALANI, JIWATRAM BHAGWANDAS, Indian politician (b. Hyderabad, Sind, 1888), was educated at Wilson college, Bombay, Sind college, Karachi (from both of which he was expelled for political activities), and Ferguson college, Poona. He was professor of history at Muzaffarpur college, Bihar (Calcutta university), 1912-17, and professor of politics in the Benares Hindu university, 1919-20; from 1923 to 1928 he was chancellor (Hindi *acharya*, a title that he kept thereafter) of the *Gujerat Vidyapith*, Ahmedabad, an unofficial " national university " formed in 1920 for Indian students who had left British-controlled colleges in accordance with " non-co-operation." In 1917 he had thrown in his lot with M. K. Gandhi and later abandoned academic life to devote himself to the *Ashram* (abode of peace), Village and *Khadi* (cottage industry) movement. Acharya Kripalani was general secretary of the All-India Congress from 1934 to 1946 and president of the party from Oct. 1946 to Nov. 1947 when he resigned; he was imprisoned on various occasions, the ninth time being from Aug. 1942 to June 15, 1945. In Sept. 1950 he again stood for the party presidency but was defeated by Purshottamdas Tandon (*q.v.*). At about this time Kripalani emerged as the leader of a left-wing " democratic front " of Congress, with Ahmed Rafi Kidwai, the communications minister, as his principal lieutenant. The faction was ideologically similar to Congress, but firmly opposed to the right-wing party administration of Tandon. It was known that Kripalani and his associates enjoyed a degree of sympathy from Jawaharlal Nehru (*q.v.*); early in May 1951, however, they acceded to the prime minister's request that the " front " should be dissolved. But Kripalani soon made it plain that this was the merest formality and that a new secession group replacing the disbanded democratic front, probably to be called the " People's Congress," would be formed. On May 17, following the rejection by Tandon of his suggestions for the reform of the Congress elections and secretariat, Kripalani resigned from the party; he said that he considered it unnecessary at that stage to form an opposition *bloc*, and that he would remain in parliament until the autumn elections. On June 14, however, the committee of a convention organized by Kripalani to form the proposed People's Congress met under his presidency at Patna, Bihar, and on June 17 it was announced that the new organization would be called the Kisan Mazdoor Praja (peasants', workers' and tenants') party. The objective of Kripalani's party at home was the formation of " a free, democratic, casteless and classless society by peaceful means "; in foreign policy he would seek to " restrain a quixotic impulse to save the world." Kripalani wrote a large number of books on Indian politics, including *Gandhi the Statesman* (Nov. 1951).

KUWAIT: *see* ARABIA.

LABOUR PARTY: *see* POLITICAL PARTIES, BRITISH.

LABRADOR: *see* CANADA.

LABUAN: *see* BRITISH BORNEO.

LACROSSE. An outstanding event in women's lacrosse in 1951 was a visit to Great Britain, from Aug. 27 to Oct. 16, of a team of the United States Women's Lacrosse association. In the course of an extensive tour of the British Isles, they took part in a lacrosse holiday week at Roedean school, Brighton, where they met women players from all parts of the British Isles, and played, unsuccessfully, against the British team that toured the U.S. in 1949. Four other important games were against Scotland and Ireland, which they won, and against England and Wales, which they lost. The greatly improved standard of their play showed that the game was making progress among women in the U.S. The annual international tournament between England, Scotland, Wales and Ireland, was again won by England.

In men's lacrosse, the annual competitions in Australia, Canada, England and the U.S. were contested with the customary enthusiasm. An exhilarating North *v.* South game at Troy, New York, resulted in a narrow victory for the North by 12-11; and in the annual England *v.* the Rest game at Manchester, the Rest won by the comfortable margin of 14 goals to 9. (G. H. BA.)

LAGERKVIST, PÄR FABIEN, Swedish writer (b. Växjö, Sweden, May 23, 1891), after studying at the University of Uppsala, went abroad for many years, but after 1930 lived outside Stockholm. In 1941 he was made a doctor of philosophy, *honoris causa*, at the University of Gothenburg. The devout religious background of his childhood made a deep and lasting impression on him and, although as a young man he deviated from it, it remained the source of the naïve sincerity which, together with a neo-platonic humanism, characterized his work. An early contact with modern expressionistic art made him try to realize its parallel in literature, and his early writings were created in this vein. More deeply than any other Swedish writer he felt the tragedy of World War I; works from this period are *Ångest* (Anguish) and *Kaos* (Chaos). Very early his interest turned also towards dramatic art, and his plays, through their symbolism, linked up with the " dream plays " of Strindberg and decisively influenced Swedish drama.

When, in the early 1930s, new creeds of violence were proclaimed, Pär Lagerkvist immediately realized their danger, and his writings from this period (an important work being *Bödeln* [The Hangman], 1939) showed a firm resistance to evil. In 1944 he published his first full-length novel, *Dvärgen* (The Dwarf), a story with a Renaissance setting, dealing with the evil in man. *Barabbas*, published in Sweden in 1950, also appeared in translation in Denmark, Norway, Finland, France, Germany, Switzerland, Holland, England and America. In 1951 Pär Lagerkvist was awarded the Nobel prize for literature, for " the artistic power and deep integrity with which he seeks an answer in his writings to Man's eternal problems." (A. L. BLR.)

LAND REFORM: *see* PEASANT MOVEMENT.

LAOS: *see* INDOCHINA.

LATIN AMERICAN LITERATURE. The greatest surprise of 1951 was perhaps *Los pies descalzos*, a first novel by a renowned astronomer, 54-year-old Luis Enrique Erro of Mexico. In *Los pies descalzos* he emerged as a mature, extremely gifted novelist. In retelling the life story of a " barefooted " Indian girl, a mother at 20 and later wet nurse to a wealthy Spanish family, Erro presented a realistic picture of the exploitation of the underprivileged in the sugar cane plantations during Porfirio Díaz's régime. Among other memorable works of fiction for 1951 were: a revised edition of the Venezuelan Antonio Arraiz's *Dámaso Velázquez*, retitled *El mar es como un potro*; *La Torre*, the last novel in one of Eduardo Mallea's brilliant cycles about life in Argentina; and two posthumous Ecuadorian works,

Miguel Angel Corral's *Las cosechas* and José de la Cuadra's *Los monos enloquecidos*. J. S. González Vera produced a series of delightful autobiographical vignettes in *Cuando era muchacho*.

Evelina Bobes Ortega, from Mexico, was awarded the Lanz Duret prize for her warm and beautifully conceived first novel *Otoño estéril*. Indeed, the authors of many of the most impressive works of fiction of 1951 were women. From Argentina came *La rosa no debe morir* by María de Villarino, and *Los espejos*, a first novel by the promising short story writer Carmen Gandara; from Uruguay, *Un jardín para la muerte*, by Paulina Medeiros; from Brazil, *O barco de tres lugares*, by María de Lourdes Teixeira; and from Mexico, *Retrato de una niña triste*, which won for Olivia Zúñiga, a newcomer, the State of Jalisco prize.

In *Los que viven por sus manos*, the Ecuadorian Jorge Fernández drew with almost clinical precision a picture of middle-class life; in *Espiridião*, the Brazilian Benedeto Valadares mirrored the political turbulence of Minas Gerais with a chief character reminiscent of the leader Melo Viana; and in *Carnaval en Huchuetlán* the Mexican Carlos Merino Fernández described with verve and wit a rural community of his native country. The promising Antonio Magaña Esquivel (*El ventrílocuo*, 1944) fulfilled his promise with *La tierra enrojecida*, a colourful, panoramic fresco of insurrection-torn Yucatan. *La tierra enrojecida* won the Ciudad de Mexico yearly award. But it may be justly claimed that none of these novels surpassed in pathos and poignant intensity Juan R. Campuzano's *La sombra íntima*, which portrayed the trials of a rural schoolteacher in a remote community somewhere by the Mexican gulf.

The year's poetry was generally below the standard of the fiction; however, there were at least three notable exceptions: the forever fresh and exciting Jorge Carrera Andrade produced, in *Lugar de origen*, a paean of beauty to his native country, Ecuador; the *Elegía a Jesús Menéndez*, by the great Cuban poet Nicolás Guillén, was a deeply felt elegy to the murdered Negro labour leader; and *El hijo del guardabosque*, by Juvencio Valle, was an intense lyrical evocation of the Chilean landscape.

The most ambitious biography of the year was the 1,400-page, two-volume *Bolivar*, by the veteran Spanish critic and historian Salvador de Madariaga. W. H. Hudson was the subject chosen by Ezequiel Martínez Estrada for a keen appreciation of the Anglo-Argentine naturalist and writer. Among other noteworthy bio-critical studies were *Oswaldo Cruz*, by Renato Sêneca Fleury, detailing the medical achievements of the great Brazilian physician; *San Martin*, by the Argentine Carlos Alberto Larumbe; and *Eça de Queiroz*, by the Brazilian essayist Berilo Neves.

The major contributions in the field of literary history were *La novela mexicana*, a survey of 19th-century Mexican fiction, by the Cuban professor, Pedro Manuel González; *El nuevo relato ecuatoriano*, by Benjamín Carrión, an authoritative study of the short story renascence in Ecuador during the 1930s; *Literaturas aborígenes*, an anthology and commentary of America's earliest literature, by the Peruvian critic Abraham Arias Larreta; and, finally, *Los primeros cuentos de Rubén Darío*, by Ernesto Mejía Sánchez, which analysed the experiences of the great poet in using the short story as a medium of expression.

Among the most interesting works of 1951 were the *Memorias de un estudiante soldado*, in which Roberto Esquinazi Mayo, of Cuba, retold his parachutist adventures during World War II; the best seller *Pensamiento y dinamismo de la Revolución Mexicana*, by the statesman and political leader Ramón Beteta; and, finally, the ten-volume *Diccionario Enciclopédico Uteha*, the first encyclopaedic illustrated dictionary in the Spanish language produced in Latin America.

New editions of classics published during 1951 were: volume one of the *Obras completas de Sor Juana Inés de la Cruz*, in four volumes, edited and annotated by the Mexican scholar Alfonso Méndez Plancarte (1951 was the 300th anniversary of Sor Juana's birth); Fray Bartolomé de las Casas' three-volume *Historia de las Indias*, edited by the Mexican historian Agustín Millares Carlo; and the most widely read sentimental novel of the 19th century, *María*, by the Colombian Jorge Isaacs (1837-1895).

With the death of the Argentine writer and diplomat Manuel Ugarte in Dec. 1951 one of the last representatives of modernism passed away. (A. FLO.)

LATVIA. From Nov. 18, 1918, to Aug. 5, 1940, when it was annexed by the U.S.S.R., Latvia, one of the Baltic states of northeastern Europe, was an independent republic. Area: 25,395 sq.mi. Pop.: (1939 est.) 1,994,500; (1950 est.) 2,100,000, but according to reliable estimates the purely Latvian population declined from 1,496,000 (75%) to 1,222,000 (58%) between 1940 and 1950. Language: Latvian and Russian. Religion: Lutheran, Roman Catholic and Greek Orthodox. Chief towns (pop., 1935 census): Riga (cap., 1939 est., 393,211), Liepaja (57,098), Daugavpils (45,160). Chairman of the presidium of the Supreme Soviet of the Latvian S.S.R., August M. Kirchensteins; chairman of the council of ministers, Vilis T. Lacis.

History. At the election on Feb 18 of a new Supreme Soviet there were 38,639 more voters than in 1947, when the electorate amounted to 1,326,289, and the proportion of votes against official candidates was reduced between 1947 and 1951 from 0·87% to 0·05%. Although Communist party officials predominated, elected members included also a number of military personalities, headed by General Ivan Khristoforovich Bagramian, commander of the Baltic military area (Latvia, Lithuania and the Soviet part of former East Prussia).

At the beginning of the year were published the results of local elections held on Dec. 17, 1950: 17,383 deputies were elected to the 58 district (rayon), 58 town and 1,354 village soviets. The Riga municipal soviet numbered 310, an increase of 22 compared with 1947: it included 187 Latvians, 107 Russians and 16 representatives of other nationalities. In January Edgar Apins replaced Arnold Deglavs as chairman of the Riga municipal soviet. The 750th anniversary of the foundation of Riga was celebrated on Nov. 24.

Many members of the government were dismissed during 1951 either for inefficiency or for employing "unreliable elements." In January Albert Sieks replaced August Eglits as minister of the interior and Zelma Chabe was appointed minister of light industry in place of Karlis Shics; in February Janis Vanags, deputy premier and minister of agriculture, was superseded as head of the ministry by Aleksandr Nikonov but retained his deputy premiership; in March Andrejs Jablonskis, minister of justice, was replaced by Mme. Emilia Veinberga and in May Fricis Deglavs was dismissed from his post as chairman of the State Planning commission. All the dismissed ministers were old Latvian Communists, while the newly appointed ministers were Russians or Russified Latvians.

At the plenary session of the central committee of the Latvian Communist party, held in Riga on April 14-15, J. E. Kalnberzins, first secretary, reported that in six years the party had admitted 25,000 new members, including 5,000 from the ranks of the Youth (Komsomol) organization whose membership was about 85,000; grave mistakes, however, had been made in admitting new members. At the same session Karlis Kruminsh was elected secretary in succession to Nikonov. At the plenary session of the central committee on Sept. 27-28, Arvid Pelshe, a secretary of the

central committee, reported that a group at the University of Riga who had been propagating a bourgeois-nationalist conception of philology and folklore had been unmasked through the new philological doctrine proclaimed by Joseph Stalin on June 20, 1950.

Speaking in Moscow on March 9, at a session of the Soviet of the Union, Kalnberzins stated that Latvia had completed the industrial part of the postwar five-year plan in three years and ten months, and at the end of 1950 industrial output was more than double that of 1940. Agricultural production, however, was seriously in arrears and for four or five years Latvia would be unable to cover its grain needs. The merging of smaller *kolkhozy* or collective farms into bigger ones continued throughout the year and it was believed that by the end of 1951 there were fewer than 1,400 *kolkhozy* against 4,115 in March 1950.

At a " peace conference " at Riga in September, G. G. Turs, archbishop of the Latvian Lutheran church, Mgr. Peter Strods, described by the Soviet press as Catholic " deputy metropolitan " of Riga, and Philaret, Orthodox archbishop of Riga and all Latvia, signed the World Peace council's appeal for a five-power pact.

Broadcasts in Latvian begun on June 3 by the " Voice of America " aroused speculation as to the fate of such national heroes as Karlis Ulmanis, former president of the republic, and General Janis Balodis, former commander in chief of the Latvian army, who with hundreds of others had been arrested and deported in June 1940. On July 26, however, *Izvestia* published a report from Riga that in the state archives of the Latvian republic documents had been found to prove that Ulmanis, Balodis and other Latvian politicians and army officers were mercenaries in the pay of " Anglo-American imperialists."

Education. In 1950 there were 282,000 pupils in elementary and secondary schools and 27,000 students in 66 technical schools and 10 institutions of higher education.

Finance. Budget estimates (million roubles, 1950; 1951 in brackets): revenue 1,470·1 (1,451·3), expenditure 1,420·1 (1,405·7). (K. SM.)

LAW AND LEGISLATION. Amid the multifarious legislation that was passed by the parliaments of the Commonwealth in 1951, one thread was to be discerned in most if not all of the patterns: that the legislatures considered and passed measures bearing on the dangerous international situation that prevailed, either by conferring on governments powers to prepare for or deal with any emergency that might arise or by introducing new definitions of, and new penalties for, offences against the security of the state. An examination of new legislation country by country further showed how thought in one country on social and legal problems was reflected in measures brought before the parliaments of other countries.

United Kingdom Legislation. Three examples of legislation to deal with the international crisis were the Reserve and Auxiliary Forces (Training) act, the Supplies and Services (Defence Purposes) act, and the Home Guard act. The first provided authority and laid down the broad administrative arrangements for the recall for short periods of certain classes of reservists, of which the most important in numbers was the army's Z reserve. The second extended the Supplies and Services (Transitional Powers) act, 1945, and defence regulations having effect by virtue of that act by providing that the act should be deemed to include, and always to have included, powers for providing or securing supplies and services required for overseas defence, and for preventing supplies or services from being disposed of in a manner prejudicial to overseas defence. The retrospective aspect of this measure was strongly criticized on constitutional grounds by the Conservative opposition. Finally the Home Guard act, brought in by the new Conservative government, provided for the reconstitution of the Home guard.

The British North America act amended the act of 1867 with the same title by authorizing the federal parliament of Canada to legislate on the provision of old age pensions.

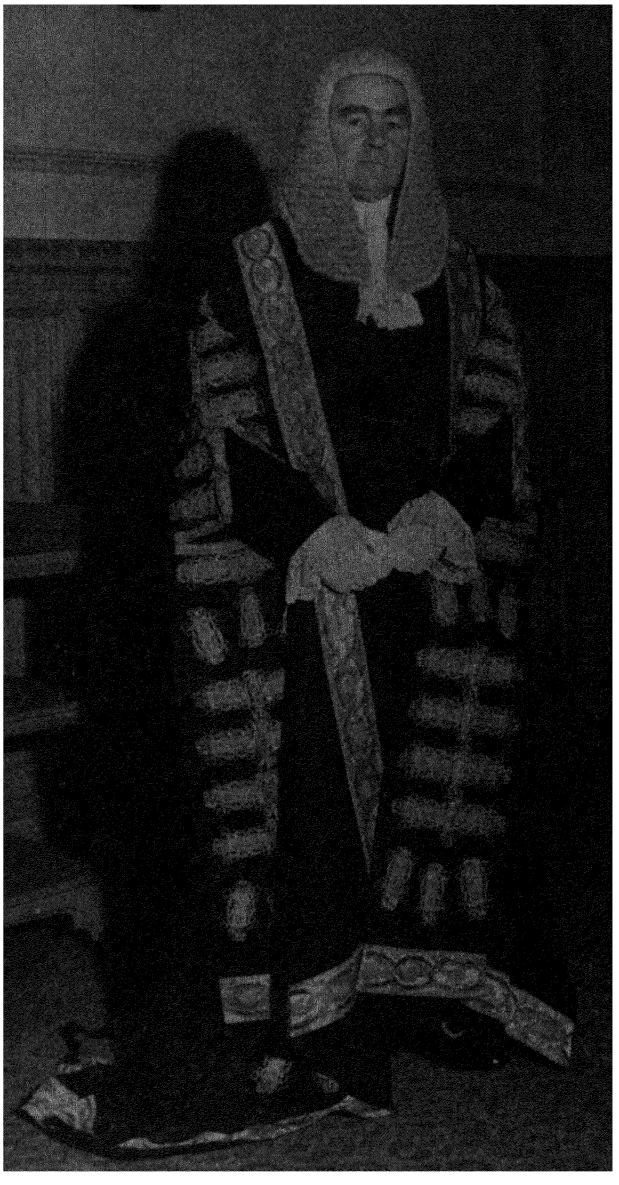
Economic legislation which since 1945 had formed so preponderant a part in the ordinary year's output of statutes was in 1951 exemplified by only one measure of importance, the Sea Fish Industry act, which provided for the establishment of a white fish authority to carry on research, to encourage the selling of white fish on a co-operative basis, to undertake as agents the first sale of white fish landed in Great Britain and as principals the buying and selling of materials and requisites, to promote the export of white fish by establishing or financing the establishment of selling agencies and storage facilities outside the United Kingdom, to provide or acquire and equip fishing vessels to be operated under charter, to provide or acquire and equip plant for processing white fish and to give financial assistance for certain purposes. In short, the future of this industry was planned as a combination of public and private enterprise.

A measure which aroused a good deal of controversy was the National Health Service act of 1951, which authorized the making of charges for dentures and spectacles provided under the 1946 act. Two other measures of a social character were the Workmen's Compensation (Supplementation) act, for supplementing compensation where a disability arose before 1924; and the Fraudulent Mediums act which repealed the Witchcraft act 1735 and provided for the punishment of fraudulent mediums.

The Leasehold Property (Temporary Provisions) act reflected both the differences of view which had been exposed by an inquiry into the future of leasehold property and the narrow majority in the House of Commons by which Clement Attlee's government held power. Its main effects were, as to residential property, to prolong until two years from June 24, 1951, leases expiring during that period and, as to shops, to authorize tenants to apply to county courts for new tenancies where their old tenancies expired immediately before or during this period.

Two measures of considerable legal interest were the Courts Martial (Appeals) act and the Common Informers act. The former gave effect to one of the main recommendations of a strong committee appointed shortly after the end of World War II, and put an end to an anomalous state of affairs wherein, whilst in civilian courts appeals from highly qualified judges of the High court and chairmen of quarter sessions lay to the Court of Criminal Appeal, there was no appeal from courts martial, much less expert tribunals, except by review (in effect by the department of the judge advocate general). The main provisions of the act were: (1) to constitute a Courts-Martial Appeal court consisting of the English High court judges and their Scottish and Northern Ireland equivalents and of other persons appointed by the lord chancellor—the court might sit either in or outside the United Kingdom; (2) except where the death sentence had been imposed, the right of appeal was not exercisable unless a petition to quash the conviction had been presented to the Admiralty or to either the secretary of state for war or for air and had not been granted; (3) the court's decisions were final, subject to a right of appeal to the House of Lords where the attorney general certified that the case was a proper one to be heard by the supreme tribunal; and (4) legal aid was to be available to appellants where required. The effect of the Common Informers act was to abolish the common informer procedure under a number of specified acts, including the Sunday Observance acts.

The Festival of Britain (Sunday Opening) act aroused keen religious controversy, a compromise being reached whereby



Lord Simonds, who succeeded Viscount Jowitt as Lord High Chancellor of England in Oct. 1951. Lord Simonds was appointed a Lord of Appeal in Ordinary in 1944.

all the branches of the exhibition in England opened during the later part of Sunday except the amusements in Battersea park. The New Streets act, framed to secure the satisfactory construction, lighting, sewerage, furnishing and completion of streets adjacent to new buildings, and to empower and oblige local authorities to adopt such streets, required the owners of new buildings to make or secure payments for necessary street works.

Commonwealth Legislation. *Canada.* Among the measures framed to meet the international crisis was the Essential Materials (Defence) act, authorizing the governor general to make regulations in regard to the production, supply, distribution, use and prices of essential materials and services. The Defence Production act created a department of defence production under a minister to mobilize, conserve and coordinate the dominion's economic and industrial resources to provide supplies and further projects for defence. The Emergency Powers act conferred on the government wide powers, notably in relation to the control of communications, trade and manufacture, in order to carry out defence preparations and to stabilize the economy of the country.

The Consumer Credit (Temporary Provisions) act was passed in the autumn of 1950 to empower the government to check inflation by limiting the amount of credit available to consumers. The Criminal Code Amendment act, passed in June 1951, related especially to the offences of treason, sedition and sabotage; one of its most interesting provisions was to make it an indictable offence to advise or in any manner to cause insubordination, disloyalty, mutiny or refusal of duty by members not only of the Royal Canadian Mounted police or of the Canadian forces, but also of the naval, army or air forces of a state other than Canada that were lawfully present in Canada. This illustrated the importance attached to arrangements made or likely to be made for stationing the forces of one country on the territory of another.

The Petition of Right Amendment act abolished the necessity of securing the governor general's fiat before proceeding with a petition of right, making it possible to sue the crown in Canada for a breach of contract without obtaining leave, though the crown still could not be sued in respect of a civil wrong. In two of the provinces, Nova Scotia and Manitoba, legislation was passed that had broadly the effect of making it possible for the subject to sue the crown both in respect of civil wrongs and contracts. The dominion parliament passed the Old-Age Assistance act to benefit people between 65 and 69.

The province of Ontario passed the Fair Employment Practices act and the Female Employees' Fair Remuneration act. The former declared it to be "contrary to public policy in Ontario to discriminate against men and women in respect of their employment because of race, creed, colour, nationality or place of origin" but excluded from the operation of the act domestic helpers, religious or educational, fraternal or social organizations and small concerns with fewer than six employees. The Female Employees' Fair Remuneration act provided that "no employer . . . shall discriminate between his male and female employees by paying a female employee at a rate of pay less than the rate . . . paid to a male employee employed by him for the same work done in the same establishment."

Australia. The Defence Preparations act, giving the commonwealth government powers in peace covering all aspects of preparation for defence, both military and economic, was yet another exemplification of the preparation for war which so many governments had thought necessary; and the Constitution Alteration (Powers to Deal with Communists and Communism) act, providing for a referendum to make a law in the terms of the Communist Party Dissolution act of 1950, which had been declared invalid by the High court of Australia, was another example of the tendency to make stringent laws against sedition that had been another feature of the year. The subsequent referendum resulted in the rejection of the proposed change in the constitution.

The Commonwealth Bank act repealed much banking legislation, including the Bank Nationalization act, declared invalid by the High court and the Judicial committee of the Privy council. The main effect of the new act was to restore control of the Commonwealth bank to a board of ten members in place of a governor responsible to parliament. The main objects of the Conciliation and Arbitration act, no. 2, were to strengthen the injunction powers of the Arbitration court and to provide for secret ballots in trade unions.

New Zealand. On Jan. 1, 1951, the Legislative Council Abolition act came into force, thus substituting a unicameral for a bicameral parliamentary system. The legislative council had been a nominated second chamber, its members holding their seats for seven years. It had become a common criticism that membership had been conferred rather as a reward for service in the past than in hope of service in the future, but

the opposition resented the fact that the bill had been introduced without prior consultation and hence their refusal to co-operate in devising a substitute for the council. Another measure of some constitutional importance enacted during the year was the Political Disabilities Removal Amendment act which enacted, amongst other things, that in occupations where trade union membership was obligatory, a union's contribution to the funds of a political party could be authorized only by the votes of a majority of all the members; in other occupations a majority of the actual votes cast still sufficed.

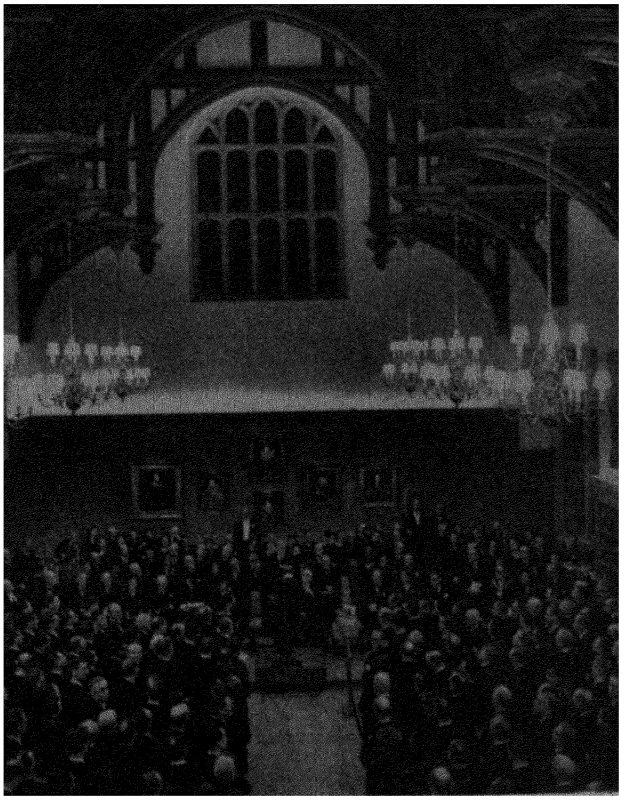
The Joint Family Homes act provided for the establishment of a matrimonial home owned by either spouse as a joint family home until both husband and wife died, unless both agreed to cancel the arrangement or the court so ordered, as on a divorce or separation; neither spouse could sell or mortgage the home without the consent of the other and limited exemption from the claims of creditors was conferred. The Gaming Amendment act legalized off-course betting, eliminated bookmakers, prohibited credit betting and confined racing to Saturdays and public holidays. The Capital Punishment act restored capital punishment for murder, though exempting pregnant women and boys and girls under 18.

South Africa. The principal issue with which the legislature had to deal was one of the aspects of the perennial problem of colour, in the Separate Representation of Voters act. When this was first presented as a bill, J. G. N. Strauss, the leader of the opposition, argued that it had to be submitted to a joint sitting of both houses under sections 35 and 152 of the United Kingdom's South Africa act of 1909, but the speaker overruled this contention on the grounds of the legislative sovereignty of the Union parliament under the Statute of Westminster, 1931. The measure as finally enacted provided for the separate representation in parliament and in the provincial council of the Cape of Good Hope of Europeans and non-Europeans in that province; for the amendment of the law relating to the registration of Europeans and non-Europeans as voters for parliament and for the provincial council of Natal; and for the establishment of a Board of Coloured Affairs.

India. The main legislation arose from the need to amend some of the measures enacted in the first phase following the end of British rule. The Preventive Detention Amendment act liberalized the principal preventive detention act by providing that the cases of all *détenus* were to be referred to an advisory board within ten weeks of the persons being detained. The Constitution (First Amendment) bill set out to qualify certain fundamental rights of the citizens of India, including freedom of speech and of the press, to further the educational, economic and social advancement of the backward classes; and to remove the questions of *zamindari* (system of land tenure) and land reforms from the purview of the courts. Examples of the kinds of problem with which this measure was intended to deal were that the citizen's right to freedom of speech and expression, guaranteed by article 19(1) (a) of the constitution, had been held by some courts to be so comprehensive as not to render a person culpable even if he should advocate murder and other crimes of violence; and that the validity of measures of agrarian reform passed by the state legislatures had formed the subject-matter of time-consuming litigation.

United Kingdom Case Law. In the field of common law there were three outstandingly interesting decisions by the House of Lords in *Paris* v. *Stepney Borough Council* (1951 1 Times Law Reports 25), *London Graving Dock Co.* v. *Horton* (1951 1 Times Law Reports 959) and *British Movietonews* v. *London and District Cinemas* (1951 Weekly Notes 451). In the first of these a one-eyed workman had lost the sight of his remaining eye and sued his employers for damages. The action resolved itself into deciding whether the employers owed a higher duty of care to protect the single eye of a one-eyed man than to protect either eye of a man enjoying the use of both eyes. The Court of Appeal had ruled that the duty was the same in each case. The House of Lords, taking the view that the risk, involving total loss of sight, was essentially different, overruled this decision. *London Graving Dock* v. *Horton* was another case of an injury to a workman in which the House of Lords overruled the Court of Appeal. The question here was whether the knowing acceptance of a risk by a workman involved its voluntary acceptance. On the facts, the House decided against the workman. *British Movietonews* v. *London and District Cinemas* was a case where the Court of Appeal, and especially Lord Justice Denning, had attempted to extend the accepted doctrine of the discharge of a contract by its frustration by holding it to apply where an unforeseen circumstance had come into being by the continuance of emergency regulations during peacetime. The House of Lords, especially through Lord Simonds, restated the doctrine of frustration in its previously accepted terms and rejected the view that a mere mutually unforeseen circumstance could bring this doctrine into operation. The effect of the decision in *R.* v. *Northumberland Compensation Appeal Tribunal* (1951 1 Times Law Reports 270) was that where an inferior tribunal, from whose rulings no appeal was provided by statute, stated the reasons for its findings, and the divisional court, to whom the matter was taken by way of *certiorari*, considered those reasons bad in law, the divisional court could quash the inferior tribunal's decision in just the same way as though this had been reached through a failure to conform to the requirements of natural justice, or through the inferior tribunal's acting in excess of its jurisdiction.

Cassidy v. *the Ministry of Health* (1951 1 All-England Reports 574) decided that a patient in a hospital administered



The restored hall of Gray's Inn, London, being declared open by the Duke of Gloucester on Dec. 5, 1951.

under the National Health Service acts could sue the Ministry for the negligence of a surgeon and a nurse who were both on the salaried staff of the hospital.

There were a number of interesting decisions on the rent restriction acts and kindred legislation, many of them dealing with the definition of the family. Perhaps the most notable of these was the House of Lords ruling in *Moodie* v. *Hosegood* (1951 Weekly Notes 447) that the widow of a contractual tenant of premises within the acts was entitled to the protection of the acts, thus overruling a series of decisions by lower courts. *Forbes* v. *Kemsley Newspapers Limited* (1951 2 Times Law Reports 656) produced a decision on the law of copyright, the effect of which was that the property in a journalist's pseudonym vests in himself even where he has only used it in his contributions to one newspaper. In the Chancery division there were, as usual, a number of decisions on what constitutes a charity, perhaps the most notable of which was *Re Bland-Sutton's Will Trusts* (1951 1 All-England Reports 494) where a previous decision in this division that the Royal College of Surgeons was not a charity was held to bind the court. An appeal from the divorce division that aroused wide general interest was *Preston-Jones* v. *Preston-Jones* (1951 1 Times Law Reports 8) where the House of Lords ruled that where an interval of 360 days had elapsed between the date when husband and wife had had intercourse and the birth of a child, the burden of satisfying the court that the child was conceived outside marriage was a light one. (W. T. Ws.)

United States. The bulk of legislation in 1951 was directed towards organizing the nation's economy and manpower for defence against Russian Communism. Congress extended selective service, took the first step toward establishing universal military training, provided a system of civil defence, authorized a limited programme of price, rent and wage control, provided free life insurance for all members of the armed forces and declared the war with Germany to be at an end on Oct. 19.

Nevada was the 36th state to ratify the 22nd amendment which thereby became part of the constitution of the United States. The amendment provided that no person may serve as president more than two elective terms, nor may a person who has held the office of president for more than two years of another president's unexpired term be elected president more than once. A special provision in effect exempted President Truman from the application of the amendment.

Congress amended the Displaced Persons act of 1948 by providing that during the four fiscal years ending June 30, 1952, eligible displaced orphans, seeking to enter the United States as immigrants might be given visas without regard to the quota limitations for these years. Not more than 341,000 such visas might be issued, including those heretofore issued under the Displaced Persons act of 1948. Another amendment enabled former U.S. citizens who had lost their citizenship by voting in certain Italian elections to regain such status by taking an oath that they had done nothing to promote Communism. Congress also tried to clarify the status of certain aliens whose legal position had been in doubt since the passage of the Internal Security act of 1950. Persons who nominally belonged to nazi or fascist groups before attaining the age of 16 years, or if they had been forced to join such organizations, were enabled to enter the United States on a satisfactory showing of their present state of mind.

Congress enacted the Universal Military Training and Service act as an amendment to the Selective Service act of 1948. The new law required the registration of all males, citizen and alien, between the ages of 18 and 26, lowered the draft age from 19 years to 18½, increased the length of service from 21 months to 24 and set a ceiling of 5 million persons in the armed forces until Jan. 31, 1954.

In a decision of nation-wide interest the Supreme court declined to interfere with an order of the Federal Communications commission approving a method of colour television transmission developed by the Columbia Broadcasting system (CBS) and excluding the use of other systems. The court ruled that the F.C.C. had not been arbitrary in finding that the CBS method was the best presently available, although its colour telecasts could not be received either in colour or in black and white on existing receivers without expensive changes, and in spite of the fact that the Radio Corporation of America (RCA) claimed to have a method of colour television transmission which could be received on existing receivers without any adaptation. In so technical a controversy the justices agreed to defer to the commission's special familiarity with the problem involved (*RCA* v. *U.S.*, 341 U.S. 412).

Civil Rights. A college student who made a rabble-rousing speech to a mixed crowd of Negroes and whites on a Syracuse, New York state, street corner, urging the Negroes to "rise up in arms and fight for your rights," was taken into custody and convicted of disorderly conduct for refusing to stop when requested to do so by police (*Feiner* v. *N.Y.*, 340 U.S. 315). The Supreme court, however, reversed the conviction of a Baptist minister for preaching on the streets of New York city without a police permit. The ordinance requiring police approval for street preachers was a violation of the first amendment, which forbids prior restraints on freedom of religion and speech. The right to speak on religious subjects on the city streets could not be controlled by officials without "appropriate standards" to guide them (*Kunz* v. *N.Y.*, 340 U.S. 290). The court also upheld an ordinance passed by the city of Alexandria, Louisiana, forbidding solicitors, pedlars and transient vendors from calling upon the occupants of private residences unless invited or requested by the occupant. Such ordinances (known as Green River ordinances because they originated in Green River, Wyoming) do not violate the constitutional guarantees of freedom of press, speech, religion or due process of law, nor do they unlawfully burden interstate commerce (*Bread v. Alexandria*, 341 U.S. 622).

The U.S. Supreme court declined to disturb lower court decisions holding that a zoning ordinance was invalid which limited the use or occupancy of buildings in districts assigned to use solely by white or Negro persons; that segregation of Negro passengers in "Jim Crow" cars was against the constitutional bans on discrimination; that Louisiana State university must admit a Negro student to its law school, even though there was a Negro university to which such students could go; that the University of Maryland nursing school must admit a qualified Negro student even though the state offered to send her to a superior Tennessee nursing school; and that the Florida Supreme court should reconsider its opinion upholding a Miami municipal golf course in limiting the use of the course by Negroes to Monday of each week.

Criminal Law. The Supreme court affirmed the 1949 conviction of 11 leaders of the Communist party for conspiring to advocate the overthrow of the U.S. government by force in violation of the Smith Sedition act. Chief Justice Frederick M. Vinson, speaking for himself and three other justices, said that the 16,000-page record of the trial showed that the defendants planned to overthrow the U.S. government by force as soon as possible. Their conspiracy to teach and advocate that purpose constituted a clear and present danger to the government. The courts in such cases must ask "whether the gravity of the evil, discounted by its improbability, justifies such invasion of free speech as is necessary to avoid danger," which was the rule laid down by Judge Learned Hand in affirming the conviction in the circuit court of appeals. Justice Frankfurter in a long concurring

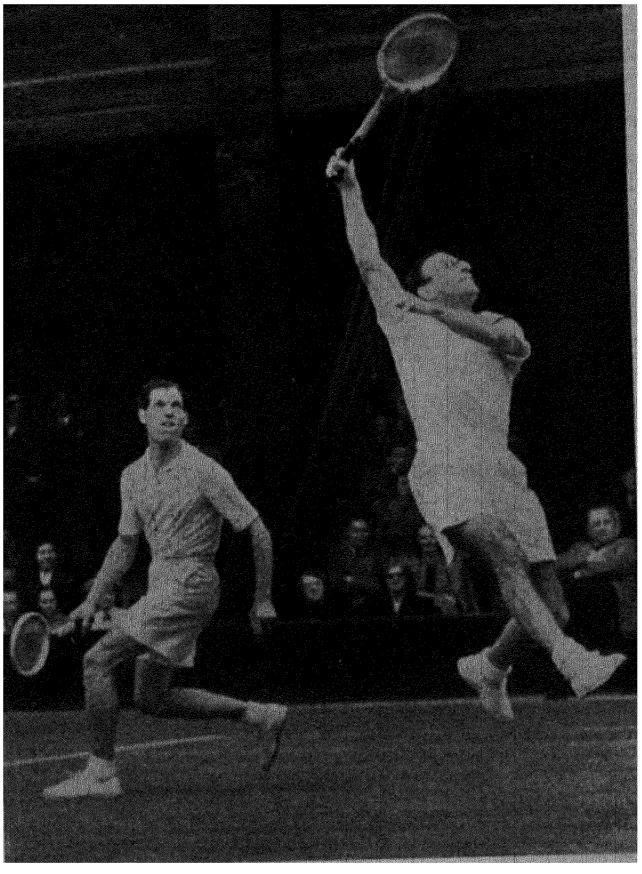
opinion advocated the exercise of "judicial self-restraint" in dealing with legislation. Justice Robert H. Jackson, also concurring, believed that it was not realistic to try to apply the "clear and present danger" test to this sort of case. Justice William O. Douglas, dissenting, favoured the Brandeis view that a clear and present danger threatens only "when conditions are so critical that there will be no time to avoid the evil that the speech threatens." Justice Hugo L. Black, the other dissenter, termed the conviction of the Communists for conspiring to teach and advocate the violent revolution was "a virulent form of prior censorship of speech and press, which I believe the First Amendment forbids" (*Dennis* v. *U.S.*, 341 U.S. 494).

The Supreme court reversed the conviction of two Florida Negroes for rape on the sole ground that Negroes had been discriminated against in selecting the jury. Justice Jackson chided the majority of the court for relying on a technical point when the case should have been reversed because the inflamed state of public opinion whipped up by newspaper and radio comment had made a fair trial impossible (*Shepherd* v. *Florida*, 341 U.S. 50).

Labour. In three companion cases the Supreme court sustained orders of the National Labour Relations board directing unions to end "secondary boycotts," which were in violation of Sec. 8(a) (4) (A) of the Labour-Management Relations act. This provision declares it to be an unfair practice for a union to engage in a strike where an object thereof is forcing any employer or other person to cease doing business with any other person. In each case a union had tried to force a building contractor to break his contract with a sub-contractor who employed non-union labour. The pressure used in the so-called Denver case (341 U.S. 675) was a strike; in the Greenwich case (341 U.S. 694) it was peaceful picketing, and in the Chattanooga case (341 U.S. 707) it was a work stoppage. In none of these cases did the high court find that the N.L.R.B.'s cease and desist order amounted to an abridgment of freedom of expression guaranteed under Sec. 8(c) of the Taft-Hartley act and the federal constitution. In a fourth case the court ruled that the action of pickets on strike at a Louisiana rice mill in forcing a truck driver for a neutral customer to turn away without picking up a load of merchandise did not amount to a secondary boycott within the prohibition of the labour laws (*Labour Board* v. *Rice Milling Co.*, 341 U.S. 665). (M. DN.)

LAWN TENNIS. The year 1951 was remarkable for the continuance of the close rivalry between the two leading lawn tennis nations of the postwar world, Australia and the United States, which became intensified when Australia won back the coveted Davis cup at Forest Hills in Sept. 1950. The year was also remarkable for the extraordinary equality of the world's leading male players. Not that the standard of play was low, but, until September, when Frank Sedgman of Australia pulverized all opposition in the U.S. championships, none of the world's first ten had managed to obtain any marked ascendancy over his fellows. R. Savitt (U.S.) provided the first big surprise of the year when he captured the Australian singles championship from a very strong field. Jaroslav Drobny, formerly of Czechoslovakia, was in devastating form in the French championships, only Savitt being able to run him at all close. Drobny's victories over Sedgman and Sturgess in the semi-final and final rounds were crushing. Curiously enough, Drobny never struck this form again and was beaten at Wimbledon by A. J. Mottram of Great Britain.

Despite the fact that he was not the holder of any of the major national championships, Frank Sedgman was seeded first for Wimbledon. He was, however, defeated by Herbert Flam (U.S.) in the fifth round, Flam then being defeated by



Tony Mottram (left) and Geoffrey Paish playing for Great Britain against France in the first round of the Davis cup. Britain won by 2 matches to 1.

Savitt, who beat Ken McGregor of Australia in the final. The holder, Budge Patty (U.S.), went out to the very promising young American, Hamilton Richardson, in the second round.

Just after Wimbledon, the International Club of Great Britain staged a very successful international club week at Eastbourne in which teams representing six international clubs competed.

The big feature of the men's singles championship of the United States, which was ended at Forest Hills, New York, on Sept. 2, was the tremendous form of Frank Sedgman, who became the first Australian ever to win this event. The Australian doubles pair, Sedgman and McGregor, created a record by winning all four of the major doubles championships of Australia, France, Wimbledon and the U.S.

Great Britain, relying once again on A. J. Mottram and G. L. Paish, beat France in the second round of the Davis cup and then went out to Sweden, the strongest of the Continental nations. The greatest event of the international lawn tennis year, the challenge round of the coveted Davis cup, was played immediately after Christmas at Sydney between Australia, the holders, and the United States, who had beaten Sweden at Melbourne in the inter-zone final. The hero of the match was Australia's Frank Sedgman, who won both his singles against Ted Schroeder and Victor Seixas, and in partnership with Ken McGregor beat Schroeder and Tony Trabert. The young Australian left-hander Mervyn Rose lost both his singles matches, but Australia held the cup by 3 matches to 2.

In women's tennis, 1951 saw the eclipse of those great champions Mrs. Margaret du Pont and Louise Brough, who had led the world since 1947. Their nearest rival, Doris Hart (U.S.) (*q.v.*), won the Australian singles, but

went down to her doubles partner, Shirley Fry, in the French championships. Miss Hart, however, had her revenge at Wimbledon, where she was victorious for the first time.

Miss Hart and Miss Fry established themselves as the world's best women's doubles pair on 1951 form.

Great Britain once again lost the Wightman cup to the U.S., but did manage to win one match. In the U.S. nationals, however, Kay Tuckey, Mrs. Jean Walker-Smith and Jean Quertier all reached the quarter finals, and Mrs. Walker-Smith, seeded first of the overseas players, reached the semi-final. Mrs. Walker-Smith had also run Doris Hart close in the final of the British Hard Court championships at Bournemouth.

The last British championship of the year, the Covered Court championship at Queens club, was won by a promising young British player, Susan Partridge. (J. G. Sh.)

United States. The outstanding events of 1951 were the performances of U.S. players abroad, notably of Richard Savitt and Doris Hart at Wimbledon. The U.S. again won the Wightman cup from Great Britain at Chestnut Hill, Massachusetts—in a closer contest than the 6-1 score might indicate—but at Sydney failed to wrest the Davis cup from Australia, the holders (see above). Shirley Fry beat Miss Hart, the holder, for the French women's title, and together they held their French doubles championship.

In the U.S. Victor Seixas and Tony Trabert, who did not play abroad, set the pace. Trabert won the U.S. Intercollegiate and U.S. Lawn Tennis association clay court events and the Southampton Invitation event while Seixas won the Bermuda, Spring Lake and Pennsylvania titles. Seixas reached the final of the U.S. championship played at the West Side Tennis club, Forest Hills, New York. He eliminated Herbert Flam and Savitt, who was handicapped by a leg infection, but bowed to Frank Sedgman (Australia), 6-4, 6-1, 6-1, in the final. By capturing the U.S. doubles championship Sedgman and Kenneth McGregor (Australia) set a record by winning in one year the four major doubles championships of the world—those of Australia, the U.S., France and England.

The accomplishment of 16-yr.-old Maureen Connolly overshadowed performances by Miss Hart and Miss Fry whom she defeated in the semi-final and final respectively in the U.S. Women's championship at Forest Hills. Having suffered from an arm injury since the previous season, Louise Brough withdrew from tournament play after Wimbledon as did Mrs. M. du Pont, thus terminating their nine-year reign as U.S. doubles champions as Miss Hart and Miss Fry also annexed that title in their third major doubles victory of the year. Miss Hart and Sedgman won the U.S. mixed doubles championships. (E. S. Br.)

LEARNED SOCIETIES: *see* Societies, Learned and Professional.

LEATHER. The British leather industry began 1951 with hide prices soaring upward, but with an anxious realization that the public was unlikely to accept the new level of values. Most tanners were finding their capital resources severely strained and were developing an extreme caution about forward buying of raw materials. Few, indeed, were getting full replacement value for the leather they sold, although sole leather prices were in the region of 80*d.* to 110*d.* per lb., side leathers about 5*s.* a foot and calf about 110*d.*

As the year opened it was announced that the Board of Trade had increased import quotas for upper leathers, with one or two exceptions, by 50%, on condition that shoe manufacturers to whom the leather went should undertake to export footwear representing an equivalent quantity of leather.

East India kip (a type of hide) prices were mounting rapidly, with the market at origin excited by daily increasing quotations, and in the tanned skins section business was active and prices moving upward. International moves were beginning to be made to keep raw material prices under restraint and it was apparent that, in the United States, control of hides and leather was not likely to be long delayed.

At the Manchester domestic hide auction on Jan. 23, light ox hides reached 46*d.* On Jan. 29, the U.S. imposed a price-freeze on their domestic cattle hides, kips and calfskins, prices being the highest charged for sales or deliveries since the previous November. This reduced current prices by about 13% and marked the first check on the inflationary world price-trend. On Jan. 30, at Birmingham, domestic hide auction prices receded. First clear ox, which had been at 46*d.*, fell to 44½*d.* It began to be felt that the price-bubble had been pricked. In February, domestic hide prices continued to weaken, and buyers became increasingly cautious. Demand for kips fell off and a recession in prices came in sight. March opened with a demand for leather higher than tanners had expected, and stocks were low. Prices, which had lagged behind replacement values, began to reach their level; but buyers were cautious. By mid-March hind (half a hide) prices stood 66·6% higher than six months before. Kip prices were increasing, but in the opinion of experts were not justified by the supply outlook.

By mid-April, it became evident that the upward trend of leather prices had been checked. Kip prices fell and there was an easier trend in hide prices. The market was regarded as broken though not collapsed. At Glasgow hide auctions, on April 18, many lots were withdrawn by the Ministry of Food because of the low price bid. In June it was announced that hides, leather and tanning materials were to become the responsibility of the newly established Ministry of Materials. By July leather prices were back to February levels and hide prices were falling.

On Aug. 22, the Glasgow hide auction was suspended, because of low offers, after only six lots had been sold. At Birmingham, on Aug. 28, first clear ox sold as low as 17¼*d.* and light calf fetched 37¾*d.* to 39⅝*d.* By September, English hide prices had fallen from 4*s.* 2*d.* a lb. to 1*s.* 6*d.*, and cheaper leather was creating demand for cheaper footwear. The year ended with demand for leather lifeless, and tanners hesitating to enter a depressed raw material market. (*See* also Shoe Industry.) (C. A. Sd.)

LEBANON. Independent Arab republic, formerly under French mandate, situated on eastern Mediterranean, bounded by Syria and Israel. Area: 3,475 sq.mi. Pop. (1942 census) 1,116,000; (1950 est.) 1,257,000. Language: Arabic (90%), but Armenian, Greek and other languages are also spoken. Religion: Christian 660,086 or 52·8%; Roman Catholic rites (Maronite 359,132 or 29·2%, Greco-Melchite 5·6%, Armenian 0·9%, Syrian 0·5%, Latin 0·3% and Chaldean 0·1%); Greek Orthodox 9·7%; Gregorian Armenian 5·2%; Syrian Jacobite 0·3%; Protestant 1%; Moslem 557,207 or 45·3% (Sunni 253,020; Shia 224,468; Druze 79,719); Jews 5,807; others 6,445. As in the middle east religious ties are often stronger than racial, Lebanon might be described as a state of minorities, no single rite or sect being in a majority. Chief towns (pop. 1948 est.): Beirut (cap., 247,000); Tripoli (86,400); Saida or Sidon (78,800); Zahle (78,000). President of the republic, Beshara Khalil el-Khuri; prime ministers in 1951: Riad es-Sulh (*see* Obituaries), (from Feb. 14) Hussein el-Oueni and (from June 7) Abdullah el-Yafi.

History. On April 15, 1951, elections were held and returned the government Constitutionalist party (led by Selim el-Khuri, brother of the president) with a diminished

though substantial majority; and on June 7 Abdullah el-Yafi became prime minister. On July 16, while on a visit to Amman, Jordan, Riad es-Sulh, a former prime minister, was assassinated. Demonstrations followed in Beirut, resulting in some casualties.

On Oct. 11 the Chamber of Deputies unanimously approved the Egyptian abrogation of the Anglo-Egyptian treaty and the Sudan Condominium agreement; but on Oct. 23 pro-Egyptian demonstrators were fired upon by the police in Beirut. On Oct. 29 the Lebanese National congress met and passed a resolution that the four powers' middle east defence proposals were contrary to international law. On the same day the Lebanese government was informed that the establishment of a middle east command would proceed irrespective of Egypt's action. On Nov. 14 as a sign of sympathy with Egypt, shops were closed in all Lebanese cities.

On Jan. 3 the projects for the improvement of the port of Tripoli and the harnessing of the Litani river for agricultural developments were reviewed. Both had been recommended by the Clapp commission of 1950 and later in the year a U.S. mission reported favourably on the Litani scheme.

On Jan. 1 the Trans-Arabian pipeline from the Saudi Arabian oilfields to Sidon, 30 mi. south of Beirut, was opened. By an agreement with the Lebanese government its U.S. proprietors paid $126,000 for its police protection and $112,000 for transit rights, and oil delivered at Sidon became subject to a Lebanese export tax of 3% and the government might purchase at cost price 200,000 tons of oil annually to be either exported or refined locally. However on Oct. 30 the Chamber of Deputies returned to committee a bill already ratified by it to create a reserve zone for the pipeline port, and also unanimously urged the revision of existing oil agreements as being contrary to Lebanese interests.

In June, negotiations to resume the Lebanese-Syrian customs union (denounced by Syria in 1950) broke down, although in January there had been a temporary interchange of agricultural products. However in April during the Israeli-Syrian clashes on the upper Jordan, Lebanon offered its help to Syria and the marshal of the Lebanese army visited Damascus to discuss co-operation. (O. Tw.)

Education. Schools (1949): primary 734, pupils 60,019; private 808, pupils 75,475; foreign 279, pupils 53,028; technical and trade 5, pupils 456; universities 2, students 2,147.

Agriculture. Main crops ('000 metric tons, 1948; 1949 in brackets): wheat 50 (50); barley 22 (27); maize 13 (13); oats 2 (2); potatoes 35 (40). Fruit production ('000 metric tons, 1949; 1950 in brackets): grapes 90; olives 35 (5); olive oil 11 (1); oranges and tangerines 29 (39); lemons 10 (13). Livestock ('000 head, 1949 est.): goats 400; sheep 25; cattle 20; horses 10; donkeys 20; mules 5. Wool production (including Syria, greasy basis, '000 metric tons, 1949; 1950 in brackets): 6 (6).

Industry. Production ('000 metric tons, 1949): cotton yarn 6·8; cotton textiles 6·0; silk and rayon textiles 2·6; leather hides and skins 2·7; cement (1950; 1951, six months, in brackets) 262·8 (156·7).

Foreign Trade. Lebanese-Syrian customs union ended March 1950. (£L million, April-Dec. 1950; 1951, six months, in brackets): imports 245·9 (156·3); exports 67·2 (59·7). Main sources of imports (1950, including Lebanese-Syrian customs union in first quarter): France 20%; U.S. 13%; U.K. 13%. Main destinations of exports: France 13%; Saudi Arabia 13%; U.K. 7%; U.S. 7%.

Transport and Communications. Roads (1949): 1,540 mi. Licensed motor vehicles (Dec. 1950): cars 10,723, commercial 3,698. Railways (1949): 475 mi. Telephones (Jan. 1949): 13,125. Radio receiving sets (1949) 31,000.

Finance and Banking. Budget (£L million) (1950 est.) balanced at 85·3; (1951 est.) balanced at 85·3. Currency circulation (July 1950; July 1951 in brackets): 183 (210). Bank and government deposits (May 1950; May 1951 in brackets): 213 (198). Monetary unit: Lebanese *pound*, with an exchange rate (Nov. 1951) of £L 6·16 to the pound sterling and £L 2·21 to the U.S. dollar.

LE CORBUSIER (CHARLES-EDOUARD JEANNERET-GRIS), Swiss architect and city-planner (b. La Chaux-de-Fonds, Switzerland, Oct. 6, 1887), the son of a watchmaker and enamelist, had his first training at La Chaux art college; his first architectural work was the supervision of the building of an *art nouveau* villa for his professor (1905). After travels in Italy and a period of frustrating study under the Viennese Secessionist architect Joseph Hoffman, he went to Paris and later entered the atelier of Auguste Perret, the pioneer of modern ferro-concrete construction. In 1910-11 he joined Walter Gropius and Miës van der Rohe as a pupil of Peter Behrens, the great *Werkbund* architect but, again finding his master uncongenial, set off on new travels—this time to the Balkans and Asia Minor. In 1916 he designed a house in his native town which with its novel space-disposition and plan was the first of his buildings to attract wide attention. He settled in Paris in 1917. In the next year he and the painter Amédée Ozenfant published *Après le cubisme*, thus founding the applied-art reform movement, Purism: in painting, this involved the use of "recognizable" objects and overlapping transparent planes, the elimination of depth, the application of elaborate colour theories and the practice of exact workmanship. In 1920-25 the two artists edited the review *L'Esprit nouveau*. In 1921 Jeanneret adopted the pseudonym Le Corbusier (his maternal grandfather's name) for his architecture, keeping his own for painting.

In about 1915 Jeanneret's architectural interests had begun to turn away from small-house design to the structural and sociological problems of urban planning—*urbanisme*, as he was to call it. The supreme technician now also became more and more the visionary; for each of his completed projects, scores never got beyond the drawing board. But through his example and his prolific writing—beginning with *Vers une architecture* (1923)—he caused a major revolution in architectural thought. His *ville radieuse* was to be an airy, self-contained structure of pre-fabricated cellular units, elevated on tall stilts from ground-level noisiness to the clean upper air. This conception appears in most of his finished work, notably the Unité D'Habitation (1945 ff.), a great block of 350 "superposed villas" near Marseilles. Among his other projects was the Swiss house in the Cité Universitaire, Paris, and the great Ministry of Education building in Rio de Janeiro, as well as city-plans in France, Belgium, Spain, North Africa, Scandinavia and South America. He was also consulting architect for the U.N. headquarters in New York. In July 1951 Le Corbusier attended the eighth Congrès International d'Architecture Moderne at Hoddesdon, Hertfordshire, and in the same month opened an exhibition called "Growth and Form" at the Institute of Contemporary Arts, London.

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LEEWARD ISLANDS. British colony composed of four presidencies, a group of islands forming the northern part of the Lesser Antilles in the Caribbean.

	Area (sq.mi.)	Population (1946 census)	Population (1950 est.)
Antigua (with Barbuda)	171	41,757	45,611
St. Christopher-Nevis and Anguilla	152	46,243	48,501
Montserrat	32	14,333	13,535
Virgin islands	67	6,505	7,000
	422	108,838	114,647

Population, mainly Negro. Religion: Christian. Principal towns: St. John's, Antigua (cap., 10,962), Basseterre, St. Christopher (12,201). Administration: governor; executive council, 4 *ex-officio* and an undetermined number of official

and unofficial members; general legislative council, 9 official members, 9 elected from the presidency legislatures; (in the presidencies) administrator, executive council, legislative council with unofficial majority. Governor, K. W. Blackburne.

History. The following constitutional changes in Antigua, St. Kitts-Nevis-Anguilla and Montserrat were announced in July 1951: the establishment of electoral districts; a majority of elected members in the legislatures; the election by unofficial members of the legislatures of members to serve on executive councils; the introduction of a committee system in Antigua and St. Kitts of which the elected members on the executive councils would be chairmen. There would also be a majority of elected members on the general legislative council, the unofficial members of which would elect members to the federal executive council. The lives of the three presidency legislatures had to be extended for varying periods beyond Oct. 31 to permit the preparation and introduction of the necessary legislation. There was some opposition in St. Kitts to the proposed changes, which were not considered to go far enough.

Despite severe earthquakes in St. Kitts and Nevis, causing damage to government buildings amounting to £100,000, and despite serious labour troubles in Antigua, the year was one of consolidation and progress in planning and economic development. St. Kitts produced another record sugar crop (44,272 tons) though that of Antigua fell to only 18,511 tons. Cotton crops in Antigua and Montserrat were excellent. The development plans of St. Kitts and Montserrat were approved and a number of works undertaken. After the hurricanes of 1950, a new development plan was prepared for Antigua where, thanks to a grant from the British government, housing reconstruction proceeded apace. Still greater progress was expected under the scheme for "aided-self-help" housing. A development plan for the Virgin islands was prepared. Finally, a number of investigations were undertaken by experts with a view to developing existing industries or establishing new ones.

Education.

	Pupils, 1950		Government
	Primary	Secondary	expenditure
Antigua	8,656	908	$177,760
St. Kitts-Nevis	10,440	610	$246,480
Montserrat	3,246	158	$80,673
Virgin islands	1,460	58	$67,214

Finance and Trade. Currency: British Caribbean dollar ($4·80 = £1 sterling).

	Budget (1951 est.)		Foreign trade, 1950	
	Revenue*	Expenditure*	Imports	Exports
Antigua	$3,278,487	£3,653,275	$6,406,931	$5,621,376
St. Kitts-Nevis	$2,706,800	$2,789,363	$5,933,270	$5,827,481
Montserrat	$552,427	$660,390	$724,704	$440,918
Virgin islands	$132,141	$296,999	$322,782	$144,579
Federation†	$106,899	$106,899	—	—

* Excluding grants-in-aid from the United Kingdom Treasury and Colonial Development and Welfare funds. † Federal budget other than contributions from presidencies.

Principal exports: sugar, cotton (sea island). Production: sugar (1951) 62,783 tons; cotton exports (1950) 12,790 cwt.

(P. H.-M.)

LEGISLATION: *see* LAW AND LEGISLATION.

LEPROSY: *see* TROPICAL DISEASES.

LIBERAL MOVEMENT. The French elections in June 1951 resulted in a marked increase in the representation of the Radicals and the U.D.S.R., the two Liberal groups linked by the Rassemblement des Gauches Républicaines. Their joint representation rose from 69 to 88.

A general election in Australia on April 28, while slightly reducing the Liberal party's seats in the House of Representatives, had given it effective control of both houses. The election had been precipitated by a decision of the High court declaring the government's Anti-Communist act unconstitutional. After the election the government submitted the question to a general referendum, which resulted in a small majority against the act. Many Liberal parties in other countries had expressed grave doubts as to the wisdom of the act.

Two Länder elections in Western Germany showed further gains for the Free Democratic party. On April 29 in the Rhineland-Palatinate it gained eight seats, and on May 6 in Lower Saxony it gained one seat.

The British general election on Oct. 25 proved as disastrous to the Liberals as that of the previous year, when only 9 out of its 475 candidates had been successful. This time the party concentrated on 109 seats, but succeeded in winning only 6, in 5 of which the Conservatives had withdrawn to allow a straight fight against the Labour party. The Liberals who lost their seats included Lady Megan Lloyd George and two others associated with her in supporting the Labour government against the majority of Liberals. This left only the right wing of the party with parliamentary representation. The election figures indicated that Liberal voters in constituencies where there was no Liberal candidate tended to vote 2 to 1 in favour of the Conservative party. Winston Churchill offered Clement Davies, the Liberal leader, a seat in the cabinet, but this was declined though the party declared that it would support the government in all actions undertaken in the general national interest.

An outburst of Liberal sentiment in South Africa should also be noted. In March the government introduced its Representation of Non-Europeans bill as a first measure of *apartheid.* This was greeted with a strong protest on the part of a white ex-servicemen's organization, as well as by forceful opposition on the part of J. G. N. Strauss, leader of the United party.

About 3,000 Italian men and women professing Liberalism met in Turin on Dec. 8 to unite the two wings of the Italian Liberal party, one of which was led by Bruno Villabruna, the other by Count Nicolò Carandini (former ambassador to London). The congress adopted a programme that favoured private enterprise; private as well as co-operative property; the reform of the Senate; support for the North Atlantic Treaty organization; defence of the rights of Trieste; and political and economic federation in Europe.

In August the annual congress of the Liberal International was held in Uppsala, Sweden. Salvador de Madariaga presided and amongst the 200 delegates were: Bertil Ohlin, leader of the Swedish Folkpartiet; H. Schäfer, vice president of the Bundestag; Clement Davies of Great Britain, Paul Devinat of France and Senator Julius Hoste of Belgium. The main fruit of the congress was the unanimous adoption of the Uppsala appeal, a cogent and uncompromising reply to the Communist-inspired Stockholm peace appeal. Declaring that no country which held down its own people by force could be trusted to remain at peace with the rest of the world, it asserted that the basic freedoms were essential guarantees against aggressive preparations and that no peace worth the name could be purchased at the price of human liberty. The congress also passed resolutions on slave and concentration camps, Liberal social policy, production and productivity, the cost of living, and war on poverty as a road to freedom and peace. A meeting of Liberal editors, coincident with the congress, at which all the leading Liberal newspapers of Europe were represented, condemned the suppression of *La Prensa* in the Argentine and opposed the draft convention on freedom of information which had been prepared by the United Nations with a view to its international acceptance. (*See* also ELECTIONS; POLITICAL PARTIES, BRITISH.)

(J. H. M. S.; X.)

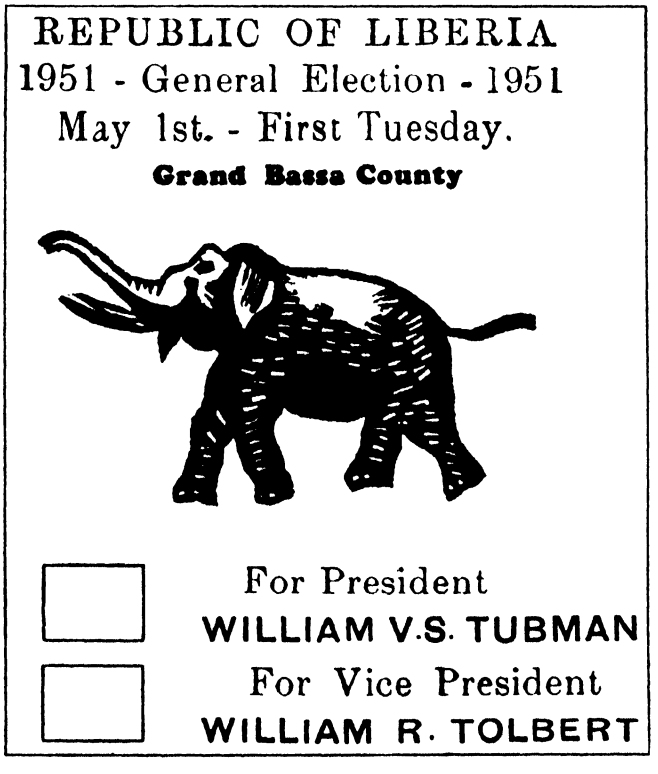
LIBERAL PARLIAMENTARY REPRESENTATION IN EUROPE*
(Figures in brackets are those of the preceding election)

Country	Party corresponding to Liberal	Date of last election	Votes obtained	% of total votes	Seats obtained by Liberals	Total no. of seats
BELGIUM	Liberal party	June 4, 1950	557,019 (767,180)	11·3 (15·3)	20 (29)	212
DENMARK	Radical party†	Sept. 5, 1950	167,719 (144,206)	8·2 (7·0)	12 (10)	151
FINLAND	Progressive party	July 2-3, 1951	102,894 —	5·6 (3·9)	10 (5)	200
FRANCE	R.G.R.‡	June 17, 1951	2,194,213 (2,381,384)	11·5 (12·4)	88 (69)	627
GERMANY, WESTERN	F.D.P.	Aug. 14, 1949	2,788,653 —	11·5 —	52 —	402
GREAT BRITAIN	Liberal party§	Oct. 25, 1951	730,551 (2,621,489)	2·5 (9·1)	6 (9)	625
GREECE	Liberal parties‖	Sept. 9, 1951	724,011 (748,880)	42·6 (44·2)	131 (135)	258
ITALY	P.L.I.¶	April 18-19, 1948	1,001,156 —	3·8 —	18 —	574
NETHERLANDS	Freedom party	July 7, 1948	391,982 (305,287)	8·1 (6·5)	8 (6)	100
NORWAY	Liberal party	Oct. 10, 1949	216,581 (189,591)	12·4 (12·8)	21 (20)	150
SWEDEN	Folkpartiet	Sept. 19, 1948	882,414 (398,293)	22·6 (12·9)	57 (26)	230
SWITZERLAND	Radical Liberal party	Oct. 27-28, 1951	— —	— —	51 (52)	196

* Only European countries having a parliamentary system and free elections are included.
† There is also the Retsforbundet or Justice party, sometimes described as Right-wing Liberal, which polled 168,418 votes (8·2% of the total) and obtained 12 seats.
‡ The Rassemblement des Gauches Républicaines is an electoral alliance including the Parti Républicain Radical et Radical-Socialiste and the Union Démocratique et Socialiste de la Résistance. In the National Assembly, the two parties form separate groups: that of the U.D.S.R. comprised 16 (26 in 1946).
§ The Liberal party presented in 1951 only 108 candidates compared with 475 in 1950.
‖ This includes the votes polled and seats obtained in 1951 by the E.P.E.K. (Ethniki Proodeftiki Enosis Kentrou) and the Liberal party, that is the Plastiras and the Venizelos groups. The figures for the preceding election in 1950 include also the votes polled and seats obtained by the Papandreou (Democratic Socialist) party of which in 1951 not a single candidate was elected.
¶ At the 1948 election the Partito Liberale Italiano formed an electoral alliance, the Blocco Nazionale, with other small groups. The Liberal party represents all that is most well-to-do and most traditionally conservative in Italian political life.

LIBERIA. Republic on the west coast of Africa, bounded N.W. by the British colony of Sierra Leone, and N. and N.E. by the French colonies of Guinea and the Ivory Coast. Area: *c.* 43,000 sq.mi. Pop. (no census ever taken, 1950 est.): 1,350,000, all Negroes. English is the official language; the tribal languages are divided into some 26 dialects which stem from Arabic, Bantu and Nilotic language roots. Liberia grants religious freedom to all denominations; nearly all Christian churches have had missions in Liberia for many years. Capital, Monrovia (pop., *c.* 12,000). President (inaugurated in Jan. 1944), William V. S. Tubman.

History. In Jan. 1951 an agreement was signed in Washington, D.C., under which a U.S. military mission was to be sent to help train a Liberian army. The following month the United States granted Liberia a loan of $5 million to be used for building roads. In April U.N.E.S.C.O. sent a group of science instructors to establish a science faculty at Liberia college, Monrovia.



The ballot paper used in the presidential elections in Liberia, May 1, 1951.

President Tubman was re-elected to the presidency in May, in the first election in which Liberian women and aboriginal property owners were allowed to vote. Under the election laws, only Tubman's True Whig party qualified for the ballot. It was reported that the leaders of an aboriginal Reformation party, who were said to have requested supervision of the elections by the United Nations, were arrested, and that their leader, Dihdwo Twe, was sought on charges of sedition.

Education. Schools (1951): state 89, mission 71, tribal 29. Institutions for advanced education included the College of West Africa and Liberia college, both of Monrovia, and the Booker T. Washington institute, at Kakata.

Industry and Agriculture. For 1951, industrial employment was estimated at 57,200. Firestone Plantations company remained the largest employer with about 62% of the total, and Firestone's rubber production for the year ending Oct. 31, 1951, was estimated at 66·7 million lb. Subsistence agriculture is the preponderant source of employment, with rice the principal subsistence crop and African oil palm the largest food export. Rubber is the chief export item, with iron ore, gold, palm oils, piassava fibres and kola nuts following in that order. The 1951 production of high content iron ore from the new mines in the Bomi hills area was reported as 152,000 tons.

Finance and Trade. The U.S. dollar is the official monetary unit. Revenue receipts for the year ending Aug. 31, 1951, were estimated as $4,851,899; the total external debt was approximately $611,000. Exports for 1950-51 were estimated as $33,391,000, and imports as $11,306,000, with the U.S. supplying about 93% of the latter and purchasing about 91% of the former. (C. M. WI.)

LIBRARIES. International. U.N.E.S.C.O.'s work in the field of librarianship included a wide variety of activities in public library development, bibliography and documentation. In Sept. 1951 a Latin-American Public Library conference was held at São Paulo, Brazil, to study plans for public library development in Latin America, both nationally and through international co-operation, and problems of professional training in librarianship. The papers of the seminar held at Malmö, Sweden, in 1950, were published under the title *The Role of Libraries in Adult Education and Fundamental Education* (U.N.E.S.C.O. Public Library manual no. 4, Paris, 1951). A beginning was made, jointly with the Fédération Internationale de Documentation, of a new edition of the *Index Bibliographicus*, last published in 1931, and a further volume of the *Index Translationum* was published. A *Guide to the Libraries of the Near and Middle East*, compiled by Joseph Dagher, keeper of the National library, Beirut, contained detailed information on some 250 libraries in ten territories. The U.N.E.S.C.O. Book Coupon scheme, which was started in 1948, was extended to include facilities for the purchase of scientific materials and educational and scientific films as well as books.

In April, the first meeting was held in London of an international committee on bibliographical planning, which

would act as a consultative council to U.N.E.S.C.O. in the carrying out of the recommendations of the Conference on the Improvement of Bibliographical Services held in Paris in Nov. 1950. Among the first visible fruits of this programme were the bibliographical or documentation centres set up in Mexico and India within the framework of the technical assistance programme of the United Nations. Within the same programme, a U.N.E.S.C.O. mission led by Josef Stummvoll, director of the Austrian National library, left in October for Tehran to assist in library reorganization there. Control of the Delhi Public library, established under the auspices of U.N.E.S.C.O. to serve as a " pilot project " for the whole of southeast Asia, was taken over by an Indian librarian in June. Indicative of the growing interest in librarianship in southeast Asia was the prominent place taken by library matters in the agenda of the second regional conference of U.N.E.S.C.O. national commissions held in Bangkok in November and December.

A brief account of the progress achieved in the improvement of national bibliographical services appeared in the *Unesco Bulletin for Libraries*, vol. 5, no. 10, pp. 341-345 (Paris, 1951), and a list of over 40 bibliographical working groups in the next issue (*ibid.*, no. 11, pp. 404-407). A detailed report was announced for 1952, to cover all aspects of bibliographical planning, national and international.

The Organization for European Economic Co-operation sent out a mission in September to study technical library facilities in certain European countries, including Great Britain, France and Germany. Special attention was given to documentary reproduction methods and techniques, this work being co-ordinated with a survey on the same matter made for U.N.E.S.C.O. earlier in the year.

The third meeting of the International Association of Music Libraries was held in July and a meeting of the Co-ordinating Committee for Documentation in the Social Sciences in April—both at Unesco house, Paris. At the latter, progress was reported on the accumulation of titles for a catalogue of unpublished theses in social sciences for 1949 and 1950. The first issue of a new abstracting periodical, *International Political Science Abstracts*, appeared in May.

An important series of conferences was held in Rome in September. At a meeting between representatives of U.N.E.S.C.O., the International Federation of Library Associations, the Fédération Internationale de Documentation and the International Council of Archives, the problem of a joint council of librarianship, archives and documentation was further studied and much progress towards co-operation made. At the 17th meeting of the international library committee of the International Federation of Library Associations which followed, Pierre Bourgeois, director of the National Library of Switzerland, was elected president of the federation. Among the problems studied were the cost of periodical publications and the protection of libraries and their collections in wartime. The 18th international congress of the Fédération Internationale de Documentation studied documentary reproduction methods, the use of the universal decimal classification, particularly in industrial libraries, and a wide variety of other problems. The most important business was the reorganization of the federation itself in order to ensure the closest possible co-operation with other bodies and the minimum overlapping of work. Arne Møller, director of Danmarks Tekniske Bibliotek, was elected president. The series of conferences was concluded by a one-day meeting of the documentation committee of the International Standards organization, which received reports of the work done by its working parties at their meetings at The Hague in May. An international exhibition of mechanical aids to documentation, which remained open throughout the period, was well attended.

Great Britain and Ireland. Statistics collected by the Library association showed that in the financial year 1950-51 £2,305,000, or 11*d.* per head of the population, was spent on books for public libraries and that the total cost of the service was £9,130,000, or 3*s.* 7¾*d.* a head—an increase of some £500,000. The population served totalled 50·1 million and the number of books lent for home reading rose to 314·1 million. The decrease in lending in the previous year was thus more than made good (312 million in 1948-49; 306·1 million in 1949-50). The total number of staff employed was 11,300 (exclusive of part-time staff). The volume of inter-library lending through the National Central library, the Scottish and Irish Central libraries, and the regional library systems remained almost constant (292,000 books against 291,000 in 1949-50). During the year the number of international loans showed a further large increase. The Treasury grant to the National Central library was increased from £22,000 to £25,000; the Carnegie United Kingdom trust made its final donation of £1,000. Tribute was paid in the annual report of the National Central library for 1950-51 to the benefactions of the trust, which had amounted since 1916 to £165,000 and had built up the library to the point where it could both justify and obtain support from public funds. It should be added that the trust had given in addition nearly £129,000 in grants to the regional library systems and outlier libraries, thus providing some £294,000 for the inter-library lending service as a whole.

The long-awaited report on public libraries in Scotland by the Advisory Council on Education in Scotland was issued in May by the Stationery office (*see* Cmd. 8229, H.M.S.O., London, 1951). Its principal features were its conclusion that the library service had to be regarded as an educational service under the supervision of local education authorities and the Scottish Education department, and its proposals for the amalgamation of existing library services on a county basis. The report gave rise to much controversy, more particularly since the council contained no professional librarians and did not invite evidence from the Library association. The annual conference of the Library association was held in Edinburgh in June.

The British Museum re-opened the King's library, damaged by a bomb in Sept. 1940, and set up in it an important display of books and manuscripts from 25 libraries, illustrating the achievements of the Friends of the National Libraries during the preceding 20 years. The reconstruction was virtually completed of the Central library, Newcastle-upon-Tyne, after extensive structural alterations carried out in stages since 1946. Many libraries arranged special exhibitions and displays in connection with the Festival of Britain, to which must be added the book exhibition illustrating five centuries of English literature arranged by the National Book league in the Victoria and Albert museum, London.

Commonwealth. Statistics of library services in India showed a total of 350 libraries of all kinds. Madras was the only state which had enacted a public libraries act, though Bombay was promoting through its Department of Libraries the development of public libraries by administrative rather than legislative action. But the 9th All-India Library conference, held at Indore in May, passed resolutions urging the central government to make it compulsory for local authorities to provide free public libraries throughout India. Other resolutions adopted by the same conference urged the prompt establishment of the Indian National library and requested the library profession in each of the Asiatic countries not possessing a library association to form one, with the ultimate establishment of an Asian Federation of Library Associations in view. Further developments in Indian librarianship are briefly treated below (*see* section *International*).

A report entitled *E.C.R.L., a Regional Experiment*

(Port-of-Spain, Trinidad, 1951), reviewed the progress of the Eastern Caribbean Regional library during the period 1941-50. With a grant from the Carnegie corporation, and in co-operation with the British Council, the establishment of public library services was undertaken in each colony from the Virgin islands in the north to British Guiana in the south, the number of services so set up being 11 and the total stock of books about 163,000. The total population served was 1·5 million of whom 70,000 were registered readers; the number of issues of books for home reading in 1950 was 750,000. The estimated cost of the service in 1951 was £39,000, which gives a figure of about 6¼*d.* per head of the population. In many colonies libraries built by Carnegie funds at the beginning of the century were already in existence, but the report pointed out that most of these had fallen into disuse and that little or no money was available for their maintenance. Reorganization, the report said, was based on the Trinidad library, which would ultimately become the headquarters library for the region and the seat of the professional training programme and of the inter-library lending scheme, both already in operation to a limited extent.

The Canadian Royal Commission on National Development in the Arts, Letters and Sciences strongly recommended, in its report issued in June, the immediate establishment of a National Library of Canada, to incorporate the bibliographical centre set up in Ottawa in 1950. An interesting recommendation was that the National library should include a special department of information on library practice in Canada.

Europe. The Bibliothèque Nationale, Paris, arranged some outstanding exhibitions during the year, among them a historical display of the work of the Imprimerie Nationale, and an exhibition, " Mille ans de livres anglais," opened on Nov. 15. An important new special library set up in France was that of the Centre National de l'Enfance, containing collections on medical and medico-social problems affecting children. The first issues appeared of *A.B.C.D.* (*Archives, Bibliothèques, Collections, Documentation*), a new French bi-monthly periodical replacing the old *Archives et Bibliothèques*, which ceased publication in 1939.

The Verein Deutscher Bibliothekare held a conference at Münster, Westphalia, in May, which was notable in that it was the first combined gathering of German librarians representing all types of library. Some 250 librarians attended, and particular attention was given in the papers read to the progress of reconstruction in German libraries. The rebuilding of Vienna university library was completed during the year. Lucerne opened a new central library, amalgamating the former cantonal and municipal libraries.

Details of a six-year plan for Polish libraries were published in the *Zentralblatt für Bibliothekswesen*, vol. 65, no. 5/6, pp. 208-212 (Berlin, May-June, 1951). The number of central and branch public lending libraries, which was given as 3,973 in 1949, was to be raised by 8 in 1950, which would complete that part of the programme. But the number of " library points," including presumably service points for travelling libraries, was to be raised from 19,800 in 1949 to 22,300 at the beginning of 1951 and 33,200 by the end of 1955. The plan also included provisions for the extension of school libraries and for a programme of professional training. An important article entitled " Repertório das Bibliotecas de Lisboa " appeared in *Anais das Bibliotecas e Arquivos*, vol. 21, no. 77/78, pp. 99-182 (Lisbon, 1951), giving details of 168 libraries in the Portuguese capital.

Asia. The National Diet library of Japan completed and published a general catalogue of the periodicals held by its branches in the various government departments. A scheme for the sale of the printed catalogue cards of this library was introduced in Dec. 1950. A new school of librarianship was established at Keio university. A new Japanese library journal, *Library Science Quarterly*, began to appear in May. In the Kingdom of Laos, the government began to consider the establishment of a national library, one of the functions of which should be to collect photocopies of all works on the culture and history of Laos discoverable in other Indochinese countries. From Vietnam it was reported that the country's libraries had suffered little from the fighting. The Bibliothèque Nationale at Saigon (70,000 volumes) and the Bibliothèque Centrale Pierre-Pasquier at Hanoi (100,000 volumes—the central copyright library for Indochina) were both intact and functioning. (F. L. K.)

United States. During 1951, the celebration of the American Library association's 75th anniversary, around the theme " The Heritage of the U.S. in Time of Crisis," accentuated the librarians' growing realization of the importance of public libraries as centres for adult discussion and systematic learning. As a means of extending and improving library services to the point where they could be used by the citizen to sharpen his understanding of the terms of the debates on the major questions that faced him as a citizen, the American Library association undertook a series of projects for the year in the field of adult education. The Ford foundation recognized the possibilities of this programme offering a $150,000 grant to enable the A.L.A. to experiment in training librarians as discussion leaders on the theme, " The Heritage of the U.S. in Time of Crisis."

Among university libraries, two—Duke and Northwestern—passed the million volume mark. The University of Pennsylvania library celebrated its bicentennial anniversary with notable exhibits of the works of Benjamin Franklin and Winston Churchill, and a series of papers on scholarly problems of modern libraries. Almost all university libraries started the year with decreased book funds and with increased demands for books and journals that were most abundant in 1951 and more expensive than they had been the year before. Princeton acquired manuscripts of Booth Tarkington novels, and the Russell Sage library went to New York university. The Spinoza collection of Professor A. Wolf and the papers of Franz Werfel were acquired by the University of California at Los Angeles. George Washington university, Washington, D.C., received the library of the Carnegie Endowment for International Peace valued at $250,000. The library of the American Mathematical society was purchased by the University of Georgia, Athens, and Harvard purchased a library of 3,000 Hebrew books on history and literature. The University of California purchased from Japan 100,000 books in the Japanese, Chinese and Korean languages. The Library of Congress was given a fund for a poetry collection by Mrs. Gertrude C. Whittall. The Old Dominion fund gave Trinity college, Hartford, Connecticut, $650,000 to purchase the Watkinson library. The A. W. Stern collection of Lincolniana went to the Library of Congress.

At least two new micropublication projects were announced. The Theatre Library association announced its intention to publish a microprint edition of about 5,000 early plays in English and the Association of Research Libraries began exploring the possibilities of publishing doctoral dissertations as microfilms and of expanding *Microfilm Abstracts* into an inclusive abstracting journal. All the editorial work and composition for a new edition of the *Union List of Microfilms* was completed and would include 25,000 entries. (R. E. EL.)

See F. Milkau, *Handbuch der Bibliothekswissenschaft*, 2nd ed. by G. Leyh, Stuttgart, 1950-51, etc. (in progress; five fascicules issued by the end of 1951); M. Dewey, *Decimal Classification* (15th ed., New York, 1951).

LIBYA. An independent kingdom in North Africa, the United Kingdom of Libya is bounded N. by the Mediterranean, W. by Tunisia and Algeria, S. by French West

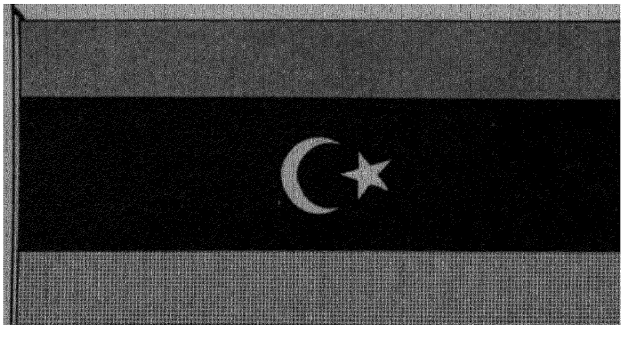


King Idris I addressing his people from the balcony of the Mahara palace in Benghazi on Dec. 24, 1951, immediately after the creation of the independent kingdom of Libya.

Africa and French Equatorial Africa and E. by Egypt and Sudan. Area: 679,183 sq.mi. Pop. (1949 est.): *c.* 1,175,000 (incl. 46,399 Italians); Berbers, with Arab admixture. Language: Arabic. Religion: mostly Moslem. Capitals: Tripoli (pop. 144,616); Benghazi (59,087). Ruler, King Idris I (*q.v.*); prime minister, Mahmud Bey Muntasser.

History. The process of shaping Libya, a former Italian colony, into an independent state began with a United Nations resolution of Nov. 21, 1949, which set the time limit for complete independence at Jan. 1, 1952; the territory had, from 1943, been administered in three parts, Tripolitania and Cyrenaica by Great Britain and the Fezzan by France.

At the beginning of 1951 Cyrenaica had an elected government, semi-autonomous in internal affairs, and the Fezzan an assembly of notables with rather similar powers. In Tripolitania it had proved impracticable, because of local political feeling, to hold elections and the British administration retained full powers. A Libyan National Assembly, composed of an equal number of representatives from each area, had already decided that the new state should be a federal, democratic kingdom and that the Emir Idris of Cyrenaica should be its king.



The flag of the new kingdom of Libya. The three bands are of red, black and green.

During 1951 this assembly drafted, with the assistance of Adriaan Pelt, the United Nations high commissioner, his advisory council and other experts, a Libyan constitution and finally adopted it in October. It provided for a bicameral parliament. Each of the three areas would have equal representation in the upper house, which would be partly nominated by the king. The lower house would be elected on a proportional representation basis. The federal government would be responsible to parliament and would have exclusive powers over foreign affairs, defence, currency and certain other matters and overriding legislative power over shipping, subsoil wealth and foreign trade. Each area would be designated a province, under a *wali* (governor) representing the king. Elections to the Libyan parliament would be held early in 1952.

A Tripolitanian council (government) had been nominated in March 1951 and later in the same month a provisional government for Libya had been appointed by the National Assembly. It was nominated and not elected, but in recognition of the numerical preponderance of the Tripolitanians, the prime minister (Mahmud Bey Muntasser) and two of the five ministers were chosen from that province. To provide Libya, which had a deficit economy, with financial support after independence Great Britain undertook to back a new Libyan currency, to provide annual grants and to cover the budget deficit. A financial agreement to give effect to these undertakings to March 31, 1953, was concluded. Other offers of finance for special purposes were made by France, the United States and Italy.

Great Britain and France, who had progressively passed authority to the embryo state, transferred on Dec. 24 all power remaining to them and the Emir Idris became king and formally declared the independence of the new state in a broadcast from Benghazi. Objections to the procedure adopted in the formation of Libya and to its form of government were voiced, mainly by the Arab states and Egypt. By the end of the year there had been no decision on the respective claims of Benghazi and Tripoli to be the capital. (F. E. S.)

Education (1950). Schools (excl. Italian): primary 141, pupils 23,915, teachers 840; elementary (Cyrenaica only) 45, pupils 5,399, teachers 190; secondary (boys only) 3, pupils 650, teachers 47; community (mixed; Cyrenaica only) 3, pupils 156, teachers 14; Koranic 413 (approx.), pupils 1,930, teachers 413; trade school 1, pupils 30, instructors 17; instructional centres in *zawais* (monasteries) 39, pupils 760, instructors 39. Italian schools: primary 97, pupils 7,279, teachers 347; post-primary 8, pupils 1,152, teachers 104. The number of government Jewish schools was decreasing rapidly because of emigration. Teachers' training colleges 2, students 120, lecturers 12.

Foreign Trade. *Tripolitania* (£'000, 1951, ten months; 1951, 12 months est. in brackets): imports 5,745 (6,894); exports (incl. re-exports) 2,009 (2,411). *Cyrenaica* (£'000, 1948; 1949 in brackets): imports 1,718·8 (1,894·4); exports 2,146·2 (1,565·4). Main imports included: metals, British and other European manufactured goods, tea, beads, wine and spirits. Main exports included: esparto grass, hides and skins, goat and camel hair, wool and woollen goods, cattle, sheep and goats, vegetable oils, cigarettes and tobacco, dried and fresh fruit and vegetables, tunny fish, worked aluminium.

Finance. Budget (1950-51, actual): revenue £2,574,590, expenditure £2,950,596. Monetary unit: *Libyan pound*, at par with sterling, divided into 100 piastres.

LIECHTENSTEIN. Small independent principality between Switzerland and Austria. Area: 61·4 sq.mi. Pop. (Dec. 1950 est.): 13,800. Language: German. Religion: Roman Catholic. An elected Landtag of 15 members appoints the government. Capital: Vaduz (pop., Dec. 1950, 2,700). Ruler, Landesfürst (sovereign prince), Franz-Josef II; prime minister, Alexander Frick.

In a press interview in July Prince Franz-Josef expressed his gratitude to Switzerland for the disinterested manner in which its diplomatic missions abroad represented and protected Liechtenstein's interests. The prince also called for foreign investments in his country where the income tax was from 2% to 9%.

Education. Schools (Nov. 1950): primary 14, pupils 1,658, teachers 50; secondary 2, pupils 156, teachers 8.

Finance. Budget (1950 est.): revenue Fr. 4,451,200; expenditure Fr. 5,071,893. Included since 1924 in the Swiss customs and monetary union, Liechtenstein uses Swiss currency.

LIGHT ENGINEERING. Among the dominant features of 1951 in light engineering was the influence, which grew steadily greater, of the combined effects of high prices and shortage of supplies in many of the staple materials, particularly textiles and non-ferrous metals, on output in all fields. To this factor must be added the pressure exerted by rearmament programmes and the limitations that they imposed on civilian industry through restrictions on consumption which most governments found it essential to impose. In many directions, electrical engineering, machine tools, radar and electronics, and industries producing consumer goods, little new was recorded and the emphasis was on maintenance of production in the face of enhanced difficulties with supplies rather than expansion, re-equipment and greater output.

In some directions, however, the completion of important projects and the emergence of designs indicative of substantial progress were noted. In television, for example, the British Broadcasting corporation opened at Holme Moss, in Yorkshire, its latest transmitting station which with a mast 750 ft. high on a site at an altitude of 1,750 ft. gave a net broadcasting height of 2,500 ft., the highest of the existing British television stations either perfected or already in service.

At the other end of the scale in radio work was the extension of the manufacture of the germanium rectifier for use as an amplifier in radio circuits. The discovery of the properties of the element and the development of its extraction metallurging were the work of earlier years and followed parallel investigations in Great Britain and the United States. A more recent development announced during the year was the alteration in the technique of preparation of the germanium, which led to the perfection of a much more robust piece of equipment. Instead of processing the surface of the germanium where the normal rectification phenomenon was observed, it was found that rectifying boundaries could be produced inside the metal. In consequence, a solidly soldered, mechanically strong connection, which was much more robust than the original surface contact type, could be made. The procedure involved the technique of manufacturing single crystals of germanium of high purity, and the increase in contact area which was achieved vastly improved the performance and efficiency of the cat's-whisker type of diode or triode; the year saw the introduction of commercial manufacture of these items on a substantial scale.

The aircraft engineering industry provided some novelties in 1951, mainly in power units. In the construction and design of aircraft generally, most of the development covered proving and testing flights of models already introduced, particularly the high-speed jet-engined civilian aircraft and long-distance bombers and the combined propellor-jet types of machines. In the smaller military type of fighter units and in the research and experimental types produced for investigation of transonic flight, the trend towards the adoption of the delta-wing design was particularly marked. Progress in the increase in output of turbo-jet engines by the leading manufacturers appeared to level off during the year, but two extremely interesting power units were demonstrated at the annual display of the Society of British Aircraft Constructors.

The first compounded compression-ignition gas turbine engine produced by a British firm comprised a highly supercharged two-stroke 12-cylinder engine of the horizontally opposed type driving one half of a contra-rotating propellor. The other half of the unit consisted of a gas turbine which converted the heat of the exhaust gases from the piston engine into useful work. The arrangement was not entirely novel in that petrol engine-jet combinations of similar type had previously been demonstrated, but the adoption of the compression-ignition design introduced the advantages of economy of fuel and the possibility of a much lower fuel cost. It was claimed that this engine had attained a fuel consumption of only 0·36 lb./ effective h.p./hr. at maximum continuous power. Designed specifically for extremely long-range work, the maximum static power at sea level of the model demonstrated was stated to be 3,000 shaft horsepower, plus 320 lb. thrust for a net dry weight of 4,200 lb., and its development was regarded as particularly important, since it represented a field of design, hitherto somewhat neglected, in which neither the pure jet nor the combined propellor-jet power unit was entirely supreme.

A second important addition to the efficiency of aircraft in flight was the introduction of an auxiliary rocket unit, specifically adapted, in the fast design, for military combat aircraft but with obvious eventual applications to civilian work. Its primary function was to give additional power for climb and level speed flight at very high altitude but could also be used for providing extra thrust for take-off. The unit weighed 215 lb. and developed 2,000 lb. thrust at sea level from propellents composed of liquid oxygen and a methanol-water mixture.

In transport work it was noticeable that, for railway services, the steady encroachment of diesel-engined vehicles in the field of the small steam locomotive for shunting and similar operations continued and, although the oil-electric combination was applied in some of the newer designs, the overwhelming tendency was towards the further development of mechanical transmission in which the adoption of fluid couplings proved an increasingly popular practice. Many of the larger types of engine of this class were a logical development of the designs evolved primarily for underground duties in mines. The availability of suitable power units in the form of engines of the medium high speed range enabled locomotives adaptable to lighter main line service to be evolved. A typical example, produced by a British firm for a South

American company, had an output of 500 b.h.p., transmitted through eight coupled wheels with a maximum axle loading of 14 tons. The oil engine fitted was of 12-cylinder V-type four-stroke class giving its maximum rated output at 1,375 r.p.m. The transmission was particularly interesting in that it showed the lines along which postwar practice had developed. At the backend of the crankshaft, a Bibby coupling was fitted to absorb torsional vibrations and a starting ring was attached to the casing of the coupling, in view of the absence of a flywheel. The sequence after this coupling was a fluid and then a flexible coupling, cardan shaft, friction clutch and gear box to final drive through jackshaft and side rods.

Great Britain also had a specially interesting innovation to demonstrate. It comprised an unusual combination of road and rail transport in the form of an oil-engined locomotive and train of trucks run on pneumatic tyres of the standard road vehicle class, but with the whole train guided by a single steel rail set in the centre of a concrete track 3 ft. wide. The vehicles of the train were fitted underneath with steel rollers, held on vertical axes, set on both sides of the rail, with a clearance of about $\frac{1}{8}$ in. By this system, all the weight of the train was carried on the pneumatic tyres and there was no vertical loading on the guide rails. It was claimed to have important advantages in respect of greater tractive effort with considerably reduced axle loading (compared with the conventional light railway), superior hill-climbing and better braking. One vitally important feature was the greatly reduced quantity of steel required for an equivalent length of track; this was claimed to be only about a quarter of the normal weight for a standard rail link with the 35-lb. rail.

Accounts of the exhibits at the various British and European trade fairs which took place during the year showed that the ubiquity and flexibility of the compression ignition engine had progressed so far that engines of almost any size, from powers as low as 3 h.p. to the largest units for passenger and cargo vessels, were available. At the biennial Engineering Marine and Welding exhibition, held in Great Britain, and at the Swiss Industries fair at Basle, the tendency of designers to adapt their models as multi-purpose types was exemplified in the large numbers of exhibits in which the same basic engine was available as a generator unit for the production of industrial power, as a marine unit frequently in conjunction with gearing to reduce propellor speed, or as a general power unit for industrial services of all kinds.

The great majority of all designs of oil engines introduced or put into production during the year conformed to the standard practice of employing water cooling for cylinder capacities generally in excess of 500 c.c., but it was reported that, in Germany, engines of the four-cylinder four-stroke class intended for road transport, with an output of 75 b.h.p. and an equivalent weight of 12 lb./h.p., operating at 2,250 r.p.m. and completely air cooled, were in quantity production. A similar advanced practice, extending to higher horsepowers, attracted marked attention at the Swiss Industries fair early in the year. A well-known Swiss manufacturing company exhibited engines which, although they had been under continuous development for several years, were a novel element in internal combustion engine practice to engineers of many countries. The designs shown were of the forced-air-circulation type, with up to six cylinders in the vertical class and eight-cylinder horizontally opposed models, the maximum output on view being 150 b.h.p. and speeds of rotation 2,200 r.p.m.

Production of industrial and agricultural tractors followed the pattern of previous years in that the efforts of manufacturers were generally towards the introduction of light and medium models, primarily for agricultural work, in which new auxiliary equipment for increasingly mechanized farming continued to be devised. A distinct move towards the design of medium-powered track-laying vehicles for contractors' work, excavation and civil engineering was demonstrated by the display, at public works exhibitions, of a few representatives of this class of vehicle, some of which were light enough to be handled by cranes and loaded for operation into sites inaccessible to the heavier machines.

Mechanical handling units, forklift trucks and similar equipment included several examples of mobile cranes of high stability and extended range of capabilities. A growing popularity for small battery-operated vehicles was illustrated by a European company's new model, which had a maximum lifting capacity of 2,000 kg., a lift of 3·5 m. and incorporated rubber-lined pullet arms capable of moving horizontally to give a width of opening varying from 65 cm. to 160 cm. Operation of the elevator arms was by hydraulic screw pump, actuated by the batteries, and the machine exemplified the widespread movement towards the addition of refinements and flexibility.

Machine tools, which saw the re-entry of German manufacturers into the competitive world market, included numerous examples of more advanced multi-spindle automatic lathes, centreless grinders, form-grinding machines and tools designed for certain specific operations and the widespread adoption of the principle of automatic transfer to speed up mass production. In the more refined and specialized tools, the further development of optical systems of measurement and of copy-milling turning and grinding was notable. A well-known Swiss machine-tool firm's latest version of its high precision jig-boring machine, for example, was introduced with direct reading indicators claimed to be accurate to one-thousandth of a millimetre in place of readings taken by means of optical microscopes. The satisfaction of demands made by developments in other industries was shown by the introduction of techniques such as the internal and external copy turning of compressor shafts for gas turbines and multi-cycle attachments for turning mass production parts for the motor industry.

Signs of a renewed interest in materials alternative to some of the more familiar engineering metals and of studies of the properties of those hitherto regarded as outside the scope of commercial practice were also noted during the year. Because of the expected demands of rearmament, large-scale production of magnesium was begun in Great Britain, and in the U.S. and most European countries intensive investigation of the technique of manufacture of titanium was put in hand. Restrictions on the consumption of nickel, chromium and alloys used in heat-resistant and special steels stimulated the development of substitute materials such as refractory enamels, and the wider use of aluminium and light alloys encouraged further progress in welding and riveting and the extension of processes of extension. A notable minor advance in this connection was the introduction of sections of sufficient width to enable the joggling and forming of plates to be eliminated in the construction of such items as small and medium marine craft. Progress in electronics included the production of new types of gas discharge tubes and advances in cold cathode technique while in the field of plastics compression moulding presses made notable advances in design, the trend being towards self-contained hydraulic drives and centralized press button controls.

The chief features of the year in light engineering as a whole were the moves towards the substitution of labour by specially designed machines designed to transfer all machinery work through in a continuous flow; the intensified interest in the methods of adapting light metals in wider fields of service; the stringency in some of the more valuable alloying metals and the substitution of alternative materials; and the spread of electronic control and detailed instrumentation in all branches of industry. (W. As.)

LI LI-SAN, Chinese politician (b. Hunan province, 1900), received an elementary education in China and in 1920 was sent to France under Mao Tse-tung's worker-student plan. He was one of the founders of the French branch of the Chinese Communist party (Kunchantang or K.C.T.). Expelled from the University of Paris for participating in a student demonstration, he was deported in 1922, returned to China and worked there as a trade union organizer. After the split between the K.C.T. and the Chinese Nationalist party (Kuomintang or K.M.T.) in 1927, he played a prominent part in the activities of the former. He criticized Mao Tse-tung, and the two became leaders of opposing factions within the K.C.T.: Mao maintained that the party's power lay in the organization of the peasants, whereas Li was convinced that to win over the industrial proletariat of the large cities was of primary importance. Mao's theories were recognized by the Kremlin in 1931 and Li was called to Moscow, where he attended the Lenin Communist institute for two years after which he obtained a post in the central executive committee of the Profintern (Communist Trade Unions' International). He also founded in 1934, and afterwards edited, the *National Salvation Times*, a Chinese Communist periodical printed in Moscow. From 1938 to 1945 he was associated with the Foreign Languages Publishing House, Moscow. In Sept. 1945 he returned to China via Manchuria as political commissar to the Chinese People's army group under General Lin Piao. On Oct. 1, 1950, he was appointed minister of labour of the central government of Communist China. He was also elected a member of the Politburo of the K.C.T. At the 1951 May Day celebrations he presented the "crushing of the U.S. invasion in Korea" as a major task for the Chinese people's democracy.

LINEN AND FLAX. Exports of Irish linen abroad totalled 51·4 million yd. in 1951, as compared with 49·3 million yd. in 1950. This was the highest total since 1939. About 69·7% of this was linen cloth, 6·7% damask, 5·8% threads, 2·3% handkerchiefs and about 15·5% other linen manufactures. The United States took 22·2 million yd. (about 40%) of the linen cloth, at an average price of 63 cents a square yard, as compared with an average price in 1950 of 59 cents a square yard.

While buyers, following the general downward trend of textile prices during 1951, asked for lower prices in 1952, relatively small stocks and high costs indicated that Irish mills would have to ask for increases. The Belfast spinners and weavers depended largely on Belgium for their flax, prices for which were increasing in 1951 at the same time that "buyer pressure" was forcing down the prices of finished linen products. At the end of the year, U.S. buyers were said to be looking to continental Europe for finished linens, because of more favourable prices.

In Belgium the linen weavers were busy supplying linen sheets, pillow cases and towels for the army. The fabric was of a rough, cheaper quality, more expensive than the comparable cotton item but more economical because of its longer-wearing, easier-washing qualities. Orders were on hand for 234,000 sheets, 145,000 mattress covers, 100,000 provision bags and 98,000 pillow cases. Flax prices in Belgium rose sharply after the outbreak of the Korean war from about 36·9 Belgian francs a kilogram to Fr. 50·5 in Jan. 1951 and to Fr. 70·7 in June 1951. Great Britain took 50% of the Belgian export. Belgian flax plantings in 1951 were 50% more than in 1950.

The production of fine linen cloth in all countries was handicapped by the high prices. In Belgium, as well as in Great Britain and France, buyers refused to accept the goods at the prices offered. Even South American buyers, who had placed large orders with Belgian producers for the finer types, cancelled them during 1951. In the United States, while the traditional linen fabrics were being by-passed because of their price, a new development was the blending of linen yarns with silk, rayon and some of the newer synthetic fibres.

The promotion of linen fabrics was continued in 1951, not only through the long-established Irish Linen guild, but also through a group of Belgian firms. (I. L. Bl.)

LITERARY PRIZES. The 1951 Nobel prize for literature was awarded to Pär Fabien Lagerkvist (*q.v.*) for "the artistic power and deep integrity with which he seeks an answer in his writings to Man's eternal problems." The value of the award was about 168,000 Swedish crowns (£11,500).

Great Britain. Among the awards during the year were: the James Tait Black memorial prizes (about £250 each) to Mrs. Cecil Woodham-Smith for *Florence Nightingale* (the biography prize) and to Robert Henriques for *Through the Valley* (the fiction prize); from the William Heinemann foundation (up to £200) to Patrick Leigh-Fermor for *The Traveller's Tree* and to Mervyn Peake for his volume of poetry, *The Glassblowers* and for his novel *Gormenghast;* the Carnegie medal (awarded by the Library association for an outstanding book for children) to Elfrida Vipont for *The Lark on the Wing;* the Rose Mary Crawshay prize (£100, for a critical or historical work on English literature by a woman) to Rosemary Freeman for *English Emblem Books;* the John Llewellyn Rhys memorial prize to Elizabeth Jane Howard for her novel, *The Beautiful Visit;* the Somerset Maugham award (about £250 for a British writer under 30, to be used mainly for foreign travel) to Roland Camberton (Henry Cohen) for his novel, *Scamp;* the Denyse Clairouin memorial prize for the year's best translation from the French, to Alan Pryce-Jones for his translation, entitled *The Colonel's Children,* of Jules Supervielle's *Le Voleur d'Enfants.* The Sunday Times £1,000 prize for literature was awarded to Arthur Bryant for *The Age of Elegance,* and two special awards of £100 each were made to younger authors for books of outstanding merit produced during the year; Jacquetta Hawkes for *A Land,* and Patrick Leigh-Fermor for *The Traveller's Tree.* The Observer offered a prize of £250 for a short story, which was awarded to Muriel Spark for a story entitled *The Seraph and the Zambesi.*

The Arts council offered a prize of £500 for a long poem in connection with the Festival of Britain, but the judges decided that they could not award the prize for any single long poem. Instead, three prizes of £200 each were awarded for the following three long poems: *The Impertinent Friends* by Gerald Bromhead Walker; *The Witnesses* by Clive Sansom; and *Unprofitable Journey?* by J. P. Fletcher. In addition, awards of £100 each were made to the following for groups of short poems: Jack R. Clemo, Robert Conquest, J. C. Grant, Theodore Nicholl, L. A. Redford. A total of over 2,000 entries was received. (E. Se.)

France. Among more than 100 literary prizes, amounting to over Fr. 7 million, distributed in France during 1951, the more important were: Académie Goncourt to Julien Gracq (Louis Poirier), who rejected the award, for *Le Rivage des Syrtes;* Théophraste Renaudot to Robert Margerit for *Le Dieu nu;* Femina to Anne de Tourville for *Jabadao;* Académie Française (novel) to Bernard Barbey for *Chevaux abandonnés sur le champ de bataille;* Interallié to Jacques Perret for *Bande à part;* Critiques (essay) to Pierre de Boisdeffre for *Métamorphose de la littérature,* (novelettes) to André Pierre de Mandiargues for *Soleil des loups;* Sainte Beuve (novel) to Yassu Gauclère for *La Clé,* (essay) to Jean Fretet for *La Folie parmi nous;* Gens de Lettres to Maurice Toesca for *Le Scandale;* Société des Auteurs to Odette

Joyeux for *Le Château du carrefour*. Alain (Emile Chartier), Paul Gilson, Julien Green, René Laporte, Henri Martineau and Vincent Muselli received, respectively, the GRAND PRIX NATIONAL DES LETTRES, GUILLAUME APPOLINAIRE, MONACO, AMBASSADORS, ACADÉMIE FRANÇAISE (Grand Prix des Lettres) and CRITIQUES awards, for the sum of their works. (M. JOL.)

United States. PULITZER PRIZES, four prizes in letters of $500 each were awarded to Conrad Richter for *The Town* (fiction); to Margaret L. Coit for *John C. Calhoun, American Portrait* (biography); to R. Carlyle Buley for *The Old Northwest; Pioneer Period, 1815-1840* (history); and to Carl Sandburg for *Complete Poems* (poetry). AMERICAN ACADEMY OF ARTS AND LETTERS AWARD OF MERIT MEDAL, with prize of $1,000, to Sidney Kingsley. AMERICAN HISTORICAL ASSOCIATION grant of $1,500 to Reynold M. Wick for his manuscript *The Application of Steam Power to American Agriculture*. ANISFIELD-WOLF AWARDS, $1,000 each for the year's best books on racial problems, to John Hersey for *The Wall* and to Henry Gibbs for *Twilight in South Africa*. BANCROFT PRIZES, for the two best books on American history, American diplomacy or American international relations, $2,000 each to Arthur N. Holcombe for *Our More Perfect Union* and to Henry Nash Smith for *Virgin Land*. BOLLINGEN PRIZE IN POETRY, $1,000 to John Crowe Ransom for his contribution to American poetry. O. HENRY MEMORIAL AWARD PRIZE STORIES, $300 first prize to Harris Downey for *The Hunters;* $200 second prize to Eudora Welty for *The Burning;* $100 third prize to Truman Capote for *The House of Flowers*. MODERN LANGUAGE ASSOCIATION—MACMILLAN AWARD, $1,000 award for a book of significant contribution to general understanding of English and American literature, to Alfred B. Harbage for *Shakespearean Setting*. MODERN LANGUAGE ASSOCIATION—OXFORD AWARD, $1,000 for a book of significant contribution to the general understanding of foreign literature, to Warren Ramsey for *Jules Laforgue and the Ironic Inheritance*. NATIONAL INSTITUTE OF ARTS AND LETTERS GRANTS, $1,000 each to six non-member writers for encouragement to young artists of ability and as practical recognition for more established authors: Newton Arvin, Brendan Gill, Elizabeth Bishop, Louise Bogan, Randall Jarrell, Vladimir Nabokov. NEW YORK DRAMA CRITICS CIRCLE AWARD, for the best play produced in New York city, to Sidney Kingsley for *Darkness at Noon;* for the best foreign play, to Christopher Fry for *The Lady's Not for Burning;* for the best musical, to Abe Burrows, Jo Swerling and Frank Loesser for *Guys and Dolls*. POETRY AWARDS, $1,250 major award divided between Rolfe Humphries and Hyam Plutzik. $1,000 prize for a long theme poem, to Mark Van Doren for *Mortal Summer*. ZONDERVAN CHRISTIAN FICTION PRIZE, $4,000 to James H. Hunter for *Thine is the Kingdom*. JOHN NEWBERY MEDAL, for the year's most distinguished contribution to American literature for children, to Elizabeth Yates for *Amos Fortune: Free Man*.

Canada. GOVERNOR-GENERAL'S AWARDS. Silver medals awarded to Germaine Guevremont for *The Outlander* (fiction); to Marjorie Wilkins Campbell for *The Saskatchewan* (creative non-fiction); to W. L. Morton for *The Progressive Party in Canada* (academic non-fiction); to James Wreford for *Of Time and the Lover* (poetry); to Donalda Dickie for *The Great Adventure* (juvenile). LEACOCK MEDAL FOR HUMOUR, to Eric Nicol for *The Roving I*. LORNE PIERCE MEDAL, for achievement of special significance and conspicuous merit in imaginative or critical literature, to Edward Killoran Brown (posthumous). TYRRELL MEDAL, for research in Canadian history, to Jean Bruchesi and to Donald Grant Creighton. (R. E. Bs.)

LITERARY RESEARCH. The Festival year, 1951, was notable for exhibitions providing facilities for research. An important event was the opening, in January, of the York diocesan archives. *The Times* (Jan. 21) described some of their most important contents, including 19 act books of the Ecclesiastical Commission of York. At Windsor, four hitherto unknown 15th century charters were discovered (see *The Times*, March 5). In June, the Historical Manuscripts commission organized an exhibition, in Lincoln's Inn old hall, of archives from inns of court, city companies and colleges (*ibid.*, June 25). An exhibition in July in the Winchester guildhall of literary treasures included the only MS. of Malory's *Morte d'Arthur* from the college and the Winchester bible from the cathedral (*ibid.*, July 4). Another exhibition in July was of Canterbury archives, including the earliest court roll and a charter of James I, with his portrait at the top (*ibid.*, July 26). In August, the Stationers' company displayed in their hall many of their archives including their MS. registers from 1554 onwards. A Festival exhibition of books was organized by the National Book league in the Victoria and Albert museum with a descriptive catalogue. A copy of an unknown book printed by Caxton in 1480 was discovered in Ripon cathedral library (*ibid.*, Nov. 6).

In *Shakespeare Survey*, no. 4, Levi Fox printed, with a commentary, a hitherto unknown copy of Shakespeare's will. In *The Sources of "Much Ado about Nothing"* (New Haven, Connecticut), Charles Prouty included a reprint of Peter Beverley's *Ariodanto and Jenevra*, adapted from the *Orlando Furioso*, of which the only extant copy was found in the Huntington library. Helena Normanton, in an article in *The Times* (Feb. 2) on *"Twelfth Night" at the Middle Temple* suggested that Malvolio's answer to the Clown, "I think nobly of the soul," was a reference to *Nosce Teipsum* or *The Soul* by John Davies, who was temporarily expelled from the Inn for an assault on Feb. 9, 1597, on a fellow member. She also held that Maria's mention of "the new map with the augmentation of the Indies," the map with the second edition of *Hakluyt's Voyages*, was owing to the fact that several Hakluyts were on the Middle Temple roll.

C. J. Sisson, in *Ben Jonson of Gresham College* (*Times Lit. Supp.*, Sept. 21), pointed out that, giving evidence for the widow of Sir W. Raleigh on Oct. 20, 1623, Jonson described himself as "of Gresham College." This might have meant only temporary residence there, but, if he was professor of rhetoric, it would explain the character of the *Discoveries* and the *English Grammar*. Francis F. Madan published a valuable *New Bibliography* of the *Eikon Basilike* with a discussion of its authorship (Oxford). The second volume of Sir Walter Greg's *A Bibliography of the English Printed Drama to the Restoration*, including plays, 1617-89, with Latin and lost plays, was issued for the Bibliographical society. W. G. Hiscock gave an account (*Times Lit. Supp.*, April 6) of some of the books (about 2,000) and MSS. (about 150) from John Evelyn's library, deposited on loan at Christ Church, Oxford. L. F. Powell completed, with vols. 5 and 6, his revision of Birkbeck Hill's edition of Boswell's *Life of Johnson* (Oxford). H. V. F. Somerset published (*English*, London, spring) the translation of four letters addressed to Edmund Burke by the Frenchman to whom his *Reflections on the French Revolution* was addressed, whose name was De Pont (not Du Pont). Two articles (*Times Lit. Supp.*, Oct. 5 and 12) gave extracts from Dr. John Johnson's diaries, with new light on *Cowper's Last Years*. Kathleen Coburn in *Inquiring Spirit* (London) gave a "new presentation of Coleridge from his published and unpublished prose works." The British Museum acquired a collection of MSS. and books of Coleridge, including 55 notebooks (*The Times*, July 28). Neville Rogers gave an account (*Times Lit. Supp.*) of the Shelley-Rolls gift to the Bodleian of a collection of Shelley's notebooks. K. J. Fielding gave extracts, not included in Osborne's edition of Dickens' *Letters to Baroness*

Burdett-Coutts, from Osborne's MSS. in the British Museum (*Times Lit. Supp.*, March 2 and 9). The Society for Theatrical Research published *The London Theatre in the Eighteen-Thirties* from the MS. register by Charles Rice, edited by A. C. Sprague and B. Shuttleworth. (F. S. B.)

LITERATURE: *see* AMERICAN LITERATURE; AUSTRALIAN LITERATURE; BOOK COLLECTING AND BOOK SALES; BOOK PUBLISHING; CANADIAN LITERATURE; CHILDREN'S BOOKS; CLASSICAL STUDIES; ENGLISH LITERATURE; FRENCH LITERATURE; GERMAN LITERATURE; ITALIAN LITERATURE; LATIN-AMERICAN LITERATURE; LITERARY PRIZES; LITERARY RESEARCH; NEWSPAPERS AND MAGAZINES; NEW ZEALAND LITERATURE; RUSSIAN LITERATURE; SCANDINAVIAN LITERATURE; SOUTH AFRICAN LITERATURE; SPANISH LITERATURE; WORDS AND MEANINGS, NEW.

LITHUANIA. From Feb. 16, 1918, to Aug. 3, 1940, when it was annexed by the U.S.S.R., Lithuania, one of the Baltic states of northeastern Europe, was an independent republic. Area (incl. Klaipeda or Memel and Vilnius or Wilno territories): 25,173 sq.mi. Pop.: (Oct. 1939 est., incl. Vilnius, but excl. Klaipeda) 2,970,000; (1950 est., incl. Klaipeda) 3,000,000, but according to reliable estimates the purely Lithuanian population declined from 2,084,000 (66%) to 1,645,000 (55%) between 1940 and 1950. Language: Lithuanian and Russian. Religion: Roman Catholic and Greek Orthodox. Chief towns (pop., 1938 census): Vilnius (cap., Oct. 1939 est., 207,800), Kaunas (152,365), Klaipeda (47,189), Šiauliai (31,299). Chairman of the presidium of the Supreme Soviet of the Lithuanian S.S.R., Justas I. Paleckis; chairman of the council of ministers, Mečislovas A. Gedvilas.

History. A new Supreme Soviet was elected on Feb. 18, 1951, among newly returned members being Lieut. General V. R. Vashkevich and Major General P. A. Lapkin, respectively chief of staff and chief of the political section of the Baltic military area of which the headquarters were at Riga (*see* also LATVIA). There were 91,530 more voters than in 1947, when the electorate amounted to 1,509,365; but whereas in that year 1·95% of votes were said to have been cast against the official candidates, in 1951 the "opposition" was reduced to 0·09%. Results of local elections held on Dec. 17, 1950, were published at the beginning of 1951, but no figures were disclosed of the possible poll or total of votes cast. According to the official communiqué, 4 provincial, 87 district (rayon), 70 town and 2,763 village soviets were elected with a total of 32,017 members, 16·4% of whom belonged to the Communist party.

Addressing the Soviet of Nationalities in Moscow on March 10, 1951, K. F. Liaudis said that over 90% of peasant farms had been collectivized. No figures were published concerning the merger of smaller collective farms (*kolkhozy*), of which there were 6,549 in July 1950, but their number was thought to have been reduced by two-thirds. In their report to Joseph Stalin on Oct. 7 on the amalgamation, it was admitted by A. Sniečkus, first secretary of the central committee of the Lithuanian Communist party, M. Gedvilas, the premier, A. Andreyev, minister of agricultural stocks, V. Augustinaitis, minister of agriculture, and D. Mamayev, minister of state farms (*sovkhozy*), that there had been serious shortcomings in the work of improving the operation of new *kolkhozy*, and of expanding agricultural production. Great discrepancy between controlled and so-called free prices was caused by low agricultural production. State collecting centres were paying Rb. 4·50 per 100 kg. of rye and for wheat Rb. 6 per 100 kg., while on the free market the respective prices were Rb. 160 and Rb. 120. The official price of butter was Rb. 1·30 per kg. (Rb. 25, free market).

Information obtained from Lithuania during 1951 revealed that the Roman Catholic church was no longer represented in the country by archbishop or bishop, and the 1940 hierarchy of 12 was now dispersed by exile in western Europe, forced labour in Soviet camps and death, while only 400 remained of the 1,646 clergy there had been in 1940. The two theological faculties and four seminaries were closed, as were also the majority of churches, including Kaunas cathedral. None of the 52 religious periodicals with a combined circulation of 7,030,200 was permitted to appear, and no religious organization existed. In Vilnius the Cathedral square was renamed after General I. D. Cherniakhovsky, whose army entered the city in July 1944, and a monument to him was unveiled on Dec. 12, 1950.

On Feb. 16, 1951, Lithunanian Independence day, the "Voice of America" started daily transmissions in Lithuanian, the broadcasts being inaugurated by Edward W. Barrett, assistant secretary of state, who pointed out that U.S. concern for the position of the Lithuanian people was not new. He read the statement of the U.S. government of July 23, 1940, protesting against the annihilation of the three Baltic republics by the Soviet Union, and added that the United States continued to adhere to the fundamental principles expressed at that time. The first programme also included speeches by Stasys Lozoraitis, chief of the Lithuanian diplomatic corps abroad, and Mgr. M. Krupavičius, president of the Supreme Lithuanian Committee of Liberation.

Education. According to an article by J. Paleckis published in *Izvestia* on Feb. 7, 1951, there were 459,000 pupils in primary schools, the number of pupils in secondary schools had increased fivefold and there were thrice as many students in 12 institutions of higher education as in 1939.

Finance. Budget (1951 est., million roubles): revenue 1,530·5; expenditure 1,462. (K. SM.)

LIVESTOCK. The ways in which livestock production can respond to economic influences and changes in policy are largely determined by the different rates of reproduction and maturity among the animals involved. Pig and poultry production react quickly in quantity, while cattle and sheep husbandry is adjusted more slowly to changing demands and tends towards substitution of one form of production by another. Thus, during 1951, the United Kingdom cattle population decreased slightly because of the diversion of some of the milking herd, including its replacements, towards beef production and store cattle; the sheep industry had recovered from its serious loss of numbers in 1947 and began to regain some of the emphasis on the quality of its lamb product; pig-keeping increased in response to more favourable allocation of rationed feedingstuffs. The annual price review mechanism was used to influence these trends, but the rising levels of farm costs, resulting from high wages and removal of the fertilizer and feedingstuff subsidies, strengthened the farmers' claims for a special review towards the end of the year. Moreover, the great reduction in imports of animal feedingstuffs, as compared with prewar, still further emphasized the need to enhance home production and to raise efficiency in the use of home-grown feeds, especially of grass and its conserved products.

In fact, the year 1951 provided some notable instances of the emergence of new patterns of livestock husbandry and of policies designed to develop them. For example, the Livestock Rearing act extended the provisions of the Hill Farming act to assist improvement of marginal upland farms in Great Britain; its long-term effects might thus run parallel to those of the 15 years' meat agreement with Australia, which gave assurance to the latter country in developing its beef-producing areas. At the same time, the Australian producers recognized the inevitable expansion of their home consumption of meat,

TABLE I. LIVESTOCK IN THE UNITED KINGDOM
(in thousand head)

	Horses on Agricultural Holdings	Cows and Heifers in Calf and/or Milk	Other Cattle, 2 yr. and over	Total Cattle	Sheep	Pigs
June 1939	1,084	3,884	1,229	8,872	26,887	4,394
June 1950	549	4,628	1,587	10,620	20,430	2,986
June 1951	477	4,457	1,707	10,477	19,990	3,898

SOURCE: Ministry of Agriculture, June 4 returns.

and the fact that meat shipments from Argentina were suspended for a period to secure reserves for domestic requirements was a further indication that the concomitants of increasing human populations and industrialization would impose further changes on the methods and products of "local" stock husbandry.

An outstanding feature of the international trade in livestock products was the great increase in wool prices, especially for Merino types; an immediate effect of these was to disturb wool-meat ratios in the chief wool-producing countries of the southern hemisphere, but the general high levels gave some incentive also to farmers with flocks growing "crossbred" and lower quality wools to review the place of their sheep enterprises on the farms. In Great Britain, this might help eventually to bring about a return of sheep into areas from which they had been virtually eliminated by extended cropping and dairying in the early years of World War II.

In tropical and subtropical regions, opinion veered markedly towards favouring the sounder policies of improving stock by selection within local types and better husbandry rather than by the introduction of unadapted types.

(J. E. N.)

North America. In the United States cattle increased by more than 4 million head between Jan. 1, 1950, and Jan. 1, 1951. The 84,179,000 head had a farm value of $160 a head, or a total value of $13,441,384,000, as compared with $123 a year before and a total value of $9,847,676,000. Record high prices were set for lambs and prime steers, but late in the year even the better grades of beef cattle dropped slightly below ceiling price levels.

The spring pig crop of 1951 was 61,957,000 head, as compared with the 55,407,000 head average for 1940-49. The autumn pig crop was 40,182,000 head, only 2% larger than in 1950 and comparable with the 35,400,000 head average for 1940-49. Thus the pig crop of 1951 totalled 102,139,000 head, or 5% more than in 1950. Indications were that sows farrowing in the spring of 1952 would be only 8,794,000 head, 8% less than the 9,581,000 farrowed in the spring of 1951.

TABLE II. LIVESTOCK ON U.S. FARMS
('000 head)

	Ave., 1940-49	Jan. 1, 1950	Jan. 1, 1951
Horses	8,581	5,274	4,763
Mules	3,268	2,149	1,990
Cattle (incl. calves)	78,826	80,052	84,179
Milk cows	26,157	24,573	24,579
Sheep	46,143	30,743	31,505
Pigs	62,346	60,502	65,028
Chickens	489,368	480,834	466,686
Turkeys	6,961	5,986	5,975

U.S. sheep numbers on Jan. 1 were about 4% above the low record of the previous year and more ewe lambs were held back for replacement or expansion.

Partly as a result of an abundant supply of feed grains, Canadian cattle numbers again increased after six years of decline. The slaughter of most kinds of livestock declined. Live cattle exports to the U.S. declined and restrictions on export of live hogs from Canada to the U.S. were removed.

World. World cattle numbers in 1951 were preliminarily estimated at 806,300,000 head, a record, about 2% higher than in 1950 and 8% above the prewar average. Leading countries were India (180,200,000), the U.S. (84,179,000), the U.S.S.R. (57,200,000), Brazil (46,400,000) and Argentina (43,000,000). Several western European countries experienced serious outbreaks of foot-and-mouth disease during the year. World pig numbers on Jan. 1, 1951 were estimated at 297,200,000 head, a record total, 6% more than a year earlier and 2% more than prewar. The number of sheep in the world increased to a total of 761,700,000 head, 4% more than in 1950 and 2% more than prewar.

World horse numbers declined slightly in 1951 to 74,900,000, as compared with 75,000,000 in 1950 and 95,800,000 prewar. (*See* also DAIRY FARMING; VETERINARY MEDICINE.) (J. K. R.)

LOCAL GOVERNMENT. This was another uneventful year. The political stalemate of the 1950 election persisted until the end of October, with the result that no legislation of a controversial nature affecting local government appeared. The most interesting event was the reintroduction of the words "Local Government" as part of the official title of a minister of the crown. When the Ministry of Health was formed in 1919, all the powers and duties of the Local Government board were transferred to the ministry but the words "Local Government" disappeared from the title. In Feb. 1951, when Aneurin Bevan became minister of labour, the opportunity was taken to make the Ministry of Health, in effect, the ministry of the national health service, and the Ministry of Town and Country Planning was combined with the local government functions of the former ministry of Health under the title of "Ministry of Local Government and Planning." Hugh Dalton became the first minister. H. A. Marquand, formerly minister of pensions, became the new minister of health. A further change in title took place after the general election in October, when the new Conservative government decided to emphasize the importance they attached to housing by renaming the ministry, "Ministry of Housing and Local Government." In Winston Churchill's own words in the House of Commons, ". . . the word 'planning' has been omitted from the minister's title for reasons of brevity and not of policy." (*See* CIVIL SERVICE.)

In parliament there was evidence during the year of a relaxation of the government view that no extensions of existing county boroughs would be entertained. This relaxation was due to the urgency of the housing programme and the fact that many of the industrial areas found it increasingly difficult to find land within the borough upon which to build. Extensions strictly limited to this purpose were permitted, although even bills of this nature gave evidence of the feeling which still existed between county and county borough areas on the issue of boundaries. The borough of Luton again tried to obtain county borough status but the bill was rejected on second reading.

The year 1951 was the Festival year and although most of the attention was concentrated upon the South Bank exhibition in London, there was considerable activity throughout the country, largely sponsored by local authorities. Festivals of the arts were held in a large number of provincial centres and in almost every locality something of a special nature was arranged. Although there were special displays, exhibitions and concerts, the opportunity was also taken of preserving beautiful buildings, improving the appearance of streets and open spaces, and adding, where possible, something of a permanent nature to the amenities of many localities. (*See* FESTIVAL OF BRITAIN.)

Civil defence (*q.v.*) was again of increasing importance. The whole organization was being built up and the responsibility for this was placed upon local authorities. The warning and communication systems were being put in a state of

readiness and volunteer personnel were being recruited and trained so that, in the event of war, a system would be in existence with a nucleus of well-trained members capable of expanding the service into a large volunteer force.

The report of the Local Government Manpower committee, which was published as a white paper in 1950 (Cmd. 7870, H.M.S.O., London), caused the Associations of Local Authorities to consider the practices and procedures adopted by their members. Each of the four associations issued memoranda of guidance to the local authorities within their membership upon such subjects as the delegation of functions to committees, the responsibilities of officers, the time spent in meetings, and the volume of papers demanded. All were designed to encourage an improvement in procedure and organization. A separate memorandum was issued on the education service. In addition, a joint committee representing the Association of Municipal Corporations, the Urban District Councils association, the Rural District Councils association and the County Councils association prepared a joint memorandum on the subject of the delegations of functions within the framework of the existing law by county councils to county district councils.

Legislation affecting local government was limited. The Rivers (Prevention of Pollution) act dealt with the wholesomeness of the rivers of England and Wales. Rivers boards were empowered to make byelaws to establish standards of purity and special provisions were made relating to the discharge of sewage. The Mineral Workings act dealt with the restoration of land worked for ironstone by opencast operations and established a fund to meet the cost of this work. Other acts dealt with the licensing of premises where pet animals were sold, the preservation of trees and the control of filling materials in upholstered and stuffed articles.

The new valuation lists, which were to be prepared by the valuation officers of the Commissioners of Inland Revenue, were again postponed. The Local Government act, 1948, fixed the date of the new lists as April 1952. In the early part of the year a postponement was announced until 1953 and in August it was stated in the House of Commons that the Board of Inland Revenue could not complete all the revaluation in time and that for the present the minister of local government had agreed that the board should concentrate on properties other than houses.

The increases in teachers' salaries recommended by the Burnham committee came into effect on April 1. They were to continue in force for at least three years and were expected to cost an additional £20 million in a full year. (G. H. Bl.)

United States. *Finance.* The upward trend in 1951 municipal budgets was reflected in a survey of the annual budgets of 24 U.S. cities by the Municipal Finance Officers association, which showed an increase in total budgeted expenditures of 16% over 1950. Special studies of postwar municipal expenditures in Baltimore, Maryland, and Syracuse, New York, revealed a *per capita* budget increase of almost 60% after 1946 in the former city and an increase in Syracuse's operating budget of more than 70%. In St. Louis, Missouri, the 1951-52 budget for operating costs exceeded that of the preceding year by 12% and the last prewar year of 1939-40 by 126%. Expanded municipal services and the decreased purchasing value of the dollar accounted largely for the rapid postwar rise. The annual report of the census bureau on the finances in 1950 of the 474 cities with populations of 25,000 or more, published in Oct. 1951, showed an increase of about 7% over 1949 in both revenue and spending; capital outlay increased by 12·1% and outstanding gross debt by 7·2%.

There were no spectacular new grants of local taxing powers by the states in 1951; the most significant was the extension to all cities in West Virginia of the power—previously limited to cities with home rule charters—to levy a variety of taxes, including capitation, motor vehicle, domestic animals, licence and privilege taxes, and to impose specified service charges. Tennessee authorized its cities to levy a 10% tax on the retail price of beer, and New Mexico authorized a city cigarette tax. Baltimore was empowered by the state legislature to impose a group of special taxes; New York state authorized the city of New York to increase its local sales tax from 2% to 3%, and its hotel and lodging house tax was made permanent.

More significant were the grants to local governments of new or increased shares in state-collected revenues. Important highway-aid legislation was enacted in North Carolina, Michigan, Illinois, Kansas, Wyoming, Pennsylvania and Minnesota. Among the states with new legislation for sharing state taxes and revenues were Oregon (liquor monopoly revenues), North Dakota and Wyoming (cigarette tax levies) and Nebraska (insurance company tax).

Civil Defence. Final action by congress on the 1952 civil defence appropriation came as a shock to the state and local governments. The Federal Civil Defence administration's request for $535 million was cut to slightly less than $75 million. Of this amount, $11·1 million was for operating purposes. Funds for bomb shelters, for which $250 million had been requested, were omitted entirely. Funds for matching expenditures for attack warning systems, communications, fire-fighting services, warden service, rescue service, medical supplies and equipment and training and education were reduced from $45·2 million to $7·7 million. Appropriations for emergency supplies and equipment—solely a federal responsibility—were cut from $200 million to $56 million.

Despite the failure of congress to support the programme it had originally proposed, states and cities, particularly in the northeast and northwest sections, proceeded with the adoption of interstate and intermunicipal civil defence pacts, as authorized under the Federal Civil Defence act, and with the financing of civil defence programmes. Seventy-eight cities, which spent $275,000 for civil defence in fiscal 1950, reported they had spent or appropriated more than $4·3 million in fiscal 1951, and reports from about half of 87 reporting cities indicated that their civil defence appropriations for fiscal 1952 amounted to more than $12 million.

Housing and Urban Redevelopment. Congress authorized construction of 50,000 units under the 1951-52 public housing programme, compared with the 75,000 units recommended by President Harry S. Truman.

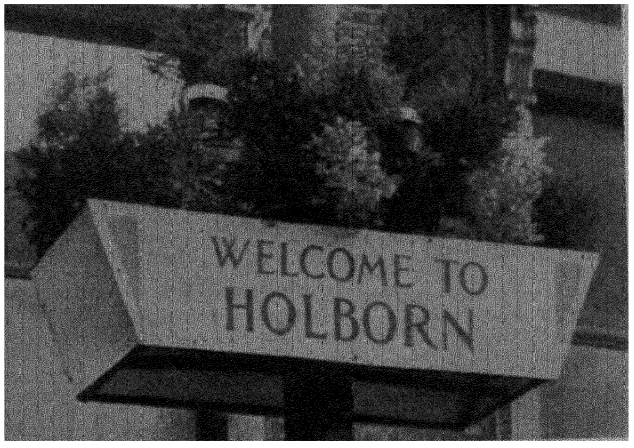
Rent controls were extended by federal action to June 30, 1952. The president was given authority—through the Defence Production administration—to impose controls in any state, county or community declaring the need for it and was required to establish controls in any area—whether previously controlled or not—certified by federal defence officials as a "critical defence housing area."

As from July 1, 1951, 34 states, the District of Columbia and Alaska had some form of urban redevelopment legislation; at least seven states and Alaska enacted such legislation in 1951. Philadelphia, on June 22, 1951, became the first of 123 cities developing slum clearance projects to receive approval of final loan and grant funds.

(L. Gu.; A. M. Ds.)

LOCKOUTS: *see* Strikes and Lockouts.

LONDON. The largest city in the world, the largest port, the largest industrial town in England, the capital city of the United Kingdom and the centre of the commonwealth. London consists of the county, comprising the 28 metropolitan boroughs (area 117 sq.mi.; pop., 1951 census, 3,348,336); the City, the ancient heart of London (area



During the summer of 1951—Festival year—many London boroughs displayed flowers and plants in the main streets. An example, from the borough of Holborn, is shown above.

1·05 sq.mi.), and greater London, of about 15 mi. radius from Charing Cross and identified with the Metropolitan and City police areas (693 sq.mi.; pop. 8,346,137), comprising the whole of Middlesex and large areas of Kent, Surrey, Hertfordshire and Essex. Chairman of the London County council, J. W. Bowen; lord lieutenant of the County of London, Field Marshal Viscount Alanbrooke; lord mayor of London, Sir Denys Lowson (*q.v.*), and, from Nov. 8, 1951, Sir Leslie Boyce.

London in 1951 was dominated by the Festival of Britain (*q.v.*). The South Bank exhibition and the Battersea pleasure gardens formed the centre of a decorative and festive effort spreading all over London from May to October. The pleasure gardens were obliged to defer their opening date; but, although slightly incomplete in detail, South Bank opened on the appointed day, May 3, when the king, on the steps of St. Paul's cathedral, declared the Festival of Britain open and attended a dedication service in the cathedral. Thereafter, Londoners grew accustomed to seeing the grave dignity of their city turned to a youthful gaiety. The South Bank exhibition closed on Sept. 30 and the pleasure gardens on Oct. 20. It was proposed to reopen the pleasure gardens in summer for a maximum of five years. In July the queen laid the foundation stone of a national theatre which would eventually be built between the Royal Festival hall and Waterloo bridge.

The festival was marked by celebrations and exhibitions, too numerous to mention exhaustively, on the part of the London boroughs and various institutions, illustrating their part in history or fiction or displaying their particular, little-known treasures.

The musical events of the festival were by no means confined to the Festival hall; concerts were held at the Royal Albert hall, as usual, and at other smaller halls, at the Victoria and Albert museum, in the orangeries at Hampton Court palace and Kenwood, and in the open air. It was finally decided to rebuild the Queen's hall when circumstances permitted.

Business in the theatres was remarkably good, seats, especially for plays by such authors as Shakespeare and Molière, being booked for many weeks ahead. The stage suffered a loss in the sudden death of Ivor Novello (*see* OBITUARIES), who as both actor and composer of popular musical pieces had been the idol of theatregoers for nearly 20 years.

Art exhibitions not specially connected with the festival, in addition to those held regularly every year, were the Liechtenstein pictures at the National gallery; the works of Holbein and his contemporaries, and an exhibition of the work of modern French artists, in the winter of 1950-51, at the Royal Academy, and a selection of works from those shown at the Royal Academy during its first 100 years (founded 1768) in the winter of 1951.

Many places of importance which had remained closed or had been closed for other purposes due to the war were restored or reopened during the year. In May, the House of Lords resumed the use of its own chamber which had been lent to the Commons from the middle of the year 1941 until the completion of the new chamber in 1950. The chapter house at Westminister abbey was reopened with new commemorative windows to replace those (1881) destroyed in the war. The Rubens ceiling-paintings, skilfully cleaned, were replaced in the banqueting hall in Whitehall, newly decorated to display the paintings to great advantage. The London museum reopened in its new, somewhat restricted quarters at Kensington palace. The assembly hall at Church house, wrecked in 1941, was reopened by Queen Mary in June. The decorations of the Soane museum were restored in their original style (1812), and Gray's Inn hall, reconstructed after damage received in 1941, was reopened in December. Further portions of various museums were reopened to the public.

The laying out of new gardens and improvements to old ones were features of the festival preparations. Parliament square was newly laid out to include flower displays as well as the familiar lawns. East of St. Paul's, a new garden with fountains and a pool, to form part of the St. Paul's precinct under



1951 saw the revival in June of the first basket race for 20 years in Covent Garden.



The scene at Victoria station on May 8, 1951, when King Frederik and Queen Ingrid of Denmark arrived for a four-day state visit. Beyond the royal party are representatives of the British government, local government and the armed forces. Members of the Danish colony in London are being presented to King Frederik.

the City of London plan, was opened by the lord mayor in June. In the City there were many additions to the already considerable number of small gardens laid out in disused churchyards and on bombed sites. In October, a new terrace on Tower hill, part of a project of the Tower Hill Improvement association to restore to the City its ancient pleasance on Tower hill, was handed over to the lord mayor.

Rebuilding of the bombed areas of the City of London progressed slowly, partly owing to the slow procedure of compulsory purchase under the Town and Country Planning act. Important new buildings nearing completion were Atlantic house, Holborn viaduct; Plantation house, Mincing lane; and a great block of offices on the site of Salter's hall, Walbrook. The Bank of England had already occupied new (additional) premises erected on the bombed site in Princes street, Lothbury, and Old Jewry. A new building of outstanding interest was St. Bridget's house, near Blackfriars bridge, displaying an unusual use of quartzite and glass. The 18 City churches destroyed during World War II, most of them designed by Sir Christopher Wren, still remained in ruins pending funds and facilities for rebuilding those selected for restoration by the Bishop of London's committee.

At St. Paul's, in July, in the presence of the queen and the princesses, General Dwight D. Eisenhower presented to the cathedral a roll of honour with the names of 28,000 men and women of the United States armed forces who died in World War II in operations carried out from the United Kingdom. The roll was to rest in a memorial chapel at the east end of St. Paul's. Some drawings by Sir Christopher Wren, relative to the design of St. Paul's and previously supposed lost, appeared in a London sale-room and were acquired by the cathedral authorities (*see* HISTORIC BUILDINGS.)

Progress toward the ultimate formation of a university precinct, in accordance with the County of London plan, was made by the acquisition of the university of further sites and property in the Bloomsbury area to the value of £1,620,000, which, pending ultimate reconstruction, would provide much-needed accommodation as the leases of occupants fell in.

In the port of London the total tonnage of goods passing through the port was 4 million tons greater than in the previous year and also greater than before the war. Important schemes for dock development were put in hand at Millwall dock and London dock; but repairs to war-damaged quays and property still absorbed the major building effort. Delays to the work of the port were caused by unofficial strikes.

In housing in the County of London, an outstanding development was the Lansbury estate in Poplar on a bombed site of about 30 ac., where the L.C.C., in conjunction with the Poplar Borough council, was creating a complete civic unit. A large part of the construction was already finished and in occupation. A U.S. gift to the East End of London was Winant house, a block of 12 well-designed flats in Poplar High street, erected as a memorial to Gilbert John Winant, U.S. ambassador to London during World War II. With about 200,000 families still on the waiting list for homes, over 60,000 of them urgent cases, the L.C.C. estimated an expenditure of £20,500,000 for capital outlay on housing in 1951-52.

In October, the conversion of London tram-routes to trolley-bus routes reached the halfway mark with the withdrawal of 56 mi. of tram-routes affecting about 100,000 travellers in south London. For pedestrians, priority at uncontrolled crossings was withdrawn from Oct. 31, except at certain newly marked black and white " zebra " crossings where priority, if not immunity, was guaranteed. Casualties in the metropolitan police area, though still below the 1938 figures, rose in 1950 by 12·8% over those of 1949. In June, taxicab fares rose by another third to a two-thirds increase upon the old rates.

Concern for the king's illness in the spring and his operation in the autumn brought anxious crowds to watch the bulletins at the gates of Buckingham palace. In December, prayers were offered in churches of all denominations in thanksgiving for the king's return to health.

London was visited in May and June successively by King Frederik and Queen Ingrid of Denmark and by King Haakon of Norway, the arrival of the latter being marked by one of the noblest pieces of river pageantry of recent times, when the Norwegian royal yacht " Norge " sailed up the Thames to the Pool of London. But the royal occasion which most delighted Londoners was the drive of the Duke and Duchess of Edinburgh on their return from their successful tour in Canada and visit to the United States, when they proceeded from Buckingham palace to the City, where they lunched at the Guildhall with the lord mayor. In April, the venerable Stone of Scone, which was stolen on Christmas eve, 1950, was returned in custody of the police to Westminster abbey, having been found in Arbroath abbey.

The sad demise in August of the last pair of pelicans in St. James's park, where there had been pelicans since Charles II's reign, " melancholy water-fowl " brought by the Russian ambassador from Astrakhan, was made good by contributions of pelicans from Texas, Louisiana, Nairobi and Pakistan. (D. NN.)

LONDON UNIVERSITY. In the academic year 1950-51 there were 13,506 full-time men students and 4,906 full-time women students at the schools (constituent colleges) and senate institutions of the University of London; in addition there were 2,645 men and 227 women at institutions in the London area not organically connected with the university (polytechnics, academies of music, research centres, etc.) but having recognized teachers. Of the 30,540 external students 6,307 were preparing for examinations by means of correspondence courses and 3,156 by private tuition; 2,843 were at the English university colleges, 11,167 at technical colleges and 3,646 overseas (including 500 at university colleges in special relationship with the university).

The acquisition by the university during 1951 of an additional 13 ac. from the Bedford estate, adjacent to the original 11-ac. Bloomsbury site, was a decisive step towards the realization of the concept of a university precinct outlined in the County of London Plan, 1943. The purchase, at a cost of £1,620,000, was made with the aid of grants from the Treasury and from the London County council. Two important sites were also acquired in Guilford street. One was for the headquarters of the university's British Post-graduate Medical federation and the other for the Institute of Child Health (a constituent institution of the federation) and for an associated model child welfare clinic. The cost of the building for the latter would be met from a gift of £111,000 received from Natal as part of the South Africa Aid to Britain fund. Building was retarded by the reduction in the allocation of materials to the university, but work went ahead on the new University of London union building on the Bloomsbury site, the repair of war damage to Bedford college, University college and St. Bartholomew's Hospital Medical college, and the new laboratories under the quadrangle of King's college. The queen opened the new wing of the Royal Free Hospital School of Medicine on Oct. 24, and the new buildings of Birkbeck college, near the senate house, were partly occupied in that month. Princess Alice opened the Swanley hall of residence for women at Wye college in June, and the university Botanical Supply unit in October. The unit, accommodated on land belonging to Royal Holloway college, was instituted to supply material to the various schools.

Honorary degrees were conferred on Princess Elizabeth and the Duke of Edinburgh at a special presentation ceremony at Senate house on Dec. 11.

The year saw the end of the old "London matric." Registrations of exemption from the matriculation ceased after April 30, and the examination was held for the last time in June. The new university entrance examinations, confined in 1951 to one subject, English for foreign students, and examinations for the new national general certificate of education, were held for the first time. A student could not now matriculate in the university unless and until he registered as an internal or external student, and to do so he had to comply with the minimum university and faculty entrance requirements, by means of an acceptable performance at an examination for the general certificate of education.

Professor Lillian Penson (Bedford college), on completion of her three-year term of office as vice chancellor, was made a D.B.E. in the Birthday Honours. She was succeeded by Professor H. Hale Bellot (University college). The principal of the university, D. W. Logan, was one of the British delegates to the conference of Commonwealth universities held in India. There were several changes of heads of schools. Professor J. F. Lockwood (University college) became master of Birkbeck in succession to the late Professor H. Gordon Jackson (d. 1950). Norah Penston (vice principal of Wye college) became principal of Bedford college, Kathleen Chesney (vice principal of St. Hilda's college, Oxford) principal of Westfield college, and B. Ifor Evans provost of University college, on the retirement of Geraldine Jebb, Mary Stocks and D. R. Pye respectively. Sir Thomas Creed (secretary of King's college) was appointed to succeed B. Ifor Evans as principal of Queen Mary college.

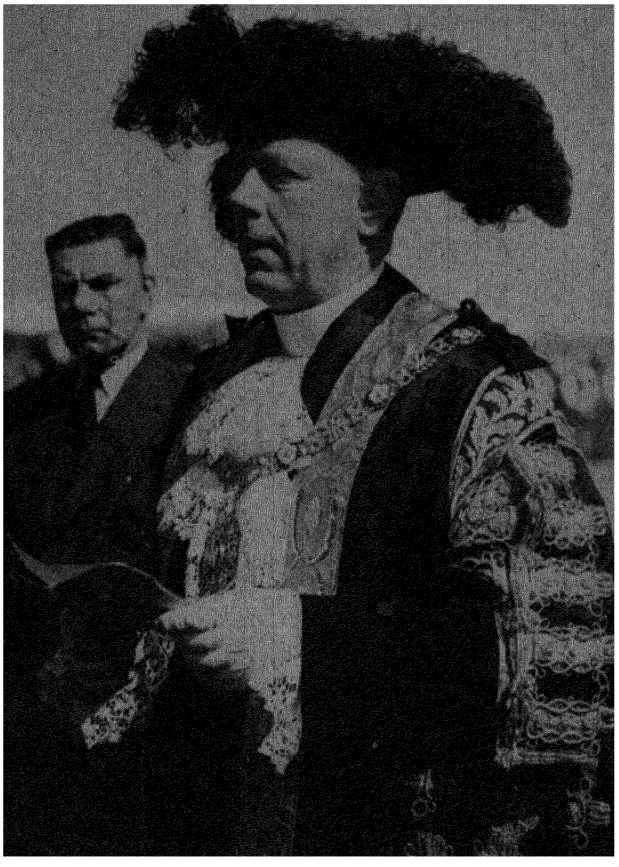
The deaths occurred during the year of J. B. Hunter (King's College Hospital Medical school), deputy vice chancellor, George Oldroyd, King Edward VII professor of music, and Harold Potter (King's college), professor of English law. (*See* also UNIVERSITIES AND COLLEGES.) (J. H. Ps.)

LOPES, FRANCISCO HIGINO CRAVEIRO, Portuguese army officer and statesman (b. Lisbon, April 12, 1894), was the son of General João Carlos Craveiro Lopes. He joined a regiment of horse on July 23, 1911, attended the cavalry course of the army school and was appointed ensign on Nov. 16, 1915. He took part in the Mozambique campaign against the Germans, then attended a military aviation school at Chartres, France, and in 1918 joined the Portuguese army air force on the western front; he served in the army air force until 1929. In that year he became aide-de-camp to his father, then governor general of Portuguese India. Returning to Portugal after nine years he was appointed commander of an air base. In 1941, as a colonel, he became commander of the air force. Two years later he attended the high-command course at Caxias and in 1944 was appointed commander of the Portuguese legion (a voluntary force formed in 1936, during the Spanish civil war) and professor at the high-command course. In Jan. 1951, as a general, he was appointed commander of the Third Military region at Tomar and withdrew from the command of the Portuguese legion. In 1945 and 1949 he was elected deputy to the national assembly. On July 22 he was the only candidate to the presidency and polled 896,379 votes out of a total of 1,334,000 electors.

LORDS, HOUSE OF: *see* PARLIAMENT, HOUSES OF.

LOVETT, ROBERT ABERCROMBIE, United States government official (b. Huntsville, Texas, Sept. 14, 1895), was educated at Yale and Harvard universities, served in the naval air arm during World War I and afterwards became a partner in a banking firm. He was appointed special assistant to the secretary of war in Dec. 1940, and assistant secretary of war for air in April 1941. He returned to private business in 1945, but in May 1947 was appointed under-secretary of state to help implement U.S. policies of frustrating Soviet interference with European recovery. During the absence of George C. Marshall in 1947 and 1948 he was acting secretary of state, and as such helped further co-ordination of western Europe's political and economic activities. His resignation from the department was accepted along with Marshall's on Jan. 7, 1949. On Sept. 28, 1950, however, he was appointed deputy secretary of defence. Lovett was one of the first to take a firm stand against General Douglas MacArthur in 1951, declaring that the general was serving under adequate military directives and that political issues were "beyond his responsibility as a field commander." Upon the resignation of Marshall as defence secretary, Lovett was elevated to that position, being unanimously confirmed in that post by the Senate on Sept. 14 and sworn in on Sept. 17.

LOWSON, SIR DENYS COLQUHOUN FLOWERDEW, 1st baronet, of Westlaws, Perthshire, lord mayor of London, 1950-51 (b. Snitterfield house, near Stratford-on-Avon, Jan. 22, 1906), was educated at Winchester college and Christ Church, Oxford. He became a barrister of Inner Temple in 1930. In 1939 he was elected a sheriff of the city of London, and appointed an alderman in



Alderman Denys Lowson, lord mayor of London, at the formal opening of the Festival of Britain river passenger services on April 25, 1951.

1942. His term of office as lord mayor covered the period of the Festival of Britain and he received King George VI at St. Paul's cathedral for the service of dedication and opening of the festival on May 3. During the year he entertained three sovereigns in the city, Queen Juliana and the Prince of the Netherlands, King Frederik and Queen Ingrid of Denmark and King Haakon of Norway. Another event of his mayoralty was the dedication by General Dwight Eisenhower of the American memorial at St. Paul's which made part of the cathedral an American shrine for ever. He was the first lord mayor to visit Australia, New Zealand and the United States while in office, for between July 31 and Sept. 20 he and the lady mayoress made a 35,000-mi. goodwill tour of these countries and Canada.

LUTHERANS. In 1951, 50 member churches in 24 countries were preparing for the Lutheran World federation assembly, to be held at Hanover, Germany, in the summer of 1952. Anders Nygren was president of the Lutheran World federation. Of more than 60 million Lutherans in the world during 1951, one out of ten was a refugee. Service of physical relief and spiritual ministry to these refugees, mainly in central Europe, the middle east and Asia, continued to be a major part of the work of the Lutheran World federation. More than 90,000 had been resettled, mostly in the United States, Canada, Australia and Great Britain.

From the United States alone a sum of more than $47 million was raised after 1939, through the programme called Lutheran World Action. In addition, $19 million-worth of food and clothing was sent out—in part to Korea—through the programme known as Lutheran World Relief. The Lutheran churches of Finland, Norway, Sweden and Denmark also participated in this programme.

Lutheran churches all over the world were co-operating in Latin American missions, in a programme that was launched at a conference in Brazil in Sept. 1951. Younger Lutheran churches in Africa, Indonesia, India, Israel and New Guinea were supported both by money and manpower from the older Lutheran churches.

Fifty Lutheran one-day seminars in 1951 drew Lutheran groups together in the United States. Speakers drawn from all bodies spoke on the general subject "A United Lutheran Front in American Life."

Plans were completed for a first-rank full-length feature film on the life of Martin Luther.

Newly elected presidents were Oscar A. Benson of Augustana Lutheran Church, Hans C. Jersild of United Evangelical Church and John E. Wargelin of the Suomi Synod. Bishop Ilmari Johannes Salomies was the new primate of the Church of Finland.

Lutheran membership in the United States exceeded 6,000,000 for the first time. The annual survey of the National Lutheran council's division of public relations revealed 6,301,948 Lutherans in 16 bodies in the United States and Canada, 198,164 of these in Canada. (J. SN.)

LUXEMBOURG. Independent grand duchy in western Europe bounded S. by France, N.W. by Belgium and N.E. by Germany. Area: 999 sq.mi. Pop.: (Dec. 31, 1947, census) 290,992; (July 1, 1950, est.) 298,600. Language: Luxembourgian (idiomatic) and (officially) French. Religion: Roman Catholic 98%. Capital, Luxembourg (pop., Aug. 1949 est., 62,000). Ruler, Grand Duchess Charlotte; prime minister, Pierre Dupong.

History. The main feature of 1951 was the parliamentary election of June 3 after which the Social Christian party still maintained its lead (with 21 out of 52 seats) but was closely followed by the Socialists (19 seats), whilst the Liberals and the Communists (with 8 and 4 seats respectively) suffered losses. (*See* ELECTIONS.) The Dupong cabinet resigned, but instead of the former coalition of Social Christians and Liberals a new government was based on the collaboration of the Social Christian and Socialist parties. Pierre Dupong remained prime minister and minister of finance and Joseph Bech minister of foreign affairs. The three Socialist ministers were Victor Bodson, Nicolas Biever and Michel Rasquin. The Communists lost the right to introduce legislation since five parliamentary representatives of a party were constitutionally required in order to present bills. The losses of the Communists were even heavier in the communal elections.

In January it was announced that the Luxembourg government had agreed to increase its armed forces from two to four battalions.

On June 19-21 Queen Juliana paid the first Dutch royal state visit to Luxembourg since the advent of the Nassau dynasty in 1890.

There was a strongly increased output of iron ore and a post-war record was reached with 622,000 metric tons in October. The steel plants also reached record figures (288,000 tons in October) and there was no unemployment. (H. R. ML.)

Education. Schools (1948): elementary 966, secondary 7, technical 3.

Industry. Production in thousand metric tons:

	1937-39	1945	1947	1949	1950	1951
Iron ore (metal content, 30%)	6,252	1,404	1,992	4,152	3,828	5,453
Pig iron	1,968	312	1,812	2,376	2,496	3,162
Crude steel	1,908	264	1,716	2,268	2,448	3,086
Gas (million cu.m.)	—	11·6	17·4	17·8	17·3	17·9
Electricity (million kwh.)	507·6	177·6	411·6	620·4	697·2	807·3

Finance. Budget (million francs): (1950 est.) revenue 2,996·3, expenditure 3,890·93; (1951 est.) revenue 3,477·7, expenditure 3,446·2. Monetary unit: Luxembourg *franc*, at par with the Belgian franc, with an exchange rate of Fr. 140·00 to the £ and Fr. 50·50 to the U.S. $.

MACAO: *see* PORTUGUESE OVERSEAS TERRITORIES.

MACARTHUR, DOUGLAS, U.S. army officer (b. Little Rock barracks, Arkansas, Jan. 26, 1880). (For his early career, see *Encyclopædia Britannica.*) After the Japanese attack on Pearl Harbour, he led U.S. and Filipino forces in defence of the Philippines until March 17, 1942, when President F. D. Roosevelt ordered him to Australia. From this point he directed the Allied drive that ultimately led to a successful reinvasion of the Philippines.

MacArthur accepted the Japanese surrender in Tokyo bay on Sept. 2, 1945, and became supreme commander of the Allied powers in Japan. When the North Koreans invaded South Korea in June 1950 he was placed in charge of the United Nations forces opposing the aggression. (X.)

On March 14 the United Nations forces re-entered Seoul and ten days later MacArthur had issued a statement in Tokyo offering " at any time to confer in the field with the commander in chief of the enemy forces in an earnest effort to find any military means whereby the realization of the political objectives of the United Nations in Korea, to which no nation may justly take exceptions, might be accomplished without further bloodshed." He had included in this statement an implied psychological threat that " the decision of the United Nations to depart from its tolerant effort to contain the war to the area of Korea through expansion of our military operations to his coastal areas and interior bases would doom Red China to the risk of imminent military collapse."

Before this offer was issued, apparently without clearance in Washington, the United States government had handed to its allies, maintaining forces in Korea a proposed statement of war aims. It was said to be the purpose of this statement to bring about a new approach to a cease-fire. And late in March in the United Nations general assembly there was vigorous debate of a proposal to discuss all far eastern problems with Communist China after an armistice. The British expressed the wish that the United Nations forces should stop at the 38th parallel. In early April United Nations troops continued to cross the parallel and on April 5 Speaker Sam Rayburn told the U.S. House of Representatives: " We are in greater danger of an expanded war today than at any time since 1945 and maybe the beginning of World War III."

On the same day, Joseph W. Martin, minority leader of the house, introduced into a speech lashing the administration a letter addressed to him by MacArthur, saying:

> It seems strangely difficult for some to realize that here in Asia is where the Communist conspirators have elected to make their play for global conquest, and that we have joined the issue thus raised on the battlefield; that here we fight Europe's war with arms while the diplomats there still fight it with words; that if we lose the war to communism in Asia the fall of Europe is inevitable; win it and Europe most probably would avoid war and yet preserve freedom . . . We must win. There is no substitute for victory.

Martin's proposal that the Chinese Nationalist forces on Formosa be utilized against the Communists on the mainland, MacArthur had said in his letter, " is in conflict with neither logic nor this tradition."

On April 11 President Truman removed MacArthur from his far east appointments and issued this statement:

> With deep regret I have concluded that General of the Army Douglas MacArthur is unable to give his wholehearted support to the policies of the United States government and of the United Nations in matters pertaining to his official duties . . . Full and vigorous debate on matters of national policy is a vital element in the constitutional system of our free democracy. It is fundamental, however, that military commanders must be governed by the policies and directives issued to them in the manner provided by our laws and constitution. In time of crisis, this consideration is particularly compelling. General MacArthur's place in history as one of our greatest commanders is fully established. The nation owes him a debt of gratitude for the distinguished and exceptional service which he has rendered his country in posts of great responsibility. For that reason I repeat my regret at the necessity for the action I feel compelled to take in his case.

MacArthur had indicated the direction of his thinking as early as Aug. 1950, in his letter to the Veterans of Foreign Wars, in which he stated:

> In view of misconceptions currently being voiced concerning the relationship of Formosa to our strategic potential in the Pacific, I believe it in the public interest to avail myself of this opportunity to state my views thereon . . . Any appraisal of that strategic potential requires an appreciation of the changes wrought in the course of the past war . . . Our strategic frontier then shifted to embrace the entire Pacific ocean, which has become a vast moat to protect us as long as we hold it . . . Our line of defence is a natural one . . . It envisions no attack against anyone nor does it provide the bastions essential for offensive operations . . . The geographic location of Formosa is such that in the hands of a power unfriendly to the United States it constitutes an enemy salient . . . At the present time there is on Formosa a concentration of operational air and naval bases . . . An enemy force utilizing those installations currently available could increase by 100% the air effort . . . Historically, Formosa has been used as a springboard for . . . military aggression directed against areas to the south . . . Should Formosa fall into the hands of a hostile power, history would repeat itself . . . Nothing could be more fallacious than the threadbare argument by those who advocate appeasement and defeatism in the Pacific that if we defend Formosa we alienate continental Asia . . . To pursue any other course would be to turn over the fruits of our Pacific victory to a potential enemy. It would shift any future battle area 5,000 miles eastward to the coasts of the American continents.

General MacArthur returned to the United States on April 17 and two days later appeared before congress in joint session and stated his view of the needed policies for the United States in the far east.

The Investigation. The hearings, " An Inquiry into the Military Situation in the Far East and the Facts Surrounding the Relief of General of Army Douglas MacArthur," conducted by a joint-committee of the Senate (the Committee on Armed Services and the Committee on Foreign Relations), began on May 3. The hearings ranged far afield and the



General of the Army Douglas MacArthur, with his wife and son, driving through Washington, April 19, 1951.

proceedings for the period May 3-June 27 comprised more than 3,000 pages.

Three points must be stressed because of widespread misconceptions of the nature of the subsequent congressional committee hearings and of the findings: (1) hearings were not public; (2) testimony published in the press or in the report was not complete because of deletions from the oral record for security reasons; and (3) questions asked the witnesses were many times not answered; in particular was this true in the case of Gen. Omar N. Bradley, chairman of the joint chiefs of staff.

General MacArthur's Testimony. The position of MacArthur, who testified for three days, was revealed, under questioning, in this reply:

I do not know why I was recalled . . . So far as I know, I have completely implemented, to the best of my ability, every directive, every policy that was given me . . . I can only interpret that order that the administration, knowing the views that I held, was going to act in a very contrary way, and believed that it was advisable not to place any strain upon my loyalty, if you might put it in that way, and relieved me of the command.

And again:

In the far east the integration of the three fighting services has been as complete as I could possibly imagine . . . It has been the integration of the forces of a number of nations, all of which had various components there. I would rate it as 100% . . . My connection with the United Nations was largely nominal. There were provisions made that the entire control of my command and everything I did came from our own chiefs of staff and my channel of communication was defined as the army chief of staff. Even the reports which were normally made by me to the United Nations were subject to censorship by our State and Defence Departments. I had no direct connection with the United Nations whatsoever. The controls over me were exactly the same as though the forces under me were all American . . . For five years and a half . . . I have had to govern Japan. I was provided, by the nations concerned—I, as the sole executive authority for Japan; so naturally the scope of my duties was complete and enveloping, as far as the far east was concerned and, to some extent, involved the entire world . . . I was more than the governor of Japan. I was the sole executive authority for administration and execution in Japan . . . I had not only the normal executive authorities such as our own president has in this country, but I had legislative authority . . . I was required to carry out and implement the policies of the Far Eastern commission, but in the gaps that existed where those policies did not apply, my own authority was complete . . . I believe that everything possible should be done to cement the international feature of the United Nations' effort there. I would say not only that the idea should be deprecated of their pulling out, but it should be emphasized extraordinarily that they should send much larger forces, and that those nations which have not contributed anything, should contribute. On the contrary one of the great weaknesses of the United Nations' effort as a United Nations' effort there is that it is not well balanced. Almost the entire burden of blood and effort and money is confined to two countries, the native country of the Koreans, and ourselves . . . The relativity of authority in making international decisions should be based in some degree upon the responsibilities of the agents that carry it out. And if one nation carries 90% of the effort, it is quite inappropriate that nations that only carry a small fraction of the efforts and the responsibility should exercise undue authority upon the decisions that are made.

On the whole, there was agreement on the part of all the witnesses who followed MacArthur, as far as their testimony considered the matter, as to the steps in the development of United States diplomatic and military policies and as to the events that resulted in his recall. Disagreements and divergences in points of view were much more evident and arose out of different positions taken, not on military policy but on the foreign policy of the United States.

Dean Acheson's and General Marshall's Testimony. The position of Dean Acheson, secretary of state, was revealed again and again in eight days of questioning. It appears in the following:

The foreign policy of the United States has a central and dominant objective—to protect the nation and to safeguard the future of its people . . . But we seek to deter war if we can. . . The best way to protect the security of our nation and of our people was to prevent war . . . the way to go about it was through an international system of collective security . . . The whole basis of the United Nations has been, and our policy in connection with it has been, to attain universality. We would like all nations to be members of the United Nations . . . Our attitude toward Korea was fundamentally based on the charter of the United Nations.

He stated on June 7 that an armistice at the 38th parallel would fulfil United Nations pledges. These were not to unify Korea by force.

The testimony of General George C. Marshall, secretary of defence, covering more than six days, dealt with every phase of military policy not only in Korea but in China and at times as far as it related to Europe. But it was clear that he was in basic agreement with Acheson on foreign policy;

The policies involved here related to the conduct of the operations in Korea, our relations with the United Nations in the responsibility of the chief executive of this country as the commander of those units, the resolutions of the United Nations in relation to the matters in Korea, over which General MacArthur was the United Nations commander . . . In the first place, the policies were determined by the resolutions of the United Nations Security council. The further development in connection with the orders from the chief executive acting for the United Nations—that is, the president—were based on the original resolutions and were based on the continual contact with the representatives of the nations who were involved in that fight and those pertained to the restrictions on bombing, those pertained to the blockade of the China coast, and those pertained to the use of the troops from Formosa of the government of China . . . He [MacArthur] carried out the military directives, which is quite a different thing from the discussion of the limitations, as they were related to our allies, all of our allies, in the conduct of that campaign.

And again, the inescapable conclusion:

By his [MacArthur's] public statement or statements that were made public in the ordinary press, he set up a very serious reaction among our allies, which threatened our collective action with them, and which threatened our position in the world in relation to this great crisis, and which threatened to leave us in a situation of going it alone.

Other Witnesses. The testimony of General Bradley and of the joint chiefs of staff, General Hoyt S. Vandenberg, General J. Lawton Collins and Admiral Forrest P. Sherman, revealed that they had accepted the administration's basic premise as to the meaning and needs of U.S. foreign policy, and had concurred in the relief of MacArthur inasmuch as he was not in sympathy with the policy of the administration. It is to be noted that frequently Bradley refused to testify as to discussions with the president. This led to acrimonious demand that the president instruct him to reply. But in the end he maintained his silence.

The testimony offered by Lieut. General Albert C. Wedemeyer was, on the whole, in support of the position taken by MacArthur, inasmuch as Wedemeyer's basic proposition was that formulation of foreign policy was the point at issue, and not a disagreement among military commanders as to the best means of attaining military objectives.

The committee as a whole made no recommendation to congress, but on Aug. 17, eight members—Styles Bridges, Alexander Wiley, H. Alexander Smith, Bourke B. Hickenlooper, William F. Knowland, Harry P. Cain, Owen Brewster and Ralph E. Flanders, signed a report of their findings which appears as an appendix to the testimony. Pertinent portions include:

The conviction that the administration's far east policy was one of appeasement toward Communism was proven to be fact as a result of the investigation. Some significant reversals of this policy are directly attributable to the inquiry; for example, the administration's categorical statements regarding China and Formosa . . . Why was there a major shift by the State Department in its foreign policy? The reasons are several. One, the State Department found itself unable to defend policies in the face of questions which were propounded to it. Two, the march of events in Korea itself has proven the wisdom of policies which the department had previously for so long scorned. And, three, the ground swell of American public opinion, which expressed itself in one of the greatest floods of spontaneous correspondence which has ever descended upon the legislative and executive branch of the government, required the State Department to alter policies which were disapproved by the public, which had been ill-informed and misinformed by the State Department on far-eastern affairs. (E. E. R.)

McGRIGOR, SIR RHODERICK ROBERT, British admiral (b. York, April 12, 1893), was educated at the

Royal Naval colleges at Osborne, Isle of Wight, and Dartmouth, Devonshire. During World War I he served in destroyers in the Mediterranean, taking part in the Dardanelles campaign, and was later in the Grand fleet at Jutland. He was captain of the 4th Destroyer flotilla in 1936-38 and at the outbreak of World War II was chief of staff to the commander in chief, China station. In 1941 he commanded the battleship " Renown " in the Malta convoys and also took part in operations in the Atlantic, afterwards being a lord commissioner of the Admiralty and assistant chief of naval staff (1941-43). He was naval force commander at the invasion of Sicily in 1943 and flag officer, Sicily, during the Sicilian and Calabrian campaigns, later becoming flag officer, Taranto and Adriatic. In 1944-45, as commander of the 1st Cruiser squadron and Home fleet aircraft carriers, he took part in operations off the Norwegian coast and was also in the Russian convoys; he was created K.C.B. in 1945. He was again a lord commissioner of the Admiralty in 1945 and was appointed vice chief of naval staff under Admiral Lord Fraser. On Sept. 2, 1948 he was promoted admiral and became c. in c. Home fleet and on March 3, 1950, was appointed c. in c. Plymouth. In the 1951 New Year Honours he was created G.C.B. On March 11 he unveiled a plaque at Devonport in memory of Polish naval officers and men who fell in World War II. On Oct. 30, he handed over the Plymouth command to Vice Admiral M. J. Mansergh and, in accordance with naval tradition, was rowed from his pier at Mount Wise by the captains of the port in a cutter steered by the admiral superintendent of the dockyard. On Dec. 20 he became first sea lord. On Dec. 31 he accompanied Winston Churchill and Anthony Eden to the United States for their talks with President Harry S. Truman and Dean Acheson.

MACHINERY AND MACHINE TOOLS.

Despite increasing difficulties caused by the shortage of skilled labour and of vital materials, including steel and the principal non-ferrous metals, British makers of many types of machinery succeeded in maintaining and even increasing their outputs, measured on the basis of value, during the first half of 1951. At the same time, there was no slackening in demand either from home or overseas, and in the absence of any drastic and unforeseen change in market conditions, the principal problems confronting machine builders were likely to be associated with production rather than selling for some years to come. Agricultural machinery was made in 1949 to the average value of £5,325,000 a month, whereas in 1950 the figure rose to £7,058,000, and during the period Jan.-June 1951 to £8,733,000. Similarly, the average monthly value of the output of hosiery and textile machinery increased from £5,590,000 in 1949 to £5,790,000 in 1950 and £6,125,000 during the first half of 1951.

In the machine tool field, the situation was completely overshadowed by the needs of the defence programme. Various statements were made concerning the number of machines required before the end of 1952, but according to the latest evidence the total was 35,000. An earlier estimate put the cost of this equipment at £115 million, but it seemed likely that this would be exceeded. How formidable are these figures will be apparent when it is considered that the average monthly output of machine tools (excluding those of low individual value) in Jan.-July 1951 was £3,784,000, of which £1,314,000 was exported.

It was soon apparent that it would be necessary to obtain a substantial proportion of the machines required from the United States and from various European countries, and it was known that orders had already been placed with U.S. machine tool builders for about 7,000 machines at an estimated cost of some £53 million, and with European firms for 10,400 machines (£39,300,000). The total of more than £92 million may be compared with the machine tool import figures of £4,835,000 in 1948, £5,303,000 in 1949 and £5,797,000 in 1950. For the first nine months of 1951 imports had already shown a marked upward trend with an aggregate of £9,100,000, corresponding to an annual rate of just over £12 million, but they were still well below the nine months' export total of £13,300,000 (annual rate of £17,700,000).

The British machine tool industry was called upon to supply about 15,000 or 16,000 machines, but no indication of the total cost was given. The average price of these machines would certainly be much less than the average cost of machines that were being imported, but in aggregate they were likely to account for a substantial proportion of the value of home sales in 1952. It was stated that orders for about 8,000 of these machines had been placed with British firms as additions to their existing commitments, and that the balance was to be obtained by diverting machines already ordered by home and export customers.

Since there was evidence of a desire on the part of both the British machine tool industry and the government that machine tool exports should be maintained at the highest practicable level, the pre-emption of machines for arms production was likely to have serious effects on industry as a whole. The need for widespread re-equipment was accentuated by the economic situation, which called for greater and more efficient production of goods of all types, particularly with a view to expanding exports. Unless more manufacturing machinery could be made available, the output of consumer goods would tend to lag; and, if machine tool supplies were to be further curtailed, the makers of other machinery and metal products of all types would be additionally handicapped.

During the nine months from Jan.-Sept. 1951, exports grouped under the general heading of " machinery " reached a total value of £265,019,000 as against £234,227,000 in the corresponding period of 1950, but the increase in weight (734,000 tons as compared with 703,000 tons) was proportionately much smaller. The machine tool industry was strongly represented at the Toronto fair, for the second year in succession, in an effort to stimulate dollar sales, but British firms did not support the first European Machine Tool exhibiton, held in Paris in September, preferring to reserve their efforts for the International exhibition to be staged at Olympia in Sept. 1952. (C. H. Bu.)

United States. The machine-tool industry was the focal point in the U.S. defence programme of 1951. The industry had thrust upon it a volume of orders bigger than at any time since World War II. During the year it booked orders to the value of more than $1,700 million but delivered only $620 million-worth.

A 200-ton aircraft skin milling machine was built during the year for the manufacture of a self-reinforced " skin " for very high-speed jet aircraft. This machine automatically cut, edged and shaped a desired pattern in three dimensions on the surface of a metal sheet. Virtually push-button controlled, the machine would mill integral-rib skin panels from solid or rough-forged aluminium-alloy plate. It operated at a continuous range of speeds between $\frac{3}{4}$ and 150 in./min. Longitudinal and lateral cutting motions were guided simultaneously from a master pattern by an electronic tracer control. The machine used 12 drive motors totalling 350 h.p. and 18 motors and generators delivering the power supply, which added up to 1,400 h.p.

The air matériel command of the U.S. air force published a second report on the " machinability " of various steels. It was shown that tool life varies with the varying microstructures of the steel and that tremendous improvement was possible in tool life by heat treatment prior to machining.

Air force research proved that a given structure could always be machined in the same way, whatever kind of steel was used. The Cincinnati Milling Machine company announced that radioactive tracers were being used to measure the rate of tool wear. The method consisted of machining with a cutting tool made radioactive by neutron irradiation and measuring the radioactivity of the collected particles worn from the tool during a few seconds of cutting.

"Method X" for making holes and other openings of any shape electrically in sintered carbides and other hard metals to fine tolerances was announced during the year. It consisted of "machining" metallic parts by shaping them in a dielectric fluid by a spark discharge of controlled intensity and duration. The method could be used for almost any operation, such as boring, threading, tapping, turning and drilling. It was used experimentally to hollow out titanium turbine-blade forgings. As much as 50 lb. of metal could be removed in one minute by this process. The dielectric fluid could be fuel oil, kerosene or a special compound. The set-up on the machine was similar to that required for a jig borer. Its operation was almost completely automatic.

During 1951 steel cartridge cases were cold-extruded successfully, and the method was being applied more and more in the manufacture of civilian goods. For security reasons, the details of the process were withheld. The building of giant hydraulic presses for aircraft parts such as spar cap forgings was begun by several press companies. The U.S. air force was sponsoring the development of presses of up to 75,000 tons capacity. One-piece hollow-steel propeller blades were extruded successfully in air force experiments.

One aircraft manufacturer found that a lubricant consisting of blends of specially processed waxes dispersed in naphtha or water facilitated a number of difficult drawing and forming operations on stainless steel, aluminium alloy and magnesium sheet parts. These wax emulsion lubricants were applied by swabbing, roller coating or spraying. They did not rub off when dry, but were removed from formed parts by conventional de-greasing methods. They proved particularly good for lubricating dies in hot-stretch-forming magnesium sheets. (B. FY.)

McMILLAN, EDWIN MATTISON, United States physicist (b. Redondo Beach, California, Sept. 18, 1907), received his B.S. (1928) and M.S. (1929) degrees from the California Institute of Technology, Pasadena, and his Ph.D. from Princeton university in 1932. In the latter year he was appointed a reseach fellow at the University of California. Appointed instructor in physics there in 1935, he advanced to a full professorship in 1946. In May 1940, with the collaboration of P. H. Abelson at the University of California, McMillan discovered the first transuranium element, neptunium (element 93). With Glenn T. Seaborg (*q.v.*) McMillan also conducted the basic research that led to the discovery later in 1940 of plutonium, element 94. This work helped to lead directly to development of the atomic bomb. During World War II, however, McMillan worked primarily with sonar and microwave radar, although he later joined the staff of the Los Alamos, New Mexico, atomic bomb laboratory. In recognition of his work in nuclear chemistry and physics, McMillan on Nov. 15, 1951, together with Seaborg, was awarded the 1951 Nobel prize in chemistry.

MADAGASCAR. Fourth largest island of the world situated off the S.E. coast of Africa; a former French colony the status of which was changed in 1946 to that of an overseas territory. From 1946 the Comoro archipelago was administered as a separate territory. Areas and populations are:

	Area (sq.mi.)	Population (1936 census)	Population (1948 est.)
Madagascar (with dependencies)	228,589	3,669,328	4,160,000
Comoro archipelago	849	128,608	141,800
Total	229,438	3,797,936	4,301,800

The Merina are the most numerous indigenous people (*c.* 900,000); in 1948 there were 31,171 French incl. 15,638 from metropolitan France; Hindus, Chinese and Arabs constituted small racial minorities. Language: Malagasy, related to Malay. Religion: Madagascar, Christian and pagan; Comoro archipelago, Moslem. Chief towns (pop., 1948 est.): Antananarivo or Tananarive (cap., 171,052); Tamatave (28,194); Majunga (27,181); Antsirane or Diego-Suarez (25,287). High commissioner, Governor General Robert Bargues. Comoros administrator, Pierre Coudert.

History. François Mitterand, minister for overseas France, on a visit to Madagascar in January, declared: "The evolution of the Malagasy people must come about under the tutelage of the republic." In the elections of June 17, 1951, the Malagasy chose three moderates. The visit of Albert Sarraut, president of the Assembly of the Union, in October, was highly appreciated even by nationalist elements. Experiments on the communal organization of villages were pursued in several areas of the island.

Output of sisal, cloves and mica increased. There was a crisis in the meat industry, and some factories closed. The F.I.D.E.S. (Fonds d'Investissement pour le Développement Économique et Social) set up a state company to exploit the coal of the Sakoa (in the southwest), which would involve building a railway and a harbour and extracting 300,000 to 600,000 metric tons a year. Work on the plain round Lake Alaotra continued, with a view to growing rice and groundnuts. Six groups of internal airlines not only catered for passengers but also transported tobacco, vanilla, caiman skins for export, fruit and vegetables (grown on the plateaux) for consumption on the coast and sea fish for consumption on the plateaux.

Extended anti-malarial spraying reduced the death-rate in Antananarivo very considerably. As a result of vaccination there were no plague cases. The incidence of births over deaths had grown from 12,000 in 1947 to 50,000 in 1950.

Education. Schools (1950): pupils, primary 229,000; secondary 2,560; technical 3,140; bursaries in France, 140.

Foreign Trade. (1950, million Fr. C.F.A.): imports 15,073, incl. 12,200 from the French Union; exports 12,431, incl. 10,600 to the French Union. Principal exports: coffee, 6,561; hides and skins 751; vanilla 631; cloves 574; meat 396; perfume 366; graphite 305; mica 187; dry vegetables 192.

Finance. Budget (1952 est.): Fr. C.F.A. 5,165 million. Monetary unit: Fr. C.F.A.=metropolitan Fr. 2.

See H. Deschamps, *Madagascar, Comores, Terres Australes* (Paris, 1951). (HU. DE.)

MAGAZINES: *see* NEWSPAPERS AND MAGAZINES.

MAIZE: *see* GRAIN CROPS.

MALAN, DANIEL FRANÇOIS, South African statesman (b. Riebeck West, Cape Province, May 22, 1874), was minister of the interior, health and education, 1924-33. He succeeded General James Hertzog as leader of the Nationalist party in 1942 and became prime minister and minister for external affairs in June 1948. (For his early career see *Britannica Book of the Year 1951.*)

He returned to Capetown from Plettenberg Bay on Jan. 10, 1951, after convalescence following an operation on Nov. 7, 1950. Speaking in the House of Assembly on Jan. 25, he expressed his opinion that there would be no world war because, so far as the western nations were concerned, there was no desire to make war or to root out Communism with

the atomic bomb. At a state banquet to Patrick Gordon Walker, secretary of state for commonwealth relations, on Feb. 9, he stated: " We follow a policy of the closest co-operation, first of all with Great Britain and the other members of the Commonwealth." He attacked Britain for its haste in granting independence to African peoples and the "unilateral" admission of non-European peoples into the Commonwealth in February and again in May. On May 31 he said that if Britain's criticism of South Africa as persecutor of the non-Europeans continued, the Union might be driven to establish an independent republic. Malan's policy of *Apartheid* was advanced by the passing of the Separate Representation of Voters bill during the year. In August Malan announced that he and N. C. Havenga, leader of the Afrikaner party, had agreed on the merger of their two parties. On Sept. 11 at East London he suggested that the question of incorporating Basutoland, Bechuanaland and Swaziland might be made an issue in the next general election. At a dinner held on Nov. 29 to celebrate the merger of the National and Afrikaner parties, he again stated that South-West Africa was an integral part of the Union, and also that the ultimate aim of the Nationalist party was to have a republic.

MALAYA, FEDERATION OF. British settlements of Malacca and Penang and the protected states of Johore, Kedah, Kelantan, Negri Sembilan, Pahang, Perak, Perlis, Selangor and Trengganu. Area: 50,850 sq.mi. Pop.: (1947 census) 4,908,086, incl. 2,427,834 Malays, 1,884,534 Chinese (38·4%), 530,638 Indians and Pakistanis; (1951 est.) 5,337,222. Religion: Malays are Moslem; Indians mainly Hindu; Chinese Buddhist, Confucian and Taoism. Chief towns (pop. 1947 census): Kuala Lumpur (federal cap., 175,961): George Town, Penang (189,068); Ipoh (80,894); Malacca (54,507); Taiping (41,361). Administration: high commissioner; executive council; legislative council with unofficial majority; each state and settlement has its own council; matters affecting the Moslem religion and Malay custom are controlled by the sultans. High commissioner: Sir Henry Gurney (assassinated Oct. 6); appointment vacant at Dec. 31, 1951. Commissioner general for the United Kingdom in southeast Asia, Malcolm John MacDonald.

History. In 1951 both the Communist guerrilla warfare and the military and police counter-measures increased in intensity. Although 1,130 terrorists surrendered or were killed or captured in the first ten months of 1951 compared with 935 during the whole of 1950, the security forces suffered more casualties, 1,047 (Jan.-Oct.) against 889 in the whole of 1950, and there were 5,087 " incidents " (Jan.-Oct.) against 4,739 in the whole of 1950. On Oct. 6 Sir Henry Gurney, the High commissioner was ambushed and assassinated in the Pahang hills.

In part the greater intensity of the emergency was probably attributable to the Briggs plan for Chinese squatter resettlement which, by making sources of supply less accessible, forced the terrorists to take greater risks and emerge more often from their concealment in the jungle. By Nov. 1, 362,000 out of 467,000 squatters had been re-grouped or resettled in 321 areas under better, but still incomplete, police protection and a start had been made with a similar re-grouping of rubber estate labour lines. Terrorist slashing of rubber trees and intimidation of plantation workers was, however, one of the factors contributing to a decrease in rubber output to 506,000 tons for Jan.-Oct. as compared with 564,000 in the same period in 1950. During the year about 4,500 young men between 17 and 25 were called up for compulsory service, mainly with the special constabulary and with new racially mixed jungle companies. Several thousand young Chinese liable to call-up left the country and a few hundred joined the terrorists.

World economic conditions maintained the prices of Malaya's products, chiefly rubber and tin, at a high level. Out of a record federal revenue of 579,546,000 Malayan dollars during 1951, the export duty on rubber produced $216 million. Although $249 million, about 55%, of the total federal expenditure, was spent on combating the insurrection there was nevertheless a surplus of about $127 million. The Malayan six-year plan for economic and social development, which had been launched in 1950, was appreciably retarded—particularly the school-building and housing programmes—by a shortage of building material and technical personnel. The shortage resulted in part from the priority accorded to emergency requirements for police expansion and squatter resettlement schemes.

A slow legislative process of extending nationality rights to the non-Malay population was set in motion. A draft nationality bill (formulated by representatives of all racial communities during 1950) was agreed to by the nine rulers of the Malay states on March 20. By the end of the year it was still under examination in the various state councils. A supplementary federal citizenship bill which accorded federal



The funeral of Sir Henry Gurney, high commissioner for Malaya, held in Kuala Lumpur, Oct. 8, 1951, after his assassination by bandits on Oct. 6.

citizenship on a similar basis to the state nationality bills was given a second reading in the legislative council on July 12. It was clear from utterances by leaders of the Malayan Chinese association that these new measures did not satisfy them. In implementation of British policy of helping Malaya towards self-government the experiment was launched in March of appointing five unofficial Asians (three Malays, a Chinese and a Ceylonese) as members (virtually ministers) responsible to the high commissioner for home affairs, agriculture, health, education, and land, mines and communications. The experiment worked well throughout the year.

The most important Malayan political development of the year was the launching in September on the initiative of Dato Onn (*q.v.*), the Malay leader, and with the support of Dato Tan Cheng Lock, a Chinese leader, and of Indian, Eurasian and Ceylonese representatives, of a new all-races Independence for Malaya party (I.M.P.) with " independence in ten years " as its objective. Dato Onn resigned the chairmanship of the United Malays' National organization (U.M.N.O.) to start the new party and was sharply criticized by U.M.N.O. leaders. The I.M.P. was preparing at the end of the year to contest the Kuala Lumpur municipal elections. The Malayan trade unions increased in membership from 54,000 to 104,000 during the year. In June a claim of the rubber worker's union for increased wages was taken before an arbitration board which recommended a 20% increase for rubber tappers, the payment of $22 million of back-pay and the establishment of a sliding wage-scale based on the price of rubber.

Oliver Lyttelton, secretary of state for the colonies, visited Malaya in December. He recommended to the British government a reorganization of the Malayan police force including increased training facilities and a large-scale expansion of the Home Guard with the main purpose of establishing Chinese defence units in Chinese villages and resettlement areas. The keynote of his recommendations was that only by participation in their own defence could the Chinese population of Malaya be effectively brought into the struggle against the terrorists. Lyttelton also proposed an accelerated education programme and measures to relieve the strain on the civil service. During his tour Asian political leaders urged on him the need to create a " partnership " basis for Anglo-Malayan relations and the necessity for proper consultation of the Malayan government by the British government in all major decisions concerning the country. (D. A. Sn.)

Education. Government maintained, aided and private schools: Malay 1,574 (265,611 pupils), Chinese 1,319 (216,455), Indian 881 (38,833). There were 100,736 pupils in English-instruction schools.

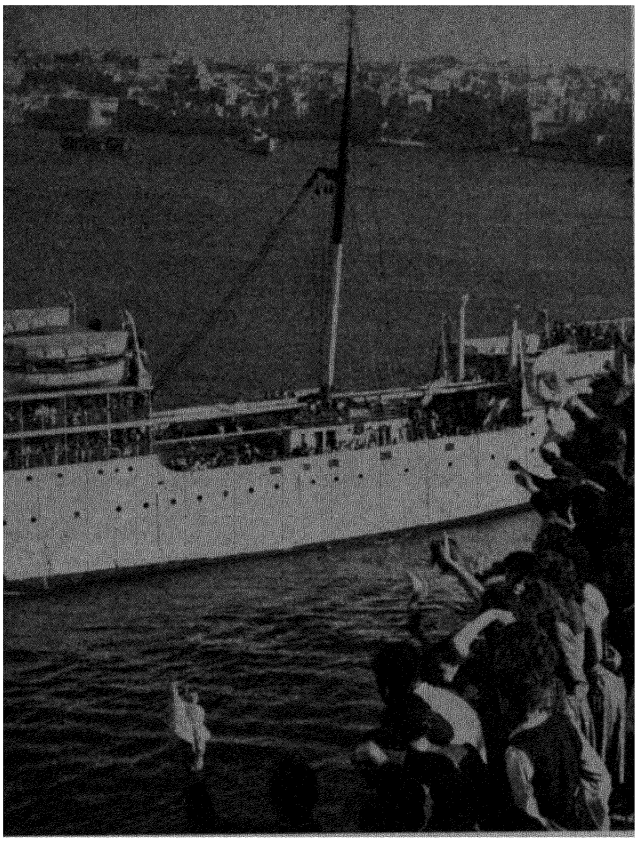
Agriculture. Production of main crops (1950): rubber 692,585 tons, rice 435,840 tons, copra 149,478 tons, coconut oil 72,800 tons, coconut cake 47,819 tons, palm oil 53,171 tons, palm kernels 13,442 tons.

Mining. Production (1950): tin-in-ore 57,537 tons, coal 415,777 tons, gold 18,436 troy oz., iron ore 498,903 tons.

Foreign Trade. ($ million) imports: (1950) 770, (Jan.-June 1951) 548. Exports: (1950) 1,481, (Jan.-June 1951) 1,127. Main sources of imports (1950): United Kingdom 227, Thailand 159, Indonesia 140, Australia 37. Main destination of exports (1950) U.S. 502, United Kingdom 279, France 81, Germany 80, U.S.S.R. 73.

Finance. Currency: Malayan dollar ($M 1 = 2*s.* 4*d.*). Budget: (1950 revised est.) revenue $459,067,933; expenditure $303,951,292; (1951 est.) revenue $473,025,781; expenditure $334,988,121.

MALTA. British colony, a group of Mediterranean islands about 58 mi. S. of Sicily; only Malta and Gozo are of importance. Area: Malta 94·9 sq.mi., Gozo 25·9 sq.mi. Pop. (1948 census): 306,996. Language: Maltese; English and Italian also spoken. Religion: Roman Catholic. Principal towns: Valletta (cap., 18,666), Sliema (24,294), Hamrun (17,124), Birkirkara (16,070). Administration: governor; nominated council, 2 *ex-officio* and 3 armed services members (responsible for external affairs and defence); executive council, 9 ministers responsible to the legislative assembly; privy council consisting of nominated and executive councils sitting together; legislative assembly, 40 members elected on universal suffrage. Governor, Sir Gerald Creasy; prime minister, G. Borg Olivier.



S.S. "Florentia," under the Panamanian flag, leaving Valletta, Malta, in April 1951, with 1,000 immigrants for Australia.

History. In 1951 the minority Nationalist government of Borg Olivier was defeated. Parliament was dissolved in February, and a general election took place in May. Once more no party gained a clear majority; Olivier was given the support of Paul Boffa's Workers' party and took office with a coalition majority of 2 in a house of 40 members. Unfortunately this political instability prevented much being done to overcome the serious economic problems of the island on the lines recommended by Sir George Schuster in 1950, and there was even a falling off in the flow of emigration. From the end of World War II to May 1951, 20,000 emigrated, of whom 12,000 went to Australia. On the other hand the birth rate was high and the net reduction in population over this period was only a little over 1,000. Princess Elizabeth (*q.v.*) was in Malta in the early part of the year and in April presented a new king's colour to the Mediterranean fleet. When parliament was opened in October it was announced that a ministerial delegation would go to London to discuss economic problems with the new British government.

Education. Primary schools (1949) 114 (attendance 38,677); secondary 6 (attendance 1,780); technical 3 (attendance 357); private elementary and secondary 63 (attendance 12,079); university, 300 students.

Finance and Trade. Currency: pound sterling. Budget (1950): revenue £5,750,000; expenditure £6,240,000. Foreign trade (1950): imports £14,500,000; exports £1,400,000. (K. G. B.)

MAN, ISLE OF. Island in the Irish Sea, part of the United Kingdom but administered separately by a lieut. governor, an appointed legislative council and the House of Keys of 24 elected members. Both branches of the legislature sitting together are known as the Tynwald court. Area: 220·7 sq.mi. Pop. (1951 census): 54,713. Capital:

Douglas (pop., 20,088). Lieut. governor, Air Vice Marshal Sir Geoffrey Bromet.

History. Twenty-six acts were promulgated at the July Tynwald court in 1951. During the year, 1,658 new houses were built under the government scheme. Electricity and water were carried into every part of the island. The campaign of the Board of Agriculture against tuberculosis secured that one-third of the milking herds was attested. The demand for artificial insemination rose by 30%. Vaccination against Brucella abortus was made compulsory. The rabbit menace was reduced to average proportions by a systematic " drive."

Several river weirs were constructed, with holding pools for the migratory fish. The new salmon hatchery at Kirk Michael produced 500,000 young fish and a similar number of brown trout. There was a fall of 20% in the weight of herring caught: 12,744 cran were landed, at an average price of 51*s.* per cran, the lowest price since 1939. An experiment was being made to keep kippers in refrigerators for a winter supply.

The airport, the property of the insular government, was undergoing a steady development. Buildings under construction included the traffic hall and halls for customs and immigration. The main runway was completely reconstructed and would bear landing loads of 37,000 lb. per wheel. The most up-to-date approach lighting system and instrument landing installation were completed. The Cregneish radio range station and the Snaefell V.H.F. radio were in full working order, providing " air lanes " in the north British regional approaches.

A nautical museum was opened in Castletown in the ancient boathouse of the clipper " Peggy," famous in smuggling days. A replica of the fortified farmstead on the cliffs at Port Grenaugh was reconstructed on land a few yards inland from the actual surveyed site.

The general election of Nov. 12 showed again the Manxman's dislike of political parties. For the first time a party called the "Manx Conservative" party contested a large number of the seats. Not one candidate was returned. The Labour representation increased from 3 to 6, so that the House of Keys consisted of 18 Independent and 6 Labour members.

Education. Schools (1950-51): primary 31, pupils 4,360; secondary 4, pupils 2,514; technical 1, pupils 1,558; King William's college, students 335.

Agriculture. Livestock (1950): horses 1,771; cattle 25,067; sheep 71,517. Tractors 781. Milking machines 174.

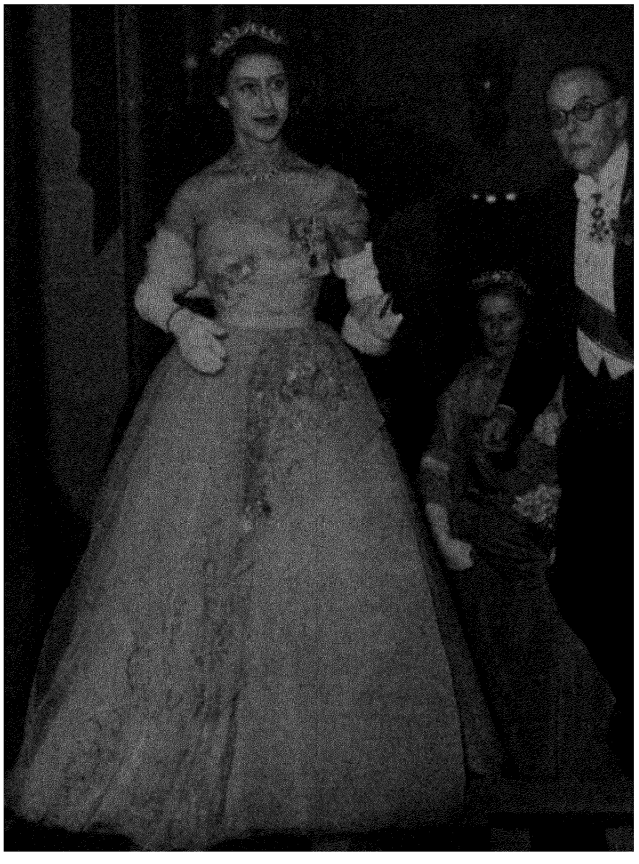
Finance. Budget (1950-51): revenue £2,757,350; expenditure £3,002,256. National debt (March 31, 1951): £1,530,000. (E. H. S.)

See E. H. Stenning, *The Isle of Man* (London, reprinted 1951).

MAO TSE-TUNG, Chinese statesman (b. Shaoshan, Hunan, 1893). In Oct. 1949 he became chairman of the central people's government council of the Chinese republic. For his earlier career see *Britannica Book of the Year 1951.* Mao was not seen in public from Jan. 1951 until he attended May day parades in Peking, and various explanations were put forward for his absence from a series of meetings of the government council and diplomatic receptions; one report in February said that he was seriously ill, and in March the Chinese nationalists reported the he was in Moscow to sign an agreement with Joseph Stalin for the supply to China of aircraft, tanks, guns and equipment for 1,500,000 troops for the Korean war. In June there appeared to be in progress some re-orientation of Chinese Communist policy and the propaganda organs laid emphasis on the reissued texts of Mao's directives " on the necessity for adapting policies to changes in the world situation " which were written in 1937 after he had decided to make common ground with Chiang Kai-shek against the Japanese threat. Mao's first public speech since June 1950 was made to the People's Political Consultative conference in Peking on Oct. 23, 1951, the theme being that military support for the North Koreans would continue until the United States government was willing " to settle the problem peacefully." Seven Italian, Japanese and French nationals were sentenced in Peking in Aug. 1951 for plotting to kill Mao; two of them received death sentences and the others were imprisoned. The East German government issued postage stamps in September bearing a portrait of Mao.

MARGARET ROSE, PRINCESS, second daughter of King George VI and Queen Elizabeth (b. Glamis castle, Angus, Aug. 21, 1930), was educated privately under the supervision of Marion Crawford (Mrs. George Duthlay) and studied constitutional history under the late Sir Henry Marten, provost of Eton college. During World War II she went through a girl guides company assault course. On Sept. 16, 1945, she fulfilled her first public engagement unaccompanied by the king and queen when she attended an Aberdeen youth gathering at Dyce airport. Princess Margaret launched her first ship, the 28,500-ton liner " Edinburgh Castle," at Belfast on Oct. 16, 1947, and on Nov. 20 was chief bridesmaid at the wedding of Princess Elizabeth (*q.v.*). She became colonel-in-chief, The Highland Light Infantry, Aug. 21, 1947, The Rand Light Infantry, Dec. 12, 1947, and The Highland Light Infantry of Canada, Dec. 12, 1949. Her visits abroad included: the Netherlands (for the enthronement of Queen Juliana), Sept. 6, 1948; Italy (where she was received by Pope Pius XII), Switzerland and France, April 27-June 1, 1949; and Malta and Tripoli, Dec. 15-20, 1950.

On March 19, 1951, she visited north Wales and was the guest of the National Union of Teachers at their annual conference at Llandudno. On May 2, she visited The British Industries fair at Castle Bromwich and laid the foundation



Princess Margaret arriving at the Hertford hospital ball in Paris, Nov. 1951. On her left is Sir Oliver Harvey, British Ambassador to France.

stone of new colleges of technology, commerce and art at Gosta Green, Birmingham. She reopened on June 5 the London headquarters of the English Folk Dance and Song society which had been damaged by bombs. A flaw was found in the Civil List act, 1937, which had been intended to provide Princess Margaret with an annuity of £6,000 from her 21st birthday anniversary, and an amending act received the royal assent on Aug. 1. Her birthday was celebrated on Aug. 21 with a private party at Balmoral castle. On Sept. 27 she was appointed one of the five counsellors of state to act for King George VI after his operation. She opened Woolwich festival week on Oct. 20. She visited Paris on Nov. 20-24 to attend a ball in aid of the Hertford British hospital there on Nov. 21 and had lunch with President Vincent Auriol on Nov. 22.

MARIANAS ISLANDS: *see* PACIFIC ISLANDS, U.S.; TRUST TERRITORIES.

MARINE BIOLOGY. In 1951 the most outstanding contribution to knowledge of marine life was the proof that animals could live in the greatest ocean depths yet found. The Danish Deep Sea expedition of 1950-52, in the research ship "Galathea," dredged up a number of different kinds of animals from depths of up to 10,484 m. in the Philippine trench. Representatives of a wide variety of groups in the animal kingdom, including sea anemones, holothurians, bivalve molluscs and crustacea were brought up. Living bacteria were also taken from the bottom deposits. The greatest depth from which animals had previously been captured was 7,900 m. This final proof that life can exist at these great depths had great physiological interest because the pressure of the surrounding water must be more than 1,000 atmospheres.

It is interesting to note that in the same year memories were revived of T. H. Huxley's *Bathybius haeckeli*, the supposed protoplasmic primordial ooze collected on the Challenger expedition and shown to be a precipitate due to the addition of alcohol to sea water, and of the *Protobathybius robertsoni* of the North American Polar expedition. A giant amoeboid organism was described under the name of *Megamebomyxa argillobia*. This occured on soft detritus-covered bottoms in water 45 to 70 m. in depth in the Gullmar fjord off the coast of Sweden. The organism had a diameter of as much as 12 mm. to 25 mm., excluding its long pseudopodia, and was capable of amoeba-like changes of form. It had three nuclei.

Continued attention was paid to the culture of unicellular organisms and to their physiology, since they are so important as food for so many marine animals. The successful breeding of oysters by using cultures of colourless naked flagellates as food for the larvae was reported from Japan. Hitherto, most experiments had been made with coloured flagellates whose growth is by photo-synthesis. The culture of these colourless *Monas* was done in small tanks under light of reduced intensity by adding starch as an organic enrichment to be utilized by the bacteria on which the *Monas* feed.

A study was made of the distribution and habits of unicellular organisms living in sandy beaches. It was shown that one species of diatom exhibits a tidal rhythm, numbers of the population periodically agglutinating among the sand grains thus escaping washing-away by the rising tide.

The effects of trace elements on plant life in the sea continued to receive attention, but a new advance in this field was the demonstration that natural sea waters may differ in their capacity to allow the normal development of the planktonic larval stages of invertebrates. Thus sea urchin larvae were reared more successfully in water collected west of the mouth of the English channel than in water from mid-channel. It was not clear what factors were involved but they might account for differences in distribution of adult bottom-living species which had been difficult to explain.

As factors essential to knowledge of the productivity of the sea, new observations were made on the respiration and grazing rate of planktonic copepods which form the greater part of the herbivores in the plankton.

Experiments with varying intensities of illumination showed that the young stages of the ship-worm, *Teredo*, attack submerged wooden panels mostly in the low region of deep shade where the illumination is about 160 ft.-candles.

The development of underwater photography had now been brought to a practical stage and for the first time results were obtained showing that the method can be used effectively as an aid in the evaluation of the abundance of life on the sea floor. This method, which was so far suitable only for the larger and more slowly moving animals such as molluscs and echinoderms, would supplement information obtained by the more usual techniques of collecting samples from the sea floor.

An account was given of the spawning of the enteropneust *Saccoglossus*. The genital products are discharged within the burrows and expelled after the tide has ebbed, fertilization taking place in the overlying surface water. There was a more or less simultaneous discharge of male and female products from animals in the same neighbourhood indicating induced spawning. In this connection it is interesting to record that the neural organ in the ascidian, *Ciona*, was shown to act as a chemoreceptor of the spawning products. Thus simultaneous spawning of a number of individuals in the same neighbourhood may be assured.

The clearing of an area of rocky shore referred to in previous years (see *Britannica Book of the Year 1950; ibid. 1951*) threw interesting light on the occurrence of hybrid fucoid seaweeds. It appeared that competition with the parent species normally tends to prevent the growth of hybrid sporelings, but after three years' recolonization of the cleared area the majority of the plants could not definitely be assigned to any one species.

If sandhoppers are collected from high tide mark and deposited on a firm sandy beach near the low tide mark they make their way almost straight back to the high tide area. Experiments indicated that the hoppers probably orientate themselves by form-vision of distant objects such as sand dunes which compose the skyline. (*See* also FISHERIES; OCEANOGRAPHY; ZOOLOGY.) (F. S. R.)

BIBLIOGRAPHY. Douglas P. Wilson, *Life of the Shore and Shallow Sea* (revised ed., London, 1951); Rachel L. Carson, *The Sea Around Us* (London, 1951); Pierre de Latil, *L'Homme chez les poissons* (Paris, 1951).

MARKET GARDENING. The storm over the experiences of British market gardeners after the "liberalization" of the United Kingdom market to European producers culminated in a growers' deputation to the chancellor of the exchequer on Feb. 13, 1951. Previously some concessions had been agreed upon between the Ministry of Food and the Ministry of Agriculture and the National Farmer's union; suspensory periods (during which open general licence procedure did not apply) were extended for periods of one to four weeks at the start of the season for bunched carrots, broccoli and cauliflower, lettuce, radishes and tomatoes, and scheduled import quantities for asparagus and cucumbers were reduced to one-third of those for 1950. As from Nov. 8, imports of fruit and fruit products from Europe were allowed only against licences of individual importers, and on a scale not exceeding that for 1950.

Subsequently, all other considerations became secondary to the need to overcome the effect of persistent wet weather. Sowing dates for crops for autumn harvest were the latest

for 80 years, and some land remained unplanted. Returns as at June 4, 1951, showed that the sown area of soft fruit and vegetables (in England and Wales), at 449,770 ac., was 17% below the 1950 figure. Throughout the season, fruit and vegetable crops generally were 14 to 21 days later than usual.

More British growers found markets more remunerative and more stable than for the previous two years. Prices of soft fruits as a class were noticeably better than in 1950, both in the fresh fruit markets and in contracts with processors. Tomatoes were a markedly firmer trade, in part due to lower imports during the early season.

Official production (as at Aug. 1) and acreage (as at June 4) figures for soft fruit in Great Britain were:

	1950 production (thousand tons)	1950 acreage (thousand)	1951 production (thousand tons)	1951 acreage (thousand)
Strawberries	29	21·1	35	17·5
Raspberries	5	4·3	7	4·3
Blackcurrants	16	16·0	20	15·8
Gooseberries	8	6·7	13	6·9

Strawberries were an outstanding crop in both quality and yield, and the national average yield was 2 tons an ac.; at the same time 3,600 ac. had been taken out of the crop since 1950. The scheme for the compulsory certification of strawberry plants and blackcurrant bushes was abandoned in favour of a voluntary scheme.

The acreage of flowers and hardy nursery stock increased from 22,600 to 23,800—almost up to the June 1939 figure of 24,000 ac. Acreage of bulb flowers was 21% below prewar; of other flowers, 26% higher.

U.S. growers' programmes were also affected by the weather in the early part of the year. Sowings in winter season production areas showed reductions of 11%, and in spring season areas, of 7%. (*See* also FRUIT; HORTICULTURE; VEGETABLES.) (R. R. W. F.)

See Ministry of Agriculture, *Agricultural Statistics* (H.M.S.O., London, 1951); U.S. Dept. of Agriculture, *The Vegetable Situation* (1951).

MARQUESAS: *see* PACIFIC ISLANDS, FRENCH.

MARRIAGE AND DIVORCE. **Great Britain.** Immediately following World War II, the birth rate in the British Isles climbed at a rapid rate, reaching a peak of 20·7 per 1,000 inhabitants in 1947. By 1949, the rate had receded from 20·5 to 16·7 in England and Wales, from 23·3 to 21·3 in Northern Ireland and from 22·0 to 18·5 in Scotland. With a birth rate already much below most European countries, it was not expected that the figure for 1951 would greatly exceed 17·5. However, the infant and maternal mortality rates were among the lowest in the world. The marriage rate in England and Wales remained relatively unchanged from the 8·3 per 1,000 estimated for 1950.

The National Marriage Guidance council, London, reported that it had selected 255 marriage counsellors, of whom 119 had completed their training and 88 were receiving training. Of 68 local marriage councils reporting, 52 were carrying out educational programmes. Collaborating with the Family Welfare association, the Tavistock Institute of Human Relations, London, established a family discussion bureau to offer preventive and therapeutic services in the field of family problems; its research programme on family life was supported by the Nuffield foundation.

Commonwealth. Marriage, birth and divorce rates in the Canadian provinces showed little change in general from those of the previous year, for which the estimated marriage rate was 9·0, a decrease of only 16% from the peak rate of 10·9 set in 1946. In Ontario, where for more than a century only marriage by a religious ceremony had been allowed by law, considerable interest was evinced in the new law, which took effect on Oct. 2, 1950, permitting civil marriages. The government of India was urged by the National Planning commission to encourage family planning and limitation of children and to provide surgical sterilization; in Bombay, four birth control clinics were in operation. In South Africa, the Johannesburg Matrimonial Conciliation board estimated that reconciliations resulted among 23% of couples counselled. Marriage councils working in Sydney and Melbourne were further augmented by the Marital Relationship Committee of Western Australia, organized by the synod of the Church of England.

United States. With a marriage rate estimated at not more than 10·6 per 1,000 population, a provisional total of 1,650,000 marriages was expected for 1951, a decrease of almost 3% from the preliminary total of 1,693,257 marriages for 1950, but a certain gain over the final total of 1,608,180 marriages for 1949. It was believed that about 3,750,000 births would be recorded, representing an increase of about 6% over the 3,548,000 births of 1950. Including annulments, the number of divorces was estimated at 375,000—decreases of 2% and 5% respectively from the 385,000 divorces of 1950 and 397,000 of 1949.

According to the National Desertion bureau, more than 1 million women and children were victims of family desertions, most of which occurred within the first few years of marriage. In the age range 14-17 years, there were more widowed and divorced people among males than among females but, in the age range 18-20 years, the ratio of widowed and divorced females to males was nearly four to one. In more than one out of every six families, either husband or wife had been previously married. About 40,523,000 children were living with both parents, 674,000 children with the father only and 3,426,000 with the mother only. Although nearly one-half of all wives went out to work during the first year of marriage, less than one-fifth worked after five years of marriage.

Other Countries. In July, the International Union of Family Organizations met in Brussels. An allocation of up to 15,000 levas (about £18 10*s.*) was made available in Bulgaria to couples desiring to marry, with subsequent allotments for childbirth and graduated monthly allowances for offspring. In Czechoslovakia, where a civil marriage ceremony had been legally required since Jan. 1, 1950, the municipal government of Prague established a loan of about £257 to each marrying couple, one-sixth of which was to be cancelled with the birth of each child. The birth rate in France rose to a peak of 21·3 per 1,000 inhabitants in 1947 (an increase of 43% over the prewar level of 14·9), and small decline was expected from the estimated rate of 20 per 1,000 in 1950. An international study conference on family allowance problems was held in Paris in July. Birth rates in Western Germany and Italy continued to be below prewar figures.

In Stockholm a municipal family counselling bureau was opened in June 1951. In Switzerland, a pre-marital counselling service was organized in Geneva by the Société Genevoise d'Utilitié Publique. Of all divorces sought in Turkey, the wife was the plaintiff in two-thirds of the cases. Under the new marriage laws of Yugoslavia, women obtained rights equal to men, bigamy was illegal and six grounds for divorce were established with both husband and wife having alimony rights.

In Argentina, a system of family allowances for all employed persons with less than 150 pesos monthly wages provided 15 pesos a month for each legitimate child under 15 years of age to each wife who did not work and to the couple each of whom supported a dependent parent. Communist family

law in North Korea provided for women equality with men, outlawed polygamy and prostitution and set the minimum legal age for marriage for men at eighteen years and for women at seventeen; no woman was to be married without her own consent. (*See* also VITAL STATISTICS.) (C. R. A.)

MARSHALL ISLANDS: *see* PACIFIC ISLANDS, U.S.; TRUST TERRITORIES.

MARSHALL PLAN: *see* EUROPEAN RECOVERY PROGRAMME.

MARTINIQUE. Former French island colony situated in the Lesser Antilles the status of which was changed in 1946 to that of an overseas *département*. Area: 427 sq.mi. Pop.: (1936 census) 246,712; (1946 census) 261,595. The inhabitants are mainly coloured (Negro or mixed), speak a French *patois* and are Roman Catholic. The capital is Fort-de-France (pop., 1946 census, 66,006). Prefect, Christian Laigret.

History. Two Communists and one moderate deputy were sent to the National Assembly in Paris after the elections of June 17, 1951. In October six Socialists, six Radicals and moderates and five Communists were elected to the local general council. The new waterfront at Fort-de-France was completed, with 550 m. of quays for ships drawing 7·5 m. Work was continued on water supply, roads and the construction of a sanatorium. The rum industry's predicament was still serious. The cultivation of other crops was considered. French state revenue in the *département* rose to Fr. 2,400 million but the expenditure was Fr. 5,200 million.

Education. Provision is made for all children of school age. There is one *lycée* and one school of law.

Foreign Trade. (1950, million Fr.): imports 7,400; exports 5,302. Principal exports: sugar 2,051, rum 1,095, bananas 1,551. Trade is almost wholly with the French Union.

Transport and Communications. Ships entered (1950): 673.

(HU. DE.)

MATHEMATICS. The publication of research papers in mathematics continued at a high rate during 1951. The year was marked by two events of great significance for the future of mathematics.

The first of these events was the creation of an International Mathematical union. The union was established in Sept. 1951, with ten countries adhering. Five additional countries later joined. A list of the members follows together with the names of the national adhering organizations, and the group in which the country adheres: Australia (Group I), Australian National Research council; Austria (Group I), Oesterreichische Mathematische Gesellschaft; Canada (Group II), Canadian Mathematical congress, Société Mathématique du Canada; Denmark (Group II), Det Kongelige Danske Videnskabernes Selskab; Finland (Group I), Soumalainen Tiedaekatomia, Academia Scientiarum Fennica; France (Group IV), L'Académie des Sciences de Paris, le Centre National de la Recherche Scientifique and la Société Mathématique de France; Germany (Group IV), Deutsche Mathematikervereinigung; Great Britain (Group V), The Royal Society; Greece (Group I), Académie d'Athènes; Italy (Group IV), Unione Matematica Italiana; Japan (Group IV), Science Council of Japan; Netherlands (Group II), Wiskundig Genootschap voor Nederland; Norway (Group I), Det Norske Videnskaps-Akademi i Oslo; Peru (Group I), Academia Nacional de Ciencias Exactas; United States of America (Group V), National Academy of Sciences—National Research council.

The group to which a country belonged determined the number of votes of that country in the general assembly. The first general assembly was set for March 6-8, 1952, in Rome. The new union was expected to do much to promote the co-operation of the mathematicians of the world and the wider dissemination of the results of mathematical research.

The second important event of 1951 was the creation of a new division of mathematics in the U.S. National Research council. Before 1951 mathematics was a part of one of the eight divisions of the council, the division of mathematical and physical sciences. It was felt that the interests of that division were too diverse adequately to represent the needs of mathematics, and the council as a whole agreed with this point of view and split the division into a division of the physical sciences and a division of mathematics in Jan. 1951. The division was well organized by June 1951. Its members included representatives of the American Mathematical society, the Mathematical Association of America, the Institute of Mathematical Statistics, the Biometric society, the National Academy of Sciences, the American Physical society, the Association for Symbolic Logic, the Econometric society and the National Research council division of engineering and industrial relations.

A committee on operation research was studying the problem of finding and training specialists in that field. There was a committee on high speed calculating machines, a committee on editing the quarterly journal of mathematical tables and other aids to computation, and a committee on scientific conferences. There was also a committee on the revolving fund for publication of mathematical books to advise on and encourage the publication of mathematical books not readily financed through other channels.

The division was trying to obtain a detailed background knowledge of the mathematical staff, student body, potential for increased mathematical research and need of support in over 80 graduate schools. It was expected that a committee on the regional development of mathematics would be appointed later.

A new and very important committee was the United States national committee for mathematics. This committee of the division of mathematics of the National Research council was created in response to the establishment of the International Mathematical union. (A. A. AT.)

MAURITANIA: *see* FRENCH WEST AFRICA.

MAURITIUS. British colony in the Indian ocean with island dependencies, of which the largest are Rodriguez and Diego Garcia. Area: Mauritius 720 sq.mi.; Rodriguez 42 sq.mi. Pop.: (1944 census) Mauritius 419,185 (57% Indo-Mauritian), Rodriguez 11,885, Diego Garcia 501, other dependencies 1,077; (1950 est.) 460,000. Languages: Creole *patois*, Hindi, French and English. Religion: mainly Roman Catholic among those of European, African or mixed descent. Capital, Port Louis. Administration: governor, executive council, 3 official and 4 unofficial members; legislative council, 3 *ex-officio*, 12 nominated unofficial and 19 elected members. Governor, Sir Hilary Blood.

History. The malaria eradication campaign, which had been successful by April 1950 in reducing by some 80% the incidence of malaria in the treated areas, had by the end of that year virtually eliminated the disease from the island. Efforts during 1951 and the remaining year of the scheme were being concentrated on consolidation and the ensuring that no new infection was introduced from overseas. A development loan of £2,615,000 was over-subscribed and additional taxation to meet its charges was successfully levied. Income tax and a non-contributory old age pension scheme were also introduced. In April, in order to identify the elected representatives more closely with the work of government, three of the unofficial members of the executive council were appointed to act as liaison officers between

certain departments and the governor. Another experiment begun during the year was the export of locally grown tobacco to the British market. Nearly 45,000 lb. were exported in January.

Education. Primary pupils (1950) 51,281; 2 government secondary schools and several grant-aided; 1 teachers' training college.

Finance and Trade. Currency, Mauritius rupee (Rs. 1 = 1*s.* 6*d.*). Budget (1950 act): revenue Rs. 55,100,000; expenditure Rs. 50,200,000. Foreign trade (1950): imports £13,000,000; exports £11,300,000. Principal exports: sugar, fibre, tea. Production (1950): sugar 456,000 tons, tobacco 427,500 kg., aloe fibre 1,173 tons, tea 750,000 lb.

(K. G. B.)

See M. A. C. Dowling, "The Malaria Eradication Scheme," *Corona* (London, Dec. 1950 and Jan. 1951).

MEAT. World meat output during 1950 was appreciably higher than in the preceding year and probably 5% greater than before World War II. Nevertheless, consumption in the chief producing countries also increased and, as a result, international trade in meat declined and was about 20% lower than in 1938. In Europe and the United States total meat output showed an expansion, but in Australia, Canada and South America an appreciable reduction was recorded. Shipments from the southern dominions exceeded the prewar level during 1949 but fell heavily in 1950, chiefly as a result of a reduction in exports from Australia.

The world cattle population continued to increase in 1950 and in the main producing countries numbers were considerably above prewar, while in Europe the 1938 level had been regained and even surpassed in some countries. About two-fifths of the world total of cattle was in the Commonwealth. In 1951 the upward trend was checked in some countries. There was a fall in the U.K. from 10·6 to 10·5 million.



quantity of reindeer was imported from Sweden.

MEAT CONSUMPTION
(in lb. per head)

	1938	1942	1945	1948	1949	1950
United Kingdom	119	88	87	74	76	97
Canada	111	129	133	126	128	124
Australia	243	—	191	216	217	231
New Zealand	226	—	—	199	218	219
South Africa	65	76	67	79	77	78
Irish Republic	76	93	96	95	95	92
Argentina	214	199	209	240	248	247
United States	127	139	144	145	144	145
Netherlands	81	41	—	47	60	79
Western Germany	102	—	—	33	61	71
Denmark	58	50	70	71	78	73

Cattle stocks in Australia increased from 14·6 million to 15·2 million. There was little change in Denmark (3·1 million) but in the Netherlands (2·9 million) numbers more than regained their 1938 position. The total in the U.S. in 1951, 84·2 million, was 5% greater than the previous year, but still 2% below 1945. The estimates for Argentina suggested that, as a result of the heavy slaughter occasioned by the severe drought of 1949-50 and of the government programme to increase the acreage under crops, the cattle population had been reduced since the last recorded census, in 1947, of 42·3 million.

Figures for sheep in 1951 showed an increase in the U.S. (31·5 million) for the first time in eight years, a further expansion of flocks in Australia (115·6 million), and in the U.K. there was a slight drop to 20 million. In New Zealand the total increased in 1950 to 33·9 million.

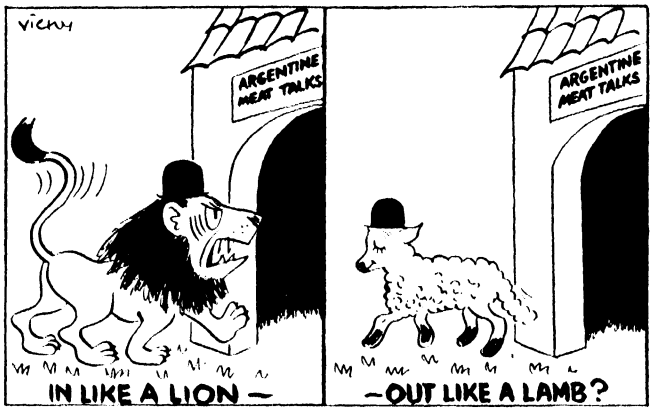
The pig population in North America rose in 1951 to 65·03 million. An increase was also recorded in the U.K. (3·9 million) and the Netherlands (1·95 million) while in Denmark there was little change (3·2 million). The figure for the Republic of Ireland fell further from 640,000 to 550,000.

Production. Beef and veal production in 1950 in the principal purchasing countries showed a moderate increase on the 1949 level and was 20% greater than 1938. The U.S. and Argentina produced respectively 4,805,000 tons and 2,063,000 tons, a record for the latter. France produced 995,000 tons, Australia 652,000 tons, the U.K. 637,000 and Western Germany 558,000.

Production of mutton and lamb in the main countries concerned fell appreciably during 1950 and was about 10% less than 1938. Production in New Zealand was 331,800 tons, Australia 276,900, U.S. 267,400, Argentina 159,400, U.K. 149,000 and France 98,400 tons.

Pig output in the chief producing countries in 1950 was about 15% higher than the previous year and over 30% more than in 1938. In North America, especially in the U.S., a pronounced rise in output was recorded, 4,800,000 tons (3,428,000). In Western Germany pig herds had made a rapid recovery and produced 866,000 tons, as compared with 930,000 prewar. Canada's output of pig meat was 430,000 tons (262,000), France 777,000 tons (658,000), Denmark 350,000 tons (317,000), U.K. 331,000 tons (426,000).

International Trade. There was a heavy fall in world exports of beef in 1950, 441,000 tons compared with 622,000 in 1949 and 755,000 in 1938. This reduction was mainly accounted for by a heavy reduction in shipments from Argentina. Trade in mutton and lamb (334,000 tons), which had shown some recovery in 1949, also fell appreciably. World trade in bacon and hams increased rapidly in 1950 from 169,000 to 264,000 tons—the 1938 figure was 394,000 tons. World exports of pork, 115,000 tons, also showed an appreciable increase. Exports of canned meat in postwar years remained consistently above the prewar total, but in



Vicky's comment in the "News Chronicle" (London) on March 1, 1951, on the Anglo-Argentina negotiations for a new raw meat agreement.

1950 (242,000 tons) were only about two-fifths of the record 1946 level of 595,000 tons.

Consumption. Meat consumed in the principal exporting countries had shown a tendency to rise in latter years, but in Australia and New Zealand was still less than before World War II. In Argentina, however, there had been a large increase, all in beef. In the U.S., consumption since 1948 remained practically unchanged, and in Canada there was a decline in 1950, though consumption was still higher than in 1938. Consumption in the U.K. in 1950 was appreciably higher. During 1951 Argentina sent to the U.K. only one-third as much ration meat as in 1950, and Australian supplies were below one-half; New Zealand's contribution, though 23% less, was twice as much as those of the two other countries put together. Beef imports amounted to 150,000 tons, a reduction of 170,000 tons; those of mutton and lamb were 248,000 tons against 394,000 tons; and 15,000 tons of pork (or half as much) was sent. U.K. imports of corned beef in 1951 were slightly below those of 1950. Consumption, however, was down by one-half. Imports of other tinned meats, mainly from the European continent, rose from 19,000 tons to 31,000 tons. (*See* also LIVESTOCK.)

(C. A. Mo.)

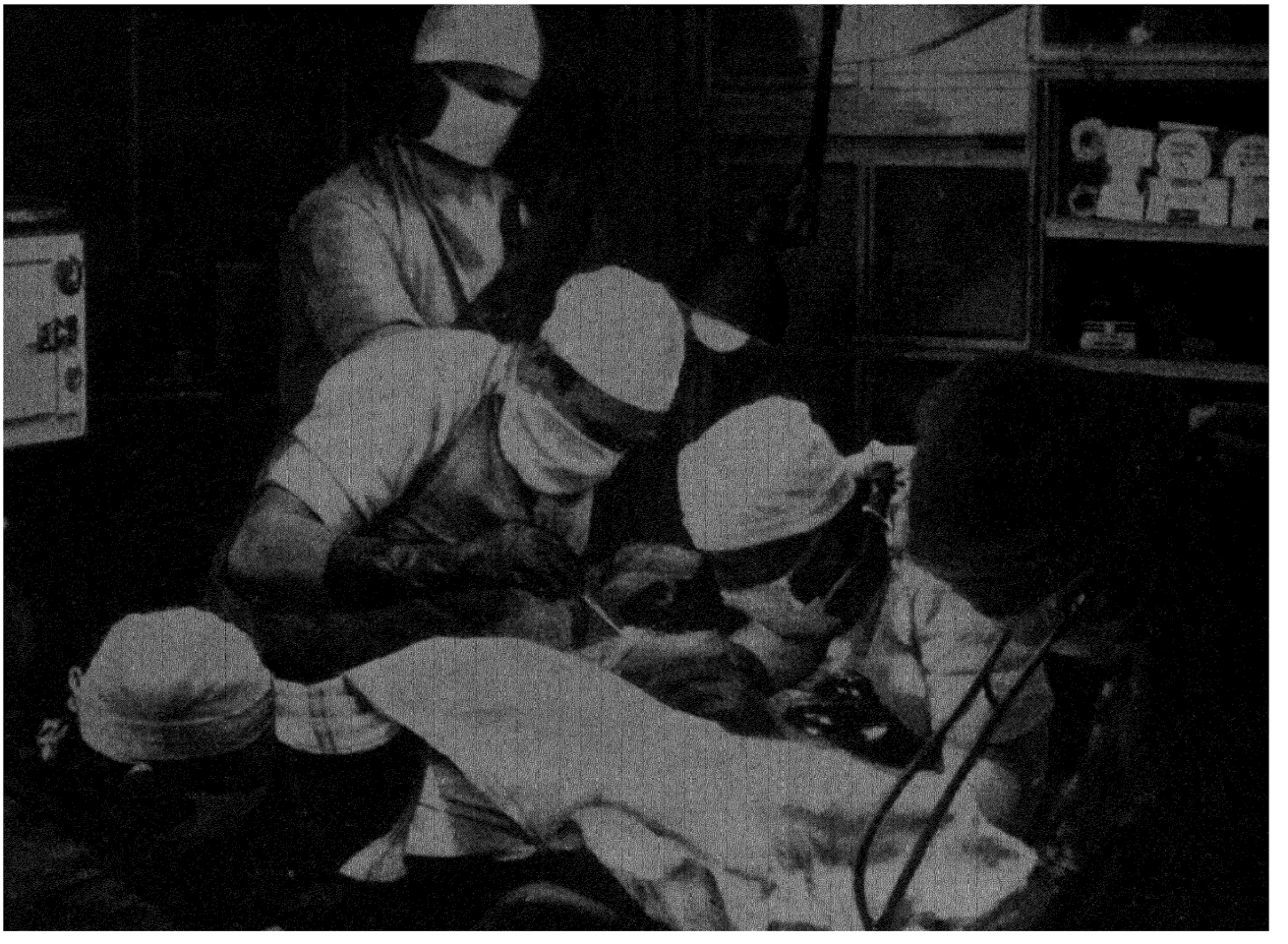
MEDICAL ARTICLES: *see* BACTERIOLOGY; BIOCHEMISTRY; BLOOD, DISEASE OF THE; CANCER; DENTISTRY; DERMATOLOGY; DIABETES; EAR, NOSE AND THROAT, DISEASES OF; ENDOCRINOLOGY; EPIDEMICS; EYE, DISEASES OF THE; GENETICS; GYNAECOLOGY AND OBSTETRICS; HEART DISEASES; HOSPITALS; INDUSTRIAL HEALTH; INFANTILE PARALYSIS; MEDICINE; MENTAL DISEASES; NURSING; NUTRITION; OSTEOPATHY; PHARMACY; PHYSIOLOGY; PNEUMONIA; PSYCHIATRY; PSYCHOLOGY; RHEUMATIC DISEASES; STOMACH AND INTESTINES, DISEASES OF; SURGERY; TROPICAL DISEASES; TUBERCULOSIS; VENEREAL DISEASES; VETERINARY MEDICINE; X-RAY AND RADIOLOGY.

MEDICINE. *Lung Cancer.* Attention was paid to the apparent increase in lung cancer in almost every country in recent years—apparent because some at least of the increase was a result of better diagnosis and the more careful collection of statistics. The view that smoking was a significant factor in causing lung cancer, though still not proved to everyone's satisfaction, was supported by strong evidence. The statistical enquiries of Professor A. Bradford Hill, of the London School of Hygiene and Tropical Medicine, University of London, had already shown that the proportion of non-smokers among men with cancer of the lung was only 0·3%, compared with 4·2% among healthy men, and that at ages over 45 the risk of getting lung cancer was 50 times greater in people who smoked 25 or more cigarettes a day than in non-smokers (*Med. Annual*, 158-159, London, 1951). Professor Hill sent a series of questions on smoking habits to every doctor on the medical register in 1951, to obtain reliable data on the numbers of present smokers, ex-smokers and non-smokers among professional men and women.

Antibiotics in Pneumonia. In a clinical trial carried out in London, Sheffield and Glasgow for the Medical Research council, 267 patients admitted to hospital with pneumonia were treated with aureomycin, chloramphenicol or the "standard treatment," this last consisting mainly of penicillin therapy; the cases treated with sulphonamides were too few for any conclusions to be drawn from them. Nearly all the series had bacterial, as distinct from virus, pneumonias, 73% being due to the *Pneumococcus*. In terms of mortality there was little to choose between the three treatment groups, but the proportions with toxic symptoms were very much higher in the aureomycin and chloramphenicol groups (32% and 22%) than in the penicillin-treated cases (5·8%). The most striking difference emerged when the costs of the three types of treatment were compared. The average total doses given to each patient were 26 grains of aureomycin or 23 grains of chloramphenicol or 7 million units of penicillin, costing £10 1*s.* 6*d.*, £8 15*s.* 11*d.* and 18*s.* 11½*d.* respectively. So it cost 10½ times as much to treat a patient with aureomycin, and over 9 times as much with chloramphenicol, as with penicillin. The Medical Research council committee recommended penicillin by injection as the routine treatment for pneumonia, reserving aureomycin, chloramphenicol and streptomycin for patients who failed to respond to penicillin (see *Brit. Med. J.*, ii: 1361, London, 1951); but they remarked that other observers had found sulphonamides equally effective.

Professional Body for General Practitioners. The 20,000 general medical practitioners in the United Kingdom did not possess any representative body of their own, such as the three royal colleges, though they were the largest section of the profession. True, there was a section of general practice in the Royal Society of Medicine and a general practices committee of the British Medical association; but John Hunt and F. M. Rose, who sponsored the project in letters to the *Lancet* and *British Medical Journal* (Oct. 13, 1951) wanted a college of general practitioners which would be an academic headquarters, run for practitioners by practitioners, to develop medical education, encourage research and raise the status and quality of general practice, perhaps granting a diploma on the lines of the fellowships of the existing royal colleges. This was no new idea, for a college of general practitioners had come within an ace of being established by act of parliament about 100 years before, when it was proposed by Sir James Graham, then home secretary, as a step towards settling the constant squabbles between the various professional bodies; that scheme fell through because of dissension among the practitioners themselves, and order was not fully restored until the General Medical council was formed in 1888 (*see* D. C. L. Fitzwilliams, *Brit. Med. J.*, 1090, Nov. 3, 1951).

The new plan was warmly supported by the presidents of the royal colleges and in principle by the medical journals. The *Lancet* feared that it might extend the fragmentation of the profession, and therefore advocated a faculty of general practitioners attached to all three royal colleges. The scheme's sponsors, however, thought that if a college was impossible, a better alternative would be an academy of general practice, linked with the royal colleges, the Society of Apothecaries (one of the companies or guilds of the City of London, granting a recognized medical qualification, the L.M.S.S.A.) and the British Postgraduate Medical federation (a constituent institution of London university co-ordinating postgraduate teaching



Operating for the removal of an eye at Maudheim, the base of the Norwegian-British-Swedish Antarctic expedition in 1951. Dr. Wilson, who was performing the operation for the first time, had made special instruments and had trained members of the party to help him.

in London). The best choice seemed to be the academy, for which there was an admirable precedent in the United States.

State Medical Care. In 1948-50 the British health services cost the public £378·6 million a year; for 1950-51 the estimated cost was £451·7 million and for 1951-52 £471 million. According to François Lafitte, of PEP (Political and Economic Planning), London, in 1949 and 1950 the national health service's share of the country's total current outlay was about 4%; it absorbed about one-tenth of all the taxes levied, including rates and insurance payments, as against about one-twentieth taken by the comparable services in 1938 (see *The Health Service*, London, 1951). Frank G. Dickinson, director of the U.S. Bureau of Economic Research, calculated that the proportion of the U.S. consumers' budget spent on medical care had remained at about 4% for 20 years—about the same proportion as was spent on alcoholic drinks (see *J. Amer. Med. Assoc.*, 147: 1354, 1951).

How much a country spent on medical care did not depend on the population's needs but on something akin to " market demand "; from this aspect, medical care had to be regarded largely as a luxury. This observation by Dickinson helped to explain the difficulty of assessing the " costliness "—as opposed to the actual cost—of the national health service. As Lafitte put it: " The worth-whileness of expenditure can only be appraised by the results it secures; and it is precisely the results of the N.H.S. that we do not know, except in the vaguest terms." Nevertheless, Lafitte convincingly showed that there was a considerable amount of waste and overpayment in parts of the service, mostly attributable to " an obviously incoherent " wages policy, insufficient checking of the costs of materials and appliances, and a serious under-estimate of demand. In his view some at least of the expense could have been saved if doctors, dentists and opticians had been working in the publicly provided health centres that were a main feature of the original national health service plan. So far, however, no health centres had appeared and there was little prospect of any being built while the demand for houses remained unsatisfied.

The Examination Problem. In the autumn Oxford university convocation discussed whether the list of candidates for examinations should be kept secret, because their publication revealed those who failed, and in the case of medical examinations this might prejudice a candidate's future career. One of the anonymous " peripatetic correspondents " in the *Lancet* (Dec. 1, 1951, p. 1036) recalled a previous suggestion that doctors who only passed their qualifying examination after several attempts should be compelled to inform prospective patients. This idea came to nothing, but it conjured up frightening visions of waiting-room walls decorated with diplomas bearing dismal details such as " . . . admitted a member of the Royal College of Surgeons after failing three times in biology, twice in anatomy and six times in medicine." Then, as was pointed out at the time, if failures were advertised in this way there could be no objection to a successful candidate having his diplomas endorsed with his triumphs, illuminated in gold leaf. (E. C.-Js.)

United States. A comparison of the most frequent causes of death in the U.S. in 1951 with those of 1901 is of considerable interest. In 1901 the 11 principal fatal conditions were: tuberculosis; pneumonia; diarrhoea and enteritis;

heart disease; early infancy and congenital malformations; brain haemorrhage; cancer; bronchitis; diphtheria; typhoid; influenza. In 1951 they were: heart disease; cancer; brain haemorrhage; nephritis; pneumonia and influenza; tuberculosis; premature birth; diabetes; congenital malformations; cirrhosis of liver; ulcer of the stomach. In addition, accidents came next after brain haemorrhage as causes of death in 1901; in 1951 accidents kept their position on the list next to brain haemorrhage, which had, however, moved to the third place. Suicide had come on the list of principal fatalities by 1951, ranking next after congenital malformations.

Drugs. Especially significant was the development of cortisone in a new form (Compound F); the original cortisone was Compound E of the adrenal hormones. Cortisone was developed in the form of tablets which could be taken by mouth. A new form of ACTH was offered which when injected acted for a longer time than did the first form. These drugs were tried particularly in inflammatory conditions affecting the eye and for the prevention of sympathetic ophthalmia. Other uses were for toxaemia of pregnancy; intractable asthma; sarcoidosis; haemolytic anaemia; thrombocytopenic purpura, in which there is a lessened number of blood platelets; snake bite; and various forms of allergy and nervous disorders.

Approximately 160 preparations of antibiotics were under investigation in 1951, including substances derived from many common plants and living materials such as tomatidine from the tomato, radicin from radishes, lupulin from hops, garlicin from garlic and fumagillin from a fungus that causes aspergillosis. Intensive research was being made on an antibiotic that might attack virus diseases, especially small viruses, such as those that cause poliomyelitis and epidemic encephalitis. Two such experimental substances were called viscosin and ehrlichin.



A machine enabling intricate surgical operations to be performed on living organisms less than 0·0001 in. long, which in 1951 was used at St. Mary's hospital, London.

Interest was shown in the possible combination of several antibiotics in one dose to reach a greater variety of germs and also to attack organisms that may have developed resistance to a single antibiotic. Aureomycin, chloromycetin and terramycin were shown to be capable of interfering with the action of penicillin, but the reverse was not true.

Tuberculosis of the meninges or coverings of the spine used to be almost invariably fatal. One clinic reported that more than 90% of the cases ended in death. With streptomycin and PAS, or paraminosalicylic acid, less than 15% died. The germs could become resistant to streptomycin but substitution of viomycin overcame them.

Interest in synergism in the use of drugs was revived after various ways in which one drug may enhance or improve the action of another had been shown. Thiamin aids the action of local anaesthetics on the nerves. Potassium iodide improves the action of streptomycin in tuberculosis. Hyaluronidase has a spreading action which improves the rapidity of absorption, and therefore action, of injected drugs. Many new products were tested for action on high blood pressure; the most effective apparently was hexamethonium bromide, whose action was so efficient that danger might result from too sudden and too complete a reduction of pressure. " Dromoran " was the name given to a new opium derivative used for controlling pain. This product brought medicine closer to the development of a long-sought objective—a synthetic morphine.

The anti-histamine drugs, useful in a wide variety of allergies, were tested against poison ivy, dysmenorrhoea, colds, food poisoning, drug sensitivity and many other disorders which seemed to be associated with release of histamine in the body.

Radioactive Isotopes. Radioactive iodine was shown to be especially useful in overcoming excessive action of the thyroid gland and greatly reduced the use of the thiouracils and the necessity for surgical procedure. The isotope was also found to be useful in the more accurate determination of the basal metabolism. A radioactive substance called gold 198, when taken into the body localized in tumours of the ovary with results similar to those secured with deep X-ray treatment. Cobalt 60 was investigated as a substitute for radium in the treatment of cancer and even as a substitute for X-ray machines. Many other radioactive substances were used for the diagnosis of the rate of blood flow, for localizing brain tumours and for other uses depending on the tendency of certain elements to localize in certain tissues of the body.

Surgery. A new artificial limb was developed which was held in place by suction, making supporting straps unecessary. Another invention was a small motor to aid motion. New plastic procedures were worked out for replacing a lost thumb with a transplanted finger.

Surgery of the heart and blood vessels improved greatly in techniques, so that many operations were now being performed for the narrowing of the heart valves and of the aorta. For revival when the heart stops during surgery, a technique was developed which involved opening the chest and massaging the heart with the hand, and using electric shock to stimulate movement of the heart.

Vitamins. Vitamin B_{12} was proved to be the most stimulating blood-producing substance. More emphasis was placed on the effects of vitamin P on the blood capillaries. Pyridoxine from the vitamin B complex was associated particularly with seborrhoeic or oily conditions of the skin. Vitamin nutrition is influenced by the antibiotic drugs and the addition of even small amounts of penicillin, aureomycin or terramycin to the diets of animals greatly increases their growth.

Poliomyelitis. Three types of the poliomyelitis virus immunologically distinct had been recognized as responsible for infantile paralysis epidemics in the United States. A

specific vaccine had been worked out and was under test in 1951 as was also gamma globulin, which seemed to be effective in preventing the disease when given soon enough in adequate doses. A blood test was also under process of perfection. (*See* also cross-reference MEDICAL ARTICLES.) (M. FI.)

MENTAL DISEASES. The Ministry of Health annual report, published in 1951, included statistical information about mental diseases for the year ended March 1950. The number of direct admissions to mental hospitals in that year was 59,204, of which 63·1% were voluntary patients, 2·5% temporary and 34·4% certified. There were 16,524 patients discharged recovered and 22,529 relieved; 5,878 more were discharged not improved and others discharged numbered 2,320. Deaths numbered 11,813. Thus the proportion of those discharged who were recovered was 35%. There were 134,371 patients in mental hospitals and registered hospitals, 2,201 in licensed houses, and 7,712 in former public assistance institutions and public health general hospitals and there were 70 patients under private single care.

During the year ended March 1950 there were 147,288 patients under care for mental diseases in England and Wales (males 42·9%, females 57·1%); this number was made up as follows: 5,572 private, 140,706 health service and 1,010 Broadmoor; 83% were certified patients, 0·3% temporary patients and 16·7% voluntary patients; 97·3% of these patients were in national health service hospitals.

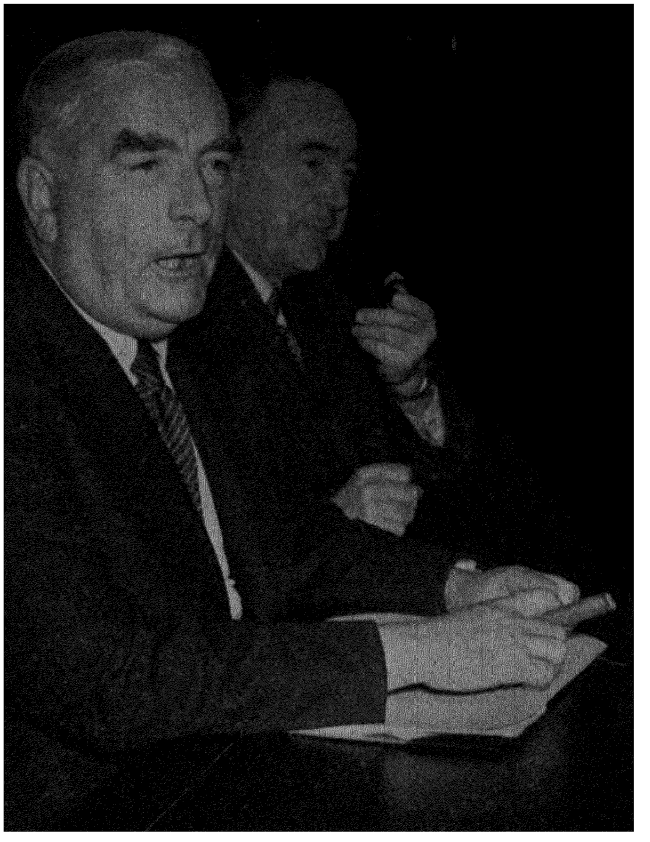
The mental deficiency statistics showed that there were 108,222 known mental defectives, of whom 56,506 had been admitted to hospital but 5,316 were waiting for admission. There were 5,463 mental defectives out on licence from institutions and 1,590 dangerous or violent defectives in Rampton and Moss Side institutions. Of those in institutions 12% were under 16. The number of defectives reported to the local authorities as "subject to be dealt with" was 125,252, and of these 108,222 were under statutory care. There were 56,506 in hospitals, 4,558 under guardianship in the community and 47,158 under statutory supervision by the local authority.

The report stated that there were 50,729 beds provided for defectives in all types of hospital and homes. During the year ended March 1950 there were 3,013 direct admissions and 886 were discharged from institutions and 1,005 from guardianship—these figures being twice those of the previous year. There were 752 deaths.

Overcrowding in the mental hospitals of the country up to March 31, 1950, was 14%, as against 12·2% a year previously, and it was regretted that many hospitals decided to decline to receive further voluntary patients because they had to keep accommodation for the certified patients who had to be admitted. Overcrowding in mental deficiency hospitals was 11·3% and there was a waiting list of over 5,000. In these hospitals there were 2,245 beds not in use because of shortage of staff, chiefly nurses. Many more old people were being admitted than before the war, 25% of the beds in mental hospitals being occupied by patients of 65 and over.

The Standing Mental Health committee's memorandum of April 1, 1950, advised regional hospital boards and hospital management committees to plan their arrangements to include short-stay psychiatric units ordinarily attached to the geriatric departments of the general hospitals and also long-term annexes, which would be establishments associated with mental hospitals or general hospitals for those showing deterioration without disturbance of behaviour. (J. G. H.)

MENZIES, ROBERT GORDON, Australian statesman (b. Jeparit, Victoria, Dec. 20, 1894), was educated in the state schools of Victoria, at Grenville college, Ballarat,



R. G. Menzies, prime minister of Australia (left), addressing a press conference at Australia house, London, on Jan. 17, 1951, after the conference of Commonwealth prime ministers.

at Wesley college, Melbourne, and at Melbourne university. In May 1918 he joined the Victorian bar and High court of Australia, and 11 years later became a K.C. In 1928 he was elected to the Victoria legislative council and in the following year to the Victoria legislative assembly. He was minister without portfolio, 1928-29, and attorney general, minister for railways, and deputy prime minister of Victoria, 1932-34. In the latter year he was elected to the federal House of Representatives for Kooyong, and from 1935 to 1939 was attorney general and minister for industry. He resigned in March 1939 in protest against a decision to postpone a national insurance scheme but retained the portfolio of co-ordination of defence. After the death of J. A. Lyons on April 7, 1939, Sir Earle Page was prime minister until April 26, when he was succeeded by Menzies who had been elected leader of the United Australia (later Liberal) party. He resigned on Aug. 29, 1941, after the Labour party had refused to join a coalition government, and was succeeded by Arthur Fadden, leader of the Country party. Menzies remained as minister for co-ordination of defence until the fall of the Fadden ministry on Oct. 7, 1941. From 1943 he was leader of the Federal opposition in the House of Representatives. The general election of Dec. 10, 1949, resulted in a defeat for the Labour government of J. B. Chifley (*see* OBITUARIES); Menzies was sworn-in (Dec. 19) as the head of a coalition of the Liberal and Country parties. In July-Aug. 1950, he visited Great Britain, the United States, Canada and New Zealand, and in Jan. 1951 was in London for the meeting of Commonwealth prime ministers. He returned to Canberra on Feb. 14, and presided at a meeting on defence of state prime ministers on March 2. On March 19 he obtained from the governor general a dissolution of both houses of the federal parliament and on April 28 general elections were held. Menzies' coalition government obtained

a majority in the Senate and increased its control of the House of Representatives. On July 30 he held a conference of state prime ministers and other representatives to discuss methods of combating inflation, and on Sept. 4 opened a strenuous campaign in support of a referendum (Sept. 22) to outlaw Communism. Starting in his own constituency he visited all the Australian states, but the government's proposal was defeated by 52,078 votes. During 1951—the jubilee year of the Commonwealth of Australia—he received (Oct. 15-21) D. S. Senanayake (*q.v.*) the prime minister of Ceylon.

METALLURGY. A few of the more important metallurgical developments during 1951 are summarized in the following paragraphs.

Bismuth. Ductile wire and ribbon of bismuth were developed. Bismuth has unique electrical properties that make it useful in certain types of electrical instruments.

Cast Iron. Grey cast iron in which the carbon has been spheroidized by the addition of nickel was developed. It has about double the tensile strength of ordinary cast iron, with no decrease in machinability. Annealing reduces the tensile strength but develops a remarkable degree of ductility, indicated by 17%-23% elongation.

Cobalt. The demand for cobalt was so enhanced by its use in high-temperature alloys for jet engines and gas turbines that not only were civilian uses curtailed but steps were also taken to reduce the cobalt content of the alloys in use and to develop others with lower cobalt content. To help offset the cobalt shortages a cobalt smelter to be supplied with ore from Idaho was under construction at Garfield, Utah.

Magnesium. The substitution of magnesium for zinc in dry battery cases promised double life and a higher and more constant voltage.

Platinum. New smelting and refining facilities were being installed in South Africa for treatment of the local platinum ores and concentrates that in the past had been sent to England. Platinum output had already been increased.

Silver. A silver-clad sheet steel became available as a substitute for brass, nickel and nickel silver. It could be stamped, bent, drawn, spun, brazed and soldered.

Titanium. The production of high-purity titanium metal was passing from the pilot plant stage into full commercial output. After production as metal sponge the metal is melted in an arc or induction furnace and cast into ingots weighing up to 1,000 lb. Ingots may be rolled, forged or drawn. Extensive development work was under way on the uses of pure metal and of numerous alloys in the cast, rolled and forged condition. The metal was quoted in the United States as sponge, powder, forgings, round or square bars, plated, sheets, strip and wire at prices ranging from $5 to $15 per pound.

Continuous Casting. The use of continuous casting advanced well past the experimental stage, and was in commercial use in a number of plants. (G. A. Ro.)

METAL PRODUCTION: *see* MINERAL AND METAL PRODUCTION.

METEOROLOGY. The outstanding event of 1951 was the triennial meeting of the International Association of Meteorology, as part of the International Union of Geodesy and Geophysics, during August in Brussels under the presidency of Professor J. Bjerknes. It was well known that J. Bjerknes was the main inspiration between the wars in that part of the subject known as synoptic meteorology. He gave to the words "polar front" and "frontal depression" a connotation with which the non-expert was soon familiar. And, for the forecasters of most state meteorological services, he provided a working model of how (though not why) the atmosphere might be expected to behave in the day-to-day changes which occur when polar and tropical air are in juxtaposition.

Professor Bjerknes had, with others, recently turned his attention to the wider aspects of synoptic meteorology, with what was called the general circulation of the atmosphere, and this was the subject of his presidential address. By the general circulation is meant the dominant systems of winds over the earth: the surface trade winds or easterlies of lower latitudes, the surface westerlies of middle and higher latitudes and the tremendous circumpolar vortex of upper westerlies which surmounts the surface easterlies and westerlies and extends up to 20 km. or more—well into the stratosphere.

The meteorologist's problem is to explain why such a system of winds should exist, or, having come into existence, how it can be maintained. It is a problem embracing all parts of meteorology and not least that which is concerned with the radiation of the earth and its atmosphere. For the earth remains at a practically constant temperature and so it must as a whole lose as much heat to outer space by long-wave (infra-red) radiation as it receives, in shorter waves, from the sun. Yet it gains a good deal more heat than it loses in lower latitudes and loses more than it gains in middle and higher latitudes—the latitude of transition is much the same as that bounding the surface easterlies from the surface westerlies. The tropics do not however become steadily hotter, nor middle and high latitudes colder (seasonal variations apart), so that the excess of heat in low latitudes must be exported poleward and this transport is effected by the general circulation. Or we may say that the general circulation must owe its being and structure to the need for carrying out the transport of heat, and a problem in dynamics becomes also a problem in thermodynamics.

The surface easterlies are regions where the earth itself is travelling eastward more rapidly than the air above, while in the westerlies the air is moving faster than the underlying earth but in the same direction. Now the friction between wind and surface tends of course to destroy the relative motion, or we may view the process as one in which the earth communicates its westerly momentum to the air of the surface easterlies and extracts westerly momentum from the surface westerlies. Since the earth continues to rotate steadily, the loss of its momentum in the easterlies must be just balanced by what it gains from the westerlies. Moreover, both easterlies and westerlies are maintained, so that some mechanism must exist whereby the easterlies dispose of the westerly momentum they continually receive, and the westerlies make good their loss. H. Jeffreys first showed theoretically that the mechanism must be one of exchange of air between latitudes, the westerly momentum injected into the surface easterlies being exported poleward to make good the loss in the westerlies. In other words, momentum as well as heat must be exchanged between latitudes. Bjerknes' work was to show, by appeal to observations, how the exchange of momentum is effected. It appeared from his and others' analysis that the transport takes place mainly in the upper troposphere and lower stratosphere, where the upper westerlies are strongest, and is a maximum, as it needs must be, above the surface transition from easterlies to westerlies. And the mechanism is provided largely if not wholly by the assymetrical meandering of the westerlies at those levels—or by the meandering sub-tropical "jet-stream" as it is called. The concurrent transport of heat poleward was found to take place primarily in lower levels of the atmosphere. It was as much accounted for by the latent heat given out when water vapour, evaporated in the easterlies and exchanged with the westerlies, is then condensed and precipitated in the westerlies, as by the heat in

(*Continued on page 412*)

TABLE I. MONTHLY RAINFALLS AND TEMPERATURES: BRITISH ISLES

		1950 July	Aug.	Sept.	Oct.	Nov.	Dec.	1951 Jan.	Feb.	Mar.	April	May	June
Fort William	(1)	7·96	7·67	14·85	11·51	6·29	3·29	9·73	5·02	3·74	6·88	0·50	2·96
(Inverness-shire)	(2)*	+3·07	+1·44	+8·46	+4·41	−1·91	−6·91	+0·03	−2·48	−2·96	+2·38	−3·44	−0·59
	(3)	57·7	57·3	52·3	47·9	39·8	33·9	37·9	37·3	38·3	41·9	50·5	54·7
	(4)†	+0·3	+0·3	−1·0	0·0	−1·9	−5·7	−1·3	−2·2	−2·4	−2·4	0·0	−0·4
Inverness	(1)	1·88	3·29	4·86	1·59	3·90	1·73	2·47	1·84	1·41	4·01	0·65	2·01
	(2)*	−0·72	+0·74	+2·51	−0·86	+1·35	−0·97	−0·08	−0·41	−0·79	+2·36	−1·20	+0·11
	(3)	57·6	57·5	51·7	46·7	39·1	33·6	36·2	35·9	37·5	40·5	46·6	51·9
	(4)‡	+0·1	+0·4	−1·7	−1·0	−3·0	−5·7	−2·8	−3·5	−3·2	−3·8	−2·8	−2·2
Perth	(1)	4·06	3·60	6·73	1·57	2·87	1·30	3·48	3·28	1·65	2·03	1·74	2·21
	(2)*	+1·17	+0·23	+4·50	−1·38	−0·01	−1·93	+0·97	+1·01	−0·84	+0·25	−0·48	+0·24
	(3)	58·1	57·5	51·9	47·4	38·6	32·5	36·3	36·5	38·3	41·9	47·7	54·3
	(4)§	−1·0	−0·2	−1·4	−0·1	−1·9	−5·7	−1·6	−2·0	−2·4	−2·8	−2·6	−1·6
Edinburgh	(1)	3·11	2·32	4·75	2·07	3·37	1·56	2·59	1·93	2·58	2·58	3·04	1·41
	(2)*	+0·29	−0·89	+2·70	−0·67	+1·13	−0·78	+0·83	+0·27	+0·61	+1·11	+0·99	−0·59
	(3)	58·3	57·9	52·8	47·9	40·7	33·7	37·5	36·7	37·5	41·6	45·5	53·1
	(4)§	+0·6	+0·8	−0·6	−0·1	−1·4	−6·2	−1·6	−2·4	−2·8	−2·1	−3·4	−1·1
Glasgow	(1)	6·11	5·01	9·33	3·29	2·76	1·69	5·23	2·70	2·82	2·11	1·81	2·27
	(2)	—	—	—	—	—	—	—	—	—	—	—	—
	(3)	58·4	57·4	51·9	46·9	38·8	32·5	36·5	35·7	37·5	42·2	48·5	56·1
	(4)	—	—	—	—	—	—	—	—	—	—	—	—
Aberystwyth	(1)	4·30	8·21	5·79	3·45	5·41	3·16	4·05	1·68	4·23	2·77	3·33	2·22
	(2)*	+1·26	+4·37	+2·94	−0·69	+1·71	−0·82	+0·83	−0·81	+1·49	+0·72	+1·25	−0·23
	(3)	60·3	59·5	56·0	51·2	44·5	38·1	40·7	40·4	40·9	44·4	51·9	57·1
	(4)‡	+0·6	−0·7	−1·3	−0·7	−1·4	−5·0	−1·2	−1·1	−2·0	−1·9	−0·4	+0·6
Tunbridge Wells	(1)	2·65	2·10	2·56	0·32	5·02	1·88	2·86	5·87	2·86	2·02	2·04	1·75
	(2)	—	—	—	—	—	—	—	—	—	—	—	—
	(3)	61·9	61·3	56·3	49·1	42·5	33·0	39·3	38·4	40·1	44·0	51·1	57·3
	(4)‖	+0·8	0·0	−1·0	−1·3	−1·0	−7·1	+0·6	−0·7	−2·0	−2·8	−2·4	−0·4
Bournemouth	(1)	4·29	2·00	3·17	0·83	6·03	2·24	3·22	6·04	3·56	3·10	2·57	0·54
	(2)*	+2·16	−0·52	+0·83	−3·44	+2·63	−1·64	+0·52	+3·65	+1·23	+1·31	+0·81	−1·47
	(3)	62·2	62·2	57·7	51·5	45·3	35·7	41·7	40·9	42·1	46·1	51·5	58·5
	(4)‡	+0·5	+0·5	−0·1	−0·3	+0·1	−6·6	+1·0	−0·1	−1·3	−1·2	−2·4	+0·3
Ringway	(1)	2·40	4·26	4·55	2·27	4·34	2·73	2·87	2·20	4·55	2·16	2·19	0·86
(Cheshire)	(2)*	−0·38	+0·97	+2·28	−0·84	+1·73	−0·32	+0·48	+0·31	+2·37	+0·36	+0·06	−1·56
	(3)	60·1	59·7	54·7	48·8	41·4	32·9	38·0	38·2	38·7	43·9	50·1	56·7
	(4)	—	—	—	—	—	—	—	—	—	—	—	—
Bristol	(1)	3·85	5·40	4·12	1·46	5·53	1·72	3·54	3·74	3·27	2·97	3·02	0·84
	(2)	—	—	—	—	—	—	—	—	—	—	—	—
	(3)	60·6	60·1	56·2	50·1	43·1	35·4	40·7	40·1	41·0	45·7	50·8	58·5
	(4)	—	—	—	—	—	—	—	—	—	—	—	—
Llandudno	(1)	1·48	3·97	4·62	2·56	3·85	3·04	2·70	3·35	5·27	1·43	3·09	1·14
	(2)*	−0·76	+1·15	+2·49	−0·80	+0·96	+0·14	+0·29	+1·40	+3·24	−0·26	+1·31	−0·76
	(3)	61·1	60·1	56·7	51·7	45·0	38·7	41·7	40·1	40·3	44·7	49·6	56·1
	(4)‡	+1·0	−0·2	−0·4	−0·1	−1·2	−5·6	−0·9	−2·0	−3·1	−2·0	−2·8	−0·8
Aldergrove	(1)	6·09	4·02	5·98	2·71	2·31	3·91	2·47	2·02	2·09	1·22	1·33	2·70
(Co. Antrim)	(2)*	+3·29	+0·42	+3·50	−0·29	−0·93	+0·48	−0·27	−0·39	−0·42	−0·89	−0·94	+0·29
	(3)	58·4	57·5	53·1	48·7	40·3	34·3	37·9	36·5	39·4	43·1	48·1	55·1
	(4)§	+0·2	−0·2	−0·8	+0·1	−2·4	−6·2	−2·2	−3·7	−2·3	−1·7	−2·2	+0·1
Berwick	(1)	1·96	1·72	3·19	1·36	3·85	2·28	2·78	1·80	2·69	2·26	2·45	1·07
	(2)*	−0·45	−0·74	+1·44	−1·50	+1·70	+0·36	+1·19	+0·37	+0·84	+0·81	+0·65	0·66
	(3)	58·3	57·4	53·5	48·7	41·7	—	—	—	—	—	—	—
	(4)¶	0·0	−0·1	0·0	+0·8	−1·1	—	—	—	—	—	—	—
York	(1)	1·91	4·86	2·65	1·20	3·33	1·83	1·91	2·16	2·69	0·87	3·71	1·08
	(2)*	−0·61	+2·34	+1·02	−1·49	+1·24	−0·41	+0·14	+0·65	+1·01	−0·73	+1·72	−0·99
	(3)	61·7	60·8	55·5	49·9	42·2	34·3	37·7	38·5	39·2	44·9	50·1	56·9
	(4)§	+0·8	+0·5	−0·4	+0·2	−0·6	−5·6	−1·8	−1·3	−2·9	−1·0	−2·4	−0·5
Cambridge	(1)	7·58	2·67	2·48	0·39	3·73	1·20	2·33	2·62	2·97	3·16	2·46	1·23
	(2)*	+5·42	+0·32	+0·87	−1·97	+1·80	−0·73	+0·83	+1·34	+1·50	+1·80	+0·70	−0·88
	(3)	—	—	—	—	43·1	34·1	39·4	39·1	40·8	—	51·7	57·9
	(4)**	—	—	—	—	+0·2	−5·8	+0·1	−0·6	−1·5	—	−1·8	−0·1
Nottingham	(1)	2·02	3·19	2·70	0·78	4·19	1·45	2·05	2·62	3·13	1·56	2·67	1·41
	(2)*	−0·33	+0·71	+1·04	−1·75	+2·29	−0·96	+0·23	+1·08	+1·45	+0·14	+0·81	−0·51
	(3)	62·3	61·1	55·7	50·1	42·5	34·3	39·1	38·9	40·0	44·8	49·9	57·0
	(4)§	+1·2	+0·7	−0·4	+0·4	−0·0	−5·6	−0·0	−0·4	−1·9	−1·3	−3·0	−0·4
Birmingham	(1)	2·95	3·21	4·85	0·79	4·57	1·67	3·01	3·11	5·14	2·95	3·64	1·13
	(2)*	+0·63	+0·50	+3·06	−1·99	+2·19	−1·02	+0·99	+1·42	+3·23	+1·21	+1·50	−1·19
	(3)	60·6	59·9	54·9	49·5	41·9	34·3	38·5	38·3	39·1	44·5	49·3	57·1
	(4)††	−1·1	−0·4	−1·4	+0·2	−1·0	−5·2	−1·1	−1·0	−3·2	−1·3	−2·1	−0·1
Oxford	(1)	5·33	3·05	2·86	0·50	4·42	1·30	3·07	3·45	3·55	2·55	2·10	1·41
	(2)*	+2·96	+0·77	+1·15	−2·39	+2·12	−1·16	+1·26	+1·81	+1·90	+0·95	+0·23	−0·83
	(3)	61·9	61·8	56·5	50·0	43·0	34·5	40·3	39·4	40·7	45·4	50·9	58·2
	(4)§	0·0	+0·5	−0·4	−0·5	−0·4	−6·3	+0·2	−0·7	−2·1	−1·5	−2·0	−0·1
Cardiff	(1)	5·17	8·68	6·75	1·78	6·52	2·41	5·33	4·49	4·11	3·52	2·51	0·67
	(2)*	+2·09	+4·45	+3·70	−2·97	+2·47	−2·60	+1·64	+1·55	+0·96	+1·02	+0·06	−1·84
	(3)	60·6	60·3	56·1	50·7	44·1	36·3	41·0	40·5	40·8	45·9	50·7	58·2
	(4)§	−0·2	0·0	−0·4	+0·1	+0·1	−5·4	+0·4	0·0	−1·8	−0·6	−2·3	+0·6
Kew	(1)	3·16	2·33	2·45	0·57	4·12	1·58	3·04	4·99	2·87	2·30	2·02	0·94
	(2)*	+0·99	+0·09	+0·58	−2·13	+1·90	−0·71	+1·28	+3·45	+1·18	+0·85	+1·30	−1·21
	(3)	63·2	62·7	57·5	51·1	44·4	35·9	40·9	39·9	41·7	46·1	52·2	39·2
	(4)§	−1·3	0·0	−1·0	−0·5	+0·1	−5·5	−0·4	−4·2	−2·2	−1·6	−2·3	−0·7

(1) Total monthly rainfall (in.); (2) Deviation of (1) from the normal; (3) Average monthly temperature (°F); (4) Deviation of (3) from the normal. Periods of the normal are indicated as follows: * 1881-1915; † 1906-22, 1932-35; ‡ 1906-20, 1926-35; § 1906-35; ‖ 1900-20, 1926-35; ¶ 1924-35; ** 1906-25; †† 1923-35. Dash indicates no values available. SOURCE: Meteorological Office, Air Ministry, Harrow.

TABLE II. MONTHLY RAINFALLS AND TEMPERATURES: WORLD

		1950 July	Aug.	Sept.	Oct.	Nov.	Dec.	1951 Jan.	Feb.	Mar.	April	May	June
Vancouver	(1)	1·6	2·4	1·2	7·1	3·9	7·5	7·9	7·1	4·3	1·6	2·8	0·2
	(2)*	+0·5	+0·8	−2·7	+1·5	−4·6	−0·7	−0·3	+1·2	−0·5	−1·7	0·0	−2·1
	(3)	63·0	64·0	58·5	49·3	42·3	42·8	36·3	38·1	38·1	49·3	54·3	61·0
	(4)*	−0·7	+1·2	+1·7	−0·5	−0·5	+4·7	+0·7	−0·7	−4·5	+1·5	0·0	+1·6
Hobart	(1)	0·2	3·5	0·8	3·1	2·4	1·6	1·6	2·0	0·8	5·5	1·2	0·8
	(2)†	−1·9	+1·7	−1·1	+0·6	+0·2	−0·9	−0·2	+0·3	−1·3	+3·2	−0·5	−1·4
	(3)	47·1	47·8	53·2	55·6	57·6	60·4	65·5	62·9	61·5	52·0	51·3	45·9
	(4)†	+0·5	−0·9	+1·8	+1·3	+0·9	+0·7	+4·5	+0·8	+2·0	−3·2	0·0	−1·0
Wellington	(1)	6·3	5·5	3·5	6·7	1·6	6·3	3·5	2·0	5·5	3·5	4·7	2·4
	(2)‡	+0·8	−0·1	−0·6	+2·2	−1·4	+1·9	+0·5	−2·3	+2·7	−0·5	+0·2	−1·9
	(3)	46·6	46·8	50·4	53·2	57·4	58·3	60·3	62·1	60·3	56·7	49·5	45·9
	(4)§	−1·4	−1·8	−1·2	−1·1	+0·6	−2·0	−2·1	−0·5	−0·3	−0·3	−3·1	−3·6
New York	(1)	4·7	5·1	1·6	1·2	6·7	5·1	4·3	3·9	7·1	2·4	5·5	2·8
	(2)*	+0·5	+0·8	−1·6	−2·5	+4·3	+1·6	+1·2	+0·4	+3·8	−1·1	+1·6	−0·7
	(3)	74·8	72·9	64·8	60·3	48·5	35·6	36·9	36·7	42·3	53·6	63·0	70·0
	(4)*	+0·7	+0·8	−1·9	+4·0	+3·7	+1·3	+5·6	+6·0	+2·4	+4·1	+2·9	+1·5
Washington	(1)	5·1	7·5	6·7	3·5	2·4	2·8	2·4	2·8	2·8	3·5	2·8	3·5
	(2)*	+0·6	+3·1	+3·4	+0·7	+0·2	−0·5	−0·9	+0·2	−0·5	0·0	−0·3	−0·7
	(3)	76·3	75·6	67·3	61·0	48·0	35·8	39·6	38·7	45·7	56·1	65·1	73·6
	(4)*	−0·3	+1·3	−1·4	+3·6	+2·0	−0·5	+5·3	+3·6	+0·7	+2·1	+1·1	+1·6
San Francisco	(1)	0·0	0·0	0·3	2·8	2·9	4·7	3·1	2·0	1·2	0·8	0·4	0·0
	(2)‖	0·0	0·0	−0·2	+1·9	+0·8	+1·2	−0·7	−2·1	−1·7	−0·3	−0·2	−0·2
	(3)	61·7	60·1	62·1	61·9	59·8	53·8	52·0	53·1	52·0	52·3	58·3	59·2
	(4)‖	+3·1	+0·9	+0·2	+0·7	+3·0	+2·7	+2·4	0·0	−2·3	−3·6	+1·6	+0·7
Manáos (N.E. Brazil)	(1)	1·6	0·4	0·8	5·5	4·7	13·4	10·6	6·3	—	—	6·7	9·8
	(2)¶	−0·9	−1·1	−1·6	+0·8	−1·2	+4·8	+0·4	−3·4	—	—	−0·9	+5·6
	(3)	79·2	81·0	82·6	81·0	81·1	77·7	77·4	77·4	(76·5)	75·2	77·9	78·6
	(4)**	−0·7	−0·3	+0·9	−0·7	+0·1	−2·0	−1·4	−1·0	−1·8	−3·4	−1·1	−0·7
Buenos Aires	(1)	3·5	0·8	2·8	3·1	3·5	3·1	3·9	5·9	1·2	2·0	8·7	0·8
	(2)*	+1·4	−1·8	−0·3	0·0	−0·3	−0·8	+0·6	+3·0	−3·0	−2·4	+5·6	−1·1
	(3)	50·2	53·8	53·8	59·9	65·3	70·7	75·4	69·1	66·4	60·1	59·4	55·4
	(4)*	+0·9	+2·9	−1·6	+0·2	−0·7	−0·4	+1·5	−3·8	−2·7	−2·5	+4·0	+5·6
Lisbon	(1)	0·8	0·0	0·1	1·2	1·2	5·9	6·3	4·7	4·3	1·6	1·2	2·4
	(2)*	+0·6	−0·1	−1·4	−1·4	−2·9	+2·6	+3·7	+1·8	+1·8	−0·2	−0·1	+1·7
	(3)	72·3	70·5	68·7	63·7	59·9	51·3	52·0	51·6	55·6	58·5	59·4	67·8
	(4)*	+2·0	−1·1	−0·2	+0·4	+3·4	−1·4	+0·9	−0·7	+0·9	+0·9	−2·7	+0·9
Hamburg	(1)	4·3	2·8	3·9	1·6	2·8	1·6	3·5	2·0	3·9	1·6	2·8	3·1
	(2)*	+1·0	−0·8	+1·5	−1·0	+0·6	−1·0	+1·1	+0·2	+2·0	−0·4	+0·6	+0·6
	(3)	62·4	63·7	55·6	46·6	40·6	30·6	34·9	35·1	35·8	45·0	52·0	59·9
	(4)*	−2·0	+1·3	−1·8	−2·7	+0·7	−5·2	+0·6	+0·4	−4·3	−1·8	−4·1	−1·1
Stockholm	(1)	3·5	0·8	2·0	1·2	3·1	2·8	1·6	2·0	1·6	1·2	0·2	2·4
	(2)*	+0·7	−2·3	−0·1	−0·9	+1·2	+0·9	+0·1	+0·9	+0·5	−0·3	−1·4	+0·5
	(3)	60·8	63·1	54·3	45·7	36·1	30·9	27·3	29·8	27·0	40·6	46·9	57·9
	(4)*	−1·6	+4·3	+2·1	+2·2	+1·2	+0·8	−0·2	+1·5	−4·3	+2·1	−1·7	+1·1
Brussels	(1)	4·3	3·1	3·7	1·1	4·7	3·8	3·5	1·6	3·9	3·1	2·6	1·7
	(2)*	+0·8	+0·1	+1·1	−1·9	+1·6	+0·6	+0·9	−0·4	+1·5	+0·	+0·1	−0·9
	(3)	65·1	64·0	57·0	49·8	43·2	29·3	39·9	39·7	40·1	46·6	54·1	60·4
	(4)*	+2·9	+2·5	−0·2	−0·2	+1·8	−8·6	+3·0	+2·1	1·8	−0·44	−0·9	+1·6
Malta	(1)	0·0	0·0	0·0	5·9	1·3	5·0	4·0	1·6	1·1	0·2	0·3	0·0
	(2)†	0·0	−0·1	−1·2	+3·7	−2·8	+1·7	+0·7	−0·9	0·6	−0·7	−0·1	−0·1
	(3)	81·9	80·5	76·9	69·6	62·4	57·1	54·5	55·0	59·6	59·7	65·4	74·9
	(4)†	+4·1	+1·9	+1·3	−0·9	−1·3	−0·3	0·0	+0·5	+2·8	−0·2	0·0	+2·4
Cairo	(1)	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·2	0·0	0·0	0·0	0·0
	(2)†‡	0·0	0·0	0·0	−0·1	−0·1	−0·2	−0·2	0·0	−0·2	−0·1	−0·1	0·0
	(3)	83·5	82·8	79·7	73·6	66·6	62·1	57·9	59·0	65·8	69·6	78·3	80·2
	(4)†‡	+1·6	+1·1	+2·2	+0·7	+0·9	+4·9	+3·8	+2·7	+4·5	+1·2	+2·7	0·0
Baghdad	(1)	0·0	0·0	0·0	0·0	0·8	0·4	0·2	2·0	2·4	0·0	0·4	0·0
	(2)§§	0·0	0·0	0·0	−0·1	0·0	−0·3	+0·1	+1·4	+1·5	−0·4	+0·3	0·0
	(3)	93·5	91·3	87·7	76·8	66·4	53·9	50·8	54·5	66·3	77·1	81·8	89·5
	(4)§§	−0·5	−1·5	+0·6	+0·5	+3·5	+2·1	+2·2	+1·5	+6·2	+7·3	−1·7	−0·6
Aden	(1)	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	1·2	0·0	0·0	0·0
	(2)*	0·0	−0·1	−0·1	−0·2	0·0	−0·1	−0·4	−0·2	+1·0	−0·2	−0·1	−0·1
	(3)	88·4	87·2	88·2	82·1	79·0	78·7	76·8	76·6	79·6	83·2	86·7	89·1
	(4)*	+0·3	+0·7	+0·3	−1·8	−0·9	+1·4	+0·5	−0·4	+0·2	+0·2	−0·6	−0·6
Pretoria	(1)	0·0	0·0	0·4	0·8	3·5	9·1	3·1	3·1	1·6	2·8	3·1	0·0
	(2)†	−0·4	−0·5	−0·4	−1·5	−1·2	+4·6	−1·7	−1·2	−2·8	+1·7	+2·2	−0·1
	(3)	52·3	55·0	64·8	65·7	67·6	69·1	67·4	69·3	67·1	62·1	54·5	48·4
	(4)‖‖	+0·6	−2·1	+0·4	−3·6	−2·0	−1·8	−4·3	−1·7	−1·2	−1·7	−3·1	−4·0
Capetown	(1)	7·9	0·8	2·8	0·7	1·6	0·8	0·8	0·0	0·0	5·1	1·6	5·8
	(2)†	+5·0	−2·0	+0·9	−0·2	+0·8	+0·4	+0·4	−0·5	−0·4	+3·8	−0·6	+2·5
	(3)	53·5	57·2	57·4	62·4	63·6	65·5	67·5	69·1	66·9	63·1	60·3	57·6
	(4)¶¶	−0·2	+2·9	+1·1	+2·5	−0·4	−1·2	−0·8	0·0	+0·4	+0·1	+3·0	+2·9
Colombo	(1)	7·0	3·7	4·7	16·1	13·0	4·3	5·5	1·2	6·3	6·5	22·0	9·4
	(2)***	+2·6	+0·5	−0·1	+2·8	+1·2	−0·8	+2·2	−0·7	+2·0	−3·2	+11·1	+2·1
	(3)	80·3	81·2	80·8	78·8	79·3	80·6	79·0	87·1	80·6	81·7	82·0	80·8
	(4)***	−0·8	+0·1	−0·3	−1·6	−0·8	+1·1	−0·5	−2·3	−1·3	−0·9	−0·8	−0·9
Toronto	(1)	4·7	3·5	0·8	3·1	3·5	1·2	2·4	1·6	3·9	4·3	1·6	3·5
	(2)*	+1·4	+0·4	−1·9	+0·6	+1·1	−1·1	−0·4	−0·6	+1·6	+1·5	−1·2	+0·7
	(3)	67·6	66·0	57·4	46·9	36·3	25·7	25·3	24·3	32·2	43·2	56·8	64·0
	(4)*	−0·6	0·0	−2·0	−0·4	+0·3	+1·6	+5·9	+6·0	+2·7	+1·7	+3·7	+1·6

(1) Total monthly rainfall (in.); (2) Deviation of (1) from the normal; (3) Mean monthly temperature (°F); (4) Deviation of (3) from the normal. Bracketed figure is a mean of observations at 1200 hr. and 2400 hr. G.M.T., as no mean monthly temperature is available. Periods of the normal are indicated as follows: * 1901-30; † 1911-40; ‡ 1916-45; § 1864-1923; ‖ 1906-35; ¶ 1911-35; ** 1923-35; ‡‡ 1909-45; §§ 1937-47; ‖‖ 1913-25; ¶¶ 1932-40; *** 1869-20. Dash indicates no values available.
SOURCE: Meteorological office, Air Ministry, Harrow.

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the air itself. The familiar depression and anticyclone of the surface weather chart have much to do with the thermal transfer process.

At this stage attention was primarily directed to the overall mean picture but as observations of surface and upper winds, air temperatures and humidities accumulated it was expected to be possible to keep track of how the rate of working of the atmospheric heat engine varied from week to week or month to month and how these variations were related to accumulations of heat or cold, and momentum, in the terrestrial source and sink regions. There might then perhaps be excitement not for the meteorological researcher only, but for humanity as a whole. For one might guess that, through a more thorough understanding of these large-scale processes and their variations, there might emerge the possibility of forecasting not tomorrow's but next month's weather. It was J. Bjerknes' father, Professor V. Bjerknes, who did all that one man could to make meteorology an exact science. It was not yet known whether his dream was realizable, but some steps at least appeared to have been taken on the way he trod. (P. A. Sd.)

Weather of 1951. *British Isles.* The first three months of 1951 brought unsettled weather, generally cool, dull and wet, continuing the type which had persisted since Sept. 1950. Nevertheless, in each of these months parts of central and western Scotland recorded less than the local average rainfall. In the southeast of England, including the London area, February ranked as the wettest February on record there. The total rainfall over England and Wales during January to March exceeded that of any similar period since 1869, apart only from that of 1937. The atmosphere pressure recorded at Cork at 1500 hr. on Feb. 4, of 942·3 millibars was the lowest recorded in the British Isles in February.

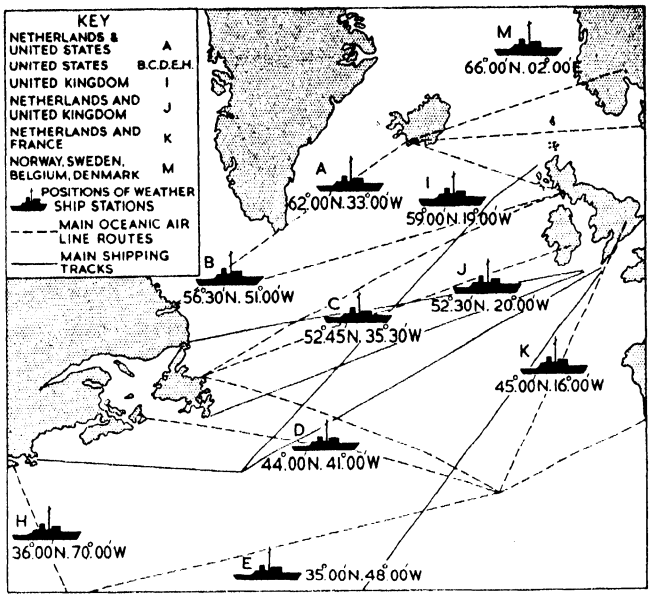
In the latter half of April, sunny anticyclonic weather became established, giving in the southern half of England and Wales the first long dry spell for many months, and about April 23-25 the first really warm spell of the year. Both April and May, with an unusual frequency of northerly winds, were cooler than usual but, over Scotland and Northern Ireland, May was sunny and relatively dry.

June and July brought a large number of sunny, dry days, but the fine spells were interspersed with briefer cool periods, sometimes with outbreaks of thundery rain, and there were no really hot days.

August and September were on the whole unsettled with duller, wetter weather than usual at this time of year, although September gave temperatures in excess of the average. As much as 4·53 in. of rain was recorded at Thirlmere for Aug. 24. On the other hand October was generally dry, the driest month of the year so far over the country, sunny and unusually mild. Over England and Wales it was the driest October since before 1869, apart only from that of 1947, and of the previous six Octobers all but one gave less than the average. The weather of both November and December was generally wet and mild. November was wetter than any other November since before 1869. The last week of the year was noteworthy for severe gales, the most severe for 22 yr. in some places. (J. Ge.)

Weather in Europe. The year 1951 was an exceptionally bad one for weather. The early months were notable for disastrous avalanches, the worst on record, affecting the alpine districts of Switzerland, Italy and Austria. In the three days Jan. 19-21 there was more precipitation in the alpine valleys than the average for the whole of January; there was much destruction and loss of life. The avalanches were caused by heavy snowfall followed by mild conditions and strong winds. These conditions also caused extensive flooding in the Po delta in February.

OCEAN WEATHER SHIP STATIONS



The weather ships of the North Atlantic which help aircraft and ships by supplying regular weather reports.

During March 11-14 an intense depression off Portugal moved N.N.E. across the Bay of Biscay and caused widespread flooding and damage in Portugal, Spain and France. A consequence of the excessive rainfall was that, during April, sowing and planting were held up in many parts of west and northwest Europe. Early in May, cold winds spread far south in Europe with temperature falling to 32°F. in Madrid on May 10; mountain passes were closed by snow.

Bad weather continued into June; violent thunderstorms occurred in Switzerland and record rainfall was reported from places in central Europe. Melting snow, heavy rain and strong winds combined to swell the River Rhône and raised the level of Lake Geneva to an exceptional height; flooding and damage to crops were reported on July 17. At the beginning of August, in the neighbourhood of Lake Como, very heavy falls of rain caused further flooding. The August rainfall for Paris was 4·76 in. (220% of normal) and for Oslo 11·93 in. (268% of normal).

The scenes of disaster, caused by storm damage, shifted to south and east Spain in September and south Italy, Sicily and Sardinia in October; Malta recorded 16 in. of rain in the first 19 days of October. As a result of heavy rains throughout November the most disastrous flooding for many years occurred in the Po valley. Some improvement took place in December, but towards the end of the month an intense depression produced gales in the Bay of Biscay and gusts up to 100 m.p.h., affecting the west coast of France, caused much damage. (*See* also Floods and Flood Control; Radio, Scientific Developments in; Seismology.) (J. Ppr.)

METHODIST CHURCH. Both statistics and increasing activities indicated a quickening of the life of the Methodist Churches in every part of Great Britain during 1951. For the third successive year, an increase was reported in the number of adult members. The returns showed 744,815 in full communion. The number of scholars in the Sunday schools was 799,873, and the average attendance each Sunday 78·5% of the total. These figures revealed an increase of 90,000 scholars since the end of World War II. The number of teachers increased by 1,165, to a total of 122,397. Youth organizations made definite progress, both numerically and in their ability to deal with current problems in the postwar world. Though there was a further decrease

in the number of local preachers, it was the slightest for the past 15 years, and seemed to show a gradual stabilization. This was particularly important, since five out of every seven services each Sunday were conducted by laymen. The large number of small, scattered communities in rural areas, where ordained ministers were few, created a constant demand for preachers and led to developments in the training of lay preachers.

At the Sheffield conference, H. Watkin-Jones was appointed president, Professor H. Cecil Pawson vice president, and Eric W. Baker secretary of the conference. The question of " Church Relations in England " was referred to the Committee on Faith and Order, which was to report its findings to the conference to be held at Preston, Lancashire, in July 1952.

In August and September the Eighth Methodist Oecumenical conference met in Oxford. Its delegates came from more than 40 self-governing conferences, and adopted the title of World Methodism as descriptive of the movement representing between 30 million and 40 million Methodists throughout the world. Of these, it was reported that 13 million were communicant members.

By the direction of the conference of 1946, a volume summarizing the constitution and discipline of the Methodist Church was published, in 1951, under the title *The Constitutional Practice and Discipline of the Methodist Church.* After the union of the Wesleyan Methodist, Primitive Methodist and United Methodist Churches in 1932, it was necessary to fill in the framework of the new constitution gradually. For some time the standing orders, adopted at the uniting conference of 1932 and amended year by year, were the guide in procedure. The book published in 1951 provided a code of laws and usage which stabilized the policy of the Methodist Church, though future conferences might alter it to meet new needs. It included recent " declarations " made by the Methodist Church of Great Britain on such subjects as gambling, marriage and divorce, and racial policy in the territories of southern Africa.

In Northern Ireland, plans were approved for providing more Methodist churches in newly developed communities.

In South Africa, an increase of 17,738 in membership was reported, and in Australasia progress was made in the long-term policy of evangelization and of carefully planned youth work. (L. F. C.)

United States. During July 21-24, 2,000 rural laymen and ministers attended the second quadrennial National Town and Country conference at Sioux City, Iowa. On Aug. 27 4,900 young people attended the National Methodist Youth convocation and spent five days at Purdue university, West Lafayette, Indiana, in developing the theme: " Christian Living in Our Time." Bishop Arthur J. Moore of Atlanta, Georgia, president of the board of missions, and the 1951-52 president of the council of bishops, presided, by invitation, over a general conference of the Methodist Church of Korea in Pusan in November. Only seven missionaries (in 1939 there were 275) remained in China at the end of the year. Most of them had been reassigned, in many cases to places with Chinese populations.

The membership of the 39,961 churches at the end of 1951 was 9,065,727 (not including 784,880 preparatory members or 850,000 members in mission lands). Contributions for all purposes totalled $268,623,814; benevolences were $40,120,363, and $82,000,000 was paid for new buildings and improvements. Church school membership was 6,022,013, and the average attendance at Sunday schools was 3,014,054. (R. Sy.)

MEXICO. Federal republic of North America lying between the United States on the north and Guatemala and British Honduras on the south. Area: 760,373 sq.mi. Pop.: (1940 census) 19,653,552; (July 31, 1951, est.): 25,715,350; about 55% of the population was *mestizo*, 29% Indian and 15% white. Language: Spanish, with an estimated 6·29% (1940) speaking only Indian tongues. Religion: predominantly Roman Catholic. Chief towns (pop., 1951 est.): Mexico City (cap., 2,233,709; federal district, 3,049,367); Guadalajara (379,401); Monterrey (330,012); Puebla (210,533); Mérida (159,405); Torreón (128,557); San Luis Potosí (126,601); León (122,680); Ciudad Juárez (121,912); Veracruz (113,803). President, Miguel Alemán Valdes.

History. Continued material prosperity, accelerated growth in industry and in agricultural development and concern over the rising cost of living were among the principal features of 1951. The flight of refugee capital into the republic which began in 1950 continued into 1951, causing dollar reserves to soar to $344 million, and creating speculation that the peso might be revalued or permitted to seek its own level. By summer, however, the flow of gold and dollars into the republic had levelled off, and talk of peso revaluation ceased.

In an effort to curb inflationary trends created by excessive money in circulation, the government instituted drastic controls. Despite such controls, which caused a serious rift between government and industry, the cost of living reached an index of 401 on July 1, as compared with 375 for Jan. 1 and 100 in 1939. In protest against price ceilings, many Mexican retailers openly boycotted the sale of controlled goods, contending that ceilings did not permit sufficient profit.

Against this background, Ramón Beteta, the minister of finance, reported that Mexico's national income had reached approximately 80,260 million pesos, and the government's income for 1951 totalled about 4,304 million pesos. Though citizens earlier were warned that new taxes might become necessary to offset an expected increase for 1952 of some 422·5 million pesos in expenditure, revenue appeared so high that probability of new tax levies was discounted in some circles.

Continuing the trend which marked the republic as the United States' best Latin-American customer in 1950, Mexico bought so heavily during 1951 as to produce its worst trade balance in many years. Eased import restrictions and " war scare " purchasing gave additional impetus to buying. During the first six-month period, the republic imported about $337 million worth of U.S. goods, exporting only $174 million. Canada proved to be Mexico's second-best trader, and Western Germany emerged as another of the republic's chief sources of supply, exporting some $10·9 million in goods to Mexico between January and August and increasing its imports from the republic to 72 million pesos for the same period. Between July 1950 and June 1951, imports from the United Kingdom doubled in value over the same period a year previously, and exports to the United Kingdom were five times as great as in 1949.

Mexico advanced industrially in 1951. Before 1947, for example, about 97% of certain types of electrical household appliances were of foreign make; by 1951 nearly all such appliances were either manufactured or assembled in the republic. Expansion was marked in the extractive industries, notably in petroleum and in sulphur. A rich coal strike in the state of Oaxaca led to estimates that the area would produce enough coal to meet Mexico's needs for two centuries. Oil discoveries in the state of Tabasco prompted Antonio Bermúdez, head of " Pemex " (Petroleos de Mexico) to predict that the state would soon be " a second Venezuela."

Labour's " share-the-wealth " hopes appeared nearer fruition as its efforts to seek enforcement of a profit-sharing provision in the constitution gained some congressional backing. The republic signed a six-month agreement with the United States that would send an estimated 300,000 workers

to U.S. fields in 1951. U.S. immigration and naturalization officials reported that illegal entrance of Mexicans into the U.S. had reached " invasion " proportions, and the Mexican government sought assurance that the U.S. would punish farmers who employed " wetback " labour.

In the political arena, President Alemán made good his " no re-election " promise as the official government party, Partido Revolucionario Institucional (P.R.I.), announced the candidacy of Adolfo Ruiz Cortines, minister of the interior, for the July 1952 elections. Cortines promised to continue Alemán's policy of close U.S.-Mexican amity, and startled the nation by denouncing one-party government. General Miguel Henríquez Guzmán, backed by the Federation of Peoples' parties; Efrain González Luna, conservative National Action party, and General Cándido Aguilar Vargas also were announced as candidates.

Education. Schools (June 1950): primary, secondary and vocational 29,038, pupils 3,986,428, teachers 90,212. Universities and institutions of higher education (1949) 12, students 35,602, professors and lecturers, 4,429. Illiteracy (1950 est.): 3,096,500.

Agriculture. Main crops (1950-51, '000 metric tons): maize 3,400; wheat 360; beans 235; chick peas 75; coffee 72·6; henequen 83; barley 114; tobacco 700; linseed 40; cottonseed 387; vanilla 175; sugar, raw 700; cotton (bales) 1,220,000. Livestock (1951, '000 head): cattle 14,600; sheep 6,000; pigs 6,000.

Industry. Mineral production ('000 metric tons, 1950): crude petroleum 10,296; coal 942·0; iron ore (metal content) 285·6; copper ore (metal content) 61·7; lead ore (metal content) 237·6; zinc ore (metal content) 220·8. Raw materials ('000 metric tons, 1950): pig iron 228; crude steel 218; cement 1,522·8. Electricity (1950): 4,416 million kwh.

Foreign Trade. (Million pesos, 1950; Jan.-Sept. 1951 in brackets): imports 4,401·9 (5,179·7); exports 3,692·5 (3,894·1).

Transport and Communications. Railways (1949): 16,500 mi. Roads (Oct. 1951): 14,032 mi., including 9,261 mi. paved. Licensed motor vehicles (Dec. 1949): cars 160,580, commercial 106,321. A total of 26,041,104 mi. were flown by all air lines operating in Mexico in 1950, including U.S. air lines; passengers carried on all lines in 1950 totalled 1,032,413. In Nov. 1951 the republic had 276,000 telephones.

Finance. (Million pesos). Budget (1951 est.) revenue 3,104·0; expenditure 3,102·9. Public debt (Dec. 31, 1950): internal 3,319·2; external 1·289·9. Money supply (July 1951): currency 2,909; deposit money 3,098. Monetary unit: *peso* with an exchange rate (from June 1949) of £1=24·22 pesos and U.S. $1=8·65 pesos. (C. D. H.)

MIDDLE CONGO: *see* FRENCH EQUATORIAL AFRICA.

MILK: *see* DAIRY FARMING.

MINERAL AND METAL PRODUCTION.

Aluminium. The world production of primary aluminium in 1950, estimated at 1,631,000 short tons, showed an increase of 13·3% over that of 1949; nevertheless supplies fell short of requirements and large programmes to expand output were undertaken in several countries. The production of the U.S.S.R. and its satellites is believed to have been about 235,000 tons.

TABLE I. WORLD PRODUCTION OF ALUMINIUM
(thousands of short tons)

	1945	1946	1947	1948	1949	1950
Austria	5·8	1·1	5·0	14·7	16·4	19·8
Canada	215·7	193·4	299·0	367·1	369·5	394·6
France	41·0	52·9	58·6	71·4	59·7	67·2
Germany	22?	—	—	8·0	31·8	29·7
Great Britain	35·7	35·4	32·4	33·6	34·0	33·0
Italy	4·8	12·2	27·1	36·5	28·3	40·9
Japan	18·1	3·5	3·0	7·7	23·4	27·3
Norway	5·1	18·4	23·9	34·2	38·6	51·4
Switzerland	5·5	14·4	20·3	20·9	23·1	23·1
U.S.S.R.	95?	115·7	132?	154?	182?	210?
United States	495·1	409·6	571·8	623·5	603·5	718·6
Others	13·6	12·7	15·8	25·7	29·7	15·8
Total	958	870	1,189	1,398	1,440	1,631

Output was as follows ('000 short tons): Austria, 22·0; Canada, 492·8; France, 100·4; Germany, 81·4; Great Britain, 27·6; Italy, 54·4; Japan, 40·7; Norway, 55·0; Switzerland, 23·2. In the U.S., helped by government measures to stimulate production, a 68% increase in capacity by mid-1952 was planned; U.S. output in 1951 was 836,885 short tons.

Antimony. In spite of a marked increase in output in the Union of South Africa, world production of recoverable antimony in 1950 showed no change over that of 1949, when lack of consumer demand in the United States caused a sharp fall. World production, excluding that of the U.S.S.R., was as follows (U.S. Bureau of Mines figures): 1947, 38,400 short tons; 1948, 45,500 tons; 1949, 37,500 tons; 1950, 37,400 tons. The main producing countries were Bolivia (24%), South Africa (23%), Mexico (14%) and the U.S. (6%).

Bismuth. Following the high rate of activity at primary lead smelters, the world production of bismuth continued to increase during 1950 and was estimated at 4 million lb., as compared with 3·75 million lb. in 1949. The U.S. was the largest producer, contributing over one-third of the world's supply, the next being Mexico and Peru.

Cadmium. The world production of cadmium metal, excluding that of Poland and the U.S.S.R., increased from 9,443,000 lb. in 1948 and 10,009,000 lb. in 1949 to 11,076,000 lb. in 1950. Most of the world's supply came from the U.S. where, after reaching a peak of 8,996,000 lb. in 1950, output fell slightly to 8,228,700 lb. in 1951.

Copper. World production of copper increased substantially in 1950 after the recession of 1949, as Table II shows.

TABLE II. WORLD MINE PRODUCTION OF COPPER
(thousands of short tons)

	1945	1946	1947	1948	1949	1950
Belgian Congo	176·6	158·6	166·2	171·4	155·9	193·9
Canada	237·5	184·0	225·9	240·7	263·6	284·4
Chile	492·1	395·5	456·9	490·5	409·1	397·4
Cyprus	—	0·1	14·0	17·4	26·4	25·7
Japan	30·8	18·9	23·4	28·3	36·1	43·3
Mexico	68·0	67·3	71·4	65·1	63·1	68·0
Peru	35·2	27·1	24·8	19·9	30·8	33·0
N. Rhodesia	219·7	211·1	217·5	249·7	285·6	327·9
South Africa	26·5	29·8	32·4	32·5	33·6	37·5
U.S.S.R.	154?	165?	182?	198?	220?	240?
United States	772·9	608·7	847·6	834·8	752·8	909·3
Yugoslavia	13·8	35·6	44·7	58·0	37·5	40?
Total	2,380	2,050	2,460	2,570	2,480	2,750

In the U.S., output increased by 20·8% despite many strikes, although in Chile the labour disorders caused a further decline. Continued rail transport difficulties held up coal deliveries and interfered with the expansion programme in Northern Rhodesia. From the beginning of the Korean war the demand for copper far exceeded the increased production, and many countries imposed restrictions on its use. From the fourth quarter of 1951 the International Materials conference allocated copper to 36 consuming countries.

Production continued to increase during 1951. The smelter output of copper during the year was: United States, 964,076 tons; Canada, 246,067 tons; Chile, *c.* 398,000 tons; Northern Rhodesia, 349,667 tons.

Lead. In spite of the 1949 surfeit, when world production of lead exceeded consumption by nearly 360,000 short tons, there was a further increase of production during 1950 to a total of 1,875,000 short tons, though during 1951 production fell slightly.

United States. Mid-1950 saw an abrupt change in the U.S. lead industry when, after a period of precipitous price falls, the Korean war reversed the position. Demand soared, imports rose from 399,500 tons in 1949 to 542,000 tons in 1950, partly at the expense of foreign producers' stocks, and large quantities were added to the government stockpile. After falling sharply during the period Jan.-Sept. 1951, imports virtually ceased after the imposition of the ceiling price of 19 cents a pound, and 30,000 tons were released from the

stockpile to relieve acute shortages. U.S. mine production in the first three-quarters of 1951 was down to 295,079 tons, progressive decreases being recorded in each quarter.

TABLE III. WORLD SMELTER PRODUCTION OF LEAD
(thousands of short tons)

	1945	1946	1947	1948	1949	1950
Argentina	23·3	17·8	19·6	19·6	30·1	38·6?
Australia	174·6	154·0	177·6	178·6	170·0	181·0
Belgium	8·1	26·2	44·6	72·4	87·2	68·4
Canada	162·5	165·8	162·0	160·1	146·2	170·4
France	3·0	38·3	38·1	37·8	60·0	67·5
Germany	?	31·9	26·8	54·1	109·5	?
Italy	0·9	15·7	19·5	29·4	31·4	41·3
Japan	16·1	4·4	6·8	7·7	8·4	11·0
Mexico	221·7	151·8	240·1	214·4	233·7	253·8
Peru	44·1	40·2	36·1	38·4	39·7	34·6
Spain	35·1	35·6	37·9	27·9	36·4	38·4
U.S.S.R.	44?	53?	69?	83?	99?	113?
United States	443·6	338·2	441·0	406·7	475·9	505·0
Total	1,250	1,165	1,445	1,520	1,740	1,875

Magnesium. World production of magnesium was 44,000 tons in 1950, as compared with 39,500 tons in 1949 and 35,000 tons in 1948. The greatest production during World War II was in 1943, when the U.S. contributed 183,600 tons of the world total of 263,000 tons. With the re-opening of the government-owned plants in the U.S. it was expected that output during 1951 would be considerably increased: U.S. primary production was estimated at 40,000 short tons, with a world total of 65,000 tons.

Manganese. Heavy U.S. buying led to a further steep rise in manganese production during 1950, when the world output amounted to 6,060,000 short tons, as compared with 5,240,000 tons in 1949. The output of the leading countries is shown in Table IV.

TABLE IV. WORLD PRODUCTION OF MANGANESE ORE
(thousands of short tons)

	1945	1946	1947	1948	1949	1950
Brazil	269·7	164·4	156·6	155·7	165·2	179·2
Chile	8·2	22·6	21·3	24·4	?	27·0
Cuba	218·5	144·2	55·5	32·0	68·9	87·0
Egypt	?	?	?	66·0	152·7	167·7
French Morocco	49·0	63·9	126·0	236·3	257·8	316·7
Gold Coast	675?	857·2	560·7	705·6	830·0	784·2
India	235·5	283·5	505·2	589·0	723·3	748·6
Japan	94·5	32·4	38·0	60·6	110·2	147·6
South Africa	126·2	262·1	317·7	304·7	722·2	871·9
U.S.S.R.	2,480?	1,870?	1,980?	1,980?	1,650?	2,200?
United States	182·3	143·6	131·6	131·1	126·1	140·1
Total	4,670	4,050	4,250	4,620	5,240	6,060

In South Africa previously unsaleable low-grade ores were mined and measures were taken to overcome loading and transport bottlenecks. The first shipments from the large Amapa beds in Brazil were expected by the end of 1951 and, although the production of the U.S.S.R. remained unknown, some valuable cargoes, amounting to 65,000 tons, were shipped to the U.S. during 1950.

In the U.S., where consumption in 1950 was 1,650,400 tons, general imports were 1,834,900 tons; imports for consumption 1,925,100 tons, the main sources being India 642,500 short tons, South Africa 510,000 tons, Gold Coast 378,100 tons and Brazil 136,300 tons. The corresponding figures for the period Jan.-July 1951 were: consumption, 1,099,469 tons; general imports, 1,012,165 tons; imports for consumption, 1,114,864 tons. U.S. mine production in the same period declined to 66,000 tons.

Mercury. World production of mercury is believed to have increased about 18% in 1950, mainly because of substantial increases in Spain and Italy. Since its withdrawal from the Spanish-Italian cartel, Spain's output had increased from 32,289 flasks in 1949 to about 50,000 in 1950, exports during the year being 99,400 flasks. Italian output increased by 20% to 53,346 flasks. The total world production in 1950 was 136,000 flasks, compared with 115,000 in 1949. Because of favourable market conditions in 1951 Italian mines stepped up their output and some abandoned mines were reopened. Production, Jan.-Sept. 1951, was 53,299 flasks.

Nickel. Virtually all the world's supply of nickel outside the U.S.S.R. is produced in Canada where there was a slight fall in output during 1950. The prospect of increasing scarcity led to great activity in prospecting and development, and widespread limitation of consumption.

TABLE V. WORLD PRODUCTION OF NICKEL
(in short tons)

	1945	1946	1947	1948	1949	1950
Canada	122,565	96,062	118,627	131,740	128,689	123,057
Cuba	12,015	12,391	2,220	...	—	...
Finland	992	662	?	—	—	—
Japan	717	?	...	—	—	...
New Caledonia	4,771	3,063	3,687	5,381	3,716	6,945
Norway	569	61	—	—	—	...
South Africa	550	548	583	505	625	929
U.S.S.R.	14,800?	22,000?	27,500?	27,500?	27,500?	27,500?
United States	1,155	352	646	883	790	913
Total	160,000	135,600	154,300	166,400	160,900	159,800

Canadian production during 1951, amounting to 137,268 short tons, was now at the 20 million lb. a month average rate of 1945. In Cuba the Nicaro Nickel company's plant, constructed and operated during World War II, was in 1951 being reconditioned for operation.

Sulphur. After declining from 5·94 million short tons in 1948 to 5·82 million tons in 1949, world sulphur production rose to 6·38 million tons in 1950, a new record. More than 90% of the world production takes place in the United States. A dozen minor producers had outputs of a few thousand tons, but the only countries with outputs of significant proportions were Italy and Japan; the former turned out 207,835 tons in 1949 and 234,939 tons in 1950, and the latter 68,784 tons and 101,853 tons in the same years. In the first ten months of 1951 U.S. production was 4,954,618 short tons.

Tin. During 1950 world mine production of tin continued to rise, although the increase was less than had been expected. Production in Indonesia and Malaya was now back to its pre-World War II level, but Thailand's rehabilitation was slow. Production during 1951—184,600 tons (I.T.S.C. figures)—was slightly below the 1950 rate, and does not seem to have been affected by the high prices for tin.

TABLE VI. WORLD MINE PRODUCTION OF TIN
(short tons)

	1945	1946	1947	1948	1949	1950
Australia	2,556	2,382	2,738	2,099	2,210	2,769
Belgian Congo	19,126	15,782	16,685	15,164	15,411	15,344
Bolivia	47,585	42,133	37,258	41,816	38,209	34,959
Burma	448	383	2,007	1,285	1,995	1,884?
China	1,680?	2,800?	4,800?	5,380?	4,700?	4,000?
Indonesia	1,176	7,189	17,825	34,229	32,441	35,951
Malaya	3,530	9,444	30,269	50,193	61,499	64,441
Nigeria	12,683	11,573	10,229	10,345	9,883	9,249
Thailand	1,988	1,183	1,569	4,749	8,755	11,608
United Kingdom	1,290	888	1,006	1,435	1,357	1,075
Others	7,918	4,843	3,814	4,105	4,740	5,120
Total	97,400	98,600	128,200	170,800	181,200	186,200

Uranium. A widespread search for new sources of uranium was still going on in 1951, and new deposits with workable concentrations were being mined. While no information had been made public on the output of any country, the U.S. Atomic Energy commission stated that the U.S. production of uranium exceeded that of Canada. The Belgian Congo remained the largest producer, with the United States second and Canada third. The bulk of the U.S. output came from the Colorado plateau, an area of about 130,000 sq.mi. around the junction of the boundaries of Colorado, Utah, Arizona and New Mexico. In Canada the original discovery at Great Bear Lake was supplemented by deposits in the Goldfields

(Continued on page 418

World Mineral and

(Metric tons unless otherwise specified; Th. indicates thousands, and Mi. millions of units)

Country	Aluminium (Th.)	Bauxite (Th.)	Antimony[1]	Arsenic[2]	Asbestos (Th.)	Barite (Th.)	Chromite (Th.)	Coal (Mi.)	Coke (Mi.)	Copper (in ore) (Th.)	Copper (smelter) (Th.)	Diamonds (Th. carats)	Feldspar (Th.)	Fluorspar (Th.)	Gold (Th.oz.)	Gypsum (Th.)	Iron Ore (Th.)	Pig Iron (Th.)
North America																		
United States	651·9	1,368·7	2,265	12,041	38·5	629·1	0·4	504·75	65·97	824·9	914·9	—	414·5	273·4	2,289	7,432·2	99,740	60,217
Canada	358·0	—	295	245	794·1	53·5	0·3	17·36	3·1?	238·5	217·9	—	29·2	59·1	4,431	3,256·4	3,309	2,260
Mexico	—	—	5,868	8,987	—	p	—	1	0·39	61·7	48·5	—	—	65·7	408	P	—	249
Central America	—	—	p	—	—	—	0·3	—	—	—	—	—	—	—	296	—	420	—
West Indies	—	—	—	—	—	—	117·4	—	—	20·4	—	—	—	—	7	40?	12	—
South America																		
Colombia	—	—	—	—	—	p	—	1·1[9]	—	—	—	—	—	—	379	1·9	—	—
Venezuela	—	—	—	—	0·2[9]	—	—	p	—	—	—	25	—	—	34	2·1	190	—
Ecuador	—	—	—	—	—	—	—	—	0·5	—	—	—	—	—	92	0·4	—	—
Brazil	—	20·2[9]	—	959[9]	1·3[8]	6·0[9]	p	4?	0·29	—	—	200?	0·2[8]	0·5[9]	180?	50·9[9]	1,900	704
Peru	—	—	815[9]	980[9]	—	1·8[8]	—	p	—	29·9	22·9	—	0·2[8]	—	129	37·4[9]	—	—
Bolivia	—	—	10,275[9]	—	0·2[9]	—	—	—	—	4·7	—	—	—	0·3[9]	34[9]	—	—	—
Chile	—	—	—	—	0·3[9]	1·5[9]	—	2?	—	360·5	345·0	—	0·9[8]	—	207	60·3[9]	2,976	12
Argentina	—	—	—	p	p	P	p	p	—	—	—	—	5·0[7]	2·4[7]	8[9]	P	p	p
Europe																		
Portugal	—	—	p	801	0·3	0·4[8]	0·5[9]	0·52	—	—	—	—	1·6[8]	—	10[9]	43·1[9]	p	—
Spain	2·2	2·2	400?	124[9]	p	7·7[9]	—	11·53	0·95	6·8	5·4	—	1·7	32·7	13	2,251·8	2,079	680
France	61·0	804·4	330?	3,000[8]	1·1[9]	38·8[9]	—	52·50	7·01	0·5[8]	0·3[8]	—	42·0	40·0[9]	63	2,100	30,203	9,526
United Kingdom	29·9	—	—	p	—	96·3[7]	—	219·79	15·64	—	—	—	—	67·6[9]	—	1,175·6[8]	13,145	9,785
Belgium	—	—	—	1,909	—	P	—	27·30	3·24	—	—	—	—	—	—	—	46	3,693
Netherlands	—	—	—	—	—	—	—	12·44	2·80	—	—	—	—	—	—	—	—	454
Germany	27·0	18[7]	—	P	—	183·5	—	312·6?	27·63	1·4	200·6	—	49·5	33·9	P	344	11,410	9,768
Italy	37·1	153·4	400	1,440[9]	21·4	48·1	—	1·81	1·50	p	p	—	14·3	31·6	11	298·2[7]	442	570
Switzerland	21·0	—	—	—	—	p	—	—	—	—	—	—	—	—	—	80	55	34
Austria	18·0	0·6	400?	p	—	10·8	—	4·5	1·0?	1·6	5·1	—	1·9	—	p	26·4	1,859	883
Greece	—	48·9[9]	1,505	13[9]	—	20·8	12·6	0·2?	—	—	—	—	—	—	—	0·9[7]	41	—
Yugoslavia	2·5?	368[9]	—	—	—	p	100	13?	—	40?	40?	—	—	—	P	p	800	210?
Norway	46·6	—	2,789[9]	—	—	p	—	—	—	15·4	9·3	—	20·8	1·1[8]	P	—	430	220
Sweden	4·0	—	—	16,979[8]	—	1·9[8]	—	0·30	p	16·1	16·7	—	39·0	4·3[8]	80[9]	—	13,927	848
Finland	—	—	—	—	8·4[9]	—	—	—	—	15·6	13·6	—	8·0	—	9	1·7[8]	—	63
Czechoslovakia	—	—	2,000?	p	p	p	—	45·96	4·88	—	—	—	P	—	2[7]	—	1,600?	1,883
Poland	—	—	—	—	—	—	—	82·3?	5·92	—	—	—	—	—	—	26·4[9]	790	1,250?
Hungary	14[9]	—	—	p	—	—	—	11·8?	—	p	—	—	—	—	2[7]	—	368	500?
Bulgaria	—	600?[9]	—	—	p	—	p	6·87	p	—	—	—	—	—	P	5·0[8]	p	—
Rumania	—	p	—	—	—	—	—	3·0?	0·12	—	—	—	p	—	113[9]	p	395	243?
U.S.S.R.	190?	500?[8]	P	P	P	P	500?	264?	27?	218?	218?	—	P	P	7,000?	P	24,000?[7]	19,500?
Africa																		
French Morocco	—	—	670	—	0·5	4·9	—	0·37	—	p	—	—	—	p	p	30·1[9]	319	—
Spanish Morocco	—	—	144[9]	—	—	—	—	—	—	—	—	—	—	—	—	—	860	—
Algeria	—	—	1,450	—	p	19·9	—	0·26	—	0·1	—	—	—	—	—	46·1	2,573	—
Tunisia	—	—	—	—	—	p	—	p	—	—	—	—	—	p	—	22·1	758	—
Sierra Leone	—	—	—	—	—	—	22·1[9]	—	—	—	—	655	—	—	4	—	1,185	—
French Africa	—	10·1	—	—	—	—	—	—	—	—	—	338	—	—	250?	—	p	—
Gold Coast	—	116·8	—	—	—	—	—	—	—	—	—	950?	—	—	680?	—	—	—
Nigeria	—	—	—	—	—	—	—	0·57	—	—	—	—	—	—	2	—	—	—
Belgian Congo	—	—	—	—	—	—	—	0·15[9]	—	175·9	175·9	10,147	—	—	339	7·2	p	p
Angola	—	—	—	—	—	—	—	—	—	1·4	—	539	—	—	p	p	—	—
S. W. Africa	—	—	—	—	—	—	—	—	—	11·0	—	488	—	—	p	—	p	—
S. Africa	—	—	8,300	—	79·3	2·3	496·3	26·47	0·4?	34·0	33·3	1,748	5·1	7·2	11,664	103·7	1,189	733
N. Rhodesia	—	—	—	—	—	—	—	—	—	297·5	280·0	—	—	—	1	—	—	—
S. Rhodesia	—	—	21	114	64·9	0·3	291·5	2·13	p	0·1	—	—	1·5	0·4	511	—	57	38
Tanganyika	—	—	—	—	—	—	—	—	—	—	—	195	—	—	65	—	—	—
Kenya	—	—	—	—	0·7[9]	—	—	—	—	—	—	—	p	—	23	0·6	—	—
Uganda	—	—	—	—	p	—	—	—	—	—	—	—	—	—	p	—	—	—
Egypt	—	—	—	—	0·3	p	p	—	—	—	—	—	—	—	9	95·2[8]	p	—
Asia																		
Cyprus	—	—	—	—	12·6[9]	—	14·9[9]	—	—	23·3	—	—	—	—	—	65·5	—	—
Turkey	—	—	1,600	p	0·2[9]	—	350	3·72	0·31	13·3	11·7	—	—	—	—	—	234	116
Persia	—	—	—	p	—	—	—	0·17	—	—	—	—	—	—	—	—	—	—
India	3·7	41·3[9]	—	—	0·1[9]	21·5[9]	19·7[9]	32·51	0·3?	7·0	6·7	—	0·9[9]	—	197	142·2	3,000?	1,689
Pakistan	—	—	—	—	—	p	18	0·4?	—	—	—	—	—	—	—	19	—	—
Burma	—	—	70[9]	—	—	—	—	—	—	—	—	—	—	—	p	—	p	—
Japan	24·8	—	161	1,627	4·9	14·2	32·0	39·72	1·34	39·3	84·7	—	13·2	2·4	132	114·5	910	2,286
China	—	—	6,000[9]	p	p	p	—	36?	0·3?	4·0	4·0	—	p	p	160?	55?[8]	P	1,022?
Korea	1·3[8]	—	—	p	p	P	—	p	0·5?	p	p	—	—	P	324[7]	—	p	p
Philippines	—	—	—	—	—	—	250·5	0·16	—	3·0	—	—	—	—	334	2·9	599	p
Indochina	—	—	—	—	p	—	—	0·50	—	—	—	—	—	—	—	p	—	—
Malaya	—	—	—	—	—	—	—	0·42	—	—	—	—	—	—	18	—	507	—
Indonesia	—	551·1	—	—	—	—	—	0·8?	—	—	—	—	—	—	32[9]	—	—	p
Thailand (Siam	—	—	100?	—	—	—	—	—	—	—	—	—	—	—	p	0·2	—	—
Formosa	1·6[9]	—	—	—	—	—	—	1·40	p	1·2[8]	—	—	—	—	18	—	—	—
Oceania																		
Australia	—	3·1	222	257[9]	1·6[9]	6?	p	24·20	1·8	14·5	13·8	—	—	0·6[9]	850	291·9[9]	2,403	1,101
New Caledonia	—	—	—	—	—	—	88·8[9]	—	p	—	—	—	—	—	—	15·2	15	—
New Zealand	—	—	p	19[9]	p	—	—	2·79	p	—	—	—	—	—	76	—	—	p
World Total	1,480	8,550	50,000	43,000	1,206	1,210	2,277	1,794	177·6	2,496	2,687	15,300	671	758	31,600	18,750	245,000	133,000

The production of certain other minerals and metals was as follows ('000 metric tons). *Graphite:* U.S., 4·6; Canada, 3·2; Mexico, 24·6; Brazil, 0·1[9]; Spain, 0·3; Germany, 6·2; Italy, 3·9; Austria, 14·7; Norway, 19: Czechoslovakia, 15[9]; French Morocco, 0·1; S.W. Africa, 1·4; S. Africa, 0·2; Madagascar, 12·8; India, 1·0; Japan, 3·8; Korea, 40·7[9]; Australia, 0·1; U.S.S.R., China, P; Peru, Argentina, Finland, Spanish Morocco, French Africa, p. *Ilmenite:* U.S., 424·9; Canada, 91·2; Brazil, 0·7[9]; Spain, 0·8; Norway, 105; Egypt, 0·3; India, 226·8[9]; Malaya, 25·3; Australia, 12·5; Portugal, p. *Nickel:* U.S., 0·8; Canada, 111·6; S. Africa, 0·8; New Caledonia, 6·3; U.S.S.R., P; Brazil, p. *Potash* (K_2O equiv. of salts produced): U.S., 1,167·3; Spain, 152·0; France, 1,017·3; Germany, 911·6; Israel and Jordan, 61·6?; Australia, 1·5[9]; Chile, U.S.S.R., India, Japan, P; Italy, China, Ethiopia, Persia, Korea, p. The following are in metric tons. *Bismuth:* Canada, 101·2; Mexico, 263; Peru, 215·5[9]; Bolivia, 8·2[9]; Argentina, 42[7]; Spain, 19·9[9]; France, 30[9]; Belgian Congo, 0·7; S. Africa, 7·6; Japan, 33·0; Korea, 173·4[9]; U.S., ?; Brazil, U.K., Germany, Yugoslavia, Norway, Sweden, U.S.S.R., Rumania, China, Uganda, Burma, Australia, p. *Cadmium:* U.S., 4,373·8; Canada, 378·4; Peru, 0·8[9]; France, 58·1[9]; U.K., 118·9; Belgium, 148?; Germany, 57[9]; Italy, 73[9]; Norway, 71·4[9]; Belgian Congo, 36; Japan, 903; Australia, 287·6; Mexico, U.S.S.R., Poland, S.W. Africa, P. *Cobalt:* U.S., 299; Canada, 284; French Morocco, 390; Angola, 5,148; N. Rhodesia, 670; Australia, 10. *Magnesium:* U.S., 14,266; Canada, 1,606; France, 300; U.K., 4,900; Germany ?; U.S.S.R., P; China, p. *Molybdenum:* U.S., 12,918; Chile, 800; Norway, 62; Sweden, 9[9]; Korea, 11[9]; Australia, 3; Peru, Spain,

Metal Production in 1950

(Metric tons unless otherwise specified; Th. indicates thousands, and Mi. millions of units)

Steel (Th.)	Lead (in ore) (Th.)	Lead (smelter) (Th.)	Crude Magnesite (Th.)	Manganese Ore (Th.)	Mercury (Flasks of 76 lb.)	Nitrogen[3] (Th.)	Petroleum (mi. bbl.)	Phosphate Rock (Th.)	Pyrite (Th.)	Salt (Th.)	Silver (Th. oz.)	Sulphur (Th.) (Long tons)	Tin (in ore) (Long tons)	Tin (smelter) (Long tons)	Tungsten conc.[4]	Zinc (in ore) (Th.)	Zinc (smelter) (Th.)	Country
																		North America
87,848	390·0	458·2	389·5	127·2	4,535	1,021·0	1,971·85	10,418·2	946·1	15,086·3	42,308	5,192·2	94	33,118	4,403	565·5	765·2	United States
3,070	154·1	154·6	P	—	—	143·7	29·15	0·1	227·2[9]	725·7	22,386	—	355	356	2	283·6	185·9	Canada
320?	238·1	230·8	—	32·4	3,713	13·1	72·44	—	—	157?	49,141	21[8]	290	290	67	223·5	53·5	Mexico
—	0·9	—	—	P	—	—	—	—	—	63?	4,935	P	—	—	—	—	—	Central America
—	P	—	P	78·9	—	—	20·79	104·2	—	209?	222	P	—	—	—	—	—	West Indies
																		South America
—	—	—	—	—	—	—	34·06	—	—	141·0	116	1·5	—	—	—	—	—	Colombia
—	—	—	1·4	—	—	—	346·78	—	—	71·9[9]	—	—	—	—	—	—	—	Venezuela
—	0·2	—	—	—	—	—	2·63	—	—	34·9	276	P	—	—	—	—	—	Ecuador
764	P	4?	43·1[9]	162·6	—	0·8	0·28	4·6[9]	—	800·9[9]	13	—	240?	240?	700	—	—	Brazil
—	57·4	31·4	—	—	P	35·4	15·07	—	—	56·0[9]	13,053	0·3[9]	72?	—	390	73·8	1·3	Peru
—	26·4[8]	—	—	P	—	—	0·62	—	—	P	6,567	4·4[9]	31,213	393	2,461	19·6	—	Bolivia
65	2·9[9]	—	—	24·5	754[9]	252·6	0·63	13·4	—	47·7	747	6·9[9]	—	—	—	—	—	Chile
—	20?	35?	—	P	—	—	23·35	—	—	400?	1,150	10?	273	300?	P	12·7	7·5?	Argentina
																		Europe
—	—	0·6	—	0·8	—	—	—	—	613·5	10·7[8]	32[9]	—	947	240?	2,500	—	—	Portugal
779	32·4	34·9	7·6	17	50,000?	6·6	—	24·1	1,306·9	860?	823	76	575	844	815	64·0	21·3	Spain
10,548	11·0	61·2	—	—	—	238·0	0·91	73·8	205·9[9]	2,935·6[8]	550	66[8]	78	—	400	12·4	71·5	France
16,555	3·1	3·1	—	—	—	262·2	0·34	—	13·2[9]	3,781[7][9]	25[8]	—	960?	27,310	61	—	71·4	United Kingdom
3,788	—	62·1	—	P	—	171·1	—	50·8	P	—	—	—	—	9,512	—	—	177·3	Belgium
490	—	—	—	—	—	139·0	4·90	—	—	412·6	—	—	—	21,027	—	—	19·3	Netherlands
13,276	44·8	99·4[9]	11·3[9]	P	P	511·7	7·90	0·5[8]	525·4	2,470?	1,602[9]	—	120?	120?	—	69·3	112·8	Germany
2,362	38?	37·5	0·2	16·2	53,346	169·0	0·06	—	895·5	1,500?	852	209·8	—	—	2	85·3	38·1	Italy
130	—	—	—	—	—	14·0	—	—	—	94·0	—	—	—	—	—	—	—	Switzerland
947	4·4	10·9	543·8	—	P	75·0	6·15	11·5[7]	12·5	237·6	19	—	—	—	—	3·0	—	Austria
26	2?	2·1	26·3	1·2[9]	—	—	—	—	87·7	52·2[8]	P	—	—	—	—	3·2	—	Greece
420	80?	69·8?	P	14[9]	P	3·4	0·78	—	73?[9]	109?[9]	P	—	—	—	—	43·5	—	Yugoslavia
70	0·3[9]	—	1·1[9]	—	—	160·0	—	P	749·4	—	150?	—	—	—	—	6·9	44·0	Norway
1,438	23·9[9]	14·5?	—	10·9[9]	—	25·5	—	1·6[9]	424·0[9]	P	1,292	—	—	—	362	36·7	—	Sweden
105	P	—	—	—	—	1·0	—	—	210?	—	116	—	—	—	20	1·8	—	Finland
2,736	P	5·8[8]	173?	—	800[8]	30·3?	0·29	—	3·2[8]	P	1,600[8]	—	—	—	—	P	20?	Czechoslovakia
2,305[9]	17·9[8]	17·9[9]	3·8?	—	—	65?	1·21	P	81?[9]	800?	P	—	—	—	—	87·1[8]	87·1[8]	Poland
1,022	0·3	P	—	40[8]	—	4?	4·20	—	P	P	P	—	—	—	—	—	—	Hungary
—	—	—	—	P	—	—	—	—	—	120?	P	—	—	—	—	—	—	Bulgaria
558?	3·5[7]	3·3[7]	—	65[9]	P	—	32?	P	—	314·5[7]	481[7]	—	—	—	—	P	—	Rumania
27,000?	104?	104?	P	2,000?	P	—	266?	2,337?[8]	P	P	P	P	—	—	1,500?	129?	129?	U.S.S.R.
																		Africa
—	47·4	—	—	287·3	—	—	0·31	3,872·3	1·5	100?	482	—	—	—	7	12·5	—	French Morocco
—	P	—	—	0·8	—	—	—	—	—	P	—	—	—	—	—	—	—	Spanish Morocco
—	1·4	—	—	—	102[9]	—	0·02	684·7	25·1	101·7[9]	30[8]	—	—	—	—	7·1	—	Algeria
—	19·0	23·5	—	—	—	—	—	1,524·8	1·2	98·1[9]	157[9]	—	—	—	—	2·9	—	Tunisia
—	—	—	—	—	—	—	—	—	—	121·0	P	—	—	—	—	—	—	Sierra Leone
—	1·8	—	—	—	—	—	—	110	—	P	—	—	67	—	—	0·6	—	French Africa
—	—	—	—	711·4	—	—	—	—	—	P	43	—	—	—	—	—	—	Gold Coast
—	0·3[8]	—	—	—	—	—	—	—	—	P	P	—	8,258	—	5	—	—	Nigeria
—	—	—	—	17·0	—	—	—	—	—	1·0[9]	4,460	—	14,558	3,238	164	76·3	—	Belgian Congo
—	—	—	—	9·3	—	—	—	—	—	40·5	—	—	—	—	—	—	—	Angola
—	34·0	—	—	—	—	—	—	0·6	—	17·8	844	—	135	—	4	11·5	—	S. W. Africa
755	0·5	—	11·8	790·9	—	—	—	51·8	36·0	116·2	1,119	—	642	717	96	—	—	S. Africa
—	13·9	13·9	—	—	—	—	—	—	—	P	173	—	4	—	—	23·1	23·1	N. Rhodesia
—	—	—	8·6	—	—	—	—	P	13·8	—	86	—	61	80	64	—	—	S. Rhodesia
—	—	—	P	—	—	—	—	0·5	—	14·2	31	—	95	—	15	—	—	Tanganyika
—	—	—	0·2	—	—	—	—	—	P	18·7	3	—	—	—	—	—	—	Kenya
—	—	—	—	—	—	—	—	0·5	—	7·4	P	—	192	—	217	—	—	Uganda
—	—	—	—	152·2	—	—	16·37	397·2	P	567·4	—	P	—	—	—	—	—	Egypt
																		Asia
—	—	—	P	—	—	—	—	—	655·1	—	P	—	—	—	—	—	—	Cyprus
90	0·3	—	0·5	20	P	1·0	0·05	—	—	305·0	P	5·7	—	—	—	P	—	Turkey
—	—	—	—	P	—	—	242·48	—	P	—	—	—	—	—	—	—	—	Persia
1,437	P	0·6	92·0[9]	679·2	—	9·2	1·87	0·6[9]	P	2,662?	16	P	—	—	—	—	—	India
—	—	—	—	—	—	—	0·80	—	—	380·5	—	—	—	—	—	—	—	Pakistan
—	5·2[9]	2·3[9]	—	P	—	—	0·45	—	—	31·7	415[8]	—	1,520	—	600	—	—	Burma
4,848	10·9	10·0	P	134·1	1,312	434·3	2·05	0·3	1,916·2	418·1	3,681	90·9	326	390	64	52·0	49·0	Japan
540?	P	4?	P	22[8]	290[8]	—	0·73	P	42·9[8]	2,500?	320	P	3,600?	3,600?	11,000?	—	P	China
P	P	2·3[7]	—	P	P	—	—	P	P	188·8[9]	167[7]	—	—	—	2,448[9]	P	—	Korea
—	—	—	—	29·9	—	—	—	32·6	—	56·3	216	—	—	—	—	—	—	Philippines
—	—	—	—	P	—	—	—	P	—	89·6	—	—	62	60?	—	—	—	Indochina
—	—	—	—	—	—	—	—	—	—	—	P	—	57,537	68,747	27	—	—	Malaya
—	—	—	—	—	—	—	50·15	—	—	320·0	—	—	32,102	32	—	—	—	Indonesia
—	—	—	—	—	—	—	—	—	—	P	—	—	10,364	2	855	—	—	Thailand (Siam)
—	—	—	—	—	—	6·3	0·02	—	—	160·6	2	—	—	—	—	—	—	Formosa
																		Oceania
1,400	222·4	164·2	34·1[9]	14·7	—	11·3	p	p	114·0	248·9[9]	10,677	7·0	1,849	2,013	422	196·4	85·1	Australia
—	—	—	—	1·8	—	—	—	p	—	—	—	—	—	—	—	—	—	New Caledonia
—	—	—	0·6[9]	0·3[9]	p	2·2	p	—	—	—	200	—	—	—	24	—	—	New Zealand
186,000	1,657	1,700	2,150	5,500	136,000	3,956·8	3,796·66	21,250	11,200	48,000	192,000	5,700	166,400	172,600	27,750	2,101	1,943	World Total

Austria, Greece, U.S.S.R., Rumania, China, Turkey, p. *Vanadium:* U.S., 961[7]; Peru, 436; S.W. Africa, 295; N. Rhodesia, 153[9]; Argentina, p. *Platinum group metals* ('000 oz.): U.S., 37·96; Canada, 269·44; Colombia, 26·44; U.S.S.R., 100?; S. Africa, 150·66; Ethiopia, 0·36[9]; Sierra Leone, Australia, p. *Petroleum* production in certain other countries was as follows ('000 metric tons): Albania, 150; Iraq, 6,480; Saudi Arabia, 26·904; Kuwait, 17,018·6. The mineral and metal production of certain other countries was as follows ('000 metric tons unless otherwise specified). *British Guiana:* bauxite, 1,608·8; diamonds ('000 carats), 37; gold ('000 oz.), 12. *Surinam:* bauxite, 2,080·7; gold ('000 oz.), 5. *Luxembourg:* iron ore, 3,828; pig iron, 2,496; steel, 2,448. *Madagascar:* gold ('000 oz.), 2; graphite, 12·8; asbestos, coal, iron ore, phosphate rock, salt, p. *Ethiopia:* gold ('000 oz.), 43?; platinum ('000 oz.), 0·36[9]; salt, 10·0[8]; gypsum, potash, p. *Israel and Jordan:* gypsum, 23·6; phosphate rock, 4?[8]; potash, 61·6[7]; salt, 15·0[7]; barite, feldspar, sulphur, p. *Saudi Arabia:* gold ('000 troy oz.), 66·202; silver ('000 troy oz.), 124·287. *Syria:* salt (1947), 18·8. *Ceylon:* graphite (exports, 1949), 12,434. *New Guinea:* gold ('000 oz.), 75; silver ('000 oz.), 32[9]. *Pacific Islands:* phosphate rock, 1,696·4. A ? indicates an estimate or no data available. The letter "p" indicates a small production, unknown in amount or less than the minimum base of the table; "P" indicates a larger but unknown production. [1]Metal content of ore. [2]White arsenic. [3]Nitrogen content of fertilizer compounds. [4]60% WO_3 basis. [7], [8], [9] indicate data for 1947, 1948, or 1949, where 1950 figures are lacking.

(Continued from Page 415)
area on Lake Athabasca, Saskatchewan, where a custom mill was planned for ore treatment, and by developments in British Columbia. A prospective producing area was also discovered 50 mi. north of Sault Ste. Marie, Ontario.

In Africa, besides the long-established Congo deposit, the enormous tailing piles of the Rand gold area were found to have a uranium content which, while extremely low, was amenable to economic recovery, because of the large tonnages of material already mined and crushed. A recovery plant was expected to be ready for operation sometime in 1952.

Uranium deposits were known in several areas of the U.S.S.R., and in the Joachimsthal region of Czechoslovakia and the Erzgebirge region of Eastern Germany. The scanty information available did not indicate resources of any great extent in these areas, though presumably the deposits were being worked to the limit.

Zinc. As for other metals 1950 was a year of scarcity for zinc. Although production exceeded immediate consumption requirements, heavy U.S. stockpiling produced a great world shortage which continued throughout 1951.

TABLE VII. WORLD PRODUCTION OF ZINC
(thousands of short tons)

	1945	1946	1947	1948	1949	1950
Australia	93·8	85·4	77·7	91·1	90·7	93·4
Belgium	12·9	95·0	146·7	169·6	194·6	195·4
Canada	183·3	185·7	172·9	196·5	206·0	205·0
France	9·3	33·5	50·7	61·2	66·8	78·8
Germany	?	31·3	22·8	45·6	95·8	124·3
Great Britain	69·5	73·4	76·5	80·6	71·8	78·7
Italy	1·7	17·3	25·1	29·1	29·3	42·0
Japan	20·4	12·4	16·4	23·4	35·6	54·0
Mexico	54·0	46·3	62·5	53·2	59·0	59·0
Netherlands	—	2·2	10·5	15·0	17·2	21·8
N. Rhodesia	17·1	19·2	23·7	24·8	25·6	25·4
Norway	10·2	33·3	38·1	46·3	45·2	48·5
Poland	40·1	62·4	79·1	96·0	?	?
Spain	19·1	19·4	21·8	23·4	21·6	24·5
United States	764·6	772·4	802·5	787·8	814·8	843·5
Total	1,400	1,550	1,760	1,870	2,000	2,140

There were some marked increases in production in Europe (notably in Germany) and Japan, and further gains were reported in 1951. Strikes and fuel shortage hampered smelter output in the U.S., though not to the extent that it had done in 1948 and 1949. During 1951 the United States mine output was 679,111 tons and smelter output 931,833 tons; consumption (Jan.-Oct.) was 742,108 tons. (*See* also COAL; DIAMONDS; EUROPEAN COAL AND STEEL POOL; GOLD; IRON AND STEEL; PETROLEUM; SILVER.) (P. GNR.; G. A. RO.)

MINERALOGY. Probably the most important contributions made in the field of mineralogy dealt with the rock-forming feldspars. The work of the Geophysical laboratory, Washington, provided evidence from X-ray and optical study for the existence of four series of alkali-feldspars: (1) high-sanidine—high-albite, synthetic feldspars crystallized at the liquidus and natural feldspars heated for prolonged periods at high temperatures; (2) sanidine—high-albite (mostly unmixed to a sub-microscopic perthite) characteristic of alkali-feldspar phenocrysts from volcanic rocks; (3) orthoclase—low-albite (also unmixed); and (4) microcline—low-albite (two phases) appearing in deep-seated igneous and metamorphic rocks (O.F. Tuttle, *Mineral. Mag.*, 29, 757-58, London, 1951). The advances in knowledge made in these studies supplied the criteria for a renewed attack on disputed problems of the petrogenesis of feldspar-bearing rocks.

Continued investigation of the mineralogy and geochemistry of uranium provided a group of new minerals containing this element. They included *andersonite*, *swartzite* and *bayleyite* of the general formula $X_4(UO_2)(CO_3)_3.n\,H_2O$ where $X_4 = Na_2\,Ca$, $Ca\,Mg$ and Mg_2 and $n = 6$, 12 and 18 respectively (J. M. Axelrod *et al.*, *American Mineralogist*, 36, 1-22). Other uranium minerals newly recognized comprised *sabugalite*, an aluminium autunite and *novacekite* ($Mg(UO_2)_2(As\,O_4)_2.n\,H_2O$) (C. Frondel, *ibid.*, 671-686).

Detailed study of the hydrocarbon uranite complexes of the South African Rand gold reefs led to a reinforcement of the claim that the mineralization of the Rand gold mines was attributable to a hydrothermal process (C. F. Davidson and S. H. U. Bowie, *Bull. Geol. Survey of Great Britain*, 3, 1-18).

Among other new minerals described were *taaffeite* ($Be_4Mg_4Al_{16}O_{32}$), the only known species having both essential beryllium and magnesium (B. W. Anderson *et al.*, *Mineralogical Magazine*, 29, 765-772), and *huttonite*, a monoclinic dimorphous form of $ThSiO_4$, isostructural with monazite (A. Pabst, *American Mineralogist*, 36, 60-65).

The element yttrium was found to be a very prevalent constituent of spessartite garnets, the ionic substitution involved being of the type $Y^{+3}\,Al^{+3} = Mn^{+2}\,Si^{+4}$ (H. Jaffe, *ibid*, 36, 133-155). By experimental synthesis a complete series of solid solutions ranging between spessartite ($Mn_3Al_2(SiO_4)_3$) and the compound $Y_3\,Al_2(AlO_4)_3$ was prepared, a study which provided the first example of complete substitution of aluminium for silicon in an orthosilicate (H. S. Yoder and M. L. Keith, *ibid*, 36, 519-533).

Though synthesis of the mineral was not effected, laboratory experiment led to the conclusion that jadeite, hitherto regarded as a high-pressure mineral, was stable not only at low temperatures but even at atmospheric pressures, and the recorded occurrence of the mineral in veins associated with serpentine was held to support the view that it did not require high pressure for its formation (H. S. Yoder and C. E. Weir, *American Journal of Science*, 249, 683-694).

In the field of spectrography, an important advance was made in the systematic study of trace-element distribution in the minerals fractionally crystallized from a large body of basic igneous magma. The changes in trace-element composition of the solid solution series of the plagioclases, clinopyroxenes, olivines and accessory minerals throughout the layered mass of the Skaergaard igneous intrusion of East Greenland provided a rich assembly of data of wide geochemical and petrogenetic significance (L. R. Wager and R. L. Mitchell, *Geochimica et Cosmochimica Acta*, 1, no. 3, 129-208). (*See* also MINERAL AND METAL PRODUCTION.)
(C. E. T.)

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MISSIONS, FOREIGN RELIGIOUS. The withdrawal of Protestant missionaries from China was completed during 1951, and in China a number of "accusation" and "denunciation" meetings were held, in which Christian organizations and leaders were denounced as "U.S. imperialist agents." Some executions were also reported. The withdrawal from China made a deployment of Christian missionary forces possible in other parts of the world. Missions to Chinese in Malaya, which had been established for years, were strengthened with fresh staff in 1951, and in Africa and India some meagrely staffed areas gained new recruits. The new situation facing missions in every part of the world led to a re-examination of the motive and purpose of missions under the auspices of the International Missionary council, and of the relationship of the missionary enterprise to the life of the church as a whole.

At a meeting of the World Council of Churches (*q.v.*) at Rolle, Switzerland, Aug. 1951, it was recognized that:

> " In the lands of the younger Churches the word ' mission ' has been almost exclusively connected with organizations controlled from the lands of the Western nations. With the coming of a new era in which the younger Churches have taken their place as equal partners with the older Churches in the ecumenical movement, there is a danger that the whole concept of ' mission ' should be at a discount as belonging to a bygone day."

It was further recognized that the movement towards unity among the Christian churches of the world and " the obligation to take the Gospel to the whole world " were indissolubly connected.

Africa. An important report on the training of the Christian ministry in tropical Africa, by Bishop Stephen Neill, was published in 1951. He wrote that, such had been the progress of the church in Africa that it might, in 50 years, be in the main a Christian country. He maintained that the influence of Mohammedanism in Africa was diminishing, but that there was a danger that it would be replaced by a " religion " of materialism caused by the increasing mechanization of African life. In Freetown, the archbishop of Canterbury inaugurated the Anglican province of West Africa, comprising the dioceses of Accra, Gambia, Niger, Lagos and Sierra Leone.

Japan. Large enrolments for ministerial training were recorded in all theological colleges, and an emphasis on evangelism was evident in the plans of all denominations. Evangelism through newspaper advertisements, radio and magazines was planned, and a new Protestant Christian centre in the heart of Tokio was opened.

Korea. Strong Christian groups were reported north of the 38th parallel in spite of the liquidation of many Christian leaders during the five years of Communist occupation. Two Korean Christian leaders visited the United States as a special embassy from the churches in Korea. Bibles for Korea were supplied from Japan, and for the United Nations troops in Korea a Korean-English hymnal, which contained 107 of the most familiar hymns and responsive readings, was produced. Christian missions in the United States shared in sending 160,000 lb. of clothing and one million vitamin tablets.

India. On behalf of the International Missionary council, John Bennett, of New York, made a survey of Christianity and Communism in India and found the glaring evils of " poverty, landlordism and corruption " apparent on every hand. He reported a lack of Christian literature designed to aid Christians in the understanding of Communism; an inadequacy of theological training to provide young ministers, and a failure to give young missionaries a full understanding of the nature of Communism.

Pakistan. The growing importance of Pakistan as a leader in the Islamic world, and its separateness within the subcontinent of India was recognized in the West Pakistan Christian council becoming a separate unit within the International Missionary council. Dr. Kraemer, of the World Council of Churches, discussed with groups in Pakistan the question: " Does the Church propose to continue *existing* in predominantly Muslim lands or *to live* as a real Church? ".

General. A literacy team, led by Frank Laubach, visited Algeria, Tripoli, Egypt, Lebanon and Afghanistan. From Tripoli Laubach reported that to spread literacy would be a hard task, for less than 5% of the adult men could read, and not even 1% of the women. In India, the Laubach team met delegates from all parts of India at a conference for the preparation of literature for new literates. In Afghanistan—where a large proportion of the population was illiterate—the team prepared charts and a textbook in Persian, and 50 illiterate soldiers were taught to read the 47-page primer.

A notable event in Christian missionary history in Great Britain was celebrated in 1951 in the 250th anniversary of the Society for the Propagation of the Gospel. In connection with the Festival of Britain, an exhibition in London was designed for display in the crypt of St. Paul's cathedral entitled *The Faith of Britain*, a series of meetings were held in the Festival church (St. John's, Waterloo road) and a special photogravure magazine, *Here is the News*, was published. Contributions to the missionary societies were well maintained. (C. N.)

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MONACO. Sovereign principality on the Mediterranean coast, 9 mi. E. of Nice, bounded on all land sides by the French *département* of Alpes Maritimes. Area: 0·578 sq.mi. Pop. (1946 census): 19,242, incl. 1,975 Monegasques, 10,522 French and 6,745 other foreigners. Ruler, Prince Rainier III; minister of state, Pierre Voizard.

History. In March 1951 the unveiling of the statue of the prince's great-grandfather, Albert I, took place. The statue, in bronze and representing the prince at the helm of his yacht; was erected on a platform in St. Martin's gardens close to the Oceanographical museum and overlooking the Mediterranean.

In the spring a flotilla of British naval units visited the port of Monaco, and a reception was held in honour of the officers and crews. The Duke of Edinburgh, commanding one of the vessels, was received by Prince Rainier who invested his visitor with the insignia of grand cross of the Order of Saint Charles.

Prince Rainier instituted a prize of Fr. 1 million and appointed a committee to decide to whom it should be given for the best literary work. This year the winner was Julien Green. The 21st International Automobile rally was held in January and a cup to be called Prince Rainier III of Monaco cup was presented for the first time to the winner. An international committee was formed to standardize touristic terms, and the first meeting was held in Monaco during August. A prize was instituted for the best definition of the word " tourism."

On Dec. 23, at the palace of Monaco, Robert Schuman, French minister of foreign affairs, and Pierre Voizard, minister of state, signed a new Franco-Monegasque treaty to replace those of April 19, 1912, of June 26, 1925, and of April 23, 1945.

Education. Schools (1949-50): primary 9, pupils 1,494; teachers 85; secondary 3, pupils 312, teachers 38.

Finance. Budget (1950 actual): revenue Fr. 1,085·5 million, expenditure Fr. 1,182·8 million (incl. 126 million extraordinary for equipment and reconstruction). (K. E. E.)

MONGOLIA. Chronologically the first Soviet-dominated people's republic (founded on July 11, 1921), Mongolia is bounded on the N. by the Asiatic part of the Russian S.F.S.R., and on the E., S. and W. by China. Area: 606,000 sq.mi. Pop.: no census has ever been taken and estimates vary from 850,000 (Soviet, 1941) to 2,078,000 (Chinese, 1945). Language: Mongol. Religion: Lama-Buddhism. Capital: Ulan Bator (pop., 1951 est., 80,000). Chairman of the presidium of the Great Khural, G. Bumatsende; chairman of the council of ministers and commander in chief, Marshal Kh. Choibalsan.

History. For the first time since the foundation of the republic a general election took place on June 10 for the Great Khural, which, under the constitution of 1940, was

the highest state authority, one deputy being returned for each 1,500 inhabitants and universal franchise operating from the age of 18 together with a common right of election. According to an official communiqué of the central electoral commission, there were 295 constituencies in which 489,031 persons recorded their votes, or 99·92% of the electorate; 487,358 (99·67%) votes were for candidates of the bloc of the Mongolian People's Revolutionary (Communist) party and non-party citizens. In Ulan Bator, the capital, 48,776 voters went to the polls out of a registered total of 48,790, and only four voted against the official candidates. If these figures were correct, the population of Mongolia could not be much more than 800,000.

The first session of the newly elected Great Khural was opened in the morning and closed in the evening of July 6. The budget for 1951 was adopted, the presidium and its chairman were elected and a new council of ministers was appointed. Bumatsende (b. 1881) remained chairman of the presidium and Choibalsan (b. 1895) was reappointed chairman of the council of ministers. There were six deputy premiers, including J. Tsedenbal, who was also secretary general of the central committee of the M.P.R.P.; D. Maidar, also chairman of the State Planning commission; Lhamsurun, the foreign minister, and Lubsan, minister of trade. The remaining 13 ministers included Lieut. General Zhanchiv, minister of national defence; Major General Duinkharzhab, minister of the interior, and Malomzhamts, minister of finance.

At the celebrations on July 10 of the 30th anniversary of the Mongolian revolution and the occupation of Ulan Bator (then Urga) by the Soviet army, the government of the Soviet Union was represented by M. P. Tarasov, chairman of the presidium of the Supreme Soviet of the Russian federation, and the chairman of the council of ministers of the Buryat-Mongolian autonomous republic, Tsyrempilon, was among the Soviet delegation. In his speech, Tarasov emphasized that the foundation of a people's democracy in China was a most important factor in strengthening the international position of Mongolia, and expressed the Soviet government's satisfaction at the establishment of genuinely friendly relations between China and Mongolia. Although press reports mentioned the presence at the celebrations of a Chinese delegation, no names were given and no speech by a Chinese representative was reported.

When unveiling a monument to Joseph Stalin at Ulan Bator on July 11, and also in an article published in July by the Moscow monthly *Bolshevik*, Choibalsan summarized the achievements of his government. Great strides had been made in combating illiteracy. Whereas 30 years earlier there was only one school in Mongolia, in 1951 there were many secondary and technical schools, and one primary school in every *somon* (the country was divided into 18 *aimak* or provinces and 322 *somon* or districts). From cultural darkness the country had progressed by 1951 to 87% adult literacy. There were 8 national and 19 local newspapers and 16 periodicals.

According to Choibalsan, livestock breeding, the basis of Mongolian economy, had increased by 150% in the 30 years of independence. Since Soviet sources attributed some 12·5 million head of livestock to Mongolia in 1921, it would appear that in 1951 livestock numbered more than 31 million head, the official target of the Mongolian postwar five-year plan for 1952. Choibalsan, however, abstained from proclaiming that part of the five-year plan had thus been fulfilled a year in advance. Industrialization, too, was making progress. The total yearly value of the industrial production, which was 77 million tugriks in 1940, increased to 196 million tugriks in 1950. In that year alone coal production at Nalaikha increased by 25% and that of woollen fabrics by 20%. By 1950 27 times more butter was being produced than in 1945. Transport and communications were also improved, two railways linking Mongolia with the Soviet Union at Alan Ude and Borzya.

Unen, the government newspaper at Ulan Bator, on Sept. 26 published a protest by Lhamsurun, the foreign minister, against the "so-called peace treaty with Japan," the real aim of which, he said, was to revive Japanese militarism. The Mongolian people, however, would join its forces with those of the Soviet Union and other people's democracies in order to paralyse the plans of the U.S. and British "warmongers."

Finance. Budget (1951 est., million tugriks): revenue 351·4; expenditure 346·4. The Mongolian *tugrik* was at parity with the rouble. The theoretical exchange rate, therefore, was: £1 = M.T. 11·20 and U.S. $1 = M.T. 4·00. (K. SM.)

MONTGOMERY OF ALAMEIN, BERNARD LAW MONTGOMERY, 1st Viscount, of Hindhead (b. Kennington, London, Nov. 17, 1887), was educated at King's school, Canterbury, and St. Paul's. Commissioned in the Royal Warwickshire regiment, Jan. 1907, he was seriously wounded in World War I in which he was mentioned in despatches six times, received the D.S.O. and a brevet majority. He qualified at the Staff college, Camberley, soon after the war and was already a major-general when he took command, in Aug. 1939, of the third division, one of the first to go to France in World War II. He commanded a corps in the evacuation towards Dunkirk and afterwards had command of the 5th and 12th corps, becoming g.o.c.-in-c., southeastern command, on Dec. 25, 1941. He took command of the Eighth army in Egypt on Aug. 13, 1942, and led it to Tunis, and in Sicily and Italy till Dec. 1943.

Montgomery commanded all the Allied land forces in the invasion of Normandy (summer 1944) and afterwards the 21st army group in northwest Europe. Promoted field marshal in Sept. 1944, he was made a viscount in 1946 and in June of that year became chief of the imperial general staff. In Oct. 1948 he became chairman of the commanders-in-chief committee of the Western Union Powers.

He met Konrad Adenauer, the West German chancellor, during a visit to Bonn on Jan. 4, 1951. On Jan. 22 it was announced that he had agreed to become president of the Royal Society of St. George. On March 4 he unveiled in All Saints' cathedral, Cairo, a memorial window to men of the Eighth army who fell in the Western desert. General Dwight D. Eisenhower announced in Paris on March 20 the appointment of Montgomery to be deputy supreme commander, Allied Powers in Europe. Later in the year he visited most of the North Atlantic treaty countries in Europe; in September he attended the British Army of the Rhine manoeuvres. Reports that Montgomery would be appointed high commissioner in Malaya with supreme powers to conduct the war against the Communist guerrillas appeared in British newspapers in November and December. The suggestion was strongly opposed by editorials in the English-language press in Singapore.

MONTSERRAT: *see* LEEWARD ISLANDS.

MONUMENTS AND MEMORIALS. On Sept. 11, 1951, the Wilds, a municipal garden in Johannesburg, was dedicated as a memorial to Field Marshal Jan Christiaan Smuts (1870-1950), prime minister of South Africa, 1919-24 and 1939-48. On July 5 the U.S. playwright Robert Sherwood handed over a block of flats in Poplar High street, London, as a memorial to John Gilbert Winant (1889-1947), U.S. ambassador to Great Britain, 1941-46.

On Oct. 16 the archbishop of Canterbury hallowed the

altar in the chapel of St. John the Evangelist, Canterbury cathedral, to the memory of William Temple (1881-1944), archbishop of Canterbury, 1942-44. Lea Hurst, near Matlock, Derbyshire, once the home of Florence Nightingale (1820-1910), was bought by the Royal Surgical Aid society for use as a home for the aged and for dedication as a Nightingale memorial.

A plaque erected by the Cromwell association was unveiled at Worcester to commemorate the battle of Worcester (1651). An obelisk was erected by the Portuguese 2nd Regiment of Heavy Artillery at Oporto in memory of the 1st Duke of Wellington (1769-1852). A bronze statue of Admiral Lord Nelson (1758-1805) was unveiled at Portsmouth, and at Burnham Thorpe, Norfolk, Nelson's birthplace, a gun tampion of the battleship Nelson (1922-47), was built into the wall of the festival year addition to the Nelson Memorial hall. A prefabricated village shipped from England was erected on Mount Carmel, Israel, as a memorial to Major General Orde Wingate (1903-1944), commander of the Chindit force in Burma during World War II.

It was announced that Redroofs, the country home near Maidenhead, Berkshire, of Ivor Novello (1893-1951), would be maintained by the Actors' Benevolent fund as a convalescent home and a memorial to the actor-manager; a bust of Novello by Clemence Dane was placed in the Theatre Royal, Drury Lane, London, as a memorial to him. On July 19 Sir Laurence Olivier opened a memorial garden to Sir Henry Irving (1838-1905), actor-manager, in Charing Cross road, London. A plaque marking the lodgings of W. B. Yeats (1865-1939), Irish poet, was unveiled on May 26 by T. S. Eliot in Woburn walk, London. A plaque to the memory of William Friese-Green, (1855-1921), a pioneer of cinematography, was unveiled at Brighton on Sept. 10 by Michael Redgrave.

On March 4 Field Marshal Viscount Montgomery of Alamein unveiled the Eighth Army Memorial window in All Saint's cathedral, Cairo. Twenty houses built as a tribute to pilots of the R.A.F. and Fleet Air Arm were opened at Ashtead, Surrey, on May 26 by Marshal of the R.A.F. Lord Portal. On July 4, General Dwight Eisenhower, in the presence of the king and queen, gave into the safe keeping of the dean and chapter of St. Paul's cathedral, London, a roll of honour of the 28,000 U.S. servicemen who were killed on operations from the United Kingdom during World War II. The Women's Voluntary services roll of honour was unveiled by the queen at Westminster abbey on Nov. 20. Lord Montgomery inaugurated the Royal Army chaplains' department memorial chapel at Bagshot Park, Hampshire, on July 19. Field Marshal Sir William Slim unveiled the 2nd Infantry ("Crossed Keys") division's memorial book at the Royal Garrison church, Aldershot, Hampshire, on Oct. 22. A granite obelisk, dedicated to the officers and men of the 29th brigade who died in Korea in the Chinese offensive of Jan. 1951, was unveiled on the battlefield five miles north of Seoul in July.

MOORE, GEORGE EDWARD, British philosopher (b. Upper Norwood, London, Nov. 4, 1873), was educated at Dulwich college, London, and at Trinity college, Cambridge, of which he was a fellow, 1898-1904 and from 1925. He was a university lecturer in moral science at Cambridge, 1911-25, professor of philosophy there, 1925-39, and emeritus professor from 1939. From 1940 to 1944 he was a visiting professor at various colleges and universities in the United States. He was the editor of *Mind* (Edinburgh), 1921-47. For the first ten years of the 20th century, Moore's philosophy was in general close to that of Bertrand Russell. His influence on English and American thought was mainly through a keen analysis of fundamental concepts rather than through the exposition of a personal system of philosophy; his essay "A Defence of Common Sense" (*Contemporary British Philosophy*, vol. II, 1925) provoked lively discussion. His *Principia Ethica* (1903) and *Ethics* (1912) were especially influential: his most important contribution to ethics was a discussion of the precise meaning of "good." Although Moore's paper "Refutation of Idealism" (*Mind*, 1903) led to his being called a "realist," he himself rejected this description, and his later preoccupation with the analysis of sense-perception did not produce a system of realistic metaphysics. Many of his papers were collected in his *Philosophical Studies*, published in 1922. He was elected a fellow of the British Academy in 1918. In the 1951 Birthday Honours, Professor Moore was appointed to the Order of Merit.

See Paul Arthur Schilp (ed.), *The Philosophy of G. E. Moore* (Library of Living Philosophers, Cambridge, 1943).

MOROCCO. Sultanate of northwest Africa, with both Mediterranean and Atlantic coastlines, divided into unequal parts, the French protectorate described from 1947 as potentially an associated state of the French Union, the Spanish protectorate consisting of a northern and a southern zone (*see* SPANISH COLONIAL EMPIRE) and the international zone of Tangier (*q.v.*). Areas and populations:

	Area (sq.mi.)	Population (1947 est.)
French protectorate	153,870	8,225,000
Spanish protectorate*	17,631	1,132,000
Places of Spanish sovereignty†	823	210,000
Tangier	232	104,000
Total	172,556	9,671,000

* Including the southern zone comprising 10,039 sq.mi. but only some 12,000 inhabitants.

† Alhucemas, Ceuta, Chafarinas, Melilla, Peñon de Veles and the Ifni territory (741 sq.mi.).

In the French protectorate the population was estimated in 1949 at 9,200,000, mostly Arabs and Berbers who are Moslem and speak Arabic (64%) or Berber (22%) or are bilingual (14%). The 1947 census revealed a European population of 325,000 including 266,133 French. The Jewish community numbered 225,000. Chief towns (pop. 1947 census): Rabat (cap., 161,416); Casablanca (551,222); Marrakesh (238,277); Fez (200,946); Meknès (159,811). Ruler, Sultan Mohammed ben Yussef; grand vizier, Mohammed el Mokri; French residents general, General Alphonse Juin and (from Oct. 3) General Augustin Guillaume.

History. At the end of 1950 Istiqlal (Nationalist) members had left the Council of Government, and Thami el-Glaoui, pasha of Marrakesh, had protested to the sultan about his keeping Istiqlal members in his cabinet and refusing to sign the *dahirs* (laws) for reform that were presented by General Juin. Serious developments in the crisis took place in Feb. 1951. President Vincent Auriol sent a message, and as tribes from the mountains converged on Fez and Rabat the sultan signed a protocol of agreement with the residency (Feb. 25).

Dissolving his cabinet, the sultan declared that Morocco expected the dawn of a new era in its relations with France. Si Mamri, the grand vizier, added: "We condemn the methods of a certain party, which rely on intimidation and force." Of especial significance were two *dahirs* signed by the sultan: one to set up *jemaa* (municipal councils) in the rural communes; the other to broaden the electorate for the chambers of agriculture and commerce. Distorted accounts of these affairs—there was talk of a bombardment of Fez—gave rise to anti-French demonstrations in Egypt at the beginning of March. In April Moroccan nationalists signed a pact of union at Tangier, undertaking not to negotiate with the French authorities within the framework of the existing régime.

In September General Juin left Morocco, having been nominated commander in chief for the Centre-Europe zone. He was succeeded as resident general by General Guillaume, who on his arrival (Oct. 3) declared: "I shall not abandon the edifice of modern Morocco to the pick-axe of the demolition squad."

On Nov. 2 elections to the chambers of commerce and agriculture were boycotted by the Istiqlal. Five people were killed and forty wounded in disturbances at Casablanca. The states of the Arab League brought the question of Morocco to the attention of the United Nations, but discussion was postponed by the assembly.

In the economic sphere, the year saw the cultivation of rice and flax extended, more wines exported and more electricity produced; bank deposits were considerable. The preserved-fish industry (183 factories, with 30,000 workers and a turnover of 90,000 metric tons) seemed to have reached its maximum of expansion.

Nine large bases for U.S. forces were being prepared in pursuance of the North Atlantic treaty.

Education. Schools (1950, French zone): primary and secondary, pupils, Moslem 120,000, European 72,400, Jewish 31,800; institutions of higher education 3, students 1,725.

Industry. French zone, production (1950, '000 metric tons): phosphate rock 4,022; coal 637; iron ore 319; manganese 257; lead ore 65; zinc ore 22; oil 39; cement 321; electricity (million kwh.) 481.

Foreign Trade. French zone (1950, million francs): imports 114,810 (incl. 78,181 from the French Union); exports 65,799 (incl. 30,719 to the French Union). Principal exports: phosphate rock 12,777; preserved fish 8,982; cereals 7,398; citrus fruits 3,911; vegetables 4,436; lead 2,176; linseed 1,864.

Transport and Communications. French zone (1950): railways (normal gauge only) 1,690 km., incl. 719 electrified; roads 9,181 km.; motor vehicles 65,000; ships entered at Casablanca 6,238; aircraft landed 6,395.

Finance. Budget (French zone, 1951 est.): balanced at Fr. 60,856 million. Monetary unit: Moroccan franc=metropolitan franc.

(HU. DE.)

MORRISON, HERBERT STANLEY, British statesman (b. Brixton, London, Jan. 3, 1888). The son of a policeman, he was educated at an elementary school and, at 14, began work as a messenger. After working as a shop assistant and a brewery telephone operator, he became, in 1912, deputy circulation manager to the Labour party newspaper, the *Daily Citizen.* Three years later he became secretary of the London labour party, which he helped to found, and retained this post until 1940. Morrison embarked on a strenuous career in local and national politics and his appointments included: 1920, mayor of Hackney; 1922, elected to London County council (alderman, 1931; leader of the council 1934-40); Labour member for South Hackney 1923-24, 1929-31 and 1935-45, East Lewisham 1945-50 and South Lewisham from 1950; chairman of the Labour party executive 1928-29. He was minister of transport in Ramsay MacDonald's government of 1929 and completed plans for the formation of the London Passenger Transport board. His next period of office came in May 1940 as minister of supply in Winston Churchill's coalition government, and in October of that year he was made home secretary and minister for home security. He was a member of the war cabinet, 1942-45, chairman of the cabinet's civil defence committee and his name was given to the indoor air raid shelter used during World War II. Morrison played a leading part in developing the Labour party's strategy in the elections of 1945, 1950 and 1951. In Clement Attlee's government of 1945 he became lord president of the council, deputy prime minister and leader of the House of Commons. He was responsible in the government for arrangements for the Festival of Britain, 1951, and was jocularly referred to in the House of Commons as "Lord Festival." He succeeded Ernest Bevin as foreign secretary in March 1951 and, after his party's defeat at the 1951 parliamentary elections, was elected deputy leader by the parliamentary Labour party.

MORRISON, WILLIAM SHEPHERD, British parliamentarian (b. Torinturk, Argyll, Aug. 10, 1893), was educated at George Watson's college, Edinburgh, and at Edinburgh university. He served in the Royal Field Artillery in France in World War I and was awarded the Military Cross. He was appointed private secretary to the solicitor general, 1922-23 and 1924-27, and to the attorney general, 1927-29; he had been called to the bar by the Inner Temple in 1923. In the parliamentary elections of 1923 and 1924 he stood unsuccessfully as Conservative candidate in the Western Isles; in 1929 he was elected for Cirencester and Tewkesbury and continued to represent the constituency thereafter. From 1931 to 1935 he was parliamentary private secretary to the attorney general, Sir Thomas Inskip, and in 1935-36 was financial secretary to the Treasury. In 1934 he became a K.C. He was recorder of Walsall from 1935 to 1936, when he was appointed minister of agriculture and fisheries. In the same year he was sworn of the Privy Council. He remained minister of agriculture until Jan. 1939 when he became chancellor of the Duchy of Lancaster. In April 1939 he was appointed minister in charge of the Food (Defence Plans) department. In Winston Churchill's coalition and "caretaker" governments he was postmaster general (1940-43) and minister of town and country planning (until July 1945). When the 39th parliament of the United Kingdom met for the first time on Oct. 31, 1951, Morrison was elected speaker of the House of Commons in succession to Douglas Clifton Brown. Morrison received 318 votes to 251 for his opponent, James Milner, Labour M.P. for South-East Leeds. This was the first contested election for a speaker since W. C. Gully was elected in April 1895.

MOSCOW. Capital of the Union of Soviet Socialist Republics and of the Russian Soviet Federated Socialist Republic and probably the third largest city of the world. Area (1939): 110·1 sq.mi. Pop.: (1926 census) 2,029,425; (1939 census) 4,137,018; (1950 est.) 7,000,000.

During 1951 about 735,000 sq.m. of floor living-space was completed, which was 224,000 sq.m. more than in 1950, about 300,000 sq.m. more than in 1949 and almost twice as much as in 1940. Included in this were three skyscrapers, one in the Lenin hills (to be Moscow State university), another an administrative 30-storey building in Smolenskaya square, and the third a 34-storey block of flats on the Kotelnicheskaya embankment. Many 10-14-storey houses each providing an average of 500 flats were handed over to a few thousand families out of the many thousands on the waiting lists. About 51,000 flats were linked during the year with the main gas system, with the result that by December about 85% of all Moscow flats and houses had gas facilities.

Twenty-four schools with a seating capacity of 20,640 and 58 kindergartens for 5,320 pupils were also completed.

A new section of the great circular or *bolshoye koltso* underground railway between Kursky and Byelorussky railway stations added 4 stations to the existing 35, and 6·7 km. of track to the Moscow *metropoliten* which by the end of the year covered over 100 km.

The western colony continued to dwindle. Many foreign diplomatic missions drastically reduced their staffs and, following the example given by New Zealand in the preceding year, Iceland closed its legation. These moves were dictated by the high cost to western countries of being represented in Moscow. With an official exchange rate of Rb. 11·20 to the pound sterling the Soviet capital was the most expensive city in the world, typical prices to foreigners ranging from 8*d.* for a newspaper to £6 for a square meal.

Mikhail Alekseyevich Yasnov, chairman of the executive committee of the Moscow city soviet, visited Paris in July.

The Moscow budget estimates for 1950 planned for a revenue of Rb. 3,504·8 million but the actual total was Rb. 4,130·1 million. The estimated revenue for 1951 was Rb. 3,538·7 million. (K. SM.)

MOSSADEGH, MOHAMMAD, Persian statesman (b. Tehran, 1880 [?]), the son of Mirza Hedayat, for 30 years minister of finance, served his apprenticeship as financial agent in the province of Khurasan. He soon opposed Mohammad Ali, the last shah of the Kajar dynasty, had to leave the country and studied in Paris and later at the University of Neuchâtel, Switzerland, where in 1914 he received his degree of doctor of laws. After his return to Persia he was for a short period minister of justice (1920), of finance (1921) and of foreign affairs (1922), but was not popular with Persian officialdom because of his insistence on cutting salaries and dismissing useless office holders. During 1923-27 he was member of the Majlis for Tehran, but had to retire from public life because of his opposition to Riza Khan Pahlavi who in Dec. 1925 was proclaimed new shah of Persia, with right of succession to his heirs. Mossadegh returned to politics in 1944, was elected to the Majlis and put through a bill forbidding the government to grant an oil concession to anyone without legislative permission. As leader of the small National Front party (with 8 seats out of 136) he succeeded in persuading the Majlis to reject on Nov. 26, 1950, the supplementary oil agreement signed by the government with the Anglo-Iranian Oil company. On March 15, 1951, mainly under his pressure, the Majlis passed the Oil Nationalization act. On April 28 Mossadegh was elected prime minister with the purpose of enforcing the act. On Oct. 8 he arrived at New York to present Persia's case before the U.N. Security council. On Oct. 23 he visited President Harry S. Truman in Washington and remained for a week in the U.S. capital. On his return trip he met Mustafa el-Nahas Pasha at Cairo on Nov. 22 and reached Tehran the next day.

MOTION PICTURES: *see* CINEMA.

MOTOR BOAT RACING. In a race on Lake Garda, Italy, on June 10, Donald Campbell in "Bluebird" won the Oltranza cup for the unlimited class of high-speed boats; he averaged 96·8 m.p.h. over the five four-mile laps. The Oltranza cup, given by Gabriele d'Annunzio in memory of Sir Henry Segrave, had been awarded only once during the previous 20 years—in 1949 to an Italian boat for an average speed of 64 m.p.h. In September Campbell brought "Bluebird" to Coniston Water, Lancashire, for trials preliminary to his attempt on the world water speed record. On Oct. 25, however, "Bluebird" struck a drifting fence post while travelling at about 165 m.p.h. Campbell managed to regain control but the craft subsequently sank in shallow water; a propellor-blade had been sheared off and other serious damage incurred.

On July 7 F. E. Flint (British Outboard Racing club) won the West of England Championship Outboard race at Swanage, Dorset, in his C-class 498-c.c. Johnson-engined hydroplane "Granit." The B.O.R.C. won the four leading places; there were 41 entrants. E. H. Barnes (Lancashire Hydroplane Racing club), with his Johnson-engined Jacoby-hull "Blackfriar," won the *Motor Boat* handicap for A, B, C and X class boats during the B.O.R.C. regatta at Rochester, Kent, on Sept. 1.

The Windermere Motor Boat Racing club's international meeting was held on Oct. 5-6. H. A. Hatch (Canada) won the three-heat Duke of York's trophy in his Townsend/Ford 200-h.p.-engined "Costa Livin"; N. H. Buckley (Great Britain), who won the third heat, was second in "Miss Windermere II." Buckley won the *Motor Boat* Sea Mile trophy at a speed of 78·96 m.p.h.; J. W. Langmuir (Canada) was second (77·92 m.p.h.) in "Running Wild II." Langmuir won the *Daily Telegraph* trophy in "Z-z-zip," Hatch being second.

Ken Taylor (B.O.R.C.), driving his 350-c.c. Johnson-engined "Tsetse," won what was described as the "National Outboard Hydroplane championship" during the Festival of Britain regatta sponsored by the *Daily Mirror*, London, on the Chelsea Reach of the Thames on Aug. 18; R. A. Bonner, in his 498-c.c. Elto Super C-engined "Lazy-B," was second. The race was made almost farcical by river-traffic, driftwood and rough water; there were many non-starters and breakdowns, and of the 84 A, B, C and X-class entrants, only two—Taylor and Bonner—finished. There was also a race for inboard craft, won by the 16-ft. Hercules-engined Chris-Craft "Flying Arrow" (Lowestoft and Oulton Broad Motor Boat club).

During the year the National Maritime museum, Greenwich, put on show Hubert Scott-Paine's famous "Miss Britain III."

United States. Lou Fageol, in "Slo-Mo-Shun V," won the Gold cup competition on Lake Washington, Seattle, on Aug. 4, after the third 30-mi. heat had been called off because of a fatal accident; Stanley S. Sayres' "Slo-Mo-Shun IV," the existing world speed record-holder, also took part.



Motor boat racing on the River Thames at Chelsea in Aug. 1951, during the "Daily Mi[illegible]tta.

Chuck Thompson, in "Miss Pepsi," set up a Gold cup qualifying record of 100·558 m.p.h., and went on to win the Silver cup at Detroit and the President's cup at Washington.

Inboard competition records of 1951 included: unlimited class, "Slo-Mo-Shun IV" (Fageol, driver), 111·742 m.p.h.; 225 class hydroplane, "You All" (Bob Rowland), 83·488 m.p.h. Straight-mile inboard records included: 48 class hydroplane, "Shooting Star" (C. M. Scull), 72·727 m.p.h.; 91 class hydroplane, "Miss Fort Pitt" (T. Margio), 71·891 m.p.h.; 7-litre class, "Tommyann" (J. Taggart), 98·361 m.p.h.

MOTOR CYCLE AND CYCLE INDUSTRY. Throughout 1951, the British motor cycle and cycle industry retained its world lead. Production increased to 180,000 motor cycles and 4 million bicycles in the year. By the end of Oct. 1951, a total of 78,458 motor cycles valued at £7,880,440 and 2,259,517 bicycles valued at £17,415,375 had been exported. The estimated total earnings of the industry in exports during 1951 were £40 million. Over £8 million of this figure was for parts and fittings.

India remained the best overseas customer for bicycles. Other leading buyers were Malaya, British West Africa and Pakistan. A striking feature of the last months of 1951 was a spectacular rise in sales of bicycles to the United States, numbering 13,134 in October. Australia was still well ahead as an importer of British motor cycles, with New Zealand and the U.S. as other large buyers.

Lightweight cycle frames and fittings continued to be imported in relatively small numbers from France and Italy. Competition from Germany remained on a small scale, the chief cycle imports being of pedals and chains. In far east business, the increasing output of Japan had already caused concern. A delegation of six members of the Japanese cycle industry visited London in Nov. 1951. Its members promised that they would try to make the future trading policy of the Japanese industry conform more closely to western practice than the methods used before the war. Imports of motor cycles into Great Britain extended a little; the countries sending machines were France, Italy, Germany and Czechoslovakia.

Home prices of complete bicycles and motor cycles advanced during 1951. Supplies of bicycles for Britain remained fairly plentiful, except for a few specialist models. About 1·5 million new machines were put on the British market. Motor cycles of larger horsepower for the home market became scarcer in 1951, and sales of secondhand models again increased. Two-stroke motor cycles (of below 200 c.c.) for utility purposes were more plentiful than larger models. Home supplies of new motor cycles (not including auxiliary-engined bicycles) numbered about 75,000. The total number of motor cycles registered (including auxiliary-engined machines) reached 567,500 on Feb. 28, 1951, as compared with 525,800 twelve months earlier.

The number of auxiliary-engined bicycles in use in Great Britain was estimated at 100,000 in Nov. 1951. The 12 makes of auxiliary engines on the market (consisting of friction-, belt-, and chain-driven types) were increased, in Nov. 1951, by a further model called the Power Wheel, introduced by a prominent British concern. This unit was a 40-c.c. rotary engine fitted into the rear wheel of a bicycle. It developed 0·7 b.h.p. at 3,600 r.p.m., and was said to give 220/300 m.p.g. and attain 25 m.p.h. Production of this unit was not expected to start until mid-1952, and no price was available.

Despite restrictions on chromium-plating of several motor cycle and cycle parts, two-wheelers for 1952 were as colourful as those of 1951. Motor cycles were more directly affected by the ban than bicycles. The chief prohibitions were of such fittings as petrol tanks and the sliders of telescopic forks. The makers overcame the prohibition of chromium-plating by finishing tanks in durable coloured enamels and by giving sliders and other fittings bright-aluminium finishes.

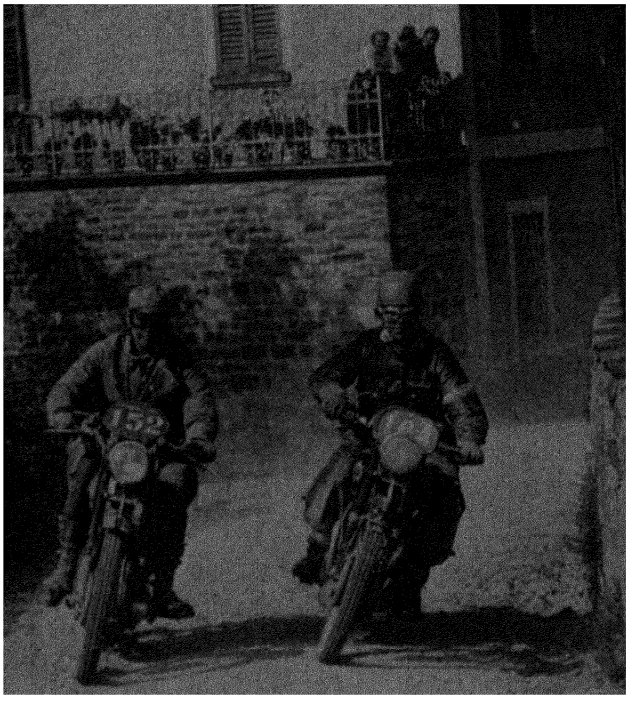
Motor cycle design did not greatly change during 1951. Improvements were in such minor—but still important—quarters as road-holding and comfort. In bicycles, the utilitarian trend away from the heavy roadster machine and towards lighter business models, with first-class tubing, speed gears and coloured finishes, continued.

The third postwar London Cycle and Motor Cycle show was held at Earls Court in mid-November. For the seven-day show a total attendance of 175,473 was recorded, as compared with the 1949 (eight-day) figure of 189,671. The 1951 show raised the value of British cycle and motor exports already ordered to £25 million. There were at the show 28 cycle manufacturers, 33 motor cycle makers, and 127 makers and suppliers of components, accessories and tyres. Overseas opinion of the exhibition was that it excelled any of the other European cycle and motor cycle shows in presentation and in comprehensiveness.

As the year 1951 closed, the industry was becoming concerned about the growing scarcity of steel. Without a constant supply the industry would have the greatest difficulty in meeting its export commitments. (H. BFE.)

MOTOR CYCLING. Great Britain won the premier award in the international six days trial (Italy, Sept. 18-23) for the fourth successive year. Captained by F. M. Rist (B.S.A.) and with P. H. Alves (Triumph), C. M. Ray (Ariel), W. J. Stocker (Royal Enfield) and B. H. M. Viney (A.J.S.) as its members, the team was the same as that for 1950. Great Britain was unpenalized; Austria lost one mark and Italy lost 620. Two of the 11 teams competing in the secondary silver vase contest—one Dutch and the other British—lost no marks, but the Dutch riders made the best performance in the final speed test.

In the world road racing championships, the British Norton factory headed the three principal classes—for 350 c.c., 500 c.c. and sidecar machines—and the Italian Guzzi and Mondial factories gained the 250 c.c. and 125 c.c.



Two competitors taking part in the 1951 international trophy six-day 1,240-mi. Varese trials at Monza, Italy, in Sept. 1951. Great Britain won for the fourth successive year.

titles. For the third time in succession E. S. Oliver won the individual sidecar championship, and G. E. Duke was the first man to win both 350 c.c. and 500 c.c. titles. B. Ruffo became the 250 c.c. champion and C. Ubbiali the 125 c.c.

The eight race meetings comprising the championship series were the Belgian, Dutch, French, Italian, Spanish, Swiss and Ulster Grands Prix and the Isle of Man T.T. races. In the senior, 500 c.c., class, G. E. Duke won four of these, his most notable achievement being the raising of the T.T. lap record to 95·22 m.p.h. The fastest race was the Belgian G.P., won by Duke at 106·66 m.p.h.

The German N.S.U. riders, W. Herz and H. Böhm, set up world records of 180 m.p.h. and 154 m.p.h. for the solo and sidecar flying kilometre respectively. A.J.S., Guzzi and Lambretta riders were particularly active in breaking records over longer distances.

In the United States a British Norton, ridden by R. Klamfoth, was again first in the 200-mi. national championship on Daytona beach. (C. Q.)

MOTOR INDUSTRY. The year 1951 was an eventful and, in some ways, a crucial period for the British motor industry. Total exports, including cars, commercial vehicles, tractors, and components rose to the new record level of about £300 million a year but, within that total, exports of private cars and chassis fell below the previous year's level for the first time since the end of World War II. Raw material shortages hampered motor manufacturers throughout the year and part of the new productive capacity, which had been added to the industry in the postwar years, was under-employed. In policy, the most important decision of the year was announced at the Motor show when the Austin company returned to the small car market with a new version of the Austin Seven, and in organization the most important event was the announcement, in November, of plans to amalgamate the Nuffield and Austin groups. Policy and organizational developments overshadowed technical changes. The Austin Seven was the only completely new model of the year, and the turbine engine, which had made a brief experimental appearance in 1950, was still in the development stage.

Both from its own point of view and from the national point of view, the export performance of the industry remained the most important aspect of its activities. During 1951, the motor manufacturers again contributed more than any other industry to the United Kingdom's total of exports and, once again, probably sold more cars in world export markets than did the motor industry of any competing country. There were, nevertheless, increasing difficulties due to changing patterns of demand in overseas markets, to raw material shortages, to growing competition and to certain fortuitous factors.

In the late summer, several thousands of British cars were reshipped to the U.K. from Canada as unsaleable in the Canadian market. This drastic action was no reflection on the quality of the product but resulted from the sudden curtailment of hire-purchase credit facilities by the Canadian government, as one of a series of measures to combat inflation. The industry thus quickly lost a large part of one of its most spectacular postwar achievements, since it was only in 1950 that British motor exports gained an appreciable foothold in the hard currency markets of North America.

Earlier in the year, the export trade had received another severe setback owing to prolonged dock strikes in Australia and New Zealand, which countries between them constituted the industry's largest overseas market. Some, at least, of these difficulties were of a temporary nature, but during 1951 competition, particularly from Germany, France, and Italy, made itself increasingly felt and there were indications

TABLE I. U.K. EXPORT DESTINATIONS AND NUMBERS OF CARS AND TAXIS (NEW), 12 MONTHS ENDED DEC. 1951

Commonwealth and Irish Republic		*Foreign Countries*	
Australia	58,402	Belgium	11,163
New Zealand	29,662	Brazil	9,209
Africa, Brit. E.	5,406	Denmark	2,438
Africa, Brit. W.	4,504	Egypt	1,452
S. Rhodesia	4,386	Finland	1,840
South Africa	22,601	France	1,539
Brit. W. Indies	3,785	Germany	2,316
Canada	27,391	Netherlands	7,654
Ceylon	4,639	Portugal	2,186
Hong Kong	1,758	Sweden	16,302
India	11,746	Switzerland	3,311
Malaya	13,610	U.S.A.	19,807
Pakistan	1,679	Uruguay	1,629
Other	7,492	Venezuela	1,007
Irish Republic	11,558	Other	18,647
Total	208,619	Total	100,500

The number of car and taxi chassis exported to the Commonwealth and Irish Republic in the 12 months ended Dec. 1951 was 55,097 and the number exported to foreign countries in the same period was 4,521, making a total of 59,618.

SOURCE. Based on a table published in the *Monthly Statistical Review* of the Society of Motor Manufacturers and Traders and reproduced by permission.

that it would become still more acute in the future.

Up to 1951, the main competition came from the United States, and broad general differences in the type of product determined the allocation of markets. On the whole the relatively large high-horsepowered American type of car was preferred wherever currency conditions permitted its purchase, for example in Canada, the United States and in the South American countries. The standard British type for export was a cheaper, medium-sized vehicle, weighing about one ton against the 30 cwt. of the popular U.S. models, and developing about 50 b.h.p. against their 100 b.h.p.

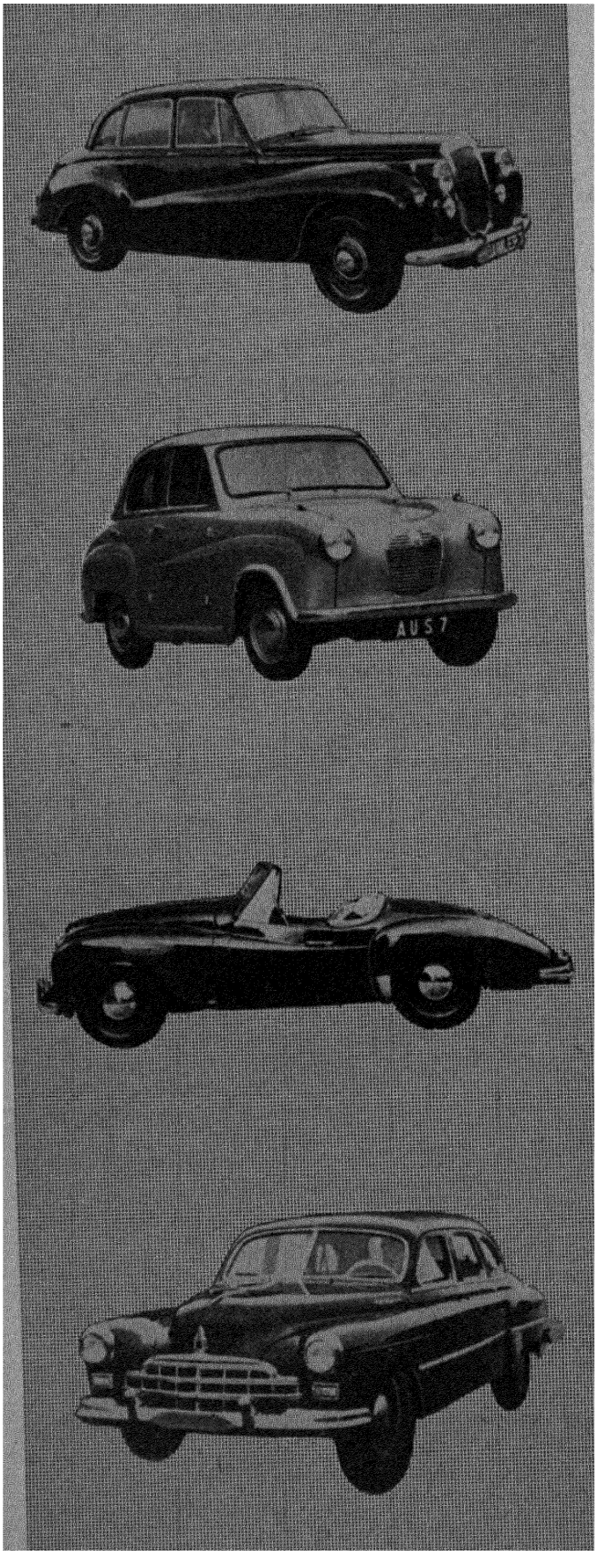
With these medium-sized cars the British industry had been able to dominate world markets outside the American continents during the postwar years, but during 1951 European manufacturers were increasingly successful with lightweight, low-horsepower types of car, marketed at a correspondingly lower price. Such a car was obviously attractive to the city dweller and to the western European in general, who was not faced with the vast motoring distances of the newer countries. The light cheap car also offered motor manufacturers possibilities of absolute expansion of their markets since, in time, they might be brought within the range of the working and lower middle classes who were, up to 1951, generally debarred from car ownership by high prices.

This situation was summed up by the *Economist*, on the eve of the 1951 Motor show, with the comment that the car market of the future might well be divided between two types of vehicle, a 20-cwt. and a 12·5-cwt. car, but that it was not yet possible to predict their relative proportions. This was the background against which the new Austin Seven made its appearance and was welcomed by commentators as a new and realistic approach to one of the problems of the export trade. The new Austin Seven proved

TABLE II. U.K. EXPORT DESTINATIONS AND NUMBERS OF COMMERCIAL VEHICLES (NEW), 12 MONTHS ENDED DEC. 1951

Commonwealth and Irish Republic	Complete	Chassis	*Foreign Countries*	Complete	Chassis
Africa, Brit. E.	3,259	2,074	Belgium	2,241	1,795
Africa, Brit. W.	1,665	2,773	Brazil	3,513	1,298
S. Rhodesia	1,460	667	Denmark	1,049	1,840
South Africa	1,149	4,200	Finland	1,557	2,530
Australia	14,254	22,022	Netherlands	2,537	1,777
Brit. W. Indies	809	668	Portugal	812	1,320
Canada	2,557	502	Spain	282	875
India	1,370	1,860	Sweden	2,137	696
Malaya	2,366	2,692	Turkey	447	2,276
New Zealand	3,957	5,900	Colombia	496	—
Pakistan	432	513	U.S.A.	697	—
Other	2,856	2,559	Venezuela	361	—
Irish Republic	3,929	1,727	Other	11,505	6,883
Total	40,063	48,157	Total	27,634	21,290

SOURCE. Based on a table published in the *Monthly Statistical Review* of the Society of Motor Manufacturers and Traders and reproduced by permission.



New motor-cars displayed in Europe in 1951. (Downwards) Daimler 3-litre Regency saloon; Austin "7," the first post-war "7" made by the Austin company; Sunbeam Talbot; the Russian Zim, 6-cylinder saloon.

to be very different from its predecessor of the early 1920s, but its four-cylindered engine, developing up to 30 b.h.p., and unladen weight of just over 13 cwt., put it into a class to compete with such continental products as the small French Renault and the German Volkswagen. By the end of 1951 this new phase was still in its early stages but there were already indications that other British manufacturers were planning to follow the Austin example.

Increased interest in small car production was also stimulated by the shortage of raw materials, particularly of sheet steel, which were mainly responsible for the fact that the total volume of production in 1951 fell below the record level of 1950. For example, Lord Nuffield estimated, in an article in the *Financial Times*, that the number of cars produced could be increased by about 30% from the same material, if a changeover were made from large to small cars.

Motor manufacturers suffered serious restriction of raw material supplies when imports of sheet steel from the United States were suddenly brought to an end early in 1951. Allocations to the industry were reduced by 20% in the second quarter and there was a further cut in the fourth quarter. Although actual deliveries suffered somewhat less heavy cuts, some decline in vehicle output was inevitable and, by the end of the third quarter, production was about 6% below that of the corresponding period in 1950. In common with other branches of engineering, the motor industry also suffered from shortage of iron for castings and from a shortage of alloy steels, which itself derived from shortages of alloying metals. Towards the end of the year, the announcement of a plan to barter British aluminium for U.S. steel promised some improvement in the steel position but there were indications that other shortages might become more, rather than less, acute.

The rearmament programme was still in its early stages in 1951, but military orders were increasing and plans were being made to augment military output still further in future years. With the exception of one firm making jeeps the impact fell almost entirely on the commercial vehicle builders. Although supplies were forthcoming for this purpose, other production difficulties arose from retooling and from the reorganization of assembly lines.

More dangerous, in the long run, than the immediate loss of output, was the growing threat to the industry's cost structure. Up to and beyond the period of peak output in 1950 the industry retained confidence in its ability to expand both output and export sales. Something like £60 million had been spent since World War II on new plant and equipment, but the setbacks of 1951 meant that much of the new manufacturing capacity was underemployed and that much of the industry's labour force was, from time to time, working short hours. The industry was therefore unable to achieve in full, at least, the reductions in costs of production which, it had been hoped, would result from increased output. This development made a further contribution to the difficulties of the export trade.

It seemed likely, therefore, that cost considerations had much to do with the plan, which was announced in November, to merge the Nuffield and Austin organizations. An earlier approach to amalgamation, by way of technical co-operation, broke down in 1948 although, at the time, the two companies had expressed a desire "to effect maximum standardization, and, by pooling of factory resources, a consequent reduction of costs." Such considerations were obviously more pressing under the conditions of 1951 than they had been in the expansive days of 1948. The merger was still in its preliminary stages at the end of the year but some implications were already clear. Between them, the two merging groups were producing about 45% of the output of the whole industry. Potential economies lay in the standardization of components,

in possible reduction of the number of types of vehicles manufactured and in the telescoping of managerial functions. The stage was thus set for one of the biggest experiments in horizontal integration in the history of British industry.

(W. HAN.)

United States. Despite production curtailments and scattered strikes, the motor industry of the United States produced in 1951 a total of 6,766,000 vehicles, of which 5,336,000 were passenger cars and 1,430,000 were lorries and motor coaches. This drop of 15% in output, as compared with 1950 (8,003,045), was in sharp contrast to some pessimistic predictions early in the year that by August materials shortages would cut production by 50%. Estimated U.S. motor vehicles exports in 1951 totalled 470,000 units, as compared with the 1950 total of 303,685. Imports from 1948 to the end of 1951 were as follows: (1948) 29,112; (1949) 8,366; (1950) 21,689; (1951, est.) 25,250.

The most unfavourable factor in the production struggle was the materials shortage. The newly formed National Production authority (N.P.A.) became the barometer for the industry. The increasing use, allocation or stockpiling for defence of critical materials left less and less for civilian production and the motor industry. As a result of the sudden conversion to defence production, there was a serious shortage of machine tools as well as other vital materials. Hundreds of machine tools put away after World War II were being rehabilitated and modified for new defence production undertakings. Materials shortages and allocations were responsible for most of the difficulties of U.S. motor manufacturers during 1951. Early in the year, boron-treated steels were offered as a substitute for scarcer alloy steels. But even this could not make the supply of steel meet the needs of both defence and civilian production. The N.P.A. cut passenger-car steel by 20% for the second quarter, with a forecast of a 10% additional cut for the third quarter. By June 1, the supply had to be cut another 5%, and quotas for the third quarter were lowered to 65% of the monthly consumption during the first half of 1950. By the final quarter, steel allocations for the industry had been dropped to 58% of the pre-Korean war level. A gradual increase in the supply of synthetic rubber alleviated the rubber shortage that threatened to occur in the first half of the year.

An N.P.A. order of Oct. 1 decreed that automatic transmissions could be installed on only 35% of the production of motor vehicles sold at the factory for less than $1,800, and 65% of the production of cars sold at the factory for $1,800 to $2,500. Over $2,500 no limitation was imposed.

Three new models appeared during the year, all outside the standard big car field. One U.S. manufacturer announced the production in England of a new sports car and two producers announced new light cars. Of the latter, one was to be distributed solely by Sears, Roebuck and company under its own brand name, "Allstate." The popularity of the "hard top" continued to increase in 1951 and by the end of the year all but two manufacturers offered hard top styling on at least one line of car. (C. F. KE.)

MOTOR RACING. The world championship was confined exclusively to Italian competition between the teams of 1½ litre supercharged Alfa Romeos and 4½ litre unsupercharged Ferraris, and the issue remained in doubt until the last race of the season, the Spanish Grand Prix, held at Barcelona in October. This vital race was won by Juan Manuel Fangio, the Argentinian, in an Alfa, at 98·76 m.p.h., with his fellow countryman, Froilan Gonzales, in a Ferrari, second, and Giuseppe Farina, in an Alfa, third. Fangio thereby became world champion with 31 points. The runner-up was Alberto Ascari, the Ferrari driver, with 25 points.

The Grand Prix of Pau, the traditional curtain raiser of the motor racing season, was won by Luigi Villoresi, in a Ferrari, at 57·45 m.p.h., and Ferraris driven by Ascari (the winner at 64·03 m.p.h.), Dorino Serafini and Rudolf Fischer occupied the first three places in the San Remo event.

The Alfa organization, which had dominated the *grandes épreuves* in 1950, had its first important success in the Swiss Grand Prix on the Bremgarten circuit where Fangio, in the new, higher-powered 159 type, won at 89·11 m.p.h.

In the 315-mi. Belgian Grand Prix, run over the Francorchamps circuit in the Ardennes, world champion Farina in the Alfa led two Ferraris driven by Ascari and Villoresi to win at 114·33 m.p.h. Fangio established the fastest lap of 120·52 m.p.h. before retiring.

Fangio repeated the Alfa success in the 374-mi. European Grand Prix at Rheims, winning at 110·97 m.p.h. and recording the fastest lap of 118·3 m.p.h. Ascari and Villoresi again occupied second and third places.

The 285-mi. German Grand Prix, decided on the famous Nurburg Ring circuit, was won by Ascari at 83·75 m.p.h., with Fangio (83·02 m.p.h.) second. Ferraris occupied third, fourth and fifth places.

Gonzales achieved his first major success for Ferraris by winning the 260-mi. British Grand Prix on the Silverstone circuit at 96·11 m.p.h., Fangio being second and Villoresi third. Gonzales then won the Pescara Grand Prix at 85·5 m.p.h., but had to take second place to his team-mate, Ascari, in the Italian Grand Prix at Monza, where Farina, in an Alfa, was third. Ascari's winning speed of 115·53 m.p.h. and Farina's fastest lap of 120·97 m.p.h. broke all course records.

The 1½-litre supercharged British B.R.M. made only two appearances during the season. Two cars driven by Reg Parnell and Peter Walker ran and finished in the British Grand Prix without gaining a place, but mechanical troubles compelled their last-minute withdrawal from the Italian classic.

It was an outstanding year for British sports cars. A Jaguar XK 120 "C" type, driven by Peter Whitehead and Peter Walker for 2,243·87 mi. at an average speed of 93·49 m.p.h. won the Le Mans 24-hr. race, with a French Talbot second and a British Aston Martin third. This was the first British success here since 1935. A similar model driven by Stirling Moss won the tourist trophy races on the Dundrod circuit in Northern Ireland at an average speed of 83·55 m.p.h. For the first time, a British car, a Frazer Nash driven by the Italian, F. Cortese, won the 35-year-old Targa Florio race in the Sicilian mountains.

A Jaguar sports car owned and driven by Ian Appleyard also made the best performances in the International Alpine rally, the Tulip rally and the first international rally of Great Britain.

The British Racing Drivers' club, the British Automobile Racing club and the Ulster Automobile club organized successful international race meetings at Silverstone, Goodwood and in Northern Ireland, while the Half-Litre club popularized 500-c.c. racing for thousands of people at Brands Hatch, Kent, and elsewhere. (CH. FL.)

MOTOR TRANSPORT. In 1951, the motor transport industry suffered from sharp rises in operational costs and was engaged in an intermittent struggle to pass them on to the consumer. Public opposition to increasing transport charges mounted and reached its most intense and highly organized form at the end of the year before a tribunal hearing claims for higher passenger fares in the London area. British Road services, which had been created in 1950, began the year with its organization broadly complete, and passed through a period of consolidation during which the competitive

position between publicly and privately owned transport became increasingly clear.

The scale of the industry in 1951 may be judged from the fact that there were about 40,000 hauliers holding "A" and "B" licences and operating a total of about 120,000 vehicles. The Road Haulage executive had slightly more than 40,000 vehicles, having acquired about 3,700 firms. In addition, traders using their own transport under "C" licences numbered more than 400,000 by the end of the year and owned nearly 800,000 vehicles. On the passenger side, London Transport had about 7,500 buses and coaches, and other publicly owned road passenger vehicles in the provinces and Scotland numbered about 14,000. About 54,000 road passenger vehicles were, however, still owned either privately or by municipalities.

In January, Lord Hurcomb, chairman of the British Transport commission, issued a progress statement on British Road services, in which he outlined the then nearly completed organization. Some 2,900 separate road haulage concerns had been merged into a national network based upon 1,000 depots and sub-depots and employing 75,000 persons. Operational units consisted of 100-200 vehicles and authority was delegated, as far as possible, to local managers. Certain economies had been achieved by reorganization. For example, on Jan. 1, 1951, a national insurance scheme covering the whole of British Road services came into operation. Further economies were being effected on the engineering side by the systematizing of repairs and maintenance, by reorganization of stores and by mechanization and standardization of accounting.

Critics of British Road services nevertheless still held the organization to be cumbersome and inelastic. During the year further expansions took place. By the end of October the total number of firms absorbed had grown to 3,727 and the total number of people employed had risen to about 80,000. The total tonnage handled remained nearly stationary, at an annual rate of about 46·5 million tons, which was not significantly different from the 1950 total. Increased working efficiency was indicated by an increase in total vehicle miles from 702 million in 1950 to about 760 million in 1951 and by a decline in empty mileage from 18·8% in 1950 to about 17·7% in 1951.

Under the Transport act of 1950, some thousands of private hauliers holding "A" and "B" licences had been granted temporary permits to operate outside the 25-mi. limit from their respective bases. All traffic over distances greater than 25 mi. was, however, eventually to be taken over by the Road Haulage executive. Lord Hurcomb's January progress statement indicated that the executive had reached a stage when they were confident they could take in their stride the traffic represented by the 5,000 or so existing permits. Large numbers of such permits, were, in fact, not renewed when they terminated during the year.

This aspect of the executive's work aroused strongly conflicting opinions. Supporters of nationalized transport claimed that the executive could only achieve maximum economies and operating efficiency by obtaining control of all long-distance road transport, other than traffic carried by "C" licensees. Opponents took the view that the removal of competition was likely to increase both costs and delays in transit. Vigorous complaints were lodged against the termination of permits and, in some cases at least, concessions were made to private enterprise. Thus the executive agreed to renew the permits of certain hauliers employed by farmers where there was reasonable doubt as to whether the executive could provide similar services. The executive also made some concessions where permits had authorized regular operations only slightly outside the 25-mi. limit, and where such work was an integral part of the licensee's normal short distance activities. Again, an agreement with the Association of Furniture Removers offered three-year permits to firms who could show that journeys outside a 25-mi. radius had been carried on more or less continuously since before Nov. 1946.

These concessions were, however, not enough to satisfy critics of nationalized transport. Private industry reacted by increasing the number of "C" licences, in other words, by carrying an increasing proportion of its own goods. "C" licensees rose from 380,000 in number at the beginning of 1951, to 400,000 in September, and the number of vehicles in their possession increased from 733,000 to 780,000 over the same period. Not all of this increase could be attributed to opposition to nationalization, but it seems fair to conclude that, at about 5,500 a month, the increase in the number of privately owned haulage vehicles was unusually large.

In an election year this controversy was inevitably reflected in political activities. In Feb. 1951, the Transport (Amendment) bill, introduced by the Conservatives towards the end of 1950, had a successful second reading. The bill proposed that the 25-mi. radius for "A" and "B" licence holders should be extended to 60-mi., that the Road Haulage executive should themselves be required to hold licences and that permits to trade outside the 60-mi. limit should be granted, not by the Road Haulage executive, but by the licensing authorities. These proposed changes did not survive the committee stage but, as the general election approached, the Conservative party confirmed that, if they were returned to power, they would abolish the 25-mi. limit and give ex-road hauliers a chance to return to the business. The Liberal party also indicated its support for a policy of denationalization and, after the election, the Road Haulage association, a national organization representing "A" and "B" licence holders, announced a plan of proposed reforms. These included the immediate abolition of the 25-mi. limit and the gradual dissolution of the Road Haulage executive. At the end of the year, however, it was evident that the new government would not make the details of its policy for motor transport known until 1952. A controversial year therefore closed in an atmosphere of uncertainty.



39-seater Green Line coaches introduced by London Transport on Oct. 1, 1951.

From the operational point of view, rising costs were the industry's most pressing problems. The April budget increased the duty on motor spirit by 4½*d.* per gal. and the oil industry's own rising costs were reflected in price increases of ½*d.* per gal. in January, April and October. The total cost of motor spirit to the consumer thus rose from 3*s.* 1*d.* to 3*s.* 7*d.* and there were similar increases in the prices of other fuels. Tyre prices were increased by 20% in January and there were widespread wage increases from time to time for various types of employees.

Even before the cost increases of 1951, income was lagging behind outgoings and, to meet this situation, road haulage rates were increased by 10% at the end of January. This was followed, in April, by increases of 2% for journeys up to

40 mi. and 3% for journeys over 40 mi. Road passenger transport undertakings were not subject to nationwide increases in rates but, during the year, many of them applied successfully to the Licensing Authorities for Public Vehicles for increased fares on their own routes.

Rising fares and haulage rates caused considerable public disquiet and, in particular, London Transport's claim for increased fares in the London area, including an increase of about 20% in bus fares, met with highly organized opposition. A tribunal appointed by the British Transport commission to hear the claim began its sittings on Oct. 8 and concluded on Dec. 3. In the intervening eight weeks, extensive evidence in opposition was presented by town, borough and county councils, by trade associations and by other bodies. The tribunal's decision was not known at the end of the year. It seemed very probable, however, that part, at least, of London Transport's claim would be granted and there were no signs that the general rise in costs in the industry was coming to an end. (W. HAN.)

United States. The postwar upward trend in motor vehicle ownership and operation in the United States continued in 1951. The total number of motor vehicles registered reached an all-time record of more than 52 million, which was 6% above the previous record established in 1950. There were 17 million more vehicles on the road in 1951 than there were ten years before. Motor cars accounted for nearly 43 million units, and there were more than 9 million lorries.

The wholesale value of 1951 motor vehicle production was $9,600 million, a slight decline from the record $10,400 million of the previous year; but heavy output of replacement parts increased the wholesale value of these items to $2,500 million, substantially above the 1950 figure. Exports of motor vehicles totalled 478,000, which was 57% above 1950.

The increased number of motor vehicles on the highway caused a proportionate increase in traffic volume, which was nearly 500,000 million mi. for the year. More petrol was consumed than in any previous year. These factors in turn led to an increase in traffic deaths, and more than 37,000 motorists and pedestrians were fatally injured in highway accidents. The postwar decline in inter-city travel by bus was reversed during 1951, and bus travel was nearly 10% higher than in 1950. Public transport vehicles in cities, however, experienced a continuing downward trend in business, and the 16,000 million passengers carried during 1951, most of them by bus, represented a decline of more than 1,000 million passengers from 1950. Inter-city lorries accounted for 137,000 million ton mi. of freight transportation during the year, or about 10% more than during 1950. But the over-the-road carriers, after sharp increases during the first half, suffered the first third-quarter drop since 1945. This reversal, principally the result of conversion of industry to defence production and liquidation of oversized inventories, was halted during the fourth quarter.

A significant milestone in the history of the motor industry was passed in the later part of December, when somewhere in the United States the 100-millionth motor car was produced. It had taken 51 years to achieve this mark, but the last 5 of these years had accounted for 25 million of the 100 million total.

The demand for better highways continued with the growth of motor vehicle traffic, and highway expenditures during 1951 reached an unprecedented level of $4·5 million. By the end of the year, however, shortages of materials were beginning to reduce the pace of road construction, and numerous projects were being held up for lack of steel. The year was nevertheless marked by significant roadbuilding innovations in the form of expanding toll road developments. All but the northern 9 mi. of the 130-mi. New Jersey turnpike were opened to traffic, providing a modern expressway from the Delaware river north to connect with the Hudson crossings to New York city. This brought the first major relief from the traffic congestion of parallel U.S.1, the heaviest-travelled route in the world. Pennsylvania likewise opened the eastern and western extensions of the Pennsylvania turnpike, bringing the total length of toll road to 327 mi., and providing an express route from Philadelphia to the Ohio border. New York voters approved a $500 million bond issue for a 500-mi. Thruway to further the trend back to the toll gate. (W. ON.)

MOZAMBIQUE: *see* PORTUGUESE OVERSEAS TERRITORIES.

MUNITIONS OF WAR. Europe and Commonwealth. The rearmament of the western powers continued in 1951. In Great Britain developments included the building of two new tank factories, the modernization of anti-aircraft equipment, including the improvement of proximity-fuse ammunition and automatic control, and the provision of naval Asdic equipment which located submarines and aimed and fired anti-submarine weapons. The Defence Production board of the North Atlantic Treaty organization had its first meeting on Jan. 11 in London.

General George Marshall, U.S. secretary of defence, reported that up to the end of June 1951 more than 4,500 armoured fighting vehicles and 2,900 artillery pieces had been shipped abroad under the military aid programme. In November the Malayan government announced that 341 armoured vehicles were to be delivered to Malaya by the end of the year and that 300 more were on order.

Evidence showed that the East German People's Police *Bereitschaften* were receiving supplies which included 1945-type Soviet T-34 tanks. An exhibition of Soviet weapons captured in Korea, held in London in August, included the standard T-34 tank, the fairly recent 76·2-mm. field gun and the powerful 122-mm. medium piece as well as mortars and small-arms.

Armoured Fighting Vehicles and Anti-Tank Weapons. Among the new French A.F.Vs. demonstrated at Baumholder, in the French zone of Germany, on Feb. 3, were the 13-ton tank, which mounted a 75-mm. gun and had a top speed of about 50 m.p.h.; and the Somua armoured reconaissance vehicle, which could be driven in either direction at 60 m.p.h. and had a range of about 500 mi. The Somua also had a 75-mm. gun. The lightly-armoured 1-ton Hotchkiss tracked vehicle, shown at Bourges on March 7, could function either as reconnaissance/personnel carrier or as an ammunition carrier for airborne forces.

The new British 3·5-in. anti-tank rocket launcher, a further development of the U.S. Bazooka, and a new French anti-tank rifle grenade were also shown during the year.

Artillery. Other new French weapons demonstrated during the year included the 105-mm. and 155-mm. howitzers. Both could be mounted either on a towed carriage or in a tracked vehicle, and could be brought into action very quickly—the 105-mm. gun in 2 min. and the 155-mm. in 10 min. The carriage version of the 105-mm. piece had a 360° traverse. The larger howitzer, designed for high-trajectory work, weighed a little over 7 tons and had a range of just over 11 mi.

The French Brandt mortar was a wheeled 120-mm. (4·7 in.) weapon which could hurl a 28-lb. projectile 4½ mi. at the rate of 10 rnd.p.m.

Atomic Weapons. In February Clement Attlee, the prime minister, announced that Great Britain was pressing ahead with the development of an atomic bomb. Unconfirmed reports stated that Great Britain would soon request the use of the Nevada grounds to try out such a bomb; meanwhile

preparations were in hand at Woomera (central Australia) for the testing of unspecified types of atomic weapon. The lack of fissile materials continued to be the controlling factor, though the search for workable deposits in the British Isles and the Commonwealth was intensified during the year. In August Viscount Portal of Hungerford retired from the post of controller of atomic energy and was succeeded by Lieut. General Sir Frederick Morgan.

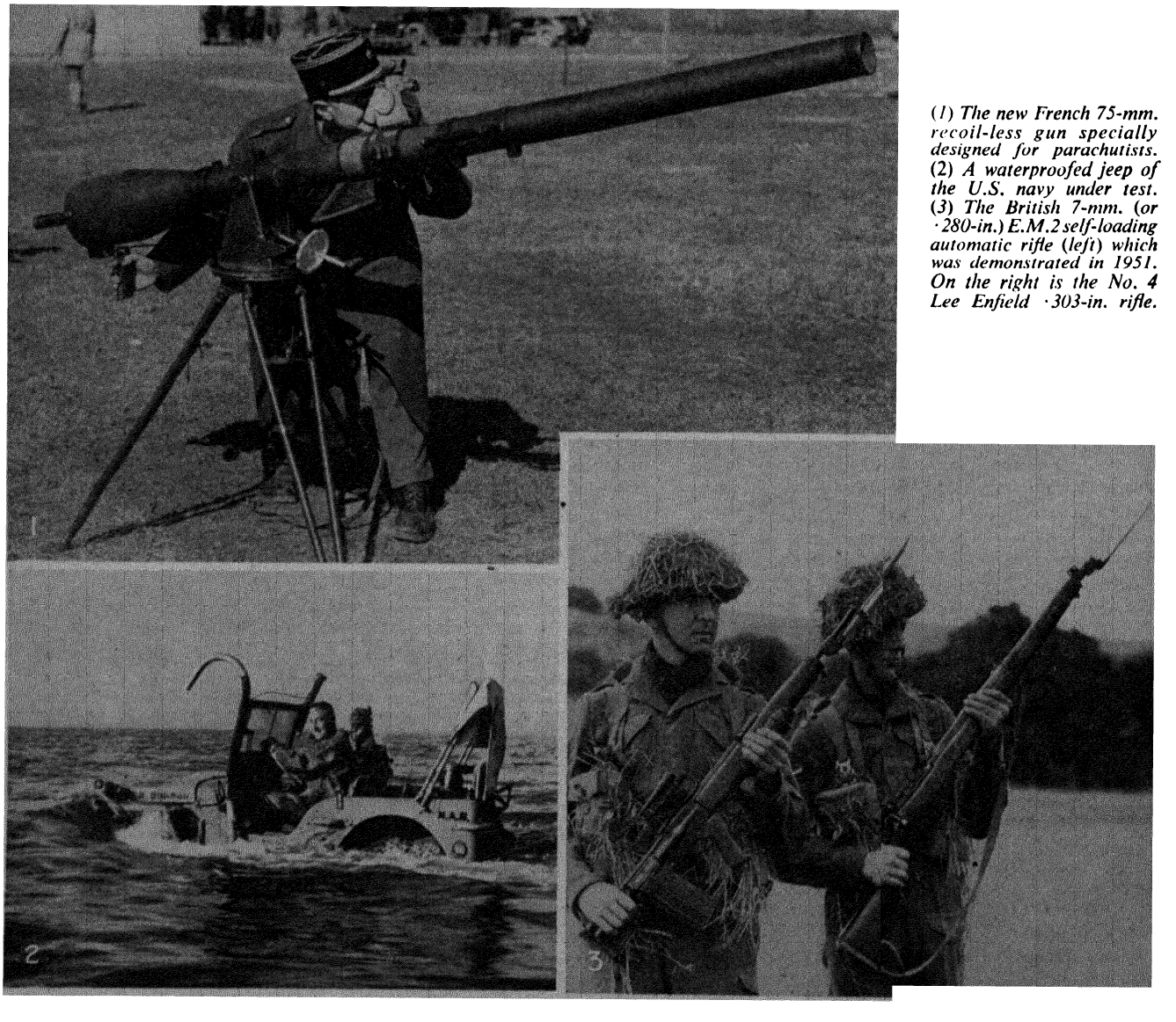
Aviation. A device which prevented aircraft tanks from exploding when they were hit by bullets was developed by a British company. Explosion-suppression "bombs"—canisters about the size of a large orange containing carbon tetrachloride and operated by diaphragms sensitive to the first few milliseconds of an explosion—were placed at key points in the aircraft so as to burst into an explosive area and thus "blanket" the explosion.

Preliminary tests were concluded on a new type of catapult suitable for launching jet aircraft from ships. The catapult, steam-operated equipment employing the slotted-cylinder principle, was designed by Commander (E) C. C. Mitchell, R.N.V.R.

Guided Missiles. During the autumn of 1951 the largest and fastest guided missile yet built by British workers flew over England; it was a 50-ft. rocket which could be guided along a radar beam to its target at a speed of 2,000 m.p.h. A greatly accelerated programme of trials at the Woomera range was put in hand in 1951 under the direction of Professor H. J. Brown of the New South Wales University of Technology, who was appointed controller of the research and development department of the Australian supply department. Air Chief Marshal Sir Alec Coryton, chief executive, guided weapons, Ministry of Supply, who visited Woomera in February, retired and on Nov. 5 was succeeded by Commander S. S. C. Mitchell.

Small Arms. On April 25, 1951, the British government announced that it had decided to adopt a calibre of ·280 in. (7 mm.) for small arms in place of the ·303-in. calibre which had been standard for 50 years. The basic weapon of the new calibre was the E.M.2, a light self-loading rifle, which was demonstrated at the School of Infantry, Warminster, Wiltshire, on Aug. 10. The somewhat similar Belgian 7-mm. automatic rifle, the FN2, was shown in Belgium in September, and the U.S. ·30-in. T-44 and T-47 lightweight rifles (the two models differing only in breech mechanism) were demonstrated at the Aberdeen (Maryland) proving ground in December.

The new British rifle weighed just under 9 lb., about 12 oz. less than the standard British bolt-action rifle, the Short Magazine Lee-Enfield no. 4; the new U.S. weapons weighed about 8 lb., nearly 2 lb. less than the Garand M.1 self-loading rifle, the current U.S. arm. At the Warminster demonstration a rate of fire of 84 rounds a minute was achieved with the E.M.2, 43 rounds with the Garand and 28



(1) The new French 75-mm. recoil-less gun specially designed for parachutists. (2) A waterproofed jeep of the U.S. navy under test. (3) The British 7-mm. (or ·280-in.) E.M.2 self-loading automatic rifle (left) which was demonstrated in 1951. On the right is the No. 4 Lee Enfield ·303-in. rifle.

rounds with the no. 4 rifle. The T-44/T-47 rifles were fired at the rate of 65 rnd.p.m. at the Aberdeen range but it was stated that 100 rnd.p.m. had been fired in previous tests; these rifles also had a fully automatic rate of 700 rnd.p.m. for short bursts. The U.S. weapons holed a steel helmet at 1,200 yd., five one-inch pine boards at 2,000 yd. and ¼-in. Soviet armour at about 200 yd. The Belgian FN2 holed a helmet and penetrated $1\frac{3}{5}$ in. into a wooden panel at 1,095 yd. As demonstrated in 1951 the British E.M.2 had pierced helmets only at 600 yd., but it appeared to have only slightly less penetrative power than the SMLE no. 4 and the Garand M.1, with their heavier ammunition.

Meanwhile the problem of standardization within the armies of the North Atlantic treaty countries had become an urgent one. The conference between British, French, Canadian and U.S. defence ministers in Washington (Aug. 2-3) and the subsequent deliberations of the N.A.T.O. expert panel (Washington, September) and military committee (Rome, November) seemed to have done little to advance the claims of the British ·280 weapon; only Australia, which in any case was helping with the development of the E.M.2, announced that it would adopt the new rifle. Already in the summer the Belgians had demonstrated another semi-automatic rifle and a light machine-gun capable of using U.S. ·30-in. ammunition; and following Winston Churchill's admission that quantity production of the E.M.2 could not begin before 1953 (only about 20 had been made by Dec. 1951), a virtual end was put to the matter by the U.S. Department of the Army placing a " multi-million dollar order " for the ·30 Garand.

Other British small arms demonstrated during the year were a 7-mm. sustained-fire machine gun, intended to displace the Vickers gun; and the portable Mark V flame-thrower which was fed with petroleum jelly.

The Snort. Following the attribution of the " Affray " disaster (April) to a defective " Snort " breathing apparatus and the temporary banning of that apparatus (July), a new type of Snort, fitted to the submarine " Andrew," passed its tests in September. The new apparatus, unlike the old, had only one long tube, this being for air intake; the exhaust was ejected through a separate tube abaft the periscope.

Uniforms and Protective Clothing. New types of British army combat suit for use in various kinds of cold climate were shown during the year. The dress for " wet-cold " conditions consisted of a string vest, cotton underpants, inner trousers of heavy wool, a loose-woven flannel shirt and a heavy woollen jersey or camel-fleece smock-liner; on top of these a lined smock and windproof and waterproof gaberdine trousers were worn. The boots, worn over two pairs of woollen socks, were of a special leather with composition soles. A gaberdine ski-cap, woollen gloves and waterproof outergloves, and short puttees completed the uniform. The " dry-cold " uniform consisted of the " wet-cold " suit supplemented by a " middle parka "—a waterproof wool-lined gaberdine jacket with a large hood with wire-stiffened front opening—and, for extremely cold weather an " outer parka." Over three pairs of standard woollen socks and one pair of duffel socks, the soldier would wear loose-fitting, calf-length canvas boots called Mukluks, which had rubber soles and plasticized felt insoles.

A new French field uniform, seen by the public for the first time at the National Day parade in Paris on July 14, consisted of baggy trousers, caught in by short anklets, and a loose-fitting, open-necked belted tunic reaching half-way down the thigh; both were waterproof and provided with detachable wool linings. The new helmet appeared to be a cross between the current U.S. and former French types. (X.)

United States. *Armoured Fighting Vehicles.* The Ordnance corps developed a new reconnaissance tank, the T41, which mounted a 76-mm. high-velocity gun and could travel at more than 40 m.p.h. In November the Chrysler corporation completed the prototype of the T43, which had an 810-h.p. air-cooled engine and a 120-mm. gun, and, it was claimed, would outmanoeuvre the Soviet army's Joseph Stalin III.

Other Vehicles. The Department of the Army in April awarded a contract to the Pontiac Motor division of General Motors corporation to build a new amphibious tracked vehicle called the Otter. It would carry a number of fully equipped fighting men at a speed of 36 m.p.h. over land. It could also plough through mud and go through water. It was announced that the T18 E1, a fully tracked infantry personnel carrier, was being produced. It was powered by the Ordnance corps' latest six-cylinder, air-cooled engine with cross-drive transmission; it would travel at sustained speeds of more than 35 m.p.h., turn in its own length and climb heavy gradients. Designed to carry 12 men, this 20-ton carrier could also be used as a cargo or stretcher carrier, for towing artillery or as a command car. It was armed with a ·50-in. machine gun.

In October the U.S. army released details of the M8E cargo tractor, which was put into production at the Allis-Chalmers plant, La Porte, Indiana. It would be used primarily to tow the 75-mm. Skysweeper anti-aircraft gun and other heavy weapons. This 22-ton tractor was powered by a Continental air-cooled engine capable of giving it a top speed of 40 m.p.h. The tractor could cross swamps and small trenches and climb slopes of 1 in 3.

Guided Missiles. Construction was started during the year on the first U.S. plant for the large-scale production of guided missiles. The naval-administered plant at Pomona, California, was to be operated by Consolidated Vultee Aircraft corporation. The National Advisory Committee of Aeronautics, at its Lewis Flight Propulsion laboratory, Cleveland, and the Pilotless Aircraft division at Wallops Island, Virginia, gave increasing attention to problems relating to the use of ramjet engines for guided missiles travelling at speeds of Mach 2·5 (1,450 m.p.h. at high altitude) and over.

The U.S. Navy department announced during the year that limited production contracts had been awarded for two defence missiles—the Convair Terrier two-stage rocket, designed for launching from ships against high-flying aircraft, and the Douglas Sparrow air-to-air missile. Limited production for operational trials of the U.S. army's Nike missile for the anti-aircraft artillery was begun in 1951.

Small Arms. In mid-June army ordnance established a small arms ammunition centre at St. Louis, Missouri. This centre was to supervise the supply of small arms ammunition to all the armed forces.

The U.S. army's Detroit arsenal reported that it had perfected a curved barrel extension for the M-8 ·45-in. sub-machine-gun enabling it to deflect bullets " round corners " by as much as 90°. This was probably an improved version of one used by the French resistance during World War II, and similar to one attached to German machine-pistols. It was for use by tank crews against " boarders."

Army ordnance developed a combination rifle and shotgun weighing 3½ lb. It was intended for issue to the air matériel command, and was expected to prove especially useful over arctic and other uninhabitated areas. (For the U.S. T-44 and T-47 rifles see *Small Arms* under *Europe and Commonwealth* above.)

Telecommunications. The signal corps placed orders for transportable microwave equipment including material for terminal and repeater stations with complete stand-by equipment for each. Such stations would make possible eight telephone conversations in either or both directions via a single radio channel for each direction.

(M. F. S.; N. F. S.; R. S. T.)

MUSEUMS. International Activities. On July 3, 1951, the International Council of Museums adopted a new constitution designed to strengthen the organization and to make it more representative of the museum profession throughout the world. I.C.O.M.'s expert subject committees continued, on a much greater scale, to investigate such special problems as children's museums, the cleaning of pictures and fire prevention. Museum lighting was a subject of discussion at the International Commission on Illumination held in Stockholm, and extensive comparative tests on the deterioration of pictures by light were held in Paris and Brussels. Research revealed dangerous properties in fluorescent lighting. More new material concerning museums throughout the world was acquired by the U.N.E.S.C.O.-I.C.O.M. Museum Documentation centre than its limited facilities could accommodate. U.N.E.S.C.O.'s programme for 1951 contained several museum activities, including a " Museum Crusade " designed to promote the educational work of museums. The International Institute for the Conservation of Museum Objects held its first meeting in London on Jan. 1. Publication of its proposed periodical, *Conservation*, was delayed and its first number would not appear till early 1952.

Great Britain and Commonwealth. The year was notable in Great Britain for the great encouragement to museum activities given by the Festival of Britain, in which museums all over the country played an essential part. The Walker art gallery, Liverpool, and Cumberland house, Portsmouth, both damaged in World War II, were reopened and the London Museum was installed in temporary accommodation in Kensington palace. New museums to be opened were the County museum at Warwick; the Red house, Christchurch, Hampshire; Museum of English Rural Life, Reading, Berkshire; Whipple Museum of the History of Science, Cambridge; " Peggy " Nautical museum, Isle of Man; the city museum and art gallery in a temporary building in Coventry; and Buckland abbey, a country house near Plymouth with seafaring associations since its ownership by Sir Francis Drake. In London, important galleries were reopened at the British Museum—in particular, a new bird gallery with a bird pavilion of original design at the British Museum (Natural History)—the Victoria and Albert, Science and National Maritime museums, and the National and Tate galleries. Major extensions and reopenings were also completed at Norwich, Birmingham, Reading, Maidstone, Derby and Peterborough.

The Museums association held a conference of exceptional importance at Belfast, at which a new constitution, providing *inter alia* for the institution of fellowships and associateships, was adopted. The *Museums Journal* completed its 50th year of publication and the *British Museum Quarterly* reappeared after ten years' suspension.

In Canada, the report of the Royal Commission on the Arts, Letters and Sciences devoted much space to the museum situation. The Nova Scotia museum, Halifax, was extensively reorganized and work started on a new wing at the Vancouver art gallery. The first full-scale conference of the Art Galleries and Museums Association of New Zealand was held at Napier in April. Reorganization of the Dominion museum continued, and the Canterbury museum held an exhibition of colonial history, set in period rooms, as part of the centenary celebrations of Canterbury province.

A notable event in the African museum world was the erection of a new building for the National Museum of Northern Rhodesia at Livingstone. The new wing of the Coryndon museum, Nairobi, was completed. A new museum was established at Ifé, Nigeria, to house the world-famous bronzes and other examples of the tribal art of the area.

The National Museums of Ceylon acquired much material from excavations at Ravana Ella cave. New galleries were opened for mediaeval maps, prints and paintings, for Chitra art and for mediaeval textiles. The diorama of prehistoric man of the Balangoda culture in Ceylon was completed.



African women, the nearer carrying a child on her back, in the new building of the Rhodes-Livingstone Museum, the National Museum of Northern Rhodesia, opened in 1951.

Europe. Museum extensions and reorganized galleries were opened in 31 French towns. These included five rooms at the Louvre, imperial apartments at Malmaison and Compiègne, a series of new rooms at the Musée des Tissus, Lyons, rooms at the Musée des Beaux-Arts, Rouen (where Le Secq des Tournelles was re-opened), and rooms at Bourges, Rheims, Dieppe and Tours. The Musée de l'Ile de France, Sceaux, and Bernadotte museum at Pau were reopened. In Paris a new gallery for exhibitions of " arts et traditions populaires " was inaugurated. The information bulletin *Musées de France* was replaced by a new quarterly, *La revue des arts*, published under the auspices of the Conseil des Musées Nationaux.

In Belgium, 18 works recovered from German loot were among the 60 acquisitions at the Musées Royaux des Beaux-Arts. Four galleries of folklore material, two of carriages, and one of lace were opened in the Musées Royaux d'Art et d'Histoire; at the Musée Royal de l'Armée a new hall of material from World War II, including items on the resistance movement, was inaugurated. Three rooms were reorganized at the Musée de Mariemont and an illustrated catalogue of the Egyptian, Greek, Roman and Gallo-Roman antiquities published.

In the Netherlands, important rearrangements were completed at the Rijksmuseum, Amsterdam, and in The Hague Municipal museum, which also acquired a historical costume collection. The interior of the Mauritshuis at The Hague (by Jacob van Campen, 1633-35) was entirely restored.

A new museum of Swiss and German paintings, given by Oskar Reinhart, was founded at Winterthur in Switzerland, and a new wing for furniture and musical instruments was opened in the Musée du Kirchgarten, Basle. Small museums

were founded at Pully and in the château at Colombier. The Musée Nationale, Zürich, the Musée Historique, Berne, and museums at Basle, Lausanne and Neuchâtel were extensively reorganized.

Among Italian collections reopened in 1951 were the Galleria del Banco, Naples, the Galleria Spada, Rome, and the Museo Nazionale in Aquila. Major reorganization was completed at the Uffizi gallery, Florence, and at museums at Genoa—the centre of the international celebrations of Columbus' 500th anniversary—Padua, Arezzo, Milan and Pavia. Reconstruction of the Palermo museum continued.

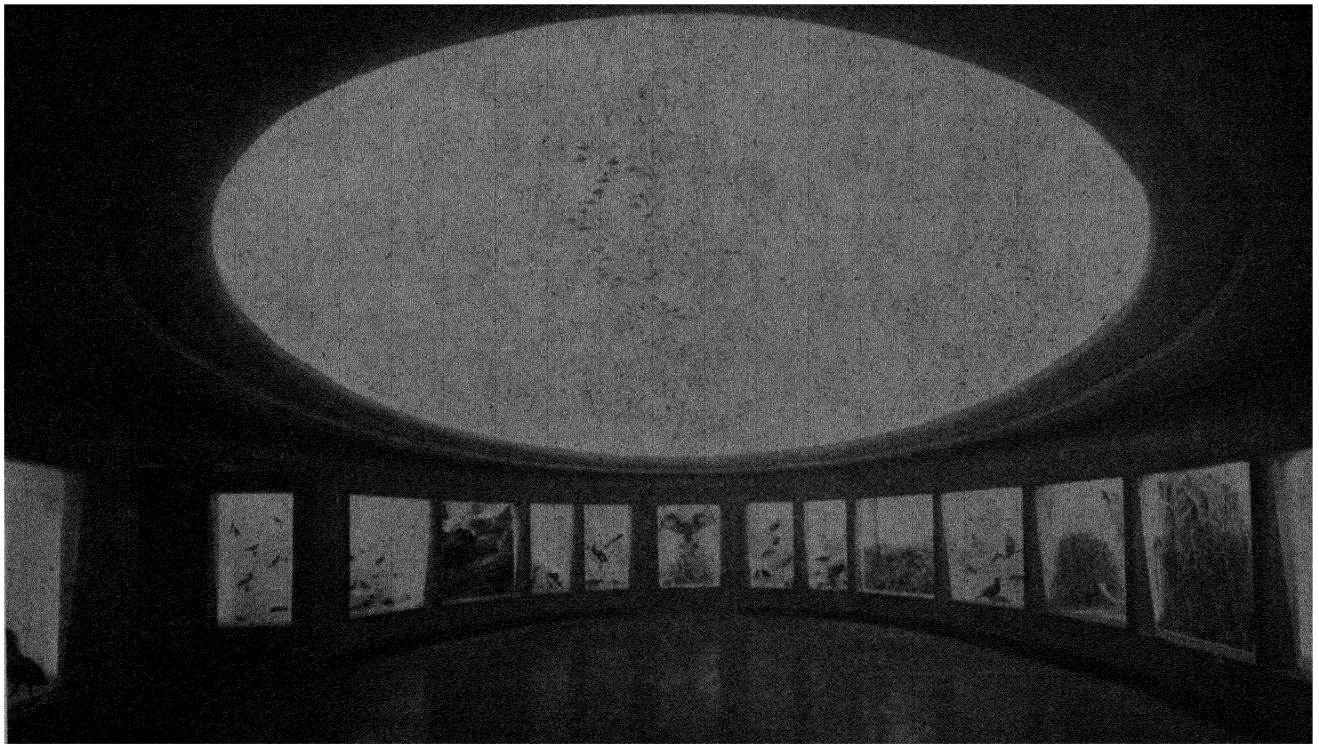
Reconstruction of the old wing of the National Archaeological Museum of Greece continued; meanwhile antiquities were temporarily displayed in seven rooms of the new wing. Of other museums in Athens, the Pinacotheque was still without a building, the Benachi and the National Museum of Decorative Arts were fully open, and the restoration of the Byzantine museum nearly completed. Reorganization of museums at Eleusis and Delos was completed, and at Chalcis and Delphi rearrangement of galleries proceeded rapidly. At Olympia, Praxiteles' " Hermes " and the group sculpture of " Jupiter and Ganymede " were restored to the museum. The antiquities from Knossos were again open to the public at the Heraklion museum, Crete, although the reconstruction of the museum was not complete.

At the Borgarsyssel museum, Sarpsborg, Östfold, Norway, a large brick building containing new galleries, offices, a laboratory and storage space was constructed. Both the Vestlandske Kunstindustrimuseum, Bergen, and the Videnskapsselskapets Oldsakssamling, Trondheim, completely rearranged their permanent collections. A state commission in Sweden recommended that a new Stockholm museum to house the combined near-eastern collections from other museums should be built on a site near the Historiska Museet. The Nordiska Museet was the centre of an international ethnological congress. In Denmark, William Hansen's collection, mainly of 19th-century French painting, in the Ordrupgaard was bequeathed to the national collections and opened to the public.

All brickwork was completed in the continued reconstruction of the Albertina in Vienna, and the external structure of the badly bombed Kunsthistorisches Museum was repaired. The holding of exhibitions was again possible at the Österreichische Galerie in the Lower Belvedere and Orangery buildings, a new façade for the latter having been built. The Upper Belvedere had still to be repaired.

Much reconstruction work took place in Poland. New museums included the Ethnographic museum, Cracow, a museum at Biskupin where excavation of the pre-Christian Slav settlement continued, museums at Pila (commemorating the writer Staszic), at Białystok, and at Oświęcim (Auschwitz) and Majdanek commemorating " the martyrdom of nations under Nazism." Rebuilding continued at the Lenin museum, the History and National museums and " Matejko's Home " at Cracow. The National museum, Warsaw, and historic buildings housing part of the Historic museum were rebuilt, as also were the Folklore museum at Młociny and the Kwidzyn museum. Extensions were added to museums at Toruń, Cracow, Wrocław, Poznań, Żywiec and Częstochowa.

In Germany, the rebuilt Goethe's house, Frankfurt-on-Main, was reopened in May and the Kunsthalle, Karlsruhe, in June. Famous Munich collections, most of which lost their buildings during World War II, were beginning to reappear in alternative accommodation. A selection of masterpieces from the Alte Pinakothek was shown in the Haus der Kunst. Many galleries at the Bayrisches Nationalmuseum and the Deutches Museum (science and technology) were restored. Political conditions hindered reconstruction in Berlin but rooms in the Schloss Charlottenberg were used for temporary exhibitions and pictures from the ruined Kaiser Friedrich Museum and other Berlin art galleries were shown in the Ethnographical museum in the suburb of Dahlem. Throughout Western Germany, many excellent travelling exhibitions circulated under the auspices of the Allied control



A view from the north end of the new bird pavilion at the Natural History museum, London. The oval dome represents a summer sky with wildfowl in flight. The pavilion was opened on May 30, 1951.

commissions, for whom the rapid re-establishment of cultural life constituted an important item of policy.

In Spain the Museo Lazaro Galdiano, Madrid, was opened to house the armoury and paintings bequeathed to the nation by Lazaro Galdiano.

The Kayseri museum, Turkey, acquired material from the nearby Kültepe excavation, as did the Museum of Archaeology in Ankara, where the Hittite stone collection was rearranged in the central hall. A section of the Museum of Archaeology, Izmir (Smyrna), dealing with Ionic art, was installed in a new pavilion at the Izmir fair. The gallery at the Istanbul Academy of Fine Arts was reopened to exhibit new works by Turkish artists, and the Sultans' Palace of Topkapi was refurnished and opened to the public.

(G. P. G.)

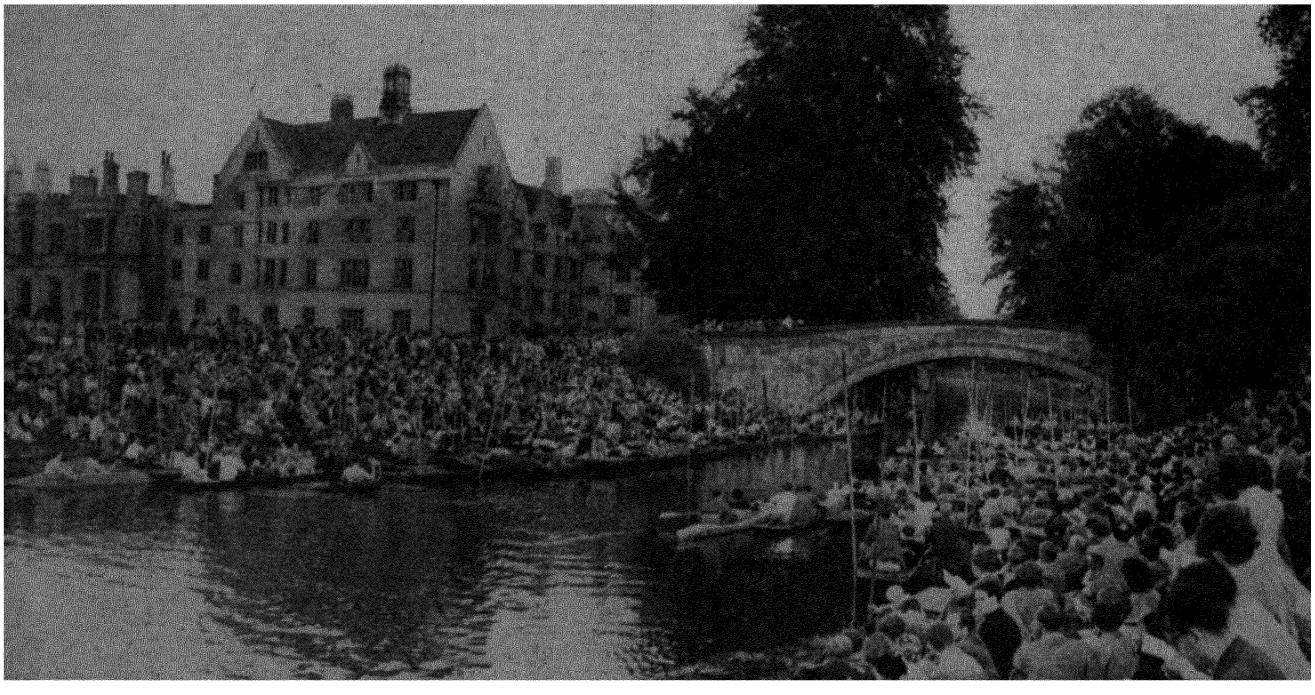
United States. A new Hall of Earth History was opened at the Chicago Natural History museum during 1951. Other important new rooms in museums opened during the year included: ten new galleries in the Boston Museum of Fine Arts for the Karolik collection of American paintings; the classical and prehistoric galleries at the University museum, Philadelphia; and the American painting galleries in the Art Institute of Chicago.

The Henry Francis du Pont Winterthur museum, which opened during the year near Wilmington, Delaware, contained more than 100 period rooms of carefully chosen domestic furnishings illustrating American home life, 1640-1840. Seven more 18th-century buildings were in process of restoration or reconstruction at Williamsburg, while at Mystic, Connecticut, the Marine Historical association was adding five buildings and a ship to its old seaport development. (R. H. Ls.)

Accessions. During 1951 Mr. and Mrs. Walter Arensberg presented their collection of 20th-century art to the Philadelphia museum. Outstanding in the collection were a group of sculpture by Constantin Brancusi and paintings by Marcel Duchamp including the famous " Nude Descending a Staircase." Philadelphia purchased an important painting by Rubens, " Prometheus Bound," painted in 1612. The Metropolitan museum, New York, received from R. Thornton Wilson a fine collection of about 400 pieces of European pottery and porcelain of the 15th to 19th centuries. Mrs. Otto H. Kahn and her children made a gift of 25 ancient Chinese bronzes to the Metropolitan museum. Another rare item to enter their collection was a study by Leonardo da Vinci of the Virgin's head for his painting " Virgin and Child and Saint Ann " in the Louvre. It was acquired at an auction at Sotheby's, London, for $22,400.

The Cleveland museum celebrated its 35th anniversary with a group of notable acquisitions, mostly of paintings of the Venetian school. These included Tintoretto's " Baptism of Christ," Veronese's " Annunciation," Titian's " Portrait of a Prelate " and Lorenzo Lotto's " Portrait of a Nobleman." The Art Institute of Chicago purchased a 98-page sketch book by Paul Cézanne with remarkably fine drawings dating mostly from the 1880s and 1890s. Sam A. Lewisohn, the New York collector, died leaving his important collection to six different institutions. Several paintings went to the Metropolitan museum: " Repast of the Lion " by Henri Rousseau, " An Afternoon on the Island of the Grande Jatte " by Georges Seurat, " Ia Orana Maria " by Paul Gauguin, " In the Meadow " by Auguste Renoir and " L'Arlésienne " by Vincent Van Gogh. El Greco's " St. Francis and the Skull " went to Princeton university and other pictures to the National gallery, Washington. (*See* also ART EXHIBITIONS; ART SALES.) (F. A. Sw.)

MUSIC. During 1951 there died many of the musicians who, during some of the most turbulent years in musical history, had built and maintained 20th-century traditions. Among them were: Arnold Schönberg who, if not the founder of the 12-note system of composition, was the first composer to use the technique as a natural method of musical thought; Nicolas Medtner, the Russian composer who, despite his long western exile, may be regarded as the last representative of the great 19th-century Russian tradition; Serge Koussevitzky, the distinguished conductor; Willem Mengelberg who until his exile on political grounds in 1945 was for many years the principal conductor of the Amsterdam Concertgebouw orchestra; the pianist Artur Schnabel; Fritz Busch, the conductor who had been closely connected with the Glyndebourne opera; Cecil Gray, the Scottish writer and composer; John Alden Carpenter, the American composer;



Members of the Cambridge University Madrigal society in punts on the River Cam, during a concert which they gave on July 28, 1951.



The interior of the Royal Festival hall, London, designed by R. H. Matthew and J. L. Martin. The hall was dedicated by the Archbishop of Canterbury on May 3, 1951, and the first concert was conducted by Sir Malcolm Sargent and Sir Adrian Boult in the presence of King George and Queen Elizabeth.

and, at the age of 46, the British composer Constant Lambert. (For accounts of the careers of Schönberg, Koussevitzky, Schnabel, Busch and Lambert *see* OBITUARIES.)

Maintaining the trend of postwar years in music, 1951 saw the production of many festivals (*q.v.*), though some critics remarked that many of these were festivals in name only; indeed, in the absence of a clear definition, it was evident that "festival" sometimes meant no more than a series of repertoire programmes and routine performances. But since the promotion of music remained a highly speculative venture it was not surprising that organizers adopted a policy of "safety first," indicating that if support was forthcoming more adventurous fare might be expected in the future. The announcement that the 1951 Cheltenham Festival of British Music might be the last, showed, according to one's viewpoint, the apathy of the public or the lack of communication between modern composers and their audiences.

Among the older specialized features of European musical life to reappear in 1951 was the Wagner festival at Bayreuth, now under the direction of the composer's grandsons, Wieland and Wolfgang Wagner. The performances of *Parsifal*, *Meistersinger* and two complete cycles of the *Ring* were of the high standard expected from a picked international cast; the conductors were Hans Knappertsbusch and Herbert von Karajan. Wieland Wagner's "post-impressionist" approach to the production of his grandfather's music-dramas was the subject of much controversy, being hailed by some as the first step towards a new conception of Wagner and rejected by others as contrary to the nature of the music. Ernest Newman, the greatest living authority on the life of Wagner, took the former view while Adolf Aber, among others, attempted to show that Wieland Wagner's productions were neither original nor satisfactory (*see* A. Aber, "Tradition and Revolution at Bayreuth," *Musical Times*, vol. 92, no. 1304, London, Oct. 1951).

In London the Festival of Britain site on the south bank of the Thames included a single permanent structure, a new concert hall built to the most precise acoustical plan. The ceremonial opening of the Royal Festival hall by King George VI took place immediately before the concert on May 3, 1951, when a composite orchestra was conducted by Sir Adrian Boult and Sir Malcolm Sargent. Opinions varied about the success of the new hall; some found its unorthodox design disturbing while others welcomed the break with tradition. But it was generally agreed that the orchestral sound lacked the warmer qualities of tone and also suffered from a certain weakness in the bass. There was however a remarkable analytical clarity, most suitable for certain classical and contemporary works if not always so appropriate for the rich scoring of the romantic composers. It was agreed that the clarity of the hall would make for an improvement in orchestral and solo playing, since science had chosen to cast a merciless spotlight on musical technique. In defence it was said that no purely visual or decorative considerations had been allowed to influence the acoustical layout, and it was stressed that modifications in the "tuning" of the hall could be made from time to time. An interesting account of the structure of the Royal Festival hall was published shortly after the opening (*Royal Festival Hall—The Official Record*, London, 1951).

Among the artists who appeared at the Royal Festival hall during the summer and autumn seasons were Sir Thomas Beecham, Sir John Barbirolli, Guido Cantelli, Otto Klemperer,

Paul Kletski, Georg Solti, Jascha Heifetz, and—in his first appearance in England since World War II—Vladimir Horowitz. During the same period the Philharmonic Symphony Orchestra of New York appeared at the Edinburgh International festival and gave several concerts under the direction of Dmitri Mitropoulos, and with Bruno Walter as guest conductor. Though praising the great precision and power of the orchestra, the critics noted a certain lack of refinement. Other important festivals of the season included those at Salzburg, Vienna, Graz, Munich, Perpignan and Aldeburgh. At the Holland festival the Amsterdam Concertgebouw orchestra was conducted by George Szell and Eduard van Beinum, and later in the year the orchestra visited England and gave concerts in Manchester and Sheffield.

In the realm of opera there were two outstanding events: the first productions of Igor Stravinsky's *The Rake's Progress* (libretto by W. H. Auden and Chester Kallman) at Venice and of Benjamin Britten's *Billy Budd* (libretto by E. M. Forster and Eric Crozier from the story by Herman Melville) at Covent Garden, London. Neither work was an unqualified success, though the musical texture of Stravinsky's opera indicated that the composer had taken another step towards the ideals of clarity, simplicity and precision which characterized all his compositions after World War II. Britten's all-male opera failed, despite impressive moments, to capture the profound undertones of Melville's story. Earlier in the year Ralph Vaughan Williams' *The Pilgrim's Progress*, an opera based on John Bunyan's book, was produced at Covent Garden. It won immediate acclaim especially from those in favour of the composer's *Fifth Symphony* (to which the opera was in some ways related) but some critics found it lacking in dramatic power. *The Consul*, a topical opera by the American composer Gian Carlo Menotti was produced in many parts of Europe, notably in London, Paris, Zürich, Amsterdam, Berlin and Milan; Menotti's stagecraft was highly praised, though doubts were expressed about the musical texture of the opera. Another British opera, Brian Easdale's *The Sleeping Children*, was produced during the Cheltenham festival, while at Bordeaux Georges Bizet's early opera *Ivan the Terrible*, the manuscript of which was discovered in Paris during the German occupation, was heard for the first time. Reports suggested that it might soon become part of the standard repertoire. Two unusual events completed a year distinguished for its operatic ventures: the first was Purcell's *Dido and Aeneas* at the Mermaid theatre, London, where a cast headed by Kirsten Flagstad sang the opera on a replica of an Elizabethan stage; the second was a film version of Jacques Offenbach's *The Tales of Hoffmann* under the musical direction of Sir Thomas Beecham. The film was scarcely an artistic success, but Sir Thomas achieved a memorable performance of the score.

Apart from the operas already mentioned, 1951 was not a vintage year in terms of new music. Some of the more important first performances in England were: Benjamin Frankel's *Violin Concerto*, William Alwyn's *Second Concerto Grosso*, Alan Rawsthorne's *Second Piano Concerto*, and symphonies by Arnold van Wyk, John Gardner, William Wordsworth and Malcolm Arnold. The most successful of these was Rawsthorne's *Second Piano Concerto* which, though making no compromise with the past, seemed to possess qualities which appealed to critics and public alike. Of more esoteric interest was Humphrey Searle's *Poem for Twenty-Two Strings* which, being based on the 12-note system, added further fuel to a controversy at least 40 years old. Elsewhere in Europe a number of new works were produced, including Paul Hindemith's *Christmas Motets* (Vienna), the waltz *Munich* by Richard Strauss (Vienna) and Luigi Dallapiccola's opera *Il Prigioniero* (Florence, later New York).

The gulf separating the average listener from the modern composer seemed, if anything, to broaden during 1951, despite a growing audience for adult education lectures in music and the B.B.C. Third Programme. Critics who for years had maintained that modern composers deserved a larger and more attentive audience began suddenly to reveal a certain impatience, as if aware that something was lacking in the music; they seemed anxious to remind composers that novelty was no longer an acceptable substitute for quality. The use of dissonance without any perceptible resolution had over a period of many years conditioned the modern audience to a state of immunity from musical shock: it was as if a saturation point had been reached, a point where the honest response to most new music was boredom and the highest praise no more than lip service. It was said that the modern composer must reflect the atmosphere of his age, but it was clear that audiences and critics were awaiting the works of a composer who, without resorting to imitation or pastiche, could create new music of recognizable substance and nobility. (J. Cw.)

Popular Music. The one reassuring note of the year 1951 in popular music was the score of *The King and I*, by Richard Rodgers and Oscar Hammerstein II, which raised the standards of the musical stage above those of the hits of the recent past, the latter including such gems as *South Pacific*, *Oklahoma!* and *Show Boat*. At least half a dozen songs in *The King and I* were musically and poetically better than any others of the year (one could mention particularly " My Lord and Master," " Hello, Young Lovers," " Getting to Know You," " We Kiss in a Shadow," " I Have Dreamed " and " Shall We Dance?"), but none of these arrived at a really universal popularity.

The popular hit of the year was probably a reminiscent little song called " Too Young," vaguely suggesting the encouragement of juvenile delinquency. " Too Young " topped the Hit Parade in Great Britain and in the United States a dozen times on both radio and television. It was closely followed by an old-timer, " Because of You," written by Arthur Hammerstein (Oscar's uncle) and Dudley Wilkinson. Here the new recording star, Tony Bennett, deserves the major credit. Patti Page, another of the year's most popular singers, helped along the folk-like " Mockin' Bird Hill," besides keeping alive the similarly " corny " " Tennessee Waltz," by singing it as a duet with herself.

Perry Como's recording of an English song of 1934 called " If " (" I had everything ") put it high up in the 1951 list of all-round hits, while Les Paul and Mary Ford brought back " How High the Moon," written a dozen years before by Nancy Hamilton and Morgan Lewis for a show called *One for the Money*. Mitch Miller participated personally in the development of two songs, " My Heart Cries for You " and " My Truly, Truly Fair." Mario Lanza, who played *The Great Caruso* on the screen, brought the old waltz, " Over the Waves," to a surprising success as " The Loveliest Night of the Year."

The novelty of the year was the Armenian-dialect " Come On-a My House," for which William Saroyan wrote the words for a bet (to music by a relative named Bagdasarian). The rest of the hit parade of 1951 concentrated largely on imitations and revivals. (S. Sp.)

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NAM IL, North Korean army officer (b. northern Korea, 1913[?]). His parents, who were farmers, were believed to have migrated to Manchuria. He became a school teacher

in Korea in the 1930s after having attended a university in Manchuria and simultaneously began underground activity against the occupying Japanese. In 1942 he went to Moscow for special training and when Soviet troops occupied northern Korea after the Japanese defeat in World War II, Nam Il returned to assume the position of deputy chief of the North Korean bureau of education. In 1948 he was elected to the Supreme People's assembly of North Korea and in 1949 appointed deputy minister of education. In Sept. 1950 he was appointed chief of staff of the people's army and had been termed in correspondence "deputy premier" and "minister." When cease-fire talks began between the United Nations and the North Korean and Chinese Communists in July 1951, Nam Il led the Communist delegation.

NARCOTICS. The British government's report on traffic in dangerous drugs during 1950, forwarded to the United Nations during 1951, indicated that although a satisfactory position regarding addiction and illicit traffic had been maintained there had been a noticeable increase in traffic in Indian hemp—used illicitly in the manufacture of marijuana, hashish, or hemp cigarettes known as "reefers." There were further increases during 1951 in both seizures and prosecutions in respect of unlawful possession of hemp; the prosecutions exceeded 100 in a total of over 200 prosecutions for all dangerous-drug offences. Corresponding figures for 1950 were 86 in a total of 169. In most of the cases listed, men of the coloured races were involved either directly or indirectly.

On Aug. 1 royal assent was given to an act to consolidate the various Dangerous Drugs acts. The consolidated act, known as the Dangerous Drugs act, 1951, would come into operation on Jan. 1, 1952. Meanwhile a considerable amount of time was devoted to a consolidation of the various regulations made under the acts together with a consolidation of the statutory instruments issued from time to time, placing additional drugs of addiction under control. These revisions were expected to operate early in 1952, after the introduction of the consolidation act.

A statutory instrument made on June 29, 1951, came into operation on July 9. It placed four additional drugs under the existing dangerous drug control. Two of these drugs were synthetic preparations closely resembling morphine and were so recently developed that pharmaceutical names had not then been allocated to them by the British Pharmacopoeia commission, and it was necessary to refer to them by their chemical names. An increasing problem was presented by these synthetic narcotics. Not until the clinical and other tests had been fully completed would it be possible to decide whether they were dangerously habit forming or not, and it was clearly undesirable to place under full control, as suspect, all such developments in their initial or experimental stage.

On Sept. 1 an amendment to the existing dangerous drugs regulations allowed certain supplies of the drugs when made in ampoule form to be dealt with and recorded either as the actual quantity involved or the quantity of the drug intended to be administered or injected. This minor relaxation was necessitated by the decision of the British Pharmacopoeia commission, approved by the various parties interested, to incorporate in the current British Pharmacopoeia a direction about the slight over-filling of ampoules during manufacture to ensure delivery of a uniform dose irrespective of the wetted interior of the ampoule., (F. R. TN.)

International. The sixth session of the United Nations Commission on Narcotic Drugs, held in New York in 1951, reached an agreement on principles to limit the production of opium to medical and scientific needs. The producing countries—Turkey, Persia, Yugoslavia and India—agreed to limit areas of production and stocks in accordance with estimates to be supplied by each country to an international body. France introduced a draft protocol to adapt the provisions of the 1931 convention to opium. The commission came to the conclusion that by a plan of this kind progress could be made towards the ultimate aim of the limitation of the production of opium to the world's medical and scientific needs.

The commission heard a statement by the representative of the International Association of Penal Law and of the International bureau, two non-governmental organizations which had consultative status with the council, on the framing of certain provisions for a single convention on narcotics control. The view expressed by this representative was that under the new treaty parties should be required to treat illicit trafficking in narcotics as a serious criminal offence.

The commission of enquiry which had visited Bolivia and Peru reported that coca-leaf chewing had harmful effects, and that since the habit was the consequence of unfavourable social and economic factors, the solution of the problem would involve the improvement of living conditions and the adoption of a governmental policy to limit the production and distribution of coca leaf.

The principal sources of supply of illicit narcotics in 1951 were still Italy, Turkey, Persia, Syria, India, Mexico, China and Hong Kong. They were joined by Thailand whose soft metal tubes of monopoly opium were seized in several instances. The energetic action of the governments of Italy, Turkey and Greece had already produced a diminution of the illicit heroin traffic in the United States. The United States recommended that in future reports the International Criminal Police commission should give the names of all traffickers, so that governmental authorities throughout the world could take appropriate action, such as denying entry visas or seamen's licences to undesirable individuals. 'Teen-age drug addiction appeared as a world-wide social danger. In 1951 it was found in the United States, Canada, Turkey, Germany, Japan, China, Egypt, Great Britain and other countries.

Despite an intensified campaign against narcotics, Egypt, because of its geographical position, reported considerable difficulties in preventing the smuggling of narcotics into the country through the desert near Suez and on board small coastal vessels. Other Arab states had experienced similar difficulties and accordingly, while the commission was holding its sixth session, the Arab league reported that it had set up a permanent office of narcotics. (H. J. A.)

On Dec. 13, in New York, Irving (Waxey Gordon) Wexler, who had been accused of being the head of a gang doing business of a million dollars a year in drugs, was sentenced to two concurrent terms of 25 years to life in prison after he had pleaded guilty to the illegal sale of narcotics.

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NATIONAL INCOME. For the years 1949 and 1950 the increase of national incomes reported by various governments (during 1951) was in most cases only nominal; such as there was was due to the rise in prices and the accompanying rise in nominal incomes, not to any material increase in real incomes. The published statistics remained only estimates; even the figures published by the United States Department of Commerce and in the white paper, *National Income and Expenditure of the United Kingdom*, which cover their subjects more thoroughly than other national income statistics, were no more than this. It was apparent that the ideal of collecting and presenting exact information about actual incomes was not likely to be achieved for a long time; even estimates based on scientifically designed sample-inquiries were beyond immediate reach.

TABLE I. NOMINAL NATIONAL INCOME

	1939	1945	1946	1947	1948	1949	1950
Argentina (million pesos)	9,294	15,055	20,000	26,000	31,000	...	—
Australia (£A million)	377	1,299	1,358	1,753	1,955	2,265	—
Austria (1,000 million schillings)	—	—	—	18·2	22·5	29·2	—
Belgium (million francs)	65,200	—	190,600	214,550	243,900	249,100	265,000
Bulgaria (1,000 million leva)	56·9	285·8	334	...	—	—	—
Canada (million dollars)	4,289	9,788	9,819	10,916	12,474	13,169	14,308
Ceylon (million rupees)	—	...	...	1,870	2,192	2,527	—
Chile (million pesos)	...	42,470	48,947	62,606	76,014	93,000	...
Czechoslovakia (1,000 million korun)	38·9	...	155·4	194·4	213·1	—	—
Denmark (million kroner)	6,942	11,968	13,260	18,634	15,685	16,696	18,700
Finland (1,000 million markkaa)	29·9	98·9	155·5	223	305·5	320·5	...
France (1,000 million francs)	369	...	2,618	3,323	5,930	6,530	7,395
Germany (1,000 million Reichsmarks)	89·8	...	—	—	30†	64·5†	73·4†
Greece (1,000 million drachmae)	67*	655	6,235	9,206	14,523	19,146	—
Hungary (million pengos)	5,940	...	13,635	18,746	—	—	—
Iceland (million krónur)	129	862	1,025	—	—	...	...
India (1,000 million rupees)	...	49·3	55·8	—	87·3	...	—
Ireland (£ million)	164·1	—	—	...	...	—	—
Italy (1,000 million lire)	131·6*	—	—	5,178	5,937	6,093	6,517
Jamaica (£ million)	19·6*	—	63·8	...	—	—	...
Japan (1,000 million yen)	23·8	—	297·2	917	1,920·9	2,743	...
Luxembourg (million francs)	—	3,506	6,844	8,000	9,000	8,800	—
Mexico (1,000 million pesos)	6	16	19·2	20·9	22·9	25·6	29·8
Netherlands (million guilder)	5,207	4,170	9,326	11,251	12,887	14,150	15,460
New Zealand (£NZ million)	211·4	350	364·9	411·2	418	483	575
Norway (million kroner)	5,273	...	9,631	10,977	11,890	12,528	13,492
Peru (million soles)	—	3,666	4,274	5,448	7,120	9,391	—
Philippines (million pesos)	994	—	2,759	3,371	4,540	4,630	4,668
Poland (million złoty)	15,400*	—	—	14,728	18,017	—	—
Puerto Rico (million U.S. dollars)	228	587	612	617	644	698	—
S. Rhodesia (£ million)	—	37·3	46·1	53·6	65·3	72·7	...
Spain (million pesetas)	26,726	63,259	90,415	102,693	108,517	113,800	...
Sweden (million kronor)	12,240*	19,900	22,110	24,060	26,110	26,030	29,720
Switzerland (million francs)	8,826	13,468	15,033	16,842	17,646	16,995	17,400
Thailand (million baht)	764*	—	8,697	13,513	14,614	...	—
Turkey (£T million)	...	5,740	—	6,400	7,900	...	...
South Africa (£SA million)	406	674·5	699·4	789	837·4	969·3	—
United Kingdom (£ million)	5,032	8,302	8,411	9,226	10,057	10,466	11,196
United States (1,000 million dollars)	72·5	182·7	180·3	198·7	223·5	216·8	235·6

* 1938. † Western German Deutschemark. SOURCE: U.N. *Monthly Bulletin of Statistics.*

The United Nations publications dealing with national income statistics contained many detailed explanatory footnotes to point out the discrepancies between the methods employed by the governments concerned. Even in respect of basic principles there were differences; some governments estimated their national incomes on the gross value of national products at market prices and others on the gross value of national products at factor costs—the latter is the aggregate of all incomes earned in the production of goods and services in the course of a year including net income from abroad while national income at market prices is that at factor costs plus indirect taxes and similar levies minus subsidies.

TABLE II. NATIONAL INCOME, UNITED KINGDOM
(£'000,000)

	1938	1946	1947	1948	1949	1950
Wages	1,735	3,140	3,580	4,025	4,230	4,470
Salaries	1,110	1,790	1,960	2,200	2,350	2,500
Pay, armed forces	78	530	347	246	246	250
Employers' insurance contributions	54	84	113	157	195	198
Professional earnings	84	133	150	161	172	182
Income from farming	64	190	205	261	304	302
Profits, sole traders	440	765	800	810	815	845
Profits, companies	536	1,224	1,527	1,580	1,488	1,692
Profits, public corporations	7	13	3	69	84	103
Profits, other public enterprises	29	53	87	79	72	84
Rent, land, etc.	416	438	456	470	483	496
Income arising in United Kingdom	4,553	8,360	9,228	10,058	11,439	11,122
Income from abroad	163	51	−2	−1	27	74
Income and depreciation after deducting stock appreciation	5,253	9,021	9,661	10,652	11,453	11,970

SOURCE: *National Income and Expenditure of the United Kingdom 1946 to 1950* (Cmd. 8203, H.M.S.O., London).

Those figures which were available for 1950 showed a marked increase compared with 1949. The national income of the United States increased from $216,800 million to $235,600 million, as against $72,500 million for 1939. In the United Kingdom the increase was from £10,466 million to £11,196 million, as against £5,012 million in 1939. Other countries with relatively stable currencies showed comparative increases since before World War II, ranging mostly between 100% and 200%. Between 1949 and 1950 Western Germany's national income advanced from Dm. 64,500 million to Dm. 73,400 million. France showed an increase from Fr. 6,530,000 million to Fr. 7,395,000 million, Italy from 6,093,000 million lire to 6,551,000 million lire, Canada from $13,189 million to $14,308 million.

While between 1939 and 1949 the increases of national incomes were in some instances largely due to a genuine expansion of national production, during 1950 this factor declined in importance. Its decline continued during 1951, owing to the difficulties of further increasing industrial and agricultural output. The scarcity that developed during 1950-51 in many essential raw materials was the main obstacle to a further increase of the national income through higher output. For this reason, the figures showing substantial increases in national incomes during 1950 may be regarded as indicating largely the extent of inflation in the countries concerned. This was expected to be even more the case for the figures for 1951 when they should become available.

The higher incomes of various categories in the United Kingdom shown by Table II were largely counter-balanced, and in some instances more than balanced, by the depreciation of the internal purchasing power of sterling. Even though, as a result of disproportionate increases achieved by some groups, there were in many instances real gains, the national

TABLE III. UNITED STATES, NATIONAL INCOME, BY DISTRIBUTIVE SHARES (In $000 million)*

	1939	1949	1950	1951†
National income	72·5	216·7	239·0	275·7
Compensation of employees	47·8	139·9	153·3	178·1
Wages and salaries, private	37·5	113·0	123·6	140·3
Wages and salaries, government	8·2	20·4	22·3	29·1
Supplements to wages and salaries	2·1	6·5	7·5	8·7
Income of unincorporated enterprises	11·3	33·9	36·0	40·6
Business and professional	6·8	20·9	22·3	23·6
Farm	4·5	13·0	13·7	17·0
Rental income of persons	3·5	7·5	8·0	8·4
Corporate profits	5·8	30·5	36·2	42·8
Net interest	4·2	4·9	5·4	5·7

* Figures do not in all cases add because of rounding. † Preliminary; estimated from data for first three quarters.
SOURCE. U.S. Department of Commerce (except 1951).

income as a whole showed no real increase in spite of its nominal increase from £11,453 million to £11,970 million. The accelerated pace of the rise in prices from the middle of 1950 must have affected the nominal amount of the national income for 1951, especially after the removal of the "ceiling" to wages which was followed by the granting of a large number of substantial wage claims. The figures for 1950 showed a substantial increase of trading profits, which was largely the result of higher prices. (*See* also PRICES; WEALTH AND INCOME, DISTRIBUTION OF). (P. EG.)

TABLE IV. UNITED STATES, GROSS NATIONAL PRODUCT (In $000 million)*

	1939	1949	1950	1951†
Gross national product	91·3	257·3	282·6	326·8
Personal consumption expenditure	67·5	180·2	193·6	204·5
Durable goods	6·7	23·9	29·2	27·2
Non-durable goods	35·3	98·7	102·3	110·6
Services	25·5	57·6	62·1	66·6
Gross private domestic investment	9·9	33·0	48·9	58·8
New construction	4·9	17·2	22·1	22·2
Producers' durable equipment	4·6	19·0	22·5	27·6
Change in business inventories	·4	—3·2	4·3	9·1
Net foreign investment	·9	·5	—2·3	·0
Government purchases	13·1	43·6	42·5	63·5
Federal	5·2	25·5	22·8	41·9
State and local	7·9	18·1	19·7	21·6

* Figures do not in all cases add because of rounding. † Preliminary; estimated from data for first three quarters.
SOURCE. U.S. Department of Commerce (except 1951).

NATIONALIZATION. During 1951 there were two outstanding instances of the transfer of industries from private hands to those of the state: in Great Britain the steel industry was vested in the new Iron and Steel corporation on Feb. 15; in Persia the Anglo-Iranian Oil company was nationalized by a law passed on May 2. Apart from this, however, the tendency of thought in the western world appeared to have turned away from nationalization. In none of the general elections of 1951 that were held in New Zealand, Australia and Great Britain did the Labour parties make any new proposals: on the contrary some of the old ones were dropped. The Conservatives either reversed or proposed to reverse some of the nationalization of the previous years. In eastern Europe, where nationalization of industry was already widespread, the pressure was once again towards the collectivization of the farms.

Great Britain. In Great Britain the only nationalization carried out during the year was that of the steel industry. This was, formally, merely the implementation of the decision of the previous parliament. But it was bitterly opposed by the Conservatives who held that, in the circumstances of rearmament, the discretion allowed by the act to postpone vesting day should have been used. During the election campaign the Conservative party pledged itself to hand back the industry to private ownership, and early in the new parliament it was confirmed that this pledge would be carried out.

The Conservatives' return to power also meant that other measures of nationalization were likely to be modified. During the election campaign the Labour party had suggested no new measures of nationalization, not even those which had been put forward in 1950; there was evidence that the party was rather seeking the means by which the industries already nationalized could be better administered. The Conservatives on the other hand had proposed to re-open the Liverpool Cotton exchange, to return to private ownership at least part of the road transport industry and possibly to replace the British Electricity authority by a Central Electricity board. (The municipalities were to be given the opportunity of buying back their undertakings.) The Conservative party stated that for civil aviation it favoured a combination of public and private enterprise.

During 1951 reports were published for the nationalized industries covering 1950. These results are summarized in the table.

NATIONALIZED INDUSTRIES IN THE UNITED KINGDOM

Industry	Year	Gross Income £ million	Profit (+) or Loss (—) £ million	Output
National Coal Board	1950	483·4	+ 8·3	204·1 million tons
	1949	481·2	+ 9·5	202·7 million tons
British Transport Commission	1950	519·2	—14·1	Not applicable
	1949	476·5	—20·8	
Airways: B.O.A.C.	1950-51	24·2	— 4·6	98·1 million load-ton-miles
	1949-50	19·5	— 7·8	78·8 million load-ton-miles
Airways: B.E.A.	1950-51	9·0	— 1·0	31·7 million load-ton-miles
	1949-50	6·9	— 1·4	25·7 million load-ton-miles
British Electricity Authority	1950-51	229·2	+ 6·3	44·9 million units
	1949-50	207·3	+ 7·2	40·4 million units
Gas Council	1950-51	233·5	+ 1·5	557·0 million cu. ft.
	1949-50*	192·4	+ 0·003	482·8 million cu. ft.
Cable and Wireless	1950-51	11·2	+ 2·2	486 million words
	1949-50	14·2†	+ 1·9†	448 million words
Raw Cotton Commission	1950-51	—	—	Not applicable
	1949-50	135·5	+ 9·9	

* 11 months.
† 15 months.

Production in the steel industry during 1951 was expected to fall from 16·3 million tons to just under 16 million tons—entirely because of the difficulty of securing sufficient raw materials.

During 1951 the National Coal board published its national development plan which envisaged the investment of £635 million over 15 years. In the middle of the summer a new system of zoning prices for domestic coal was introduced. Meanwhile developments within the industry were neither as favourable as might have been hoped nor as bad as might have been feared. In spite of an increase in wages the industry was again losing manpower by the middle of the year and, though production continued to rise, stocks were rebuilt only by severe restrictions on exports. In the first half of the year, however, with the aid of an increase in prices a profit of £5 million was made. At the end of the year there was marked increase in the rate of production.

In contrast to this the financial position of the British Transport commission deteriorated. Early in the year an emergency increase in freight rates had to be granted and, soon after, a scheme for passenger fares was published that included considerable increases. While this was being discussed before the Transport tribunal the commission was compelled to set the increase still higher. Meanwhile a shortage of staff enforced cuts in train services; and it was only small consolation that towards the end of the year the movement of troops combined with a greater willingness to travel began to increase passenger takings. The commission attributed much of its difficulties to the long delays, involved by its statutory obligations, between the demand for freight or fare increases and their granting.

By vigorous economies and the use of better aircraft the nationalized airways were able to improve their finances during 1951. At the end of August B.O.A.C. had a deficit of

only £355,000 compared with £1,748,000 the year before; there was a prospect of increased revenue as a result of the new mail rates negotiated with the post office in October.

Europe and the Commonwealth. In Europe there were few developments during 1951 in the nationalized industries, except in Yugoslavia. Here a general trend towards a greater freedom found its expression in the renting of small family shops, previously nationalized, on a commission basis; the modification of the system of state food markets; and the delegation of more power to works management councils, especially in the disposition of profits. Elsewhere in countries with Communist governments, for example in Hungary, Poland and Rumania, strong pressure was put on the peasants to join collective farms. This policy, however, appeared to have met with a good deal of opposition.

Neither in Australia nor in New Zealand was nationalization an issue in the elections. The election in Australia, however, was precipitated by the Senate's refusal to ratify the repeal of the 1947 Bank act. And after the Conservative government had been returned to power this act was passed. During the year the Australian federal government sold its holdings, worth £A 2 million, in Amalgamated Wireless, though it stated that this was not necessarily indicative of general policy. The New South Wales government, however, announced its intention of taking over the Sydney ferries.

In Burma and India the attitude of the government towards nationalization was largely determined by the need for foreign capital. In both countries announcements were made in favour of a system by which equity finance should be provided by foreign and local capital in combination, though the Indian government reserved power to assume for a five-year period the control of any industry which was not successful—but without disturbing the shareholders. In Burma arrangements were made during the year by which the government took half the shares in Burma Corporation and one third of the shares in Burma Oil. On these terms the companies were expected to resume operations. (*See* EASTERN EUROPEAN ECONOMIC PLANNING.) (J. R. AY.)

NATIONAL PARKS. England and Wales. During 1951 five parks designated by the National Parks commission were confirmed by the minister of housing and local government—the Lake district, the Peak district, Snowdonia, Dartmoor and the Pembroke coast. These were the first of Great Britain's national parks. They included in all 2,843 sq.mi. of territory and their designation as parks brought under special planning care five of the most beautiful and famous of Great Britain's upland areas. The commission submitted to local government authorities the proposed boundaries of another park, the North York moors. Joint planning boards for the Peak district and Lake district parks were set up, comprising representatives of the local planning authorities which had territory in the parks, together with members nominated by the minister in consultation with the commission. These joint boards were to be responsible for the planning of land use in the parks, with special responsibilities for maintaining the beauty of the areas and encouraging facilities for open air recreation. The commission gave advice on a considerable number of proposals for the use of land in beautiful areas, concerned in the main with mineral working, electricity supply, forestry and the use of areas for the training of the defence services.

The National Parks commission published in May the *Country Code*, a guide to behaviour for people visiting the countryside. The Code set out ten simple maxims, and gave reasons for them. These maxims were: guard against all risk of fire; fasten all gates; keep dogs under proper control; keep to the paths across farm land; avoid damaging fences, hedges and walls; leave no litter; safeguard water supplies; protect wild life, wild plants and trees; go carefully on country roads; respect the life of the countryside. The preparation and publication of such a code was a statutory duty of the commission.

Australia. *Tasmania.* Mount Field national park was extended by 7,000 ac. to take in an area of primitive rain forest. All national parks (seven), scenic reserves and historic sites were put under the jurisdiction of the Scenery Preservation board. About 54,000 persons visited these areas, which totalled 521,000 ac. The board discussed the proposal to create a new national park embracing King William range, which would add another 40,000 ac. to the areas administered, and also proposed to establish a ski village on Mount Field.

Belgian Congo. The four national parks of the Belgian Congo (Albert, Kagera, Garamba and Upemba) being primarily nature reserves, only the first two were open to the public and these in certain sectors only. Albert national park (2 million ac.) had about 4,000 visitors. Kagera national park had about 20 visitors a month.

Canada. Two national historic parks were established at Lower Fort Garry, near Winnipeg (13 ac.) and Fort Battleford, Saskatchewan (formerly the North West Mounted Police memorial and Indian museum, 37 ac.). Canada's 17 national parks and 11 national historic parks had 2 million visitors, a record number, some 10% more than in 1950. Highway improvement continued, a total of 120 mi. of road being hard-surfaced and many miles gravelled; bridges were repaired or replaced. Accommodation for visitors was increased, and recreation facilities (camping grounds, outdoor swimming pools, children's playgrounds, tennis courts and golf courses) extended. Study of wild life continued and fish stocks were replenished.

Israel. The government made further progress in preparing legislation for the establishment of national parks and nature reservations. Preparatory work was done in connection with six selected areas. These were: an area in central Galilee between Sasa, Meron, Pek'in and Rama (25,000 ac.); an area on Mount Carmel up to Athlit (20,000 ac.), but excluding existing settlements; an area in Caesarea (5,000 ac.); Wadi Sarar, on the Jerusalem road south of Bab el-Wad (25,000 ac.); Wadi Rubin, near Ness Ziona (7,500 ac.); the Small Crater in the Negev (25,000 ac.). Consideration of 30 other areas proceeded, with a view to selection as national parks.

Kenya. About 60,000 persons visited Kenya's six national parks—Royal Nairobi (40 sq.mi.), Tsavo (8,000 sq.mi.), Mount Kenya, Aberdare, Gedi and Olorgesailie and five nature reserves (Marsabit, Amboseli, West Chula, Trans Mara and Ngong).

Netherlands. The national park (Hooge Veluwe) had many more visitors than in 1950; *i.e.*, about 255,000 (a record). The woods grew well, and the game had a good year.

New Zealand. A National Parks bill was drafted for the purpose of bringing under one central body the policy of all New Zealand's national parks—Tongariro, Egmont, Abel Tasmen, Peel forest, Arthur pass, Tasman park and the Sound (3,054,805 ac. in all). The bill provided that the individual national park boards of the five first named would retain their identity subject to central policy control, already directly exercised over the last two.

In the Tongariro national park (150,000 ac. comprising the central highlands of North Island) accommodation for a resident ranger was completed and grants were made to the park boards for the erection of rangers' cottages in Abel Tasman park (40,000 ac.) and Arthur pass (240,000 ac.). Some mountain clubs erected huts on Mount Ruapehu (in Tongariro national park) and with park board permission

one club erected an aerial cable on the mountain. Many tourists and campers visited the parks. The wild-life population increased despite the ravages of stoats and wild cats.

Northern Rhodesia. The Kafue national park (8,650 sq.mi., designated in 1950) remained closed to the public in accordance with the government's decision to allow flora and fauna five undisturbed years for establishment. The game in the southern (Namwala) section showed very good progress. The government considered a suggestion that the park should be opened to a limited extent during 1953 in connection with the Rhodes Centenary exhibition.

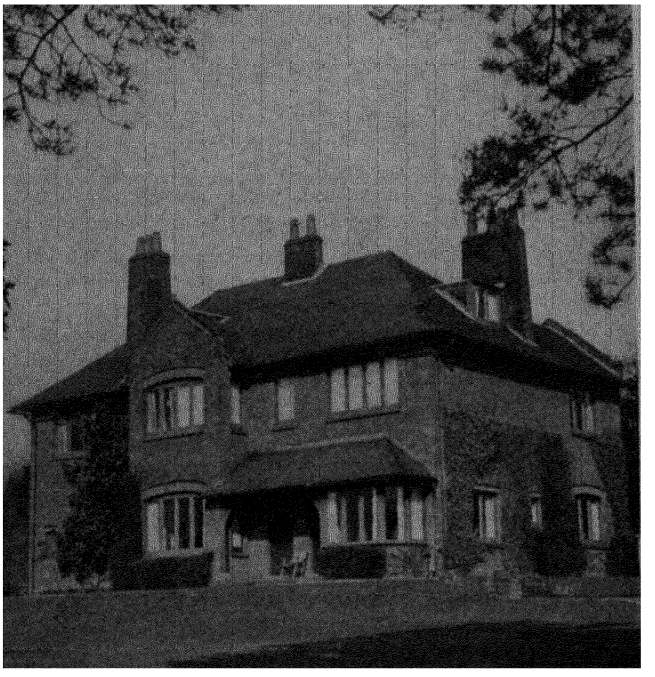
South Africa. The number of visitors to the Kruger national park was 66,037, an increase of 10,116 over the 1950 figure, itself a record. Eleven zebra transferred from a farm to the Zebra national park established themselves and it was hoped that they would increase. No new parks were added to the five in South Africa (Kruger, Addo, Zebra, Bontbok and Kalahari).

Switzerland. In the Swiss national park, Basse-Engadine (160 sq.mi.), the snowfall in the winter of 1950-51 was exceptionally heavy, and caused much damage to woodlands, roads and cabins. In June, there was a forest fire, which was successfully controlled. During the year the park was visited by 1,500 people. M. Petitmermet retired from the post of president of the federal commission of the national park, and E. Hess, inspector general of forests, was nominated president in his stead. (H. M. As.)

United States. About 36,680,000 people visited areas administered by the national park service of the Department of the Interior during 1951. One of the year's most significant developments was the transfer, on Jan. 2, of the administration, but not the ownership, of Independence hall, Congress hall and associated historic structures in Independence square, Philadelphia, from city to federal control. These structures formed the nucleus of the Independence National Historical park project authorized by congress in 1948. Other significant historic site developments were the establishment of the birth site, near Diamond, Missouri, of the noted Negro agriculturalist George Washington Carver as a national monument; the designation, as a national historic site, of Grand Portage trail in northeastern Minnesota, which figured in the colonization of the northwestern United States; and the designation, as a historic site, of Dorchester heights, South Boston, Massachusetts, an important point in George Washington's successful effort to force the evacuation of Boston by British troops in 1776.

The secretary of the interior, Oscar L. Chapman, issued an order to the agencies of the Department of the Interior designed to protect not only areas administered by the national park service but also established wilderness areas in national forests and national wild life refuges against water-control investigations. This order prohibited investigations by such agencies in these areas without the prior written approval of the secretary of the interior or the authorization of congress. (*See* also WILD LIFE CONSERVATION.) (C. L. Wi.)

NATIONAL TRUST. In 1951 the Penrhyn estate of 40,617 ac. in north Wales was given to the National Trust by the Treasury, who had accepted it in lieu of death duties; it was the largest property yet acquired by the trust. It included the massive Penrhyn castle, built in 1847, and some of the finest scenery in Snowdonia, with summits of over 3,000 ft. Other land given during the year comprised: two islands in Derwentwater; on the North Downs, Surrey, the notable Winkworth arboretum, 108 ac. at Gatton and another 88 ac. of Box Hill; in north Cornwall, the rocky headland of the Kelseys, near Newquay, and the moor of Rough Tor, rising



Shaw's Corner, Ayot St. Lawrence, Hertfordshire, the home of George Bernard Shaw (1856-1950), which was left to the National Trust. It was opened to the public in March 1951.

to 1,300 ft., on which there was to be a monument to the Wessex division; in north Devon, a further 170 ac. in the beautiful Lyn valley and 700 ac. in and near Morte Bay; in north Somerset, the headland of Brean Down, near Weston-super-Mare, and Willoughby Cleeve, at the foot of the Quantocks.

Houses which came to the Trust were Compton castle, near Torquay, a fortified manor house once the home of Sir Humphrey Gilbert (colonizer of Newfoundland and half-brother to Sir Walter Raleigh); St. George's Hall, King's Lynn, the largest surviving mediaeval guildhall, long put to theatrical use, to which it was being restored; the splendid Georgian mansion of Castlecoole, near Enniskillen, designed by James Wyatt; Lindsey house, Chelsea, one of London's finest 17th-century exteriors; and the Tudor Snowshill manor, near Broadway, with interesting collections. Other gifts were the fine 14th-century Bredon tithe barn near Tewkesbury and the 15th-century watermill at Nether Alderley, Cheshire. Six months after the death of George Bernard Shaw at Shaw's Corner, Ayot St. Lawrence, Hertfordshire, this house, which he had given to the trust, was opened to the public, with its contents as he left them.

In April the Labour government forecast a bill to give partial effect to the recommendations of the Gowers committee, including some for the benefit of the trust. The intentions of the Conservatives, returned to power in October, had not been made known by the end of the year.

During 1951 the National Trust received legacies amounting to £58,380. The repair was completed of wartime damage and deterioration, and the accounts for 1950 showed expenditure exceeding revenue by £56,000. The membership of the trust increased to 28,359. (*See* also HISTORIC BUILDINGS.) (E. H. Kg.)

See L. A. G. Strong, *Sixteen Portraits* (of famous people whose houses were preserved by the National Trust), London, 1951; Compton Mackenzie, *I Took a Journey* (a tour of National Trust properties), London, 1951.

NAURU: *see* COMMONWEALTH OF NATIONS; TRUST TERRITORIES.

NAVIES OF THE WORLD. At the end of 1951 there were two first class navies, namely those of the United States and of Great Britain, the former being about four times larger than the latter. The fleets of the U.S.S.R., France and Italy could be considered second class, and those of Sweden, Netherlands, Turkey, Spain, Australia, Canada, Argentina, Brazil and Chile third class. The remaining, not so well-balanced, navies fell into lesser categories. Several of the smaller countries continued to add to their naval strength by acquiring warships from the United States and Great Britain. The relative strengths in ships, of and above the escort vessel categories, of the navies of the world were as shown in the accompanying table.

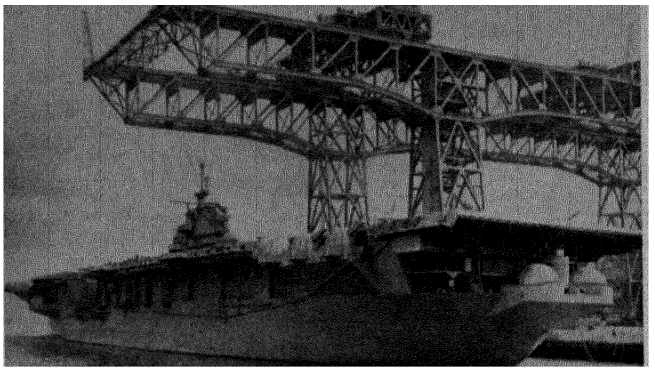
The principal trends in the navies of the larger maritime powers in 1951 were the improvement of anti-submarine and anti-aircraft weapons, the reconstruction and conversion of aircraft carriers to operate larger and faster aircraft, the adaptation of large destroyers as fleet anti-submarine escorts, the conversion of smaller destroyer types into fast anti-submarine frigates, and an increase in the speed and underwater endurance of submarines.

Events in the far east and middle east gave a sharp impetus towards rearmament. In the United States many warships which had been in a state of preservation were brought back into commission, while in Great Britain a number of reserve ships which had been laid up were brought forward for active service. In both countries many new warships, especially smaller types such as anti-submarine escorts or frigates and minesweepers, were ordered or projected.

NAVIES OF THE WORLD, DEC. 1951

	Fleet Aircraft Carriers	Light Aircraft Carriers	Escort Aircraft Carriers	Battleships	Cruisers	Coast Defence Ships & Monitors	Destroyers	Frigates and Escort Vessels	Submarines
UNITED STATES	28	8	66	15	69	1	348	263	194
GREAT BRITAIN	7	6	1	5	24	2	95	162	53
U.S.S.R.	—	—	—	3	14	2	82	58	370
FRANCE	—	2	1	2	6	—	11	26	10
ITALY	—	—	—	2	3	—	6	40	—
SWEDEN	—	—	—	—	4	3	13	8	24
NETHERLANDS	—	1	—	—	2	—	5	9	7
TURKEY	—	—	—	—	1	—	10	—	11
SPAIN	—	—	—	—	6	—	18	12	6
AUSTRALIA	—	1	—	—	3	—	10	14	—
CANADA	—	1	—	—	2	—	11	6	—
ARGENTINA	—	—	—	2	5	1	11	11	3
BRAZIL	—	—	—	1	2	—	9	8	3
CHILE	—	—	—	1	2	2	6	6	7
NEW ZEALAND	—	—	—	—	2	—	—	6	—
PERU	—	—	—	—	2	—	1	6	4
GREECE	—	—	—	—	1	—	3	19	6
INDIA	—	—	—	—	1	—	3	5	—
NORWAY	—	—	—	—	—	—	5	12	8
PORTUGAL	—	—	—	—	—	—	5	8	3
CHINA	—	—	—	—	—	—	7	24	—
PAKISTAN	—	—	—	—	—	—	3	4	—
POLAND	—	—	—	—	—	—	2	—	4
THAILAND	—	—	—	—	—	1	—	2	4
DOMINICAN REP.	—	—	—	—	—	—	2	9	—
RUMANIA	—	—	—	—	—	—	2	—	1
COLOMBIA	—	—	—	—	—	—	2	1	—
SOUTH AFRICA	—	—	—	—	—	—	1	3	—
INDONESIA	—	—	—	—	—	—	1	4	—
EGYPT	—	—	—	—	—	—	—	10	—
DENMARK	—	—	—	—	—	—	—	5	3
YUGOSLAVIA	—	—	—	—	—	—	—	5	4
MEXICO	—	—	—	—	—	—	—	7	—
ISRAEL					—	—	—	6	—
VENEZUELA					—	—	—	6	—
JAPAN	—	—	—	—	—	—	—	5	—
CUBA	—	—	—	—	—	—	—	4	—
BELGIUM	—	—	—	—	—	—	—	2	—
IRISH REPUBLIC	—	—	—	—	—	—	—	3	—
SOUTH KOREA	—	—	—	—	—	—	—	2	—
PERSIA	—	—	—	—	—	—	—	2	—
ECUADOR	—	—	—	—	—	—	—	1	—
BURMA	—	—	—	—	—	—	—	1	—

Other naval forces, comprising only minor war vessels, are those of Bulgaria, Ceylon, Finland, Haiti, Honduras, Hungary, Iceland, Iraq, Nicaragua, Panama, Paraquay, Philippines and Uraguay.



The U.S.S. "Shangri-La" (27,100 tons), which was first commissioned in 1944, at San Francisco in May 1951, when she was re-commissioned for active duty.

Among the naval events of the year which shocked and stirred the world were the sad loss of 75 officers and men in the British submarine "Affray" which failed to surface in the English channel on April 17 and was not located until June 14; the destruction of the naval armament carrier "Bedenham" which blew up in Gibraltar harbour on April 27; the loss of the U.S. minesweeper "Partridge" which struck a floating mine and sank off the east coast of Korea on Feb. 2; and the revolt of the Thailand navy culminating in the sinking of the coast defence ship "Sri Ayuthaya" and a torpedo boat on July 3.

Many British warships were concerned in the Korean campaign, and others were called upon to deal with the emergencies in the Persian gulf and the approaches to the Suez canal and hurricane relief in Jamaica. Many U.S., Australian, Canadian and New Zealand warships were active in the Korean theatre.

United States Naval Strength. A giant flush-decked aircraft carrier of 59,900 tons was ordered, named "James V. Forrestal." Twelve aircraft carriers of the "Essex" class, including the "Bon Homme Richard," "Hancock," "Hornet," "Kearsage," "Lake Champlain," "Lexington," "Randolph," and "Wasp," were scheduled to be converted on similar lines to the newly completed "Oriskany" and the recently converted "Essex" to enable them to operate heavier aircraft. By the end of 1951 all four of the battleships of the "Iowa" class were in commission. The U.S. navy comprised 28 fleet aircraft carriers, 8 light fleet carriers, 66 escort carriers, 15 battleships, 2 large (battle) cruisers, 25 heavy cruisers, 42 light cruisers, 348 destroyers, 263 escort destroyers and frigates, 194 submarines, 214 minelayers and minesweepers, 168 patrol vessels, 1,000 amphibious craft, 553 fleet auxiliaries, about 2,000 service craft and 74 drydocks —a total of 5,000 vessels, of which half were in service, the remainder being in reserve.

British Naval Strength. Late in 1951 there were 7 fleet aircraft carriers, 6 light carriers and 1 escort carrier. The large fleet aircraft carrier "Eagle" was completed on Oct. 31. Considerable progress had been made with the light fleet carriers "Albion," "Bulwark" and "Centaur," but the remaining ship of the class, the "Hermes," had not been launched. The light carriers "Hercules," "Leviathan" and "Powerful" were still suspended. Of the five surviving battleships none were in operational commission at the end of the year, the "Vanguard" being withdrawn for refit as flagship of the Home fleet, and the four of the "King

George V " class relegated to reserve, three being laid up in a state of preservation. There were 24 cruisers, excluding a trials ship and a cadets' training ship. No building progress was made with the cruisers " Blake," " Defence " and " Tiger." Destroyers numbered 95. The seventh of the eight large destroyers of the " Daring " class was launched. There were 162 frigates including the " Relentless " and " Rocket " the conversion of which from destroyers was completed in July. As a result of scrappings and transfers submarines were reduced to 53, excluding 4 " midgets." Other vessels included 3 fast minelayers, 2 aircraft maintenance carriers, 2 monitors, 60 ocean minesweepers, and many coastal craft, miscellaneous ships and auxiliaries.

Commonwealth. Australia had a compact fleet of 1 light carrier (a sister ship was under construction in Great Britain), 3 cruisers, 5 destroyers (4 more under construction), 5 fast anti-submarine frigates under conversion from destroyers, 14 frigates, 32 fleet minesweepers and a number of small craft and auxiliaries.

Canada also had a well-balanced fleet of 1 light carrier, 2 cruisers, 11 destroyers (2 of which were to be converted to fast anti-submarine frigates), 6 frigates (14 more were under construction or projected), 9 fleet minesweepers and numerous smaller craft.

U.S.S.R. The construction of one to four battleships of a new type was persistently reported. The total available naval strength at the end of 1951 was 3 battleships, 14 cruisers, 2 coast defence ships, 82 destroyers, 370 submarines, 58 escort vessles and numerous minesweepers, minelayers, patrol vessels, torpedo boats and ancillary ships.

France. The fast light fleet aircraft carrier " Langley " was acquired from the United States and renamed " Lafayette." The reconstruction of the cruiser " De Grasse " was resumed and she was to be completed as an anti-aircraft cruiser. The fleet comprised 2 light carriers, 1 escort carrier, 2 battleships, 6 cruisers, 11 first class escorts (destroyers), 26 second class escorts (frigates), 10 submarines and numerous patrol vessels, miscellaneous ships and auxiliaries.

Italy. The navy consisted of 2 battleships, 3 cruisers, 6 destroyers, 5 frigates, 12 torpedo boats, 23 corvettes and a number of minesweepers and auxiliaries, 1 cruiser having been discarded, 2 destroyers and 3 frigates acquired from the United States, and 2 torpedo boats re-rated as escorts (frigates).

Other European Countries. Sweden had 4 cruisers, 3 coast defence ships (small battleships), 13 destroyers, 2 anti-submarine frigates, 6 torpedo boats (small destroyers), 24 submarines, 2 minelayers and numerous other vessels.

The Netherlands had a well-balanced fleet of 1 light aircraft carrier, 2 light cruisers, 5 destroyers, 9 frigates, 7 submarines, 4 patrol vessels, 1 minelayer and a number of other warships.

Turkey possessed 1 old battle cruiser, the only warship of this category remaining in the world, 10 destroyers, 11 submarines, 13 fleet minesweepers and numerous other warships and auxiliaries.

Spain had 6 cruisers, 18 destroyers, 12 frigates, 6 submarines, 6 minelayers, and 7 fleet minesweepers, as well as many minor warships and auxiliaries.

South America. Argentina had 2 old battleships, 5 cruisers (2 of which were transferred from the United States in 1951), 1 coast defence ship, 11 destroyers, 7 frigates, 3 submarines, 11 minesweepers and other craft.

Brazil possessed 1 old battleship, 2 cruisers purchased from the United States in 1951, 9 destroyers, 8 frigates, 3 submarines, 11 corvettes, 8 submarine chasers and numerous smaller craft.

Chile had 1 old battleship, 2 cruisers acquired from the United States in 1951, 6 destroyers, 6 frigates, 7 submarines and a number of small craft, miscellaneous ships and auxiliaries.

Modern Types of Warships. The principal types of modern warships in the navies of the world were as follows:

Fleet Aircraft Carriers. " Midway " (U.S.), 45,000 tons,



Helicopters of the Royal Navy carried out tests in 1951 to test the practicability of their use with merchant ships. A helicopter is seen landing on H.M.S. " Fort Duquesne," fleet supply ship (9,788 tons), on which a special landing platform had been constructed. In the background is H.M.S. " Savage " (1,796 tons).

fourteen 5-in. guns, 137 aircraft, 212,000 s.h.p., 33 knots; "Eagle" (British), 36,800 tons, sixteen 4·5-in. guns, 110 aircraft, 152,000 s.h.p., 31½ knots; "Oriskany" (U.S.), 30,800 tons, ten 5-in. guns, 100 aircraft, 150,000 s.h.p., 33 knots; "Implacable" (British), 26,000 tons, 72 aircraft, sixteen 4·5-in. guns, 148,000 s.h.p., 32½ knots.

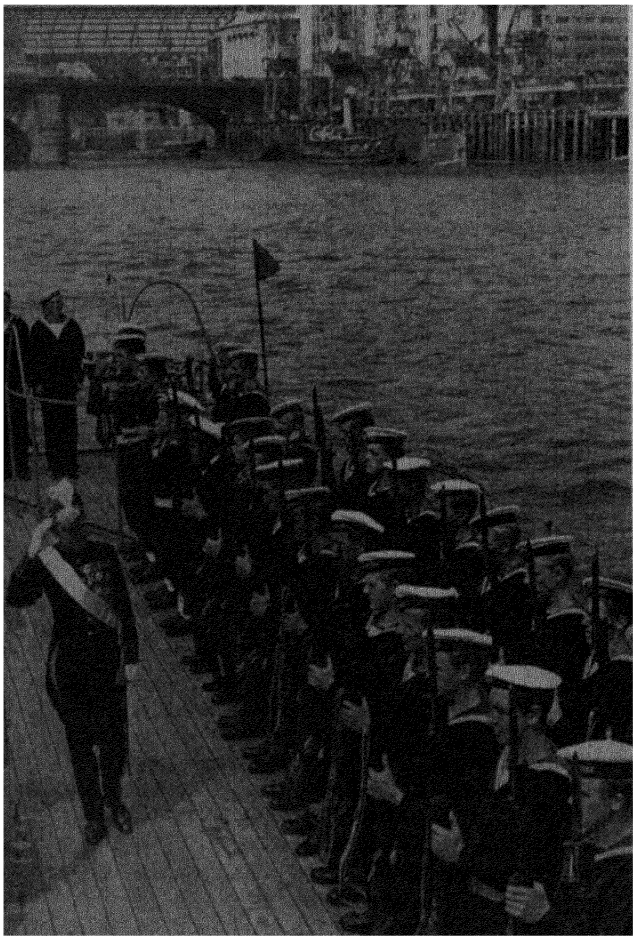
Light Fleet Aircraft Carriers. "Saipan" (U.S.), 14,500 tons, 50 aircraft, 120,000 s.h.p., 33 knots; "Theseus" (British), 13,350 tons, 35 aircraft, 40,000 s.h.p., 25 knots; "Belleau Wood" (U.S.), 11,000 tons, 45 aircraft, 100,000 s.h.p., 32 knots.

Battleships. "Iowa" (U.S.), 45,000 tons, nine 16-in. and twenty 5-in. guns, 212,000 s.h.p., 33 knots; "Vanguard" (British), 44,500 tons, eight 15-in. and sixteen 5·25-in. guns, 130,000 s.h.p., 30 knots; "South Dakota" (U.S.), 35,000 tons, nine 16-in. and twenty 5-in. guns, 130,000 s.h.p., 28 knots; "Jean Bart" (French), 38,750 tons, eight 15-in. and nine 6-in. guns, 150,000 s.h.p., 30 knots; "King George V" (British), 35,000 tons, ten 14-in. and sixteen 5·25-in. guns, 110,000 s.h.p., 28·5 knots.

Large (Battle) Cruisers. "Alaska" (U.S.), 27,500 tons, nine 12-in. and twelve 5-in. guns, 150,000 s.h.p., 33 knots.

Heavy Cruisers. "Des Moines" (U.S.), 17,000 tons, nine 8-in. and twelve 5-in. guns, 120,000 s.h.p., 33 knots; "Oregon City" (U.S.), 13,700 tons, nine 8-in. and twelve 5-in. guns, 120,000 s.h.p., 33 knots.

Light Cruisers. "Worcester" (U.S.), 14,700 tons, twelve 6-in. and twenty 3-in. guns, 120,000 s.h.p., 32 knots; "Fargo" (U.S.), 10,000 tons, twelve 6-in. and twelve 5-in. guns,



Count Eduard Reventlow, Danish ambassador in London, inspecting the guard of honour of the Danish frigate "Holger Danske" (1,445 tons), formerly H.M.S. "Monnow," while it was achored in the Thames, July 1951.



The Swedish destroyers "Norrköping" (1,040 tons) and "Öland" (1,880 tons) at Rosyth during the visit to Scotland of the Swedish home fleet.

100,000 s.h.p., 32½ knots; "Superb" (British), 8,000 tons, nine 6-in. and ten 4-in. guns, 72,500 s.h.p., 31·5 knots; "Tre Kronor" (Swedish), 7,500 tons, seven 6-in. guns, 100,000 s.h.p., 33 knots; "Juneau" (U.S.), 6,000 tons, twelve 5-in. guns, 75,000 s.h.p., 35 knots; "Diadem" (British), 5,900 tons, eight 5·25-in. guns, 62,000 s.h.p., 32 knots.

Destroyers. "Daring" (British), 2,610 tons, six 4·5-in. guns, 54,000 s.h.p., 34 knots; "Gearing" (U.S.), 2,425 tons, six 5-in. guns, 60,000 s.h.p., 35 knots; "Jutland" (British), 2,400 tons, five 4·5-in. guns, 50,000 s.h.p., 34 knots; "Battle-axe" (British), 1,980 tons, four 4-in. guns, 40,000 s.h.p., 34 knots; "Öland" (Swedish), 1,880 tons, four 4·7-in. guns, 44,000 s.h.p., 35 knots.

Frigates. "Relentless" (British), 1,705 tons, two 4-in. guns, two 21-in. torpedo tubes, 40,000 s.h.p., 34 knots; "Mounts Bay" (British), 1,580 tons, four 4-in. guns, 5,500 i.h.p., 19½ knots; "Tacoma" (U.S.), 1,430 tons, three 3-in. guns, 5,500 i.h.p., 20 knots; "Amethyst" (British), 1,490 tons, six 4-in. guns, 4,300 s.h.p., 18½ knots; "Brecon" (British), 1,175 tons, six 4-in. guns, three 21-in. torpedo tubes, 19,000 s.h.p., 25 knots.

Submarines. "Tench" (U.S.), 1,570 tons, one 5-in. gun, ten 21-in. torpedo tubes, 6,500 s.h.p., 20 knots; "Amphion" (British), 1,120 tons, one 4-in. gun, ten 21-in. torpedo tubes, 4,300 s.h.p., 18 knots; "Créole" (French), 820 tons, one 3·5-in. gun, ten 21·7-in. torpedo tubes, 3,000 s.h.p., 17 knots; "K-1" (Soviet), 1,457 tons, two 4-in. guns, ten 21-in. torpedo tubes, 22½ knots. (*See* also ROYAL NAVY.)

(R. V. B. B.)

NAZIMUDDIN, KHWAJA, Pakistani statesman (b. Dacca, Bengal, July 19, 1894), was educated at the Mohammedan Anglo-Oriental college, Aligarh, United Provinces, at Dunstable grammar school, Bedfordshire, and at Trinity hall, Cambridge. Of a noble family, kin to the nawabs of Dacca and long influential in Bengal's affairs, Khwaja* Nazimuddin was chairman of the Dacca municipality from 1922 to 1929. In that year he entered Bengal provincial politics and as minister of education (1929-34) piloted the Compulsory Primary Education act, 1930; he was home minister, 1937-41. He had been prominent in the revival of the All-India Moslem league in 1937 and was a members of its working committee, 1937-47. In 1941 he resigned from the Bengal government over the membership of the Indian defence council of Fazlul Huk, the premier. Nazimuddin led the Moslem league opposition in the legislative assembly until early in 1943 when he ended a brief interregnum in Bengal's autonomy (during a famine) by

* Khwaja=teacher. Nazimuddin kept this courtesy title after his tenure of the Bengal portfolio of education.

forming a ministry, 1943-45. In 1946 he was one of the Indian delegates to the last League of Nations session.

When Pakistan was formed on Aug. 15, 1947, he was appointed premier of East Pakistan (East Bengal). On Mohammed Ali Jinnah's death (Sept. 11, 1948) he became governor general of Pakistan. Following the assassination of Liaquat Ali Khan (*see* OBITUARIES) on Oct. 16, 1951, he resigned the governor generalship to become prime minister. Nazimuddin was created K.C.I.E. in 1934 but renounced the title in 1946.

NEHRU, JAWAHARLAL, Indian statesman (b. Allahabad, United Provinces, Nov. 14, 1889), was prime minister of India from Aug. 15, 1947. For his earlier career see *Encyclopædia Britannica* and *Britannica Book of the Year 1951*.

Addressing the Commonwealth Prime Ministers' conference in London on Jan. 4, 1951, Nehru said that it was " idle and irrelevant " to speak of China as a Soviet satellite and that " her voice should now be heard in the council of nations "; at a public meeting in Bombay on March 4, however, he described Communist policy as one of "destruction and chaos."

Informal discussions on the Kashmir dispute at Chequers, Buckinghamshire, on Jan. 13-14 between Nehru and the prime ministers of Great Britain, Pakistan and other Commonwealth countries produced little result. Speaking in the Indian parliament on March 28, Nehru insisted that Kashmir was " juridically and politically an integral part of the State of India " and in an exchange of letters with Liaquat Ali Khan (*see* OBITUARIES) he wrote: " Peace is not offered with clenched fists nor with threatened aggression and resounding cries of *jehad* [holy war]."

On his way back to India from England Nehru had discussions in Paris on Jan. 18 with President Vincent Auriol and Trygve Lie, the United Nations secretary general, and was entertained by René Pleven, the French prime minister.

It had been known for some time that a minority group in the Congress party—mainly Nehru's supporters—was dissatisfied with the administration of the majority led by the party president, Purshottamdas Tandon (*q.v.*). During 1951 this situation developed into a personal struggle for supremacy between Nehru and the Congress president. Investigation of the minority group's complaints, promised to Nehru by the working committee at its Bangalore session in July, did not materialize, and on Aug. 11 he resigned from the committee. On Aug. 21 he received a vote of confidence from 234 of the 279 members of the parliamentary Congress party and, on Sept. 6, 16 of the 21 members of the Congress Working committee resigned. On Sept. 8, finding himself virtually isolated, Tandon resigned and Nehru succeeded him as president.

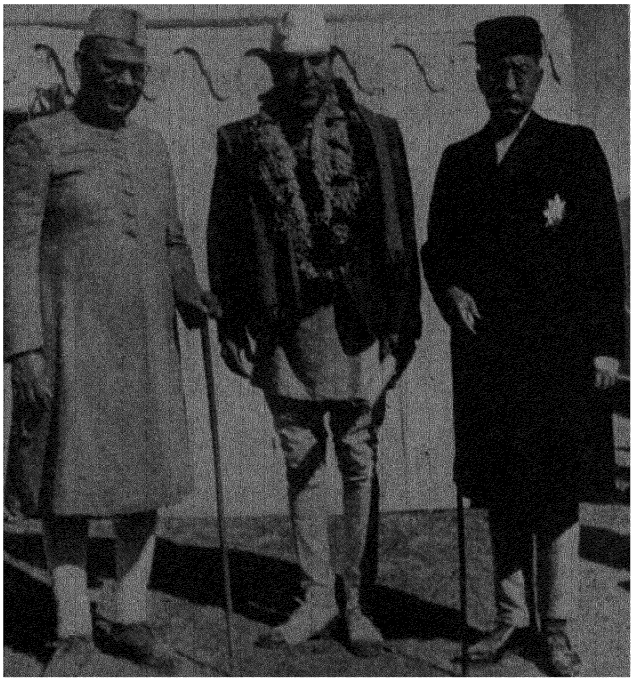
On Jan. 2 Nehru had inaugurated a joint session of the Indian Science congress and Pan-Indian Ocean Science congress at Bangalore, and on Jan. 25 he opened the National stadium in New Delhi. He attended the opening of the Central Building Research institute, Roorkee, Uttar Pradesh, on Feb. 10, and in May was elected the first chancellor of Visvabharati university, Bengal. In visiting Kathmandu, June 16-19, Nehru became the first foreign prime minister to enter Nepal.

NEPAL. Independent kingdom in the Himalayas, lying between India and Tibet. Area: *c.* 54,000 sq.mi. Pop. (1950 est.): 7,000,000. Aboriginal stock is Mongolian, with Hindu admixture. Language: Gorkhalis, or Gurkhas, speak Parbatia, of Sanskrit origin; Bothias use Tibetan; Newars, from southern India, speak Gubhajius, resembling Tibetan but with many Sanskrit words. Religion: Buddhism mixed with Hinduism. Capital, Kathmandu (pop. *c.* 110,000). Ruler, Tribhuvana Bir Bikram Shah Deva; prime ministers in 1951, Mohan Shumshere Jung Bahadur Rana and (from Nov. 16) Matrika Prasad Koirala.

History. The year 1951 opened with King Tribhuvana still in self-imposed exile at New Delhi and the government at Kathmandu having second thoughts on their idea of a council of regency to which India had taken friendly exception. On Jan. 8, 1951, it was announced that Nepal would have constitutional reforms generally on lines proposed by India. Pending the meeting of a Constituent Assembly in 1952 to frame a constitution with adult suffrage, a cabinet would be at once set up under the prime minister, Mohan Shumshere Jung Bahadur Rana, and composed of an equal number of representatives of the Rana family and the Nepali Congress party on the basis of joint responsibility. King Tribhuvana was to continue on the throne but could appoint a regent in his absence. Amnesty for those engaged in the recent agitation was declared on certain terms. The king started to exercise his functions as a constitutional monarch on Jan. 18, consultations between him and the prime minister being conducted through the Nepali ambassador at New Delhi. He flew back to Kathmandu on Feb. 15 after three months' stay in India. Three days later he issued a proclamation under which the interim cabinet was duly sworn in.

In April serious trouble broke out again owing to an attempt by the Gurkha Dal and some junior members of the Rana family to demonstrate in favour of the former régime. The king took over the post of commander in chief from the prime minister; 31 members of the Rana family were arrested and the Gurkha Dal was banned.

To help Nepal three Indian officials, one of them a financial expert, were lent by India. In October the government presented its first budget which introduced income tax on agricultural and other incomes. Hitherto the revenue had been derived mainly from customs, forests and land. The total revenue was estimated at Rs. 30 million. The prime minister who formerly drew about Rs. 7 million a year from the national income was given a private purse.



*King Tribhuvana (**centre**) **after his return to Kathmandu on Feb. 15, 1951, with Mohan Shumshere Jung Bahadur Rana, the prime minister, on his left and the Indian ambassador on his right.***

On Nov. 11, five Nepali Congress ministers headed by the home minister, B. P. Koirala, resigned, handing in their resignations direct to the king. Koirala broadcast his and his colleagues' view that the cabinet was unworkable on a mixed basis and that any attempt to compromise with the Rana régime had been abortive. On Nov. 16 a new cabinet, headed by M. P. Koirala, was sworn in. None of the five former Rana ministers was in the new government, which consisted of eight members of the Nepali Congress party and four Independents. The former home minister, B. P. Koirala, brother of the new prime minister, also stayed out of the new ministry. The retiring prime minister left Kathmandu for Bombay on Dec. 14, and this was the end of the oligarchical rule of the Rana family.

A warm welcome was given to Jawaharlal Nehru on June 16 when he arrived on a short visit, the first foreign prime minister ever seen in Kathmandu. In September a treaty of friendship was signed with the United States, the missions of both countries being raised to embassy rank. (E. HD.)

Foreign Trade. (Nep. rupees, 1944-45) imports 32,520,000; exports 37,376,000. Principal imports: textiles, cigarettes, salt, paraffin, sugar, spices, machinery, medicines and boots and shoes. Principal exports: food grains, jute, timber, oilseeds, potatoes, hides and skins.

Transport and Communications. Roads (1950): 237 mi. suitable for motor vehicles. Licensed motor vehicles (Dec. 1950): cars 220; commercial 80.

Finance and Banking. Estimated gross revenue N.Rs. 12·5 million. Monetary unit: Nepal *rupee*, with an exchange rate (Nov. 1951) of N.Rs. 13·33 to the pound sterling.

NETHERLANDS. Kingdom of northwest Europe, bounded N. and W. by the North sea, E. by Germany and S. by Belgium. Area: 12,868 sq.mi. (not including the waterways and sheets of water larger than 185 ac. and minor acquisitions along the German frontier). Pop.: (1930 census) 7,935,565; (Oct. 1951 est.) 10,286,250. Language: Dutch. Religion (1947): Roman Catholic 38·50%, Dutch Reformed 31·03%, Reformed Churches 7·93%, non-church members 17·04%. Chief towns (pop., 1949, est.): Amsterdam (cap., 832,583); Rotterdam (671,901); The Hague (555,339); Utrecht (191,811); Haarlem (161,380); Eindhoven (139,320). Ruler, Queen Juliana; prime minister, Willem Drees.

History. In Dec. 1950 negotiations took place between the Netherlands and Indonesia about the definitive status of western New Guinea. As the Indonesians clung to their demand of an unconditional transfer of sovereignty, their failure was inevitable. Towards the close of the conference the Dutch delegation tabled a compromise proposal by which the sovereignty was to be conferred on the Netherlands-Indonesian union, but this was declined as was also the suggestion to invoke the good offices of a third party. Before the Dutch government made its compromise proposal the Labour group of the Second Chamber, anxious to prevent a deadlock, had privately suggested to the Indonesian delegation that the sovereignty might be transferred to Indonesia on condition that the actual Netherlands administration was to be maintained for a certain period. The other parties did not, however, want to tamper with the actual sovereign rights over New Guinea. Meanwhile, in the Indonesian parliament, a movement arose against the union arrangement established so recently by the Round Table conference of The Hague. All parties were desirous of having the union statute revised; on Jan. 10, 1951, a proposal to have it terminated within three months was defeated by only 66 votes against 63. The Indonesian government asked for negotiations on the future of the union statute, which were to take place in Jan. 1952 at The Hague.

On Jan. 23, 1951, P. J. Oud, acting on behalf of the Liberal group, proposed in the Second Chamber a motion of censure on the ground of the government's having, without the chamber's sanction, abandoned its expressed determination to hold fast to Netherlands sovereignty over New Guinea. Although the motion was rejected by 66 votes to 26, the Liberal minister of foreign affairs, D. U. Stikker, handed in his resignation. Whereupon the Drees-van Schaik cabinet resigned as a whole, since one of the foundations on which it had been formed (the Liberal party) had fallen away.

Not until March 14 did a new cabinet take office, of broadly the same composition as the old and with Drees once more as prime minister. The foundations were again "broad," the Catholic People's party, the Labour party, the Liberal party and the Christian Historical union participating. Leading ministers, such as the Socialists P. Lieftinck (finance), S. L. Mansholt (agriculture), the Catholic J. R. M. van den Brink (economic affairs) and the Liberal D. U. Stikker (foreign affairs), all returned to the same posts; the Catholic J. H. van Maarseveen, who had the contentious portfolio of union affairs, was transferred to the home office. (He died suddenly in November.)

The new government had to cope with great economic difficulties. As a result of the Korean war world prices of goods needed for import had risen to a far greater extent than the articles exported by the country. Marshall aid was decreasing, while military expenditure had to be raised from Fl. 1,000 million to Fl. 1,500 million. The balance of payments moved disastrously against the Netherlands. Inflation threatened when, owing to the rise of prices, wages had to be raised by 5% (March 22). These dangerous tendencies were met by efforts to stimulate production (a minister without portfolio, A. H. M. Albregts, was assigned this task), by drastic cuts in investments and in consumption. The Netherlands bank on April 17 raised its bank rate from 3% to 4%. Partly as a result of these measures the rise of prices was stopped and on Oct. 30 the minister of finance stated that the position of the guilder had been considerably strengthened and that devaluation was for the time being averted.

The minister's policy was nevertheless criticized with growing bitterness by the Anti-Revolutionary (Calvinist) party (in opposition), the Christian Historical (Protestant) union and the Liberal party; the right wing of the Catholic party, too, joined in the attacks. A bill introducing government supervision of credit was passed on Nov. 9 against Anti-Revolutionary, Christian-Historical and Liberal votes (55 to 31). Much resentment was caused in Socialist circles by the conduct of the Conservative groups, who seemed to have forgotten that they had taken part in the cabinet formation of March, and scepticism regarding the "broad basis" grew.

In its declaration of policy on taking office the new cabinet had announced that it would take no further initiative in the matter of New Guinea. In November the publication of a bill for the revision of the constitution, in which New Guinea was expressly mentioned among the territories constituting the kingdom, evoked protests from Indonesia. The Netherlands government expressed its willingness to discuss the New Guinea question in the forthcoming conference on the revision of the union statute, at the same time making it clear that this implied no weakening of its determination. An almost insoluble problem was created by the arrival in the Netherlands of Ambonese ex-soldiers of the Netherlands East-Indian army with their families (some 12,000 in all).

On April 25 the Second Chamber ratified the Benelux treaty for the equalization of excises. On May 11 a treaty was signed at The Hague prescribing uniform legislation in the matter of international private law in Belgium, the Netherlands and Luxembourg. The economic union between the three countries could not so far be achieved, mainly in consequence of the unfavourable position of the Netherlands balance of payments. With its improvement this important matter was again coming within the sphere of practical politics.

On Oct. 3 the Second Chamber was the first of European



Queen Juliana delivering her speech from the throne at the opening of the session of parliament, Sept. 18, 1951. Also seated is the Prince of the Netherlands.

parliaments to pass the Schuman plan. The Communists were alone in voting against it. As regards the Pleven plan the Netherlands government was against carrying through a radical military unification before a real political integration of western Europe had been achieved. It did not want to sacrifice its national army to French fears of an independent German participation. At the Rome conference of the North Atlantic council in November the Benelux states urged inclusion of Great Britain and the Scandinavian states in the European army scheme.

On Jan. 24 it was stated officially that by the end of the year there would be three divisions ready for mobilization. On Jan. 22 the chief of the general staff, Hans J. Kruls, was dismissed owing to a conflict with the minister of war over army organization; he was replaced by Colonel (later Lieut. General) B. R. Hasselman. On Jan. 15 the Netherlands detachment in Korea distinguished itself at Wonju. The commander, Lieut. Colonel M. P. A. Den Ouden, was killed in action on Feb. 12.

On Sept. 21 a personal letter from Queen Juliana was delivered to the president of the United States, in which she urged that a new initiative be taken in the matter of the international refugee problem. (P. GE.)

Education. Schools (1949-50): government infant 294, pupils 48,206, teachers 1,240; private infant 2,720, pupils 267,478, teachers 6,245. Elementary: government 2,401, pupils 319,680, teachers 9,685; private 4,697, pupils 860,478, teachers 24,939. Secondary: day 1,281, pupils 209,818, teachers 11,614; evening 126, pupils 15,905, teachers 1,095; agricultural 236, pupils 50,380; technical and housewifery 892, pupils 236,278, teachers 11,405. Schools for mentally and physically defective children 217, pupils 26,565, teachers 1,675. Teachers' training colleges 89, students 10,545, lecturers 1,152. Universities: state 4, students 17,928, professors and lecturers 684; free 2, students 2,271, professors and lecturers 99; technical 4, students 8,367, professors and lecturers 274.

Agriculture. Main crops ('000 metric tons, 1950; 1951 in brackets): wheat 295 (358); rye 421 (400); barley 232 (231); oats 382 (426); potatoes 4,052; sugar, raw value 398 (409); rapeseed 45; linseed 12; dry peas 67; broad beans 12; flax fibre 15·7. Livestock ('000 head, May 1951): cattle 2,882; pigs 1,947; horses used in agriculture (May 1950) 252; sheep 371; poultry 25,460. Meat production ('000 metric tons, 1948; 1949 in brackets): total 178 (258) of which beef and veal 77 (88) and pork 98 (164). Dairy production ('000 metric tons, 1950; 1951, six months, in brackets): milk delivered 4,766 (2,379); butter 93·2 (42·7); cheese 126·8 (63·3). Fisheries: total catch (1949) 235,800 metric tons; herring exports (1950) 33,860 metric tons, valued at Fl. 17·5 million.

Industry. Industrial establishments (1948) 115,580; persons employed 1,227,297. Total working population (1950): 3,953,000. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 12,252 (6,254); lignite 192 (118); crude oil ('000 metric tons) 704·9 (362·2); manufactured gas (million cu. m.) 1,596 (856); electricity (million kwh.) 5,472 (2,786). Raw materials ('000 metric tons, 1950; 1951 in brackets): pig iron 453·6 (249·8); crude steel 489·6 (270·9); zinc, smelter 19·8 (11·2); aluminium, primary metal 10·8 (4·3); tin, metal 16·2 (10·3); salt 419 (226). Manufactured goods ('000 metric tons, 1950; 1951, six months, in brackets): cement 593 (327); cotton yarn 60·4 (31·9); wool yarn 26·8 (11·8); rayon filament yarn 21·7 (11·9); rayon staple fibre 11·0 (5·7); paper 325; leather footwear (1949) 18·5 million pairs. New dwellings completed (1950; 1951, six months, in brackets) 47,304 (26,421).

Foreign Trade. (Million florins, 1950; 1951, six months, in brackets): imports 7,752 (5,208); exports 5,288 (3,467). Main sources of imports (1950): Belgium-Luxembourg 18%; Germany 13%; U.S. 12%; U.K. 10%. Main destinations of exports: Germany 22%; U.K. 15%; Belgium-Luxembourg 14%; Indonesia 6%. Main imports: textiles fibres, yarns and fabrics 13·6%; petroleum and products 6·5%; iron and steel manufactures 5·3%; cereals and flour 5·2%. Main domestic exports: milk, dairy products and eggs 14·8%; yarn, rope and fabrics 7·9%; fertilizers and chemicals 6·0%; electrical machinery and equipment 5·0%.

Transport and Communications. Roads (Jan. 1950): main 1,724 mi.; secondary 2,694 mi.; third class and unclassified, over 10,713 mi. Licensed motor vehicles (Dec. 1950): cars 138,625, commercial 88,126. Railways (1950): 1,925 mi., of which electrified 555 mi.; passenger-mi. 3,802 million; goods, tons carried 21·2 million, ton-mi. 1,870 million. Inland waterways: 4,335 mi., of which about 1,000 mi. for ships of over 1,000 gross tons. Shipping (merchant vessels of 100 gross tons and over, July 1950): 1,536; total tonnage 3,110,739. Air transport (1950): passenger-mi. 469 million; goods, ton-mi. 19·5 million. Telephones (Jan. 1950): subscribers 692,000. Wireless receiving sets (April 1951): 1,527,597.

Finance and Banking. Budget (million florins): (1951 est.) revenue 4,898, expenditure 4,617; (1952 est.) revenue 4,711, expenditure 4,297. National debt (June 1949; June 1950 in brackets): 23,353 (26,704). Currency circulation (Aug. 1950; Aug. 1951 in brackets): 2,933 (2,886). Bank deposits (Aug. 1950; Aug. 1951 in brackets): 4,197 (3,993). Gold reserve and foreign exchange of Central Bank (million U.S. dollars, Sept. 1950; Sept. 1951 in brackets): 561 (535). Monetary unit: *florin* or *guilder*, with an exchange rate of Fl. 10·64 to the pound and Fl. 3·80½ to the U.S. dollar.

See Economic Information Service, *Netherlands Industry as Supplier and Customer* (Amsterdam, 1950).

NETHERLANDS OVERSEAS TERRITORIES.

Under this heading are grouped the overseas territories of Dutch New Guinea, Dutch Guiana or Surinam and the Netherlands Antilles. Their total area is approximately 205,883 sq.mi. and the total population over 1,350,000.

Dutch New Guinea. The western part of this second largest island of the world, with smaller adjacent islands, forms part of the territory of the kingdom of the Netherlands. Area: *c.* 152,100 sq.mi. Pop.: *c.* 1,000,000 of whom (1951 est.) 321,000 in districts under regular Dutch administration; Europeans, 8,516; Indonesians and other Asiatics 13,317. The Papuans form the principal native stock. Principal towns: Hollandia (cap., pop., 1951 est., 32,059), Manokwari, Sorong and Merauke. Governor, S. L. J. van Waardenburg.

History. Under the royal charter the administration of the territory enjoyed a large measure of autonomy in matters of legislation and executive power. In matters of finance the bare and thinly populated country was still dependent on Holland. The budget for 1951 (normal expenditure) amounted to Fl. 58·5 million, subsidized by Holland in the amount of Fl. 16·2 million, while the costs of military and naval protection were for Dutch account. The capital budget of Fl. 24·3 million was also financed by Holland.

The administration was organized in four services: home affairs and justice, financial, economic, and social and cultural affairs. Particular attention was being paid to

establishing a suitable educational system for the primitive Papuan population: by Jan. 1951 there were 524 village schools with 26,285 pupils; care was taken to avoid doing any harm through a too sudden impact of western civilization on a primitive society.

Opening up the interior of the country and its modest agricultural resources through roadbuilding met with great difficulties, on account of excessive rainfall (annual average 100 in. or over). Pending agricultural development the area still largely depended on imports of food. On the western tip of the island, the New Guinea Petroleum company (jointly owned by Royal Dutch, Standard-Vacuum and Caltex groups in a 4:4:2 proportion) produced from its Klamono field near Sorong an average of 4,680 bbl. a day of crude oil, which was shipped to refineries in Indonesia, Australia and Japan. A contract for the exploitation and development of nickel and chrome was granted by the governor to a syndicate of Dutch and foreign operators.

Regular air and shipping connections were established with Australia, and via Singapore through to Holland. The government of Indonesia, vexed by its unfulfilled ambitions of annexation (*see* INDONESIA), severed all connections between Indonesia and New Guinea after June 1951. In Nov. 1951 R. G. Casey, Australian minister of external affairs, paid a visit to the Netherlands government in The Hague to discuss matters of mutual interest concerning New Guinea.

(W. G. P.)

Netherlands Antilles. Group of six islands in the West Indies. Total area: 403 sq.mi. Total pop. (1950 est.): 163,000, of which more than one quarter are aliens. Three islands lie near Venezuela, Curaçao (210 sq.mi.), Bonaire (95 sq.mi.) and Aruba (69 sq.mi.); three others, sparsely populated, lie 500 mi. to the northeast—the southern portion of St. Martin (17 sq.mi.), St. Eustatius (7 sq.mi.) and Saba (5 sq.mi.). The official language is Dutch, but a local *patois* of diverse origin is equally widespread. Religion: mainly Roman Catholic. Capital and largest city, Willemstad, Curaçao (pop., 1950 est., 48,000).

During 1951 L. A. H. Peters was governor until March, and after he returned to The Hague as minister of overseas territories in April, A. A. M. Struycken, former minister of justice, was designated his successor. The legislative council, elected at the end of 1950, convened in February but not until April could a cabinet be formed, with M. F. da Costa Gomez as prime minister.

A labour dispute occurred at midyear in the two principal oil refineries, and was terminated only after protracted commotion and some disorder. As unemployment was relatively high on the islands of Curaçao and Aruba (to which a good deal of skilled and unskilled labour had been drawn in years of construction), costly legislation and heavy taxation were under discussion through the second half of 1951. The future constitutional and economic relationship of the Netherlands Antilles with the Netherlands was to be settled at a round table conference early in 1952. (C. McG.)

Education. Schools (1951): elementary 48, pupils 15,912; higher elementary 31, pupils 11,765; secondary 3, pupils 417.

Manufactures. The three refineries produced 39,300,000 metric tons of refined petroleum products in 1950, including 29,300,000 tons of heavy oils, 5,500,000 tons of gasoline and 2,100,000 tons of diesel oil.

Foreign Trade. Exports in 1950 totalled F. 1,042·3 million; imports F. 1,134·2 million. More than 98% of the exports consisted of petroleum products and about 80% of the imports consisted of crude petroleum, principally from Venezuela. The U.S. supplied about two-thirds of the non-petroleum imports.

Finance. The monetary unit is the Netherlands Antilles guilder or florin, valued at U.S. $0·53. The budget for the fiscal year 1951 estimated expenditure at F. 55,273,236 and revenue at F. 55,362,515. Actual revenue in 1950 amounted to F. 60,588,122. The public debt on Jan. 1, 1952, was F. 8,450,000; notes in circulation F. 35,217,000; gold reserves F. 35,217,000. (J. W. Mw.)

Surinam (DUTCH GUIANA). Lying in northeastern South America between French Guiana to the E. and British Guiana to the W. Surinam occupies 54,291 sq.mi. Pop. (1951 est.): 211,000 including about 95,000 indigenous and mixtures of indigenous and European elements, about 22,000 bush Negroes (descendants of slaves), 37,000 Javanese and more than 55,000 born in India or descended from persons born there. Barely 2,000 of the inhabitants were born in Europe. The official language is Dutch, but other languages and dialects are widely used. Capital, Paramaribo (pop., 1951 est., 78,000). Governor, J. Klaasesz.

Early in Jan. 1951 a member of the Netherlands cabinet, J. R. H. van Schaik, visited Surinam, announcing the forthcoming conferment of political autonomy. During June, the future financial and economic relations between Surinam and the Netherlands were explored at The Hague, and in December a formal agreement was concluded. Steps were taken to arrange for a comprehensive round table conference between Dutch, Surinam and Antilles representatives in the spring of 1952 to settle future constitutional relations.

A mission from the International Bank for Reconstruction and Development reviewed major economic problems of Surinam late in 1951, but its report had not yet been submitted by the end of the year. It was expected to provide a ten-year development programme. In the election of March 14, the National party won 12 of the 21 seats in the legislative council, the Indian party 6, the Javanese 2. The cabinet was headed at the end of the year by J. A. E. Buiskool. (C. McG.)

Education. Schools (1950): elementary 118, pupils 30,381, teachers 768; higher elementary 10, pupils 2,866, teachers 106; secondary 1, pupils 18.

Production. The chief economic activity is the extraction of bauxite, most of which is exported to the U.S. Production in 1950 included: bauxite 2,302,705 short tons; gold 4,545 troy ounces; balata 196 short tons; sugar 3,181 tons; rice 55,587 tons; coffee 478 tons. There were 43,000 cattle in 1949.

Foreign Trade. Exports in 1950 totalled F. 31,477,145; imports F. 39,814,281. Principal customers: U.S. (80%) and the Netherlands (7%). Chief suppliers: U.S. (42%), the Netherlands (28%), Trinidad (7%), U.K. (6%). Exports included bauxite (about 70%), rice, citrus fruit, timber, gold, balata and coffee.

Transport and Communications. Internal transport is largely by water; in 1950 there were 83 mi. of railway and about 250 mi. of roads. Motor vehicles at the end of 1949 included 908 passenger cars, 408 lorries and 127 buses. In 1948 there were 1,505 telephones.

Finance. The monetary unit is the Surinam guilder or florin, valued at U.S. $0·53. The 1951 budget estimated expenditure at F. 27,863,000 and revenue at F. 27,895,000. Actual revenue in 1950 was F. 26,829,000.

(J. W. Mw.)

NEW CALEDONIA: *see* PACIFIC ISLANDS, FRENCH.

NEWFOUNDLAND: *see* CANADA.

NEW GUINEA: *see* NETHERLANDS OVERSEAS TERRITORIES; PAPUA-NEW GUINEA; TRUST TERRITORIES.

NEW HEBRIDES. Anglo-French condominium; group of some 30 islands and many islets in the western Pacific. Area: *c.* 5,700 sq.mi. Pop. (1940 census, partly estimated): 45,000 excl. British (Dec. 1949, 436); French (1,230); Asiatics (1,828). Native population: Melanesian, some Polynesian admixture. Religion: mainly pagan, Capital, Vila (pop. 1,200). Resident commissioners: British. R. D. Blandy; French, P. Anthonioz.

There was still in 1951 a severe shortage of labour, but high copra prices encouraged native as well as plantation production. Native production was about half the total.

Education. Government primary schools, 2 French, 2 British; various mission schools.

Finance and Trade. Currency: sterling and French. Budget (1950-51 est.): revenue £188,000; expenditure £176,000. Foreign trade (1950): imports £528,000; exports £1,419,000. **Principal exports:** copra (21,500 tons), kauri pine. (K. G. B.)

NEWSPAPERS AND MAGAZINES. The fear that any further advance in newsprint prices would affect the selling prices of newspapers became a reality in 1951. Some provincial newspapers had already raised their prices when a sharp increase in the cost of newsprint (to six times its prewar price), coupled with increases in other charges, particularly those for wages and transport, precipitated a general move towards dearer newspapers. The *Scotsman* and the *Glasgow Herald* set the pace at the beginning of April by advancing their prices from 2*d.* to 3*d.*, and they were followed a month later (May 7) by the London dailies and by most of the provincials—the penny papers advancing to 1½*d.* and the prices of the others increasing by varying amounts. Sunday newspapers that had previously cost 2*d.* now cost 2½*d.* But even at 1½*d.* British newspapers remained the cheapest in the world. As a result of the price changes the circulation of almost every newspaper in the country decreased—at first between 5% and 6%—though a tendency to recover some of the lost ground was apparent towards the end of the year. *The Times*, already 3*d.*, was one of the few newspapers which did not change its selling price.

Throughout 1951 newsprint remained rationed on a tonnage basis which newspapers could use to maintain size or sales. Supplies having failed to reach expectations, and stocks having fallen to less than 70,000 tons (between six and seven weeks' consumption), there was a temporary 5% cut in permitted consumption in February, which meant more four-page issues for most newspapers. This cut was restored at the beginning of July. There was an additional allowance for the 8-week period covering the general election and extra newsprint was granted to weekly newspapers reporting local elections. The target for home mills was 550,000 tons, of which 100,000 tons went to the Commonwealth and the same amount was used by magazines. A three-year (1952-54) contract with Canada was authorized for 525,000 tons on a rising scale of deliveries, of which 300,000 tons was guaranteed. The equalized price of newsprint, which at the beginning of 1951 was £41 per ton, had reached £65 by July. The *Daily Express* group estimated that, as compared with the previous year, the cost of newsprint required to print the *Daily Express* for one week had increased by over £23,000—equal to £1,200,000 a year.

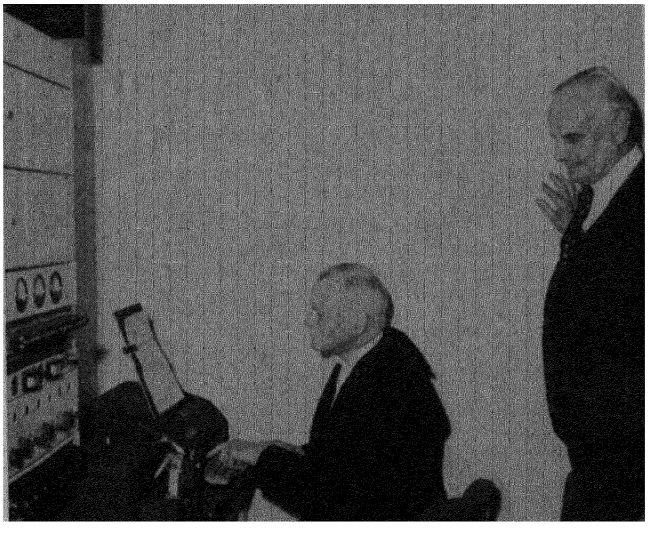
The oldest press directory, known for many years as "Mitchell's," from the name of its founder, reached its 100th issue. This issue was in a completely new form under the title *Newspaper Press Directory* and was brought out by new proprietors, Benn Brothers, Ltd. The first directory in 1846 listed 550 newspapers; the 1951 issue had entries for more than 1,500 newspapers and nearly 3,500 other periodicals.

Reuters, Great Britain's chief news agency, celebrated its centenary during the year. The *Sunday Dispatch*, celebrating its 150th anniversary, presented its readers with a facsimile copy of its first number which was then called the *Weekly Dispatch*, a title which it retained until 1928. Newspaper centenarians included the *Cornish Telegraph*, and the *Huddersfield Examiner*, which had had only three editors in its long career.

The Times inaugurated a system of remote typesetting which made it possible for the parliamentary report to be cast in metal at *The Times* office in Printing House square through the agency of a compositor in the Palace of Westminster.

Desmond MacCarthy, the literary critic, received a knighthood. Peter Quennell gave up the editorship of the *Cornhill* to edit the new monthly *History To-day*; Wilson Stephens became editor of the *Field*; and the *Hibbert Journal* received a new editor in the Rev. L. A. Garrard, who succeeded G. S. Spinks. James Bone retired from the board of the *Manchester Guardian* and *Evening News*, having been connected with the *Manchester Guardian* for nearly 50 years. Frank H. Waters was appointed managing director of the *News Chronicle* and *Star*, and H. W. Snoad managing director of Amalgamated Press. H. G. Bartholomew resigned the chairmanship of the Daily Mirror and Sunday Pictorial companies and was to be succeeded by C. H. King, a nephew of Lord Rothermere.

Among the many noted journalists and newspapermen who died during the year were Sir Herbert Grotrian, former chairman of Provincial Newspapers, Ltd. and H. Hamilton Fyfe (*see* OBITUARIES), well-known in Fleet Street over a period of 50 years; Granville Fell, art critic, for many years editor of the *Connoiseur;* S. T. Sheppard, sometime editor of the *Times of India*; Philip Jordan, a distinguished journalist who became adviser on public relations to the prime minister; Jame Milne, former literary editor of the *Daily Chronicle*; and C. V. R. Thompson, chief *Daily Express* correspondent in the United States.

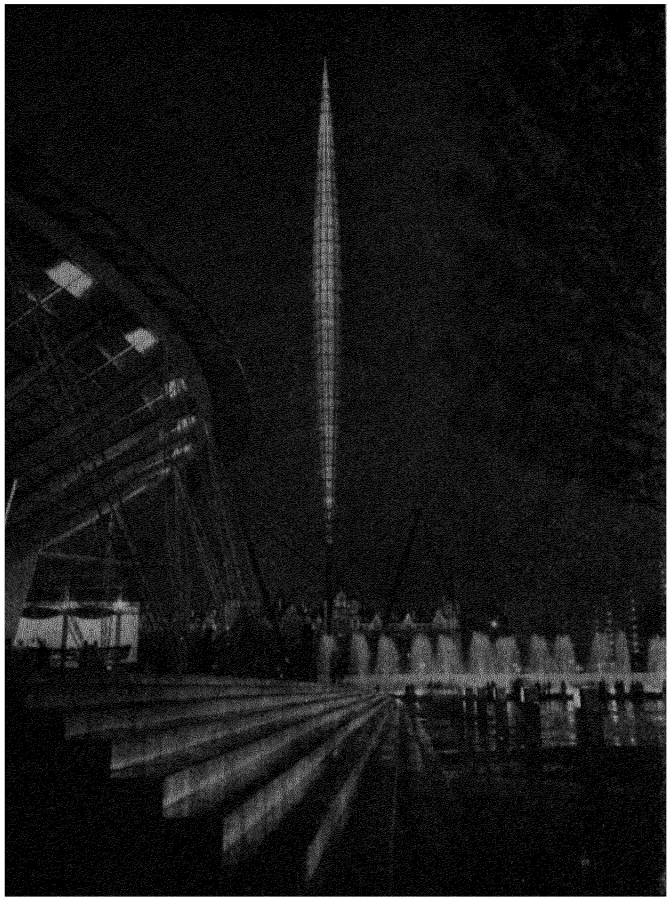


In May 1951, "The Times" (London) started a system of remote type-setting for parliamentary reports. Colonel Douglas Clifton-Brown, Speaker of the House of Commons, inaugurates the system, watched by Colonel J. J. Astor, chairman of The Times Publishing company.

The periodical press suffered a cut in newsprint in March 1951 amounting to 20% for large users and 10% for small users. The majority of large circulation periodicals were not affected by this cut, as they used mostly mechanical printing paper, which was uncontrolled. The rise in paper and production costs caused increases in advertisement rates, and nearly 300 publications raised their selling prices. To meet increased costs amounting to nearly £1 million a year, the *Radio Times*, with its 8 million circulation, went from 2*d.* to 3*d.*; it had been at 2*d.*, except for special Christmas numbers, since its first appearance in 1923. A downward trend in circulations was noted after the price increases.

New publications included the quarterlies *Foyer*, covering music, opera and ballet, and *Home-making*, dealing with all aspects of domestic life; the monthlies *Country Fair*, *Animal Life*, *Family Doctor* and *History To-day*, concerned with history in the widest sense; and the weeklies *Retail Trader* and *Girl*, a sister paper in colour to the boys' paper *Eagle* started in 1950. *The Times* established as regular quarterly publications its reviews of the British colonies and of the progress of science. The *British Museum Quarterly*, suspended when war broke out, resumed publication; *Go*, the travel magazine, became linked with the *Sunday Times* and was completely refashioned to appear six times a year. The

(Continued on page 452.



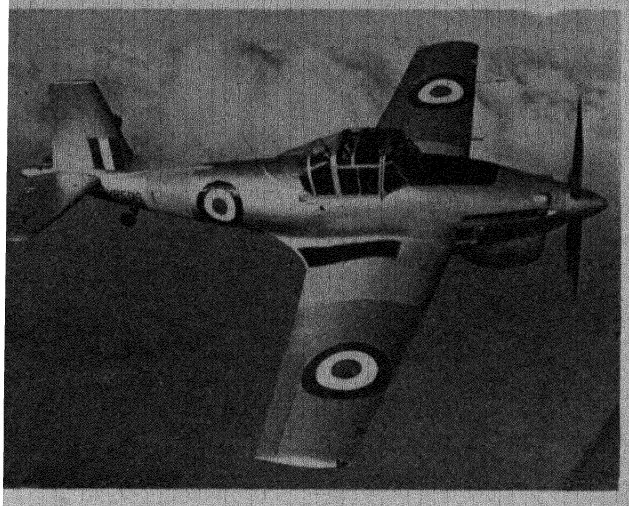
BRITISH PRESS PICTURES OF THE YEAR

The pictures on these facing pages received awards in the fourth annual "British Press Pictures of the Year" competition sponsored by the "Britannica Book of the Year." The photographs of the Festival of Britain and of children paddling have been selected from the winning sequence and portfolio entries. More than 1,950 pictures were entered by 232 British press photographers. Entries were accepted from 30 centres in the British Isles. The first prize for colour entries (not illustrated) was awarded to Edgar Richards-Everett of Odhams Press. The competition was judged by Percy W. Harris, Hon. F.R.P.S., L. Puttnam, head of photographic department (stills), Anglo-Iranian Oil Company, Miss Audrey Withers, editor of "Vogue," P. Murphy, sports editor, "Sunday Times," W. H. Smith, "Illustrated London News," and John Armitage, London editor of "Encyclopædia Britannica."

SEQUENCE. The South Bank exhibition at night: one of the photographs in the winning sequence of the Festival of Britain by Barnet Saidman of the "News Chronicle" (London).

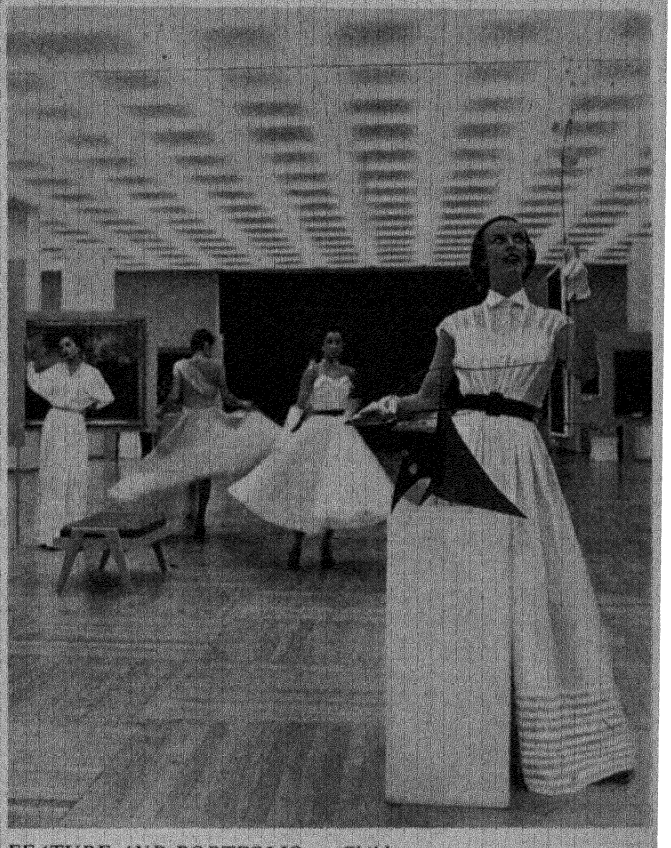
NEWS. Winston Churchill, General Dwight David Eisenhower and Field Marshal Viscount Montgomery of Alamein at the Alamein reunion, 1951: by Peter Skingley of "Planet News."





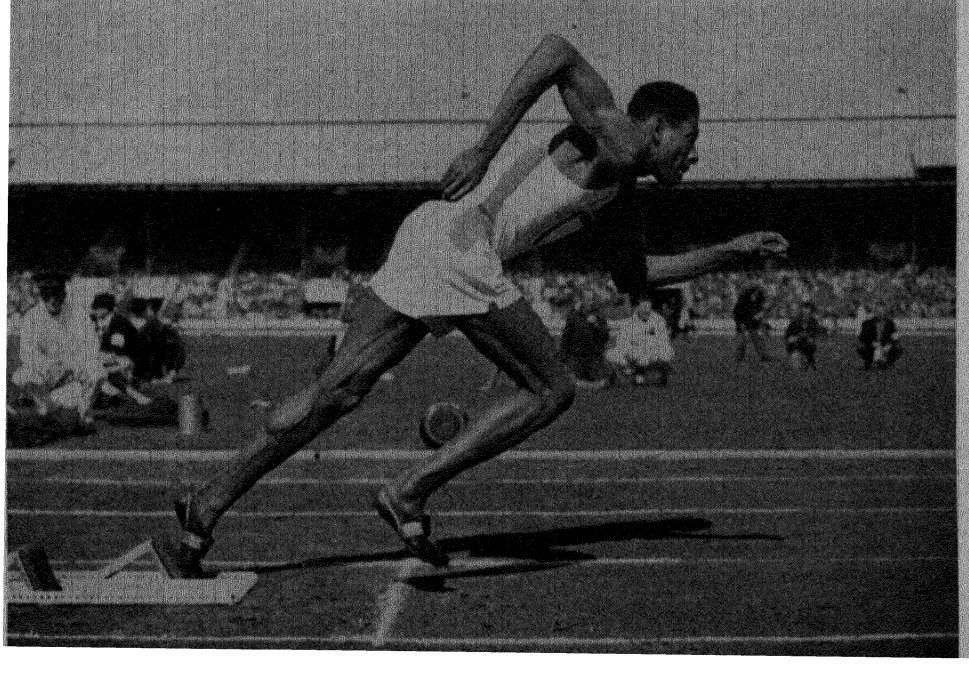
INDUSTRIAL AND TECHNICAL. The Boulton Paul Balliol trainer aircraft: by A. E. Long of Temple Press.

MERCHANDISE. A photograph which overcomes the difficulties of displaying several models: by Mrs. E. R. Juda ("Jay") of the "Ambassador" (London).





FEATURE AND PORTFOLIO. Children paddling in a horse trough during a heat wave: by Geoffrey White of the "Daily Graphic" (London). This photograph was also one of the ten photographs in the winning portfolio. Winner of this category was accorded the title "British Press photographer of 1951".



SPORT. Arthur Wint: by H. W. Neale, a free-lance photographer. This photograph was awarded second prize in this category. The first prize went to Robert Rider-Rider of Associated Press for his photograph of Randolph Turpin and Ray Robinson, which is reproduced on page 98.

(Continued from page 449.)

monthly *Nineteenth Century and After* changed its title to the *Twentieth Century*, a change impossible in 1900 because the patent of the latter title was in the possession of a rival.

Newsprint restrictions and increased production costs were contributory factors in the suspension of publication of the Church newspaper the *Guardian*, which was founded in 1846 by a group of friends of John Henry Newman, and of *Public Opinion* which, for the last 18 months of its existence, had been the property of the *Daily Mirror*.

Commonwealth. Several Commonwealth newspapers were compelled to close down during the year. The Empire Press union changed its name to the Commonwealth Press union.

A non-political magazine, the *African Drum*, catering for African readers, made its appearance in Capetown. *Die Volkstem* of Pretoria, dating from 1873, suspended publication temporarily because of rising costs. The *Rhodesian Herald*, the oldest newspaper in Rhodesia, celebrated its diamond jubilee.

The selling price of Australian newspapers was advanced to 4*d.* in Sydney and 3*d.* in other cities, and was followed by some reduction in circulations. Because of the lack of newsprint, the Adelaide weekly magazine *Express*, established in 1836, ceased publication.

In Canada, the *Gleaner*, the only evening newspaper of Fredericton, capital of New Brunswick, was bought by Michael Wardell who before the war was chairman and managing director of the London *Evening Standard*. The *National Home Monthly*, one of Canada's oldest magazines, suspended publication because of its inability to obtain additional advertising revenue to meet increased costs.

A press ordinance permitting the Hongkong government to close newspapers, news agencies and printing plants was put into effect. The *Hongkong Telegraph*, established in 1881, discontinued publication, and the *North China Daily News*, published in Shanghai, closed down because of the steady decline of the foreign population and the Chinese decision not to allow news from foreign sources.

The ten-year old *Daily Express*, Jamaica's only evening newspaper, ceased publication because of newsprint difficulties. Conversely, the *Nigerian Daily Times* increased its net sale from under 8,000 to over 30,000.

Among proposals to amend India's constitution introduced in May was one which gave the government power to curb the press under certain circumstances. Opposition to the amendment was expressed by all sections of the newspaper industry. Later a comprehensive bill to deal with the cases of abuse of the freedom of the press in India was introduced into parliament. The bill was bitterly contested, and, when passed, its operation was limited to two years.

In Singapore, new emergency press regulations came into force on Aug. 1 which gave the government power to ban any newspaper without giving a reason. The Malay vernacular newspaper *Malayu Raya* was banned for nine months because of " systematic publication of material concerning the Maria Hertogh case in such a manner as to inflame inter-religious and inter-racial antagonism." After the capture of the Communist press which printed the monthly newspaper *Freedom News*, the police themselves published and distributed an issue of the newspaper, with a Union Jack on the front page and a changed imprint.

Europe. During 1951, price increases and cuts in the size of newspapers were made in many countries. France, Western Germany, Greece, Spain and Yugoslavia were among those which received emergency allocations from the International Materials conference.

An international press institute was established with headquarters in Zürich, and E. J. B. Rose of the *Observer* was appointed its first director.

The Belgian Press association declared that the existence and independence of the press was threatened by rising costs and requested the government to abolish or reduce import duties on newsprint.

Rude Pravo, the organ of the Czechoslovak Communists, was accused by the Cominform journal *For a Lasting Peace, for a People's Democracy!* of various lapses from Communist orthodoxy. *Rude Pravo*, in " welcoming " the criticism, promised to maintain closer contact with the party. William Oatis, an American, head of the Associated Press in Prague, was arrested, tried and sentenced to ten years' imprisonment for " espionage activities." Three Czech employees of the Associated Press received longer sentences at the same time. Within the two previous years two predecessors of Oatis were expelled for " unobjective reporting." After the arrest of Oatis all the western correspondents in Prague left the country.

In France, the steep increase in the price of newsprint brought a request for a government subsidy to keep prices stable. Several newspapers found themselves in financial difficulties, and *L'Aube* temporarily suspended publication. The selling price of Paris newspapers was twice increased during the year; those previously costing Fr. 10 jumped to Fr. 15. The total circulation of the Paris press was now believed to be only about 3,600,000 as compared with 4,835,000 in 1946, a decline largely due to high prices which had killed the old French habit of reading four or five papers a day.

The U.S. high commission in Germany announced plans to grant Dm. 15 million (about £1,250,000) to the " democratic " newspapers of Western Germany and west Berlin. In his report, the high commissioner disclosed that many of the small newspapers, promoted by former Nazi printers and publishers, which began operations in the autumn of 1949 when the licensing system was ended, had disappeared. The newspapers started with the aid of the western Allies had held their own generally with little loss of circulation. There were in Western Germany about 950 daily newspapers with a total circulation of 14 million, but only three had circulations of over 250,000 each. All the 16 Communist newspapers appearing daily in Western Germany came in for terms of 90 days' suspension during the year. A meeting of British and German journalists was held at Königswinter to discuss the responsibilities of the press.

The Greek government passed a decree empowering it to suppress newspapers for supporting " those holding arms against the motherland and undermining the country's integrity." Almost immediately the left-wing *Democratikos* was suppressed. Italian newspapers increased their selling prices from L. 20 to L. 25. The *Corriere della Sera* of Milan had a 75th anniversary. Reorganization of the Polish press on Soviet lines was begun when two important dailies, one published in Warsaw and the other in western Poland, and some Labour periodicals ceased publication. A subsidy on newsprint prices, which had risen by 70%, was announced in Portugal. The Spanish newspaper *Arriba*, organ of the Falange, changed its format and appeared in a small-page size. In Sweden, where there were some 240 dailies, newspaper sales had increased by 40% since 1942. Sweden increased the tax on exported newsprint from £3 10*s.* to £18 a ton. Selling prices of newspapers in Turkey increased and cuts were made in size.

A new fortnightly magazine called *News*, printed in English, made its appearance in Moscow. The British government closed down the *Soviet Monitor*, the radio monitoring service maintained by the Soviet Tass agency. News broadcasts from the " iron curtain " countries were picked up and distributed by duplicated bulletin service to subscribers in Britain. In response to his offer of a personal interview, *Pravda* printed an article by Herbert Morrison, then British

foreign secretary. It was accompanied by a Soviet reply contradicting him at almost every point. (D. HN.)

Argentina. After a dispute with the newsvendors' syndicate in January, the independent Buenos Aires newspaper *La Prensa* was boycotted and later forced to cease publication by President Juan Perón. Police protection was refused, and in the efforts to resume publication one of the printers was shot dead. British and U.S. newspapermen were arrested for alleged photographing of the shooting but were later released. On March 20 *La Prensa* was said to be under government control and the editor-publisher, Alberto Gainza Paz, was prevented from leaving Argentina. By March 25, however, he succeeded in reaching Uruguay. Paz was honoured by 33 editors at Northwestern university, Illinois, on Oct. 1, and later in New York city.

United States. The death of William Randolph Hearst (*see* OBITUARIES), creator of one of the greatest chains of newspapers, magazines and radio stations and one of the most potent influences on American journalism in the first half of the 20th century, was perhaps the biggest news among U.S. newspapers and magazines during 1951.

The first ten-cent daily newspapers, appearing on California news-stands, were the climax to a year of difficult finances. For the fifth year newspaper income climbed—58% above 1946—but costs soared faster—68%—leaving only a 5% gain in profit margin. Hundreds of newspapers raised subscription rates, but total circulation rose again—perhaps 1·5% above the 53,829,072 daily circulation of 1950. Advertising linage increased by about 3% over 1950, but was greatest in classified advertisements; advertising rates increased an average of 15%. Labour costs continued to rise; paper went up by $10 a ton to an average of $116; and Western Union raised telegraph charges by 15%.

Paper shortage, which seemed probable early in the year, eased during the summer as production reached a new peak and consumption declined slightly; the mills produced about 6,620,000 tons and newspaper use was 2% below the 5·5 million tons of 1950. The July price rise came during unsuccessful appeals to the Office of Price Stabilization.

Although few strikes occurred during the year, the International Typographical union (I.T.U.) launched a project for publishing newspapers of its own "to break monopoly." Calling its project Unitypo, I.T.U. planned to start nine newspapers and actually began four—in Meriden, Conn.; Monroe, La.; Texarkana, Tex.; and Springfield, Mo.

The action against the *Lorain Journal*, Ohio, started in 1950, resulted in a federal court injunction in Jan. 1951, forbidding the newspaper to refuse advertisements of merchants who used a competing radio station, and was upheld by the U.S. Supreme court in December. A similar action was started against the *New Orleans Times-Picayune*, Louisiana, for its "unit" combination rates with another newspaper, the *States*. A suit was filed in Tampa, Florida, in June, against the Western Newspaper union attacking its monopoly of "ready print" material for weekly newspapers. Anti-trust action was also brought against the *Mansfield News-Journal*, Ohio. Five newspapermen in Lake Charles, Louisiana, faced trial for "criminally defaming" 3 gamblers and 16 public officials in a vice crusade. Widespread protest from newspapers resulted from the Sept. 25 "security order" of President Harry S. Truman authorizing federal executive agencies to withhold various types of news from the press.

The Korean war resulted in an increasing casualty list of newsmen and photographers—15 killed, 2 captured, several missing and 6 awarded the Purple Heart. Newspaper protest continued against military censorship and inadequate communications with the rear and overseas. An effort to bar representatives of Tass, Soviet news agency, from congressional press galleries resulted in the refusal of the standing committee on Sept. 20 to expel them. Press services carried 1,850,000 words and 700 pictures on the signing of the Japanese peace treaty in San Francisco in September.

The *New York Times* celebrated its 100th birthday on Sept. 18 with the publication of a book by Meyer Berger. The *New York Post* celebrated its 150th birthday on Nov. 12 The *St. Louis Star-Times* was merged with the *St. Louis Post-Despatch* on June 15. Col. R. R. McCormick of the *Chicago Tribune* and owner of the *Washington Times-Herald*, took over as editor-publisher in April. Ridder Brothers sold the *Chicago Journal of Commerce* to the Dow Jones *Wall Street Journal* in January. New papers started were the *New York Review*, the *Chicago Oil Daily*, the *New York Protestant World*, and the Catholic *New York Banner*. Costly new buildings were opened by the *Washington Times-Herald*, the *Hartford Courant*, Connecticut, the *South Bend Tribune*, Indiana, and the *Lansing State Journal*, Michigan. The Communist *Daily Worker* struggled against financial difficulties all the year.

The year 1951 brought greater income, soaring costs and narrower profits to magazine publishers. Advertising reached a record level, and rates were raised by 6-10%. Printers' wages went up by 12%. An impending paper shortage was relieved by 800,000-ton increased production, despite a shortage of sulphur, but prices rose by $10 in August to an average of more than $200 a ton. News-stand sales went up 5% with fewer "returns." Comic magazines increased from 250 to 400 titles, with weekly news-stand sales of 50 million. Church groups attacked "girlie" and picture magazines in many cities. *Ladies Home Journal*, *Life*, *True Confessions* and the *Saturday Evening Post* led news-stand sales, in that order. *Time's* four plane-delivered foreign editions, started in 1941, attained 1·5 million circulation. Men's magazines grew in popularity, especially *Argosy*, *Esquire*, *True*, *Field and Stream*, and *Outdoor Life*, and a new $3 men's magazine, *Gentry*, was started. The new Negro magazines grew, especially in the south. *American Weekly* adopted a new rotogravure printing process. (G. M. HY.)

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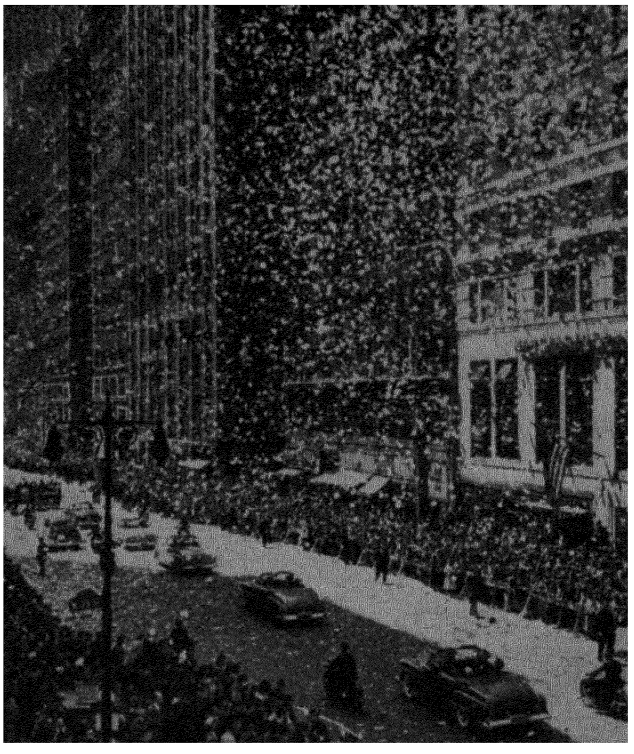
NEW YORK CITY. Largest city in the United States and second largest in the world. Pop.: (1950 census) 7,891,967; (Dec. 1951 est.) 7,960,000. Mayor: Vincent R. Impellitteri.

Housing, both public and private, remained the chief problem of the city of New York in 1951 because of the continuing increase in population. Meanwhile, the public housing authorities reported an increase of 8,749 apartments in 1951, bringing the total number of units made available under integrated construction schedules to 55,621. The department of buildings reported plans filed in 1951 for 9,977 industrial, commercial and residential structures to be built at an estimated cost of $454 million.

The department of hospitals kept abreast of its 1951 construction timetable with the erection of the 570-bed Kings County Hospital for Chronic Diseases and the 1,920-bed Memorial Hospital and Home, both part of the city's $192 million hospital expansion programme. Work was also started on the conversion of buildings on North Brother Island to use as a 150-bed hospital for the treatment of narcotic addicts.

A city-wide atomic air raid exercise was held in November to familiarize the general public with civil defence operation; 354,000 volunteer civil defence workers, 30,000 police and firemen, units of the U.S. air force and men from the other armed services took part.

A total of 237,000 business establishments, including 42,000 manufacturing plants, were in operation in the five boroughs



The ticker-tape welcome given to General Douglas MacArthur when he drove through New York on April 19, 1951.

of New York city in 1951. These firms gave employment to 3,200,000 persons and carried a total pay roll of $12,000 million a year. The gross value of the 1951 industrial output was estimated at $14,000 million. The manufacture of clothing continued as the city's leading industry, producing garments worth more than $4,000 million.

NEW ZEALAND. Self-governing member of the Commonwealth of Nations, consisting of two large and several small islands in the south Pacific. Area: dominion proper, 103,416 sq.mi.; other islands, 523 sq.mi. Pop., dominion proper: (1945 census) 1,747,679, including armed forces overseas and 98,744 Maoris; (April 17, 1951, census) 1,939,703, including 113,777 Maoris (which represents a two-and-a-half increase in the last 50 years). Cook and other Pacific islands (pop., 1951 census): 21,320. Western Samoa, a trusteeship, has an area of 1,133 sq.mi. and pop. (1951 census) 82,493. Language: English. Religion: mainly Christian (Anglican 37·5%, Presbyterian 23·4%, Roman Catholic 13·5%). Chief cities (1951 census, urban area only): Wellington (cap., 133,400); Auckland (329,000); Christchurch (174,100); Dunedin (95,300); Hutt (74,900); Palmerston North (32,800). Governor general, Lieut. General Lord Freyberg; prime minister, Sidney George Holland (*q.v.*).

History. The dominion continued to enjoy great prosperity during 1951. The national finances were in a sound condition, production was high, there was full employment and more goods were available than ever before. The only jarring note was a long waterfront strike which greatly harassed the transport of overseas goods. The high prices received for wool meant that overseas earnings were substantially greater than overseas spending despite the removal of many import restrictions.

In the field of international affairs the visit of John Foster Dulles, President Harry S. Truman's emissary, early in the year to Australia and New Zealand for discussions on Pacific affairs proved the forerunner of the signing of the Japanese peace treaty and the conclusion of a Pacific security treaty by the United States, Australia and New Zealand. The treaty, signed on Sept. 1 in San Francisco, was of immense significance, providing a guarantee which would liberate New Zealand and Australia from the nightmare of a resurgence of Japanese militarism. The British government were fully consulted during the negotiations and concurred in the regional arrangement since the treaty served to strengthen the vital interests in the Pacific of the Commonwealth as a whole.

In support of the Colombo plan New Zealand decided upon a contribution of £3 million in three years towards the development of southeast Asia. The promise of technical assistance was also given practical application in the acceptance of nurses, engineers and students for further training in New Zealand.

Wool prices fell steeply in the middle period but the season's clip returned about £140 million. Dairy production had a record year, with an increase of 7% in volume and 13% in value above the previous year. This was 14% above the pre-1939 figure in the gross production of butter. Cheese production also showed an increase.

Rising prices continued to have an inflationary effect. The government allowed wool growers to withdraw up to 20% of the £32 million frozen in 1950 in their private accounts. General wage rates rose about 15%. An analysis of incomes over the 1940-50 decade showed that nearly half the country's taxpayers were earning £500 a year or more.

Trade figures for 1950 showed exports valued at £183,753,000 and imports £157,896,000, an increase of one-quarter and about one-third respectively over 1949. A dollar surplus of $20·5 million for 1950 was mainly brought about by an increase in the sale of wool to the United States. The national income figures reached a new high level of £578 million for 1950-51, just three times as much as in 1938-39, while investments, including private savings, rocketed from £16 million to £130 million during the same 13-year period.

Aerial top-dressing of hill pastures continued a dramatic new development in civil aviation. From March 1 to Aug. 31 alone (the winter period) over 300,000 ac. were top-dressed with fertilizer; 26 companies operated, using more than 70 planes. A vast forest project was outlined by the government to develop the great softwoods forests around Kaiangaroa. Three main enterprises were envisaged: the production of newsprint, of pulp and of timber for building. This new project would require £14 million for capital development. The use of geo-thermal steam for the development of electrical power was another new project planned. Experiments in the tapping of steam at Wairakei had already given encouraging results. Industrial pressure on hydro-electric power continued, and no fewer than six big schemes for further hydro-electric development were under construction.

One of the longest industrial disputes in the history of the country was the waterfront strike which lasted from February to June. Miners and freezing-workers supported the strikers for various periods, but the government's firm policy in deregistering the striking unions and encouraging the formation of new unions brought about the resumption of work. This stoppage cost an estimated £3 million in wages and £25 million on the wool cheque. The government was challenged by the opposition on its handling of the dispute and appealed to the country in August. The general election resulted in an increased majority for the government. The state of the parties in the new parliament was National 50, Labour 30 seats. (*See* ELECTIONS.)

The immigration policy was widened to bring in married men with their families in selected categories of workers. Dutch immigrants proved to be very satisfactory settlers.

The prime minister, S. G. Holland, visited London in

January for a Commonwealth prime ministers' conference, and later visited Australia. The minister of external affairs, F. W. Doidge, visited Colombo, Canberra, London and Washington for conferences. The lord mayor of London, Sir Denys Lowson (*q.v.*), visited the country in October. It was the first time a lord mayor had visited the dominion during his term of office. To commemorate the centennial of the New Zealand Constitution act the British House of Commons, in a delegation led by Richard Law, presented a speaker's chair to the New Zealand parliament.

An M.C.C. team after their tour of Australia visited New Zealand. Two tests were played, the first being drawn and the second being won by the M.C.C. by six wickets. An All Black Rugby team visited Australia in June and won all its 12 matches, including the three tests. A New Zealand Rugby league team also made a successful tour of Britain.

W. J. Jordan retired from the position of high commissioner in London after 16 years' service and was succeeded by F. W. Doidge. The death was announced of the noted Maori, Sir Peter Buck, one of New Zealand's famous Maori scientists. He was a world authority on Pacific anthropology. (*See* OBITUARIES.) (A. T. Ce.)

Education. Schools (Dec. 1949): primary 1,905, pupils 241,699, teachers 7,481; Maori village schools 160, pupils 13,288, teachers 396; Maori mission schools 10, pupils 771; secondary 47, pupils 21,910, teachers 1,049; private secondary 74, pupils 9,160, teachers 491; Maori secondary 10, pupils 729, teachers 41; district high schools 103, pupils 7,075, teachers 402; Maori district high schools 7, pupils 245, teachers 15; technical 28; pupils 12,504, teachers 722; teachers' training colleges 5, students 2,486; agricultural colleges 2, students 1,120. University of New Zealand (four colleges), students 11,000.

Agriculture. Main crops ('000 metric tons, 1949-50; 1950-51 in brackets): wheat 133 (161); barley 54 (44); oats 47 (38); maize 9 (6); potatoes 138 (110); linseed 3 (8); tobacco 2·1 (2·5). Livestock ('000 head, 1950): cattle 4,949, of which dairy cows 1,846; sheep 33,857; pigs 552; horses 195. Livestock products ('000 metric tons): wool, greasy basis, (1950-51; 1951-52 in brackets) 169 (172); meat (1949; 1950 in brackets) 543 (566), of which beef and veal 180 (188), pork 40 (41), mutton and lamb 323 (337); factory butter (1950; 1951, six months, in brackets) 171·7 (75·6); factory cheese 107·0 (48·0). Fisheries: total catch (1948) 33,500 metric tons.

Industry. Industrial establishments (April 1951): 37,420; persons employed 491,204. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 934 (186); lignite ('000 metric tons) 1,776 (744); manufactured gas (million cu. m.) 156 (63); electricity, *c.* 87% of total generation (million kwh.) 2,625 (1,326). Industrial products ('000 metric tons, 1950): superphosphates 630; cement 252.

Foreign Trade. (£NZ million, 1950; 1951, first three months, in brackets): imports 157·9 (35·0); exports 182·4 (66·1). Main sources of imports (nine months of 1950): U.K. 59·9%; Australia 11·8%; U.S. 7·5%; Canada 2·4%. Main destinations of exports (1950): U.K. 66·7%; U.S. 10·1%; France 4·4%; Germany 3·3%. Main imports (nine months of 1950): textiles and clothing 22·2%; machinery 16·9%; metals and manufactures 12·4%; vehicles 8·2%. Main exports (1950): wool 40·9%; dairy produce 29·4%; meat 17·6%.

Transport and Communications. Roads (1949): 12,708 mi., of which arterial roads 5,234 mi. Licensed motor vehicles (Dec. 1950): cars 253,751, commercial 85,470. Railways (March 1950): 3,526 mi.; traffic (March 1951): passenger journeys 24·8 million; goods carried 9·8 million metric tons; goods ton-mi. 1,043 million. Shipping (merchant vessels of 100 gross tons and over, July 1950): 165, total tonnage 201,010. Air transport (1950): passenger-mi. 97·6 million; cargo net ton-mi. 2·2 million. Telephones (March 1950): 257,034 subscribers. Radio receiving licences (March 1950): 449,347.

Finance and Banking. Budget (£NZ million, consolidated fund and social security fund, excluding war expenses account): (1950-51 actual) revenue 193·6, expenditure 184·9; (1951-52 est.) revenue 208·2, expenditure 207·6. Gross national debt (March 1950; March 1951 in brackets): 670·1 (693·4). Currency circulation (Sept. 1950; Sept. 1951 in brackets): 48·4 (53·1). Bank deposits (Aug. 1950; Aug. 1951 in brackets): 158·7 (188·2). Gold and foreign exchange (million U.S. dollars, Aug. 1950; Aug. 1951 in brackets) 243 (340). Monetary unit: New Zealand *pound*, with an exchange rate of £NZ 1·00375 to the pound sterling and £NZ 0·362 to the U.S. dollar.

See J. Harris, comp., *Guide to New Zealand Reference Material* (Wellington, 1950).

NEW ZEALAND LITERATURE. In May 1951, a conference of writers—a rare event in New Zealand letters—at Christchurch brought nearly all the writers of three generations together. The best of the papers read, James Baxter's *Recent Trends in New Zealand Poetry*, was later published.

As in the past, more poetry than prose was published. Louis Johnson edited a new and experimental venture, *Poetry Year Book*, and published his own first volume, *The Sun Among the Ruins*. Charles Spear's *Twopence Coloured* showed an unusual and impressive mastery of technical problems and a variety of English and European influences. M. K. Joseph's *Imaginary Islands* included the most humorous poem to appear in New Zealand for many years ("Secular Litany") as well as the fine "Easter in the South." Eileen Duggan, a mature and well-established poet, achieved her usual careful balance between metaphysics and home-spun imagery in *More Poems*. James Baxter's main work was a colourful lyric sequence entitled *Cressida* (*Landfall*, No. 18). Among 1950 publications not noticed previously were K. Smithyman's *The Blind Mountain*, and the Caxton press edition of Ursula Bethell's collected poems.

Katherine Mansfield studies were notably advanced by an edition of her letters to John Middleton Murry 1913-22; by S. Berkman's critical study of her life and work; and by a series of letters in the *Times Literary Supplement* about her indebtedness to Chekov in her story *The Child-Who-Was-Tired*.

Little prose, and no outstanding novel, appeared; the novels were all by expatriate writers. Ngaio Marsh's wide experience in the theatre enabled her to provide a convincing backdrop to her detective novel, *Opening Night*. Martyn Tarne, her heroine, is a New Zealander setting foot for the first time in London; the main figure in James Courage's *Desire Without Content* (1950) moved in the opposite direction. Another late 1950 novel, John Guthrie's *Is This What I Wanted?*, is set in England amid the approach and advent of a third world war. Seaforth Mackenzie broke a long silence with his *Dead Men Rising*, a novel set round an attempted mass-escape by Japanese prisoners of war in New South Wales during World War II.

The most important miscellaneous prose works were F. Sinclaire's essays, *A Time to Laugh*, and S. Musgrove's paper, *The Universe of Robert Herrick* (1950).

The quarterly, *Landfall*, edited by Charles Brasch, completed its fifth year and published the best of the imaginative work not in book form. *Here and Now* was revivied after a year's recess, and was more markedly political and less literary than before. (R. W. B.)

NICARAGUA. Republic in Central America, situated between Honduras (N.) and Costa Rica (S.) with a coastline of over 300 mi. on the Atlantic and over 200 mi. on the Pacific. Area: 57,145 sq.mi. Pop. (1950 census, prel. fig.): 1,503,189. The population of the eastern half is mainly Indian or Negro, and of the western part is of mixed Spanish and Indian extraction, with some of pure Spanish descent. Language: Spanish. Religion: predominantly Roman Catholic. Chief towns (pop., 1948 est.): Managua (cap., 146,819); Léon (53,277); Matagalpa (53,118); Jinotega (41,065). President, General Anastasio Somoza.

History. In Jan. 1951 Luis Somoza, son of the acting president, was nominated first presidential designate, a post which made him next in line for the presidency should his father leave that office. Luis Somoza was also elected speaker of the Chamber of Deputies. On May 1, Anastasio Somoza, acting president, completed the unexpired portion of the term of Victor Manuel Román y Reyes, who had died in 1950, and began a new term as constitutional president.

Promulgation of an educational measure produced a crisis in May when students at the University of Granada rioted in protest against a decree providing for the merger of their

institution with the University of Léon. During the disorders, President Somoza on May 31 placed Granada under modified martial law to prevent the student demonstrations there from becoming a more serious movement of political protest. Normal conditions were restored at Granada by mid-June.

An agreement for an International bank loan of U.S. $4·7 million to Nicaragua was signed on June 7, and the following day the United States contracted to provide the Managua government with assistance for the purpose of developing educational projects. President Somoza proposed on Aug. 15 that the United States and all other American republics should unify their armed forces under joint chiefs of staff and that military weapons and regulations should be standardized within the western hemisphere. Nicaraguan diplomatic relations with Guatemala, which had been severed for four years, were resumed on Sept. 15. (G. I. B.)

Education. Schools (1951-52): primary, state 1,035, pupils 65,305, teachers 2,129; private 91, pupils 10,663, teachers 431; municipal 63, pupils 2,738, teachers 77. Secondary, state 13, pupils 1,575; teachers' colleges 3, pupils 462; commercial 32, pupils 3,944; private 24, pupils 2,077. The National university (Léon) had 620 students in 7 faculties, including one at Managua.

Foreign Trade. Exports in 1950 amounted to U.S. $25·8 million (excluding gold exports valued at $8·24 million); imports at $25·3. Leading exports: coffee (65%), tropical woods (7%), sesame (6%). Leading customers: U.S. (77%), U.K. (14%). The U.S. (82%) was the principal supplier. Leading imports included textiles, iron and steel and manufactures, cotton manufactures and machinery.

Finance. (Million córdobas.) Budget: (1949-50 actual) revenue 108·5, expenditure 105·0; (1951-52 est.) balanced at 94·7. Public debt (June 1951): 47·7. Currency circulation (Oct. 1951): 69·9. Monetary unit: *córdoba* (C$), officially valued at 20 U.S. cents. (J. W. Mw.)

NIGER: *see* FRENCH WEST AFRICA.

NIGERIA. British colony and protectorate on the west coast of Africa bounded W., N. and E. by the French territories of Dahomey, Sudan and Cameroun respectively. Cameroons under United Kingdom trusteeship, the eastern part of the former German colony of Kamerun, is administered with Nigeria. Area: Nigeria 338,593 sq.mi.; Cameroons 34,081 sq.mi. Pop. (1949 est.) Nigeria 24,000,000; Cameroons 1,027,000; mainly African with Arab admixture. Language: tribal dialects and Hausa. Religion: mainly Moslem in the north; mainly pagan in the south; Christianity widespread among the educated classes. Chief towns (African pop., 1949 est.): Lagos (cap., 250,000); Ibadan (335,500); Kano (102,000). Administration, *central:* council of ministers, 6 *ex-officio* members and 12 ministers; legislative council, 12 nominated members, 136 elected by regional legislatures. Administration, *in three regions:* lieutenant governor; executive council; house of chiefs (except Eastern); house of assembly, members indirectly elected. Governor, Sir John Macpherson.

History. A new constitution was promulgated on June 29. It established a central and three regional legislatures. Regional business was placed under the direction of a regional executive composed of a lieutenant governor, not more than five officials and from six to nine ministers, appointed from the members of legislatures with the approval of the members of the house concerned. Regions were permitted to legislate on specified subjects, including agriculture, education, health and local government, subject to the approval of the central council of ministers. The central legislature consisted of 136 representatives, 68 elected from among members of the northern legislature, and 34 each from the Western and Eastern legislatures, together with 6 *ex-officio* members and 6 special members. The central council of ministers, "the principal instrument of policy in and for Nigeria," consisted of the governor as president, 6 officials and 12 ministers appointed from the members of the central legislature (4 from each region) with the approval of the regional legislatures. Responsibility for government was vested in the council as a whole, individual ministers being responsible for submitting to the council questions within their sphere, conducting business relating to such matters in the central legislature and ensuring, in association with the public officer concerned, that the decisions of the council were carried out. How far these provisions for "federalizing" the Cabinet would prove workable was one of the most interesting questions concerning the new constitution.

The franchise, on which election to the regional legislatures took place between August and December, had been extended in April. Voters had to be 21 years of age or over; either resident for 12 months in, or natives of, the division concerned; and to have paid, or been exempted from, tax. Women were not eligible to vote in the Northern region nor, in practice, in the Eastern, since they were not there liable to tax. Methods of election varied. One feature which excited some criticism was the "whispering vote," used in the Northern and the Eastern regions, though not in the Western. When this was used, voters privately informed the returning officer of the name of the candidate of their choice. The primary elections were to a series of electoral colleges, and in the Northern and the Western regions, but not in the Eastern, additional members were nominated directly to these electoral colleges by the native authorities. In Lagos, five members were directly elected by secret ballot. More than 500,000 leaflets explaining the procedure were distributed by the Public Relations department.

The two principal parties were Dr. Azikiwe's National council and Mr. Awolowo's Action group for which support mainly came from the Yoruba tribes. In the Western region the Action group won 45 of the 80 seats. The National council secured all 5 of the Lagos seats and some 12 of the 80 in the Eastern region, while a further 13 in that region were at the end of the year "doubtful." Both groups sought alliances in the north and it seemed that the Action group would succeed in forming an alliance with the majority there.

The report of the Revenue Allocation commission, published in April, recommended that part of the proceeds of the direct tax and of the motor and liquor licences and certain other revenue should be given to the regions, that the regions should be empowered to impose a tax on motor spirit in place of the present customs duty and that half the receipts from central taxes on tobacco and cigarettes should be distributed among the regions in proportion to their consumption. The central government should further make capitation grants to each region in respect of each adult male taxpayer, together with grants-in-aid for police and educational services. The commission found that there was no proof of the allegation that the Northern region had received less from the revenues of Nigeria than it had contributed, but her equipment of schools, hospitals and roads was, in proportion to population, considerably below that of the two other regions. It was accordingly recommended that a special once-for-all capital grant of the order of £2 million should be made to that region primarily for construction for educational purposes.

Education. Primary school enrolment: (1947) 656,000; (1949) 933,333.

Finance and Trade. Currency: West African pound (£WA 1=£1 sterling). Budget (1949-50) revenue £30,800,000; expenditure £28,200,000. Foreign trade (1950): imports £60,500,000; exports £85,500,000. Principal exports: cocoa, palm products, groundnuts, hides and skins, tin ore

See F. J. Pedler, *West Africa* (London, 1951); Lord Hailey, *Native Administration in the British African Territories*, vol. iii (London, 1951).

(K. E. R.)

NKRUMAH, KWAME, Gold Coast politician (b. Gold Coast, 1909), was educated in mission schools and at Achimota college. He went to England at the age of 26, and

later to the United States where, in 1939, he graduated in arts at Lincoln, a Negro university in Pennsylvania. He became president of the African Students' Association of America and Canada. From 1945 he studied law and economics in London and returned to the Gold Coast in 1948 to be general secretary of the United Gold Coast convention, a group which had just been formed by Joseph Danquah, an African nationalist. After riots in that year Nkrumah and other convention leaders were for a time banished to the Northern Territories. Later his relations with Danquah became strained and in June 1949 he formed his own group, the Convention People's party, with the slogan " Dominion Status in 1949." Danquah's followers transferred their allegiance in large numbers and Nkrumah was the object of much hero-worship. He was imprisoned early in 1950 on charges arising from an illegal strike and subsequent riots in which 29 people were killed and was still in prison when, in Feb. 1951, he was elected to the legislative assembly under the new constitution. The election was an overwhelming victory for his party, the C.P.P., and Sir Charles Arden-Clarke, the governor, released him to resume its leadership. Nkrumah became leader for government business and minister without portfolio in the executive council appointed on Feb. 26. In June he visited Great Britain and the U.S. in his ministerial capacity and was given an honorary degree by Lincoln University, Pennsylvania. (R. JA.)

NOBEL PRIZES. In 1901 the first awards were made from the Nobel foundation, a fund established under the will of the Swedish chemist and engineer Alfred Bernhard Nobel (1833-1896). The value of each prize awarded in 1951 was about 168,000 Swedish *kronor* (£11,500).

The 1951 peace prize was awarded to Léon Jouhaux, the French leader of the International Confederation of Free Trade Unions. The prize for medicine and physiology was given to Max Theiler, a South African physician working in the health division of the Rockefeller foundation, New York, for his work on yellow fever vaccines. The physics prize was divided between Sir John Cockcroft, director of the Atomic Energy Research station, Harwell, Berkshire, and Professor E. T. S. Walton, of Trinity college, Dublin, for their work on nuclear fission. The chemistry prize was shared by Professors G. T. Seaborg and E. M. McMillan, of the University of California, for their discoveries of transuranium elements. Pär Lagerkvist, the Swedish novelist, poet and dramatist, received the 1951 prize for literature.

Biographies of the Nobel prizewinners are to be found in the *Britannica Book of the Year*.

NORFOLK ISLAND: *see* COMMONWEALTH OF NATIONS.

NORTH ATLANTIC TREATY ORGANIZATION. The North Atlantic treaty had been signed on April 4, 1949, as a defensive alliance by 12 north Atlantic and European nations—Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, the United Kingdom and the United States—who undertook to consider an attack against any one of them in Europe or North America as an attack against them all, and

separately and jointly, by means of continuous and effective self-help and mutual aid, to maintain and develop their individual and collective capacity to resist armed attack.

Serious practical measures to implement that pledge had been taken in hand in 1950 under the impact of the aggression in Korea. There was in 1951 vigorous activity by the North Atlantic Treaty organization (N.A.T.O.) and its member states, both in the political and the military field. While the measures taken often created new problems, many of which remained unsolved by the end of the year, the net result of 1951 was a substantial increase in the military strength and political cohesion of N.A.T.O. The policies which contributed to this result can be brought under four headings: (1) creation and organization of joint commands; (2) rearmament and remobilization; (3) extension of N.A.T.O. to new areas and accession of new members; (4) internal reorganization and structural development of N.A.T.O.



The S.H.A.P.E. shoulder flash.

Joint Commands. On Dec. 19, 1950, the N.A.T.O. council had decided to establish a Supreme Headquarters of the Allied Powers in Europe (S. H. A. P. E.) and appointed General Dwight D. Eisenhower of the U.S. army to be supreme commander. General Eisenhower, after making a rapid tour of the European N.A.T.O. countries in January and reporting on his findings and the importance of building up an effective European defence to the U.S. government and people in February, set up his headquarters and assumed command on April 2, after designating his principal deputies and commanders and outlining the broad command structure on which the defence of western Europe was to be based. The S.H.A.P.E. was established at Louveciennes, 15 mi. from Paris. The top appointments, successively announced during March, were as follows:

Supreme commander, General Dwight D. Eisenhower (U.S.); deputy supreme commanders: Field Marshal Viscount Montgomery of Alamein (U.K.), Air Chief Marshal Sir Hugh Saunders (U.K.) and Admiral André-Georges Lemonnier (France).

Chief of staff, Lieut. General Alfred M. Gruenther (U.S.); deputy chiefs of staff: (Administration) Lieut. General Marcel-Maurice Carpentier (France); and (Plans) Air Marshal Edmund C. Hudleston (U.K.); assistant chiefs of staff: (Intelligence) Major General Sir Terence Airey (U.K.); (Organization and Training) Major General Francis W. Festing (U.K.); (Personnel and Administration) Rear Admiral Ferrante Capponi (Italy); (Plans, Policy and Operations) Major General Pierre-Louis Bodet (France) and (Logistics) Major General Edmond H. Leavey (U.S.).

Under S.H.A.P.E., three regional commands were established for Central Europe, Northern Europe and (later in the year) Southern Europe, with the following top appointments:

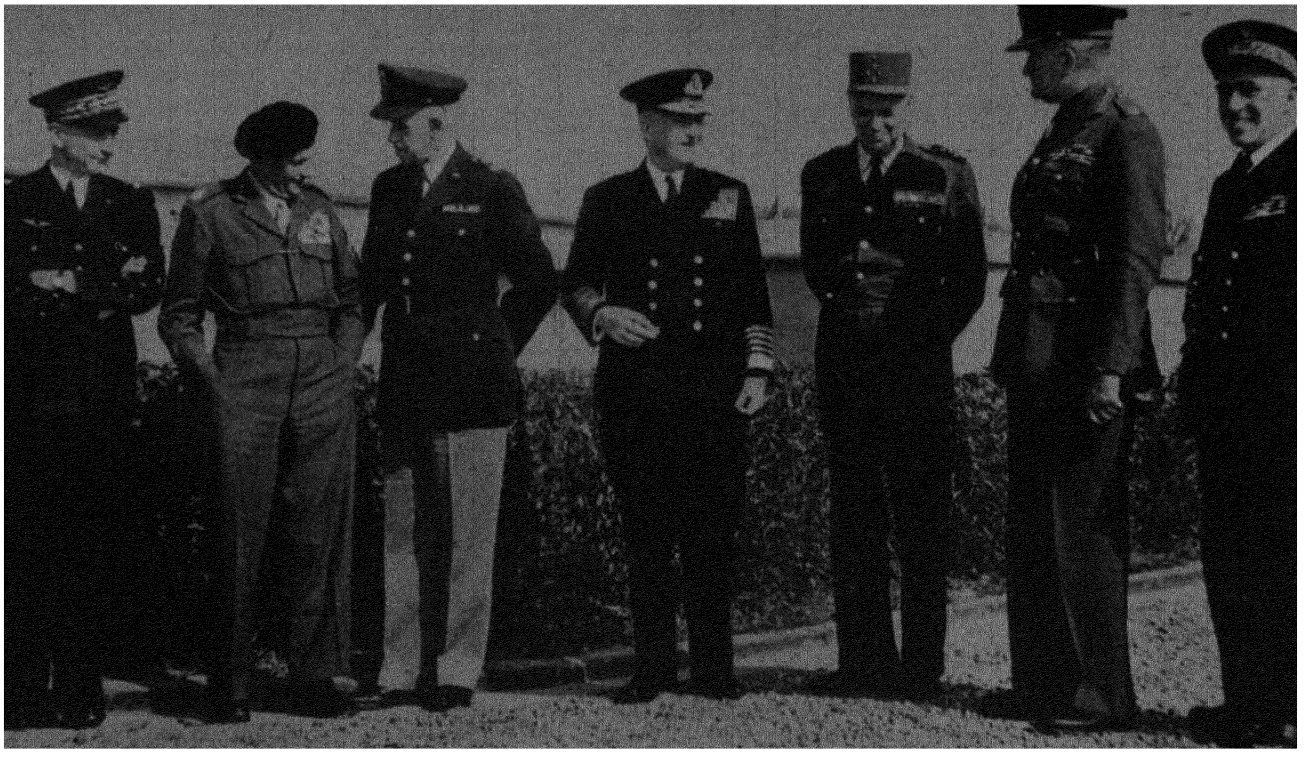
Central Europe: commander in chief, Allied army forces, Army General Alphonse Juin (France); and, subordinate to him: Commander in chief, Allied air forces, Lieut. General Lauris Norstad (U.S.); naval flag officer, Vice Admiral Robert Jaujard (France).

Northern Europe: commander in chief, Vice Admiral Sir Patrick Brind (U.K.); and, subordinate to him: commander of Allied army forces in Norway, Lieut. General Wilhelm Tangen-Hansteen (Norway); commander of Allied army forces in Denmark, Lieut. General Ebbe Gørtz, later in the year replaced by Lieut. General Eric Moeller (Denmark); commander of Allied air forces, Major General Robert K. Taylor (U.S.).

Southern Europe: commander in chief, Admiral Robert B. Carney (U.S.); and, subordinate to him: commander Allied land forces, General Maurizio de Castiglione (Italy); commander Allied air forces, Major General David M. Schlatter (U.S.).

The announcement about the Southern Europe command, which was made on June 18, several months after the other commands had been set up, added that the appointments were made " without prejudice to any command system which may be evolved by higher authority for the Mediterranean as a whole."

In fact, three further N.A.T.O. supreme commands were planned during 1951 to be set up by the side of General Eisenhower's European supreme command: one for the Atlantic, one for the Mediterranean, and one, following the accession of Turkey to the North Atlantic treaty, for the



Military leaders of member nations of the North Atlantic treaty who met at S.H.A.P.E. headquarters in Oct. 1951. Left to right: General Charles Lechères (France); Field Marshal Viscount Montgomery of Alamein (deputy to General of the Army Dwight D. Eisenhower); General of the Army Omar N. Bradley (U.S.A.); Admiral of the Fleet Sir Bruce Fraser; General Alphonse Juin (France); Field Marshal Sir William Slim and Admiral André Lemonnier (France).

middle east. However, political and other difficulties held up the actual establishment of these three supreme commands during 1951. Informal agreement about the Atlantic command was reached early in the year, but a premature disclosure that it was planned to appoint a U.S. admiral supreme commander in the Atlantic aroused violent parliamentary opposition in Great Britain, and the appointment was postponed. A decision about the Mediterranean command was apparently delayed by difficulties and controversies about its exact geographical limitation, its relation to General Eisenhower's Southern European command, and—again—the nationality of the supreme commander. The middle east command proposed in Oct. 1951, was planned to include Egypt and to be based on the Suez Canal zone. When Egypt refused accession, the establishment of this command was also postponed.

Rearmament and Remobilization. The military forces of the N.A.T.O. powers were greatly increased and strengthened during 1951 through the rearmament and remobilization measures of the countries concerned. In Jan. 1950 economic recovery had still been accorded " clear priority " over defence in the policies of the N.A.T.O. powers, and during the second half of 1950, an attempt had been made to work out an equal priority for both. In contrast, 1951 was in all major N.A.T.O. countries a year of resolute rearmament.

Both absolutely and relatively, the rearmament effort of the United States greatly exceeded that of the other N.A.T.O. powers—in absolute figures it did indeed dwarf that of all other powers combined. The U.S. defence budget for 1951-52 amounted to $58,000 million. By comparison, Major General George H. Olmstead, the director of the Office of Military Assistance in the U.S. Defence Department, stated on Oct. 10 before the U.S. House of Representatives that the European members of N.A.T.O., excluding Iceland, expected to contribute altogether $11,380 million during the same time, viz.:

Great Britain	$3,885 million	Netherlands	$525 million
France	$3,000 ,,	Belgium	$500 ,,
Western Germany	$2,140 ,,	Denmark	$167 ,,
Italy	$1,000 ,,	Norway	$163 ,,

Major General Olmstead also gave the following figures of men in the armed services per 1,000 of population (June 30, 1951): United States 21·2, France 17·8, Britain 15·7, Belgium 12·2, Portugal 10·6, Norway 9·7, the Netherlands 9·7, Italy 6·5, Denmark 6·3. He also disclosed the following percentage figures of national production devoted to defence in 1951: Great Britain 9·6%, France 9·3%, Greece 7·6%, the Netherlands 7·0%, Italy 6·3%, Belgium-Luxembourg 5·4%, Denmark, Norway, and Turkey 5·0% each (the U.S. percentage was officially given as being 15·7%).

However, in spite of this striking discrepancy of effort, it became clear in the course of the year that, while the U.S. economy seemed to take the gigantic rearmament effort in its stride, the European economies were experiencing serious strain in the form of inflation and balance of payments deficits as well as raw materials shortages. The N.A.T.O. council at its meeting at Ottawa from Sept. 16 to 20 accordingly set up a temporary committee to survey urgently the requirements of external security and the economic capabilities of the member countries, with a view to determining courses of action so as to achieve the most effective use of the resources of member countries. The committee, composed of W. Averell Harriman (U.S.), Sir Edwin Plowden (U.K.) and Jean Monnet (France), popularly known as " the Three Wise Men," submitted a report on its burden-sharing exercise on Dec. 4.

The N.A.T.O. field forces in central Europe increased during 1951 from 7 to about 17 divisions (6 U.S., 4 British, 4 French and the equivalent of 2 to 3 divisions consisting of Canadian, Belgian, Dutch, Danish and Norwegian formations). Manoeuvres were held in Germany during September and October. The U.S. air forces in western Europe and north

Africa increased to an even larger extent during the year. While these increases in front-line strength remained only slightly behind schedule, there was no doubt that the N.A.T.O. powers were still, at the end of the year, in General Eisenhower's words, " far too weak to provide the assured safety we require," and great efforts were in train to increase their forces further during 1952 and 1953.

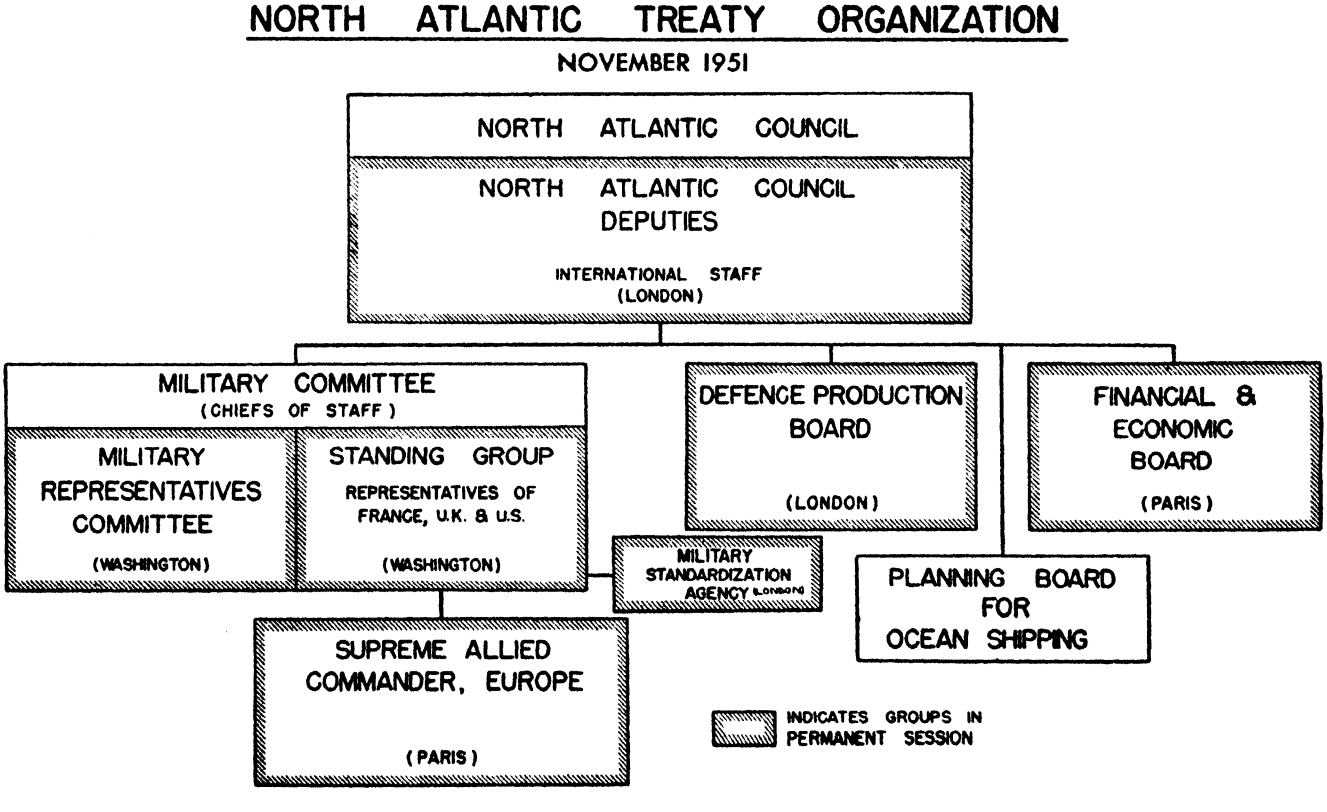
Turkey, Greece and Western Germany. Partly in furtherance of these efforts, partly in a strategic extension of its geographical responsibilities, N.A.T.O. prepared during 1951 the direct or indirect accession of three new member states: Turkey, Greece and Western Germany.

The accession of Turkey and Greece was, on the initiative of these countries themselves, proposed to the other N.A.T.O. powers by the United States on May 15. Great Britain and France, though initially favouring a separate Mediterranean or middle eastern treaty, gave their support to the proposal during the summer. Opposition came for some time from the Scandinavian member countries, Norway and Denmark, caused partly by a reluctance to extend their automatic commitments to the middle east, partly by fear of a dilution of U.S. military aid if new claimants for it were admitted. However, Norway changed its mind, and Denmark declared, at the N.A.T.O. council meeting at Ottawa in September, that it did not wish to use its right of veto against an otherwise unanimous council decision. The council accordingly recommended to the member governments that, subject to approval by their national parliaments, an invitation should be extended to Greece and Turkey to accede to the treaty, and a protocol was agreed to change the text of the treaty accordingly.

The contribution of the German Federal republic to European defence, which had in principle been agreed on by the N.A.T.O. powers as early as in Sept. 1950, provided far more complicated problems. France had made its agreement dependent on the establishment of a European army, through which the German contribution was to be made, while Germany made its contribution dependent on the attainment of sovereignty and equality; *i.e.*, on the replacement of the occupation régime by contractual arrangements. Two sets of negotiations, both conducted outside the N.A.T.O. framework, proved therefore necessary and proceeded throughout 1951: first, negotiations between Germany and the occupying powers (United States, Great Britain and France) about the liquidation of the occupation régime; secondly, negotiations between Germany and its prospective partners in a European army or European defence community (France, Italy, Belgium, the Netherlands and Luxembourg) about the creation of this new entity. No final conclusions were reached during 1951.

Structural Reorganization. All this growth and activity threw a heavy burden on the structural organization of N.A.T.O., which remained cumbersome and continued to be outgrown by the demands thrown upon it. Various changes took place during the year. On May 3 it was announced that the Defence committee (consisting of the 12 defence ministers) and the Defence, Financial and Economic committee (consisting of the 12 finance ministers) would henceforth be merged in the council, the principal body of N.A.T.O. Simultaneously, a Financial and Economic board was set up to replace the Advisory Group on Raw Materials, the permanent staff of the Defence, Financial and Economic committee, and the Economic and Financial Working group. Although this reduced the number of N.A.T.O. organs from 15 to 9, the organization remained top-heavy and slow in function, and the problem of ensuring clear political direction and capacity for rapid decision remained pressing and unsolved.

Another problem arose out of the widely felt desire to give organic expression to the strong sense of common interests and ideals which the joint activities of the Atlantic community had developed, and the council meeting at Ottawa in September groped towards progress in this direction by setting up a Ministerial committee, composed of representatives from Belgium, Canada, Italy, the Netherlands and Norway, to consider further strengthening of the Atlantic community, especially the implementation of Article 2 of the North Atlantic treaty, which provided in general terms for non-military co-operation. The committee made a preliminary report at a further council meeting in Rome, held from Nov. 24 to 28, but no definite progress was made.



The impression prevailed at the end of 1951 that N.A.T.O. had during the year, for the first time, made real progress towards creating security for its members, but had thrown up many great new political and economic problems in the process; among some of the statesmen concerned, the last months of 1951 produced a dawning suspicion that these problems might possibly prove insoluble in the framework of a mere alliance between sovereign states of very unequal strength and might demand for their permanent and satisfactory solution some form of political union. At the same time, most member states were still far from seriously considering any surrender of sovereign rights. While an Atlantic community feeling had certainly gained ground, and hard practical necessities were imperatively pressing towards closer organization and stronger central authority for N.A.T.O., no radical steps from alliance to union were yet in sight. The prospect was that N.A.T.O. would for some time yet cope as a mere alliance with its tasks, which were increasingly becoming those of a super-state; and the only certainty was that its structure and organization would, under the stress of these tasks, undergo many further changes. The developments of 1951 had, however, put it beyond doubt that the North Atlantic Treaty powers, by pooling their defence, had, whether consciously or not, embarked on a great political experiment, and that the ultimate political and constitutional implications of the North Atlantic treaty were as far-reaching as the military and defensive ones. (S. Hr.)

NORTHERN IRELAND. The six counties of Antrim, Armagh, Down, Fermanagh, Londonderry and Tyrone together form a part of the United Kingdom of Great Britain and Northern Ireland. Northern Ireland has its own parliament and executive (with limited powers for local purposes) and is represented in the United Kingdom parliament by 12 members. Area: 5,451 sq.mi. Pop.: (1937 census) 1,279,745; (1951 census) 1,370,709. Language: English. Religion (1951 census): Roman Catholic 471,329 (34·39%), Presbyterian 410,259 (29·93%), Episcopalian 353,025 (25·75%), Methodist 66,544 (4·86%), other (or not stated) denominations 69,552 (5·07%). Chief towns (pop.; first figure, 1937 census; second figure, 1951 census): Belfast (cap., 438,086; 443,670); Londonderry (47,813; 50,099); Bangor (16,284; 20,615). Governor, the Earl Granville; prime minister, Sir Basil Brooke.

History. Except for the United Kingdom general election on Oct. 25, politics were uneventful. The Unionists lost West Belfast to the Irish Labour by 25 votes but retained 9 other seats, 4 without opposition. The anti-partitionists held Mid-Ulster and Fermanagh-South Tyrone without ending their policy of abstention. The return of the Conservative party put in abeyance the campaign led by W. F. McCoy, for wider anti-Socialist powers for the Northern Ireland parliament. In his May budget J. M. Sinclair, the minister of finance, reduced from five to three years before death the period in which gifts *inter vivos* were free of estate duty. This concession was offset by a tax on pool betting. Revenue at £69,711,000 and expenditure at £50,633,000 left an increased imperial contribution of £19 million as a token payment towards rearmament costs. The passing of the Public Order act in June was followed by the revoking of a number of regulations under the Civil Authorities (Special Powers) acts. The Irish Republican army raided in May a military armoury at Londonderry, capturing some weapons. The Home Guard act was applied to Northern Ireland in November. The Education (Miscellaneous Provisions) act of February resolved a controversy in the Unionist party on state aid to voluntary schools. The census (April 8) disclosed a population of 1,370,709 (667,854 males, 702,855 females), an increase of 90,964 (7·11%) since 1937. The Roman Catholics numbered 471,329, an increase of 10%: this was the largest increase among all religious denominations, except the Methodists. Protestants rose by 5·6%.

The Festival of Britain was marked in June by a four-day visit of the queen and Princess Margaret. The queen opened the Farm and Factory exhibition at Castlereagh, Belfast, centrepiece of the festival. Capital investment for 1951-52 was estimated at £47 million, including £12 million devoted to new housing, but warning was given of cuts in programme for 1952-53. The housing trust announced a plan for a town of 10,000 people at Carnmoney, near Belfast. The Rent Restriction (Amendment) act passed in August permitted limited increases in rents of controlled houses. The Business Tenancies act gave temporary protection to offices and shops.

New factories with floor space of 373,000 sq.ft. built by the government were occupied. Despite rearmament, unemployment rose to 32,482 (November): this was chiefly due to falling-off in demand for textiles, notably shirts. The prime minister, Sir Basil Brooke, with the minister of finance and minister of commerce (W. V. McCleery) went to London in November to seek more rearmament contracts. A fund was opened by Col. S. G. Haughton, president of the Belfast Chamber of Commerce, to link Northern Ireland with British trade promotion centres in New York and Toronto. The rearmament work handled was not extensive except in a Belfast aircraft factory which began the production of the Canberra jet bomber. The Belfast shipyards remained in full production, launching 10 ships of 120,000 tons gross. Principal deliveries were the aircraft carrier "Eagle," the Argentine 23,000-ton whale factory ship "Juan Perón" and the 17,300-ton liner "Rhodesia Castle." However, by the end of the year, the output began to be restricted because of a steel shortage.

In agriculture the number of acres tilled and the livestock population (save pigs) fell owing to the higher costs of feedingstuffs, fertilizers and wages. The government ordered an inquiry into the Ulster Transport authority which reported a loss of £400,000 in the year ending Sept. 30. In November the authority raised freight rates and season ticket charges. An agreement was reached in October between Northern Ireland and the Irish republic for purchase of the Great Northern railway for £450,000 and its transfer to a Joint board. The offer was accepted by the stockholders. A night air mail service between Manchester and Belfast was inaugurated in March. (J. E. Ss.)

Education. Schools (1950): nursery 21, pupils 609; primary 1,631, pupils 187,991; secondary intermediate 12, pupils 6,696; secondary grammar 79, pupils 28,386; technical intermediate 28, pupils 4,529; institutions of further education 114, pupils 26,312; Queen's university of Belfast, students 2,686.

Agriculture. Main crops ('000 metric tons, 1950; 1951 est. in brackets): oats 313·0 (297·3); potatoes 1,364·5 (1,214·9); wheat 2·0 (1·3); barley 4·1 (3·3); dredge corn 5·7 (4·5); hay 601·5 (757·8); turnips 176·8 (188·5); mangels 11·7 (14·7); flax fibre 3·8 (3·6). Livestock ('000 head, mid-1951): cattle 941; sheep 563; pigs 578; goats and kids 8; horses 42; asses 4·9; poultry 17,808. Food sales (1950-51): milk (million gallons) 84; eggs (million dozen) 56; pigmeat (cwt.) 788,934. Number of animals sold to ministry for slaughter ('000 head): cattle 278; sheep and lambs 313. Shipments of food to Great Britain (1951): milk (million gallons) 6; eggs (million dozen) 43; poultry (tons) 5,893; bacon and ham (tons) 18,550.

Industry. Electricity sales (million kwh., 1949; 1950 in brackets); 533 (609). Merchant vessels launched (1949; 1950 in brackets): 12 (11), gross tonnage 97,136 (130,720). Exports of yarns ('000 cwt., 1950): linen 90; woollen 30; cotton 8; hemp 9.

Foreign Trade. (Estimates compiled from the returns of the harbour authorities and the Board of Customs and Excise, £ million, 1949; 1950 in brackets) imports 188·7 (219·3) of which 152·8 (175·7) from and through Great Britain; exports 163·8 (183·0) of which 154·7 (172·6) to and through Great Britain. Main direct sources of imports, excluding Great Britain (1950): Irish republic 26·2%; Canada 11·2%; Belgium 14·6%; U.S.S.R. 6%. Main direct destinations of exports, excluding Great Britain: Irish Republic 51·3%; U.S. 14·4%; Italy 6·1%; Norway 5%. Main imports (1950): cotton goods, including goods sent for finishing, etc. 8·5%; machinery 6·7%; coal 5·8%;

tobacco 3·9%. Main exports: linen and rayon piece goods 19·1%; apparel 8%; cotton goods, including goods sent for finishing, etc. 7·9%; livestock 6·7%.

Transport and Communications. Roads (1950) 13,254. Licensed motor vehicles (Dec. 1949): cars 47,618, commercial 22,663. Railways: (1950) 743 mi.; passengers carried (1948-49) 9,092,564; livestock transported (1948-49) 141,830 head; merchandise carried (1948-49) 405,063 tons. Telephones (Oct. 1950): subscribers 42,838.

Finance and Banking. Budget: (1950-51 actual) revenue £64,153,051 excluding £2 million from U.K. exchequer, expenditure £48,168,439 excluding contribution of £16 million to U.K. exchequer; (1951-52) revenue £67,071,000 excluding £2·7 million from U.K. exchequer, expenditure £50,633,000 excluding contribution of £19 million to U.K. exchequer. National debt (March 1950; March 1951 in brackets): £29,361,166 (£25,962,007).

See Gilbert Camblin, *The Town in Ulster* (Belfast, 1951); Estyn Evans, *Northern Ireland* (London, 1951) and *Mourne Country* (Dundalk, 1951).

NORTHERN RHODESIA. British protectorate in central Africa. Area: 284,745 sq.mi. Pop. (June 1950 est.): 1,900,000, incl. 38,000 Europeans. Religion: pagan (*c.* 80%) and Christian. Chief towns (European pop. 1950): Lusaka (cap. 4,615), Nkana-Kitwe (5,234), Luanshya (4,685), Mufulira (3,322), Ndola (2,962). Administration: governor; executive council, 7 official and 4 unofficial members; legislative council, 9 official members and 14 unofficial (10 elected European, 2 nominated to represent African interests and 2 African). Governor, Sir Gilbert Rennie.

History. Proposals for federating the Rhodesias and Nyasaland produced by a conference of officials in London earlier in 1951 were discussed at Victoria Falls in September (*see* SOUTHERN RHODESIA). African opinion in Northern Rhodesia was solidly against any form of federation but the African representatives from the protectorate indicated at Victoria Falls that they would be ready to consider federation after the policy of partnership should have been defined and, as defined, put into progressive operation. Sir Gilbert Rennie, the governor, Roy Welensky (*q.v.*), leader of the unofficial members of the legislature, and J. B. Beckett, member for agriculture, had discussions in London in April with James Griffiths, secretary for the colonies, on the Northern Rhodesian constitution, but no decision was obtained.

A report on the Kariba gorge hydro-electric scheme by the Central African council had recommended initial construction to produce 380 Mw. at a cost of £43,518,000 with ultimate expansion to 1,000 Mw. at a cost of £74,500,000. The creation of a Zambesi river authority and a Rhodesian hydro-electric board was also proposed. The government issued £7,730,000 3½% inscribed stock 1970-72 at £99% for development work. A loan of £3 million was made by the Economic Co-operation administration for copper mining development. A threatened strike of 30,000 African mine-workers was averted by wage concessions. The co-operative movement made great progress, reaching a total of 64 African societies with 10,364 members and a capital of £18,429.

Education. Government schools (1949): 16, of which 11 provided a limited secondary course (attendance 3,730); controlled private schools, attendance 858; convent school at Broken Hill provided full secondary course.

Finance and Trade. Currency: Southern Rhodesian pound (£SR1 = £1 sterling). Budget: (1951 est.) revenue £14,417,630, expenditure £14,375,310; (1952 est.) revenue £23,500,000; expenditure £23,492,000. Foreign trade (1950): imports £26,710,000; exports £49,942,000. Principal exports (1950 values): copper (blister and electrolytic) £42,857,000, lead £1,334,208, zinc £2,630,533, tobacco £1,004,222.

(G. R. MN.)

NORWAY. Constitutional monarchy of northern Europe, bound N. by the Arctic ocean, E. by the U.S.S.R., Finland and Sweden and S. and W. by the North sea. Area (excluding Svalbard archipelago*), 125,182 sq.mi. Pop.: (1946 census) 3,156,950; (Dec. 1950 est.) 3,277,000. Languages: Norwegian and Lappish (20,000). Religion: Lutheran. Chief towns: Oslo (cap., pop., 1950 est., *c.* 435,200); Bergen (1948 est., 108,933); Trondheim (1948 est., 56,444); Stavanger (1948 est., 42,218). Ruler, King Haakon VII; prime ministers in 1951: Einar Gerhardsen and (from Oct. 19) Oscar Torp (*q.v.*).

History. At the municipal elections on Oct. 8, 1951, the biggest gains were made by the Labour party, chiefly at the expense of the Communists, and the result was generally interpreted as a vote of confidence in the Labour government. It came as a surprise, therefore, when the prime minister tendered his resignation in mid-November. He said that his resignation was dictated by no personal or political disagreements whatsoever, but after six-and-a-half difficult and burdensome years as prime minister he felt it was time for a change. The leader of the Parliamentary Labour party, Oscar Torp, was appointed prime minister in Gerhardsen's stead. Torp presided at the first meeting of his new cabinet on Nov. 19. He said that the new government would pursue the same policy at home and abroad as the former government. Apart from Gerhardsen, the ministers of finance, fisheries and agriculture also chose to retire in November, and were succeeded respectively by Trygve Bratteli, Peder Holt and Rasmus Nordbø. Gerhardsen succeeded Torp as leader of the parliamentary Labour party.

In a Note on Oct. 15 the Soviet government asserted that Norway had taken extensive military action to implement the "anti-Soviet" aims of the North Atlantic treaty and had submitted Spitsbergen to the competence of N.A.T.O.'s naval supreme command. The N.A.T.O. armed forces had thus been given permission to carry out military measures there, contrary to the Spitsbergen agreement of 1920. The Norwegian government replied on Oct. 30 that the North Atlantic treaty was purely defensive, and that Norway would continue to base its defence policy on the treaty. No military fortifications or bases would be allowed established on Spitsbergen. A further Soviet note on Nov. 12 repeated the earlier charges, and warned that Norwegian policy seriously harmed Soviet-Norwegian relations and that Norway must accept complete responsibility for the consequences. There was also an exchange of notes in the autumn about the centralization of Soviet war graves at Tjøtta in north Norway. To Soviet protests the Norwegian government replied that centralization would make it possible to maintain the graves more fittingly.

In February the defence minister, Jens Christian Hauge, had informed the parliament of plans for strengthening Norway's defences. By the end of 1952, said the minister, Norway should be able to mobilize about 270,000 men in all services including the home guard. The army would then have a field force equivalent to about four divisions, an increase of 50%; and the air force would have 11 squadrons, also a 50% increase. It was proposed to have under arms at all times a land force equivalent to one division. Compulsory military training was standardized in 1951 at 12 months with 60 to 90 days repeat exercises. Steps were taken also to increase by 50% the corps of 4,000 serving officers. For the 1951-52 budget year, defence estimates were increased to £35 million, equal to 6% of the national income.

A fully equipped and staffed surgical field hospital was sent to Korea, and Norway also continued to maintain a large freighter in Korean waters for use by the United Nations. A final decision as to sending a Norwegian fighting force to Korea was delayed pending the result of the truce talks.

In the summer Admiral Sir Patrick Brind, commander in chief, Allied Forces Northern Europe, set up his permanent headquarters in Oslo. General Dwight D. Eisenhower and Field Marshal Viscount Montgomery paid several visits to

* Svalbard archipelago (Spitsbergen and Baer Island): area, 24,295 sq.mi. The population, largely miners, shifts seasonally; in 1951 it was estimated at 3,400, including 2,387 Russians.

Norway during the year. General Eisenhower appointed General Wilhelm Hansteen, chief of Norwegian army staff, commander of land forces in Norway under the North Atlantic treaty. In July the commander in chief of the Norwegian navy, Admiral Edvard Danielsen, resigned because of disagreement about naval policy. He was succeeded by Admiral Thore Horve, who in turn resigned and was followed in September by Admiral Skule Storheill.

Full employment was maintained during the year and production continued to increase. The rise in prices, however, caused concern. Wage rates were increased in April to compensate for the increased cost of living, and in the autumn there were protracted negotiations to secure a further wage increase. Export earnings showed a very big increase in the course of the year, due largely to improved prices for such goods as paper and pulp; freight earnings by the merchant fleet also increased very considerably. The balance of payments improved radically in consequence, and at the end of the first nine months there was a surplus equal to £2·5 million, as against a deficit of £37,250,000 at the end of the same period of 1950. With the European Payments union, Norway developed a trading surplus during the year.

The uranium reactor built by the Institute for Atomic Energy by Kjeller near Oslo was completed and produced its first radio-active isotope in July. The Norwegian and Dutch scientific research councils concluded an agreement to operate the reactor in co-operation. With Sweden and Denmark an agreement was also signed in Oslo in February to run the chief national airlines as a joint consortium. A number of leading Norwegian industrial and commercial concerns created a joint organization, Noreno, to secure construction and engineering contracts abroad: the first large contract was won in July by the Selmer engineering company of Oslo, to build hydro-electric installations in Australia. The Norwegian government announced far-reaching plans for developing the economic resources of north Norway in order to increase employment and raise the standard of life in that region. A Norwegian government loan for £5 million was issued in London in February to meet the cost of ships built or building in the United Kingdom. By the end of 1951 the merchant fleet was approaching 6 million gross tons with another 2 million tons on order, mostly in Great Britain and Sweden. With the U.S. Economic Aid administration a loan agreement was concluded for building a large new aluminium factory at Sundalsøra in west Norway to double Norway's aluminium production. The 30-year-old Anglo-Norwegian fishing dispute was taken to the International Court of Justice at The Hague: on Dec. 18 the court accepted Norway's method of delimiting its territorial waters and rejected Britain's plea.

King Haakon paid an official visit to London in June. Both the British prime minister, Clement Attlee, and foreign minister, Herbert Morrison, visited Norway on holiday in the summer. (O. F. K.)

Education. Schools (1947-48): elementary, rural 5,404, pupils 224,789; in the towns, pupils 71,414; secondary 295, pupils 42,158. Universities (1949): 2, students 5,294; other institutions of higher education 6, students 1,836, excluding teachers' training colleges with 1,520 students.

Agriculture and Fisheries. Main crops ('000 metric tons, 1949-50; 1950-51 in brackets): wheat 65 (69); barley 80 (107); oats 145 (181); rye 3 (3); potatoes 1,163 (1,169). Livestock ('000 head, June 1950): cattle 1,237; sheep 1,812; pigs 422; goats 130; horses 191; chickens 4,985. Food production ('000 metric tons, 1950; 1951, six months, in brackets): delivered milk, *c.* 50% of total production, 977 (536); butter 11·5 (6·3); cheese 25·4 (15·9); meat 109, of which beef and veal 41, mutton and lamb 16, pork, excluding lard, 49. Wool production, greasy basis ('000 metric tons, 1949-50; 1950-51 in brackets) 3 (3). Fisheries (1949; 1950 in brackets): total catch ('000 metric tons) 1,166 (1,344); value (million kroner) 290 (323). Whale oil production ('000 barrels, 1949; 1950 in brackets): 1,120 (1,106); total value (million kroner) 313 (282).

Industry. Industrial establishments, excluding electrical plants, construction and building industries (1949): 6,176; persons employed: 36,212 salaried staff and 206,950 workers; gross value of production Kr. 7,328·5 million. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 384 (239·5); manufactured gas (million cu. m.) 45·6 (25·7); electricity (million kwh.) 17,328 (8,620). Timber production ('000 cu. m., 1949; 1950 in brackets): sawn softwood 1,790 (1,400). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): iron ore, 65%; metal content 403 (210); pig iron 220 (113·5); copper 9·4 (4·3); zinc 43·1 (20·6); aluminium 46·6 (25·5); nickel 10·0 (5·3); ferro-silicon, calculated 45% basis 63·9 (32·9); other ferro-alloys 94·8 (58·7); sulphur 96·2 (49·5); pyrites 749·4 (336·7); nitrogen 160·7 (83·1); woodpulp, wet basis 727·8 (338·0). Manufactured goods: cellulose, dry basis 483·6 (257·9); newsprint 114 (80); other paper and board 317 (155); cement 583·3 (330·3). Merchant vessels of 100 gross tons and upwards launched (1950; 1951, six months, in brackets) 57 (28); total tonnage 53,402 (52,768). Index of industrial production (1937 = 100, 1950; 1951, six months, in brackets): general index 141 (155); producers' goods 148 (162); consumers' goods 127 (140).

Foreign Trade. (Million kroner, 1950; 1951, six months, in brackets): imports 4,846 (3,001); exports 2,789 (1,993). Main sources of imports (1950): U.K. 22·3%; Sweden 14·5%; U.S. 12·2%; France 6·5%. Main destinations of exports: U.K. 18·2%; Western Germany 11·3%; U.S. 9·9%; Sweden 7·8%. Main imports: ships and boats 17%; textiles 13%; coal, petroleum and products 10%; machinery 10%. Main exports: woodpulp and paper 23%; fish and products 16%; fats and oils 14%; non-ferrous metals and manufactures 12%.

Transport and Communications. Roads (1950): 27,742 mi. Licensed motor vehicles (Dec. 1950): cars 60,111, commercial 59,674. Railways (1950): 2,776 mi., including state railways 2,725 mi.; traffic on state railways (1950; 1951, six months, in brackets): passenger-mi. 961·9 (423·1) million; freight net ton-mi. 817 3 (419·4) million. Shipping (merchant vessels of 100 gross tons and over, July 1951): 2,224, total tonnage 5,690,000. Air transport (1950): mi. flown 4·8 million; passenger mi. 99·6 million; freight net ton-mi. 3·0 million; mail ton-mi. 0·6 million. Telephones (1950): 447,500 Wireless licenses (1949): 709,116.

Finance and Banking. Budget (million kroner): (1950-51 est.) revenue 2,562, expenditure 2,562; (1951-52 est.) revenue 2,866, expenditure 2,866. National debt (Dec. 1949; Dec. 1950 in brackets): 12,472 (10,972), including balance of occupation account 7,112 (6,202) and foreign debt 1,287 (1,062). Currency circulation (Sept. 1950; Sept. 1951 in brackets): 2,162 (2,381). Deposit money (Aug. 1950; Aug. 1951 in brackets): 5,053 (5,233). Gold and foreign exchange (million U.S. dollars, Sept. 1950; Sept. 1951 in brackets): 109·7 (155·0). Monetary unit: *krone* (pl. *kroner*), with an exchange rate (Nov. 1951) of Kr. 20·00 to the pound and Kr. 7·14 to the U.S. dollar.

NURSING. The most marked feature of nursing in Great Britain in 1951 was the continuance of the rise in the total number of nurses employed in hospitals of all kinds. The figures rose from 134,689 full-time nurses in June 1950 to 139,535 in June 1951, and part-time nurses from 25,238 to 26,173 over the same period; the total strength being 165,708 in June 1951, as compared with 159,927 in 1950. In Aug. 1951 the minister of health announced that, since the national health service came into operation, there had been an increase of 23,349 in the number of patients' beds for which nursing staff were available. In all there had been an increase of 20,000 in the number of full-time and 8,000 in the number of part-time nurses since the service began. However, mental and other special hospitals continued to be hard-pressed.

Important steps were taken towards solving the problem of staffing sanatoria for the treatment of tuberculosis. Following recommendations made by the Standing Nursing Advisory committee, prescribing the conditions under which student nurses taking general training might be seconded from their hospitals to sanatoria in rotation without undue risk of infection and with benefit to their training, many general hospitals made arrangements to second their student nurses for three-month periods for the nursing of tuberculosis. By these and other means an increase of over 20% in the recruitment of nurses for the care of tuberculous patients was achieved in two years, and this in turn helped in the reduction of the waiting lists of patients.

Much progress was made with the establishment of the new machinery created by the Nurses' act, 1949, and Area Nurse

Training committees were appointed in all regions to co-ordinate the activities of the training schools and to deal with the financial side of nurse training, now for the first time separated from the general maintenance of hospitals. The freedom to experiment in nurse training provided for in the Nurses' act developed mainly in the direction of closer co-operation within groups of hospitals to provide a more comprehensive training or to provide two trainings (*e.g.*, in general nursing and in sick children's nursing) within a shortened period.

In March 1951, the Report of the Dale Committee of Enquiry on the Industrial Health Services was published. The committee, though recognizing the grave national problem of waiting lists for hospital beds and the need for more hospital nurses, stated that the evidence they had received established beyond any doubt that there was a very important place in industry for both the state-registered nurse and the state-enrolled assistant nurse.

During the year a revised edition was issued of *Recommendations on the Supervision of Nurses' Health* (London), first published in 1943. (*See* also HOSPITALS.) (A. G. L. I.)

NUTRITION. An alga commonly mentioned as a possible plant for mass culture as food was *Chlorella*, a green fresh-water microscopic unicelluar form. Fundamental work on the chemical composition of *Chlorella* and the effect of environmental conditions was undertaken by H. A. Spoehr and H. W. Milner. The object was to find environmental conditions which would modify the relative proportions of carbohydrates, proteins and lipids (fats)—three essential classes of nutrients. By varying the composition of the "air," the solution in which the algae were grown, and the quality and quantity of sunshine available, Spoehr and Milner were able to vary their protein content from 9% to 58%, carbohydrate from 6% to 38% and fat from 4·5% to 85%.

Arteriosclerosis. Investigations were conducted to increase the knowledge of the causes and to find more successful treatment of arteriosclerosis (hardening of the arteries). Experimental arteriosclerosis had been produced in several animal species such as the chicken, rabbit, dog and monkey. The disease in animals was usually induced by feeding a diet relatively high in fat and is associated with a prolonged rise in the blood fat component cholesterol.

Observation of chickens demonstrated spontaneous occurrence of arteriosclerosis comparable to that in man. The susceptibility of this species to arteriosclerosis was further demonstrated when it was found possible to produce lesions consistently by including cholesterol in the feed. In contrast with other species, particularly the rabbit and dog, chickens and other birds acquire arteriosclerosis under natural conditions of diet and environment. It would seem, therefore, that the chicken is particularly well adapted for laboratory investigation of arteriosclerotic changes. S. Rodbard and others in 1951 attempted an evaluation of the effect of age and the ageing process on the susceptibility of chicks to arteriosclerosis when diets were supplemented with cholesterol. An interesting and unexpected discovery was that certain age periods in the life of the chick are characterized by greater susceptibility to an increase in blood cholesterol and the blood vessel lesions.

Diets of Older People. Sixteen female and four male patients in a Copenhagen hospital were noted to have oral changes at the time of investigation suggestive of poor nutrition. All the patients were bed-ridden or confined to wheel-chairs and were not urged or assisted in the taking of food. The average daily consumption of calories, protein, calcium, phosphorus, iron, vitamin A, thiamine, riboflavin, niacin, ascorbic acid and vitamin D were calculated and recorded for two one-week periods.

The records indicated deficient intakes of all the nutritional elements studied, although marked variations occurred in intake of different elements in the same person. Thus patients who preferred milk received nearly normal amounts of calcium and phosphorus but suffered inadequacy in their caloric intakes. Based on averages for the group, the most markedly deficient daily intakes were those of iron, thiamine, niacin and vitamin D. Most of these subjects obtained less than half the recommended minimum intake of these nutrients. Despite the extremely low iron intake only six patients had haemoglobin values below 80% of normal, the lowest value being 66%. Other sources of iron not mentioned by the author, such as drinking water, might well be considered in explaining this discrepancy. Slightly higher daily ingestion was recorded for protein, calcium, phosphorus, vitamin A and riboflavin, but vitamin C intake alone approached the minimal requirements. Caloric intake varied from 635 to 1,376, the averages for women and men being 1,037 and 1,332 respectively.

A somewhat comparable study was conducted in Great Britain among 30 active, apparently well, older persons and 24 with various infirmities. The British patients appeared to have higher caloric intakes (1,934 to 2,313) than the Copenhagen patients, and protein ingested was only slightly reduced (more than 42 gm. in 80% of subjects). Markedly decreased intakes of vitamin C were found in the females in this study which contrasts with the nearly normal values found in the Copenhagen study. Vitamins A and D were also below minimum recommended levels, but vitamin B intakes were adequate in the British study as were calcium and phosphorus. While it should be emphasized that the patients studied in Copenhagen had pre-existing deficiency syndromes and were suffering from incapacitating diseases, the discrepancies in certain nutritional intakes such as vitamin C suggested wide differences in the diets offered. (F. J. S.; M. F. T.)

NUTS. Interest in edible pine kernels or "pignolias" as they are commonly called in the trade, continued to increase in several countries, especially the United States, during 1951. There are probably about a dozen and a half different kinds of edible pine kernel that are used as human food or as dessert nuts in different parts of the world. One of the best-known is the kernel of the Stone Pine (*Pinus pinea*), a native of southern Europe and Asia Minor and often cultivated. This pine is the source of the large quantities of pignolias that are collected in both Italy and Spain. In Italy, where the common name is *pinocchio*, the nuts are derived mainly from the coastal districts of Tuscany (shipped from Leghorn) and the maritime districts of the Marches and Abruzzi on the Adriatic. The 1949-50 crop was q.li. 32·43 as against q.li. 22·470 for 1948-49 and q.li. 11·150 for 1947-48, the season extending from October to March (q.li. *quintali*, metric quintals; 1 quintal 100 kg. or 1·968 cwt.). Only the better grades were exported. The kernels are much used in Italy especially in chocolate and confectionery. In Spain, where the name is *pinones*, the better grades of this pine kernel are produced in the south, notably the Huelva district.

In the southwestern United States there are some half dozen different kinds or species of pine with edible seeds. These were important sources of food to the North American Indians long before the coming of the white man. Since World War II, with fats and proteins in short supply and supplies of European "pignolias" more restricted, greater attention had been paid to these wild American nuts and the possibility of their being exploited more fully. The two-leaved nut pine (*Pinus edulis*) was considered to be the best. In New Mexico it was estimated that good stands of this pine should yield 10,000 lb. of nuts a square mile, allowing

for the picking of one nut in four. Some trees yielded 40 lb. of nuts in a season. A skilled collector might collect 20 lb. of nuts a day. Experiments in semi-cultivation in New Mexico resulted in larger and better nuts. With the development of the new industry machine shellers, capable of yielding 200 lb. of kernels or meats an hour, were produced. The breakage and loss was not more than ½% and the machines could be operated by inexperienced labour. The nuts are first tumbled in sawdust to remove dust and then screened into four sizes and sterilized by live steam. After shelling the kernels are picked over by hand to remove any uncracked nuts or discoloured kernels and then dried in a rotary oven preparatory to packaging in cellophane and boxing for the retail trade. Oil roasting may also be carried out under careful temperature control. The kernels are satisfactory for use in confectionery. (F. N. H.)

NYASALAND. British protectorate in central Africa. Area: (incl. lakes) 47,900 sq.mi.; (land only) 36,800 sq.mi. Pop.: (1945 census) 2,049,917, incl. 1,948 Europeans; (1950 est.) 2,460,000, incl. 4,000 Europeans and 4,800 Asiatics. Religion: pagan, with Christian minority. Chief towns: Zomba (cap.), Blantyre, Limbe. Administration: governor; executive council, 3 *ex-officio* and 4 nominated members; legislative council, 9 official and 9 unofficial nominated members (7 European, 1 Asiatic and 1 African). Governor, Sir Geoffrey Colby.

History. Nyasaland celebrated its diamond jubilee as a protectorate on May 15. A ceremonial parade was held in Zomba and a special issue of stamps made. African opinion was strongly opposed to the proposals for a federation of the Rhodesias and Nyasaland produced by a conference of officials in London and discussed at Victoria Falls in September (*see* SOUTHERN RHODESIA).

Education. European schools (1950) 5 (attendance 281); Asian and coloured 9 (attendance 645); African 4,184 (attendance 134,931).

Finance and Trade. Currency: sterling, with Rhodesian silver coinage. Budget (1950 actual): revenue £2,343,593, expenditure £3,235,677; (1951 est.) revenue £3,900,900, expenditure £3,865,543. Foreign trade (1950): imports £7,543,323; exports £5,052,061. Principal exports (1950 values): tobacco £2,766,731, tea £1,690,712.

Communications. Roads (1948) 4,000 mi.; railways 316 mi. (G. R. MN.)

NYLON: *see* RAYON AND SYNTHETIC FIBRES.

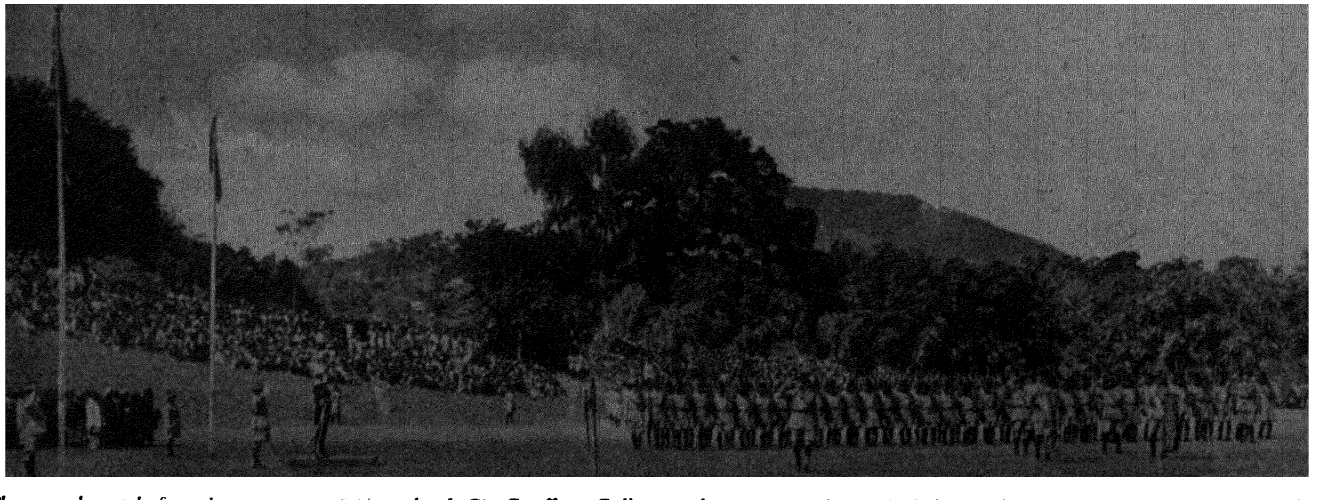
OATS: *see* GRAIN CROPS.

OBITUARIES: The following is a selected list of prominent men and women who died during 1951:—

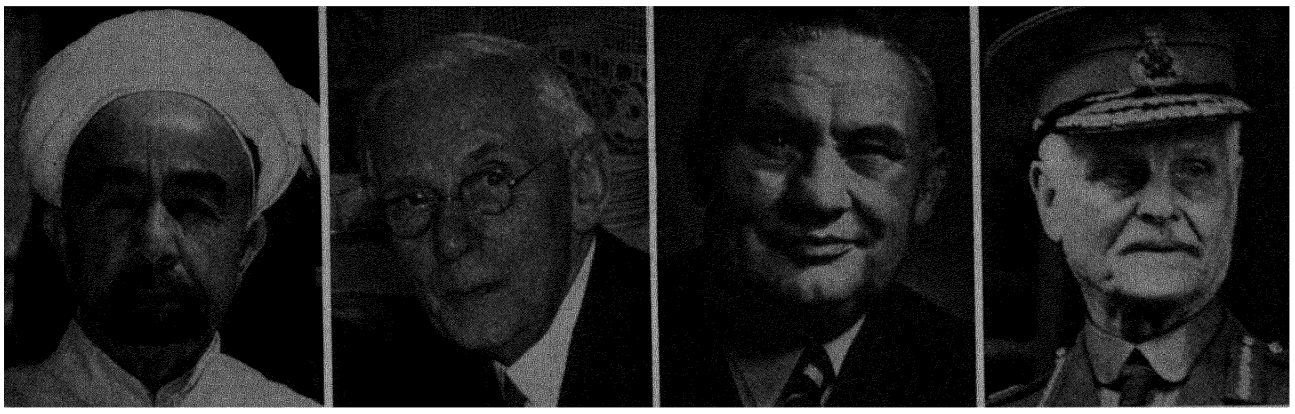
Abdullah ibn Hussein, king of Jordan (b. Mecca, 1882—d. [assassinated] Jerusalem, July 20), the second son of King Hussein of Hejaz, joined his father in exile in Istanbul in 1893 and in 1907 was a member of the Ottoman parliament. He participated in the Arab revolt which started in June 1916. His father's unauthorized assumption of the title of "King of the Arab countries" was not viewed with favour by Ibn Sa'ud, king of Nejd. The estrangement between the two rulers resulted in a territorial dispute on the Hejaz-Nejd border. In May 1919 the Hejaz forces under Abdullah were annihilated by Ibn Sa'ud's army. In March 1921, when Transjordan was separated from Palestine, Winston Churchill, then secretary of state for the colonies, proposed that Abdullah should rule the new country as emir under British mandate. On May 25, 1946, he was crowned king of the Hashimite Kingdom of Transjordan. On May 15, 1948, he declared war on Israel, but his British-trained army failed to justify its reputation; an armistice was signed with Israel on April 3, 1949. On April 24, 1950, Abdullah announced in a speech from the throne the annexation of Arab Palestine to Jordan. He had interested himself particularly in plans for bringing about a union between Jordan, Syria and Iraq, the so-called "fertile crescent" scheme, but he encountered much opposition both in Damascus and in Baghdad. Abdullah was well known as a man of culture and taste and a loyal friend of Great Britain.

Adams, Samuel Vyvyan Trerice, British lawyer and politician (b. Coton, near Cambridge, April 22, 1900—d. [drowned] Gunwalloe Church Cove, near Helston, Cornwall, Aug. 13), was called to the bar in 1927. He was National Unionist M.P. for West Leeds, 1931-45. He wrote widely on politics.

Addison, Christopher Addison, 1st Viscount, of Stalinbrough, Lincolnshire, British surgeon and politician (b. Hogsthorpe, Lincolnshire, June 19, 1869—d. West Wycombe, Buckinghamshire, Dec. 11), was educated at Trinity college, Harrogate, Yorkshire, and at St. Bartholomew's Hospital Medical college, London. He was subsequently an anatomy lecturer at "Bart's," professor of anatomy at University college, Sheffield, and, in 1901, Hunterian professor at the Royal College of Surgeons, London. He was also editor of Ellis's *Demonstrations of Anatomy* (12th ed.) and, for some years, of the *Quarterly Medical Journal* (London). In 1948 he was chairman of the Medical Research council. In 1910 he had been elected Liberal M.P. for Hoxton, London. He was parliamentary secretary, Board of Education, 1914-15, and when David Lloyd George became minister of munitions he chose Addison as his under secretary; when in 1916, his chief became prime minister, Addison succeeded him as minister of munitions, and in the same year was sworn of the Privy Council. In 1917 he served as minister in charge of postwar reconstruction. When the Lloyd George government was overwhelmingly returned to power in 1918, Addison became president of the Local Government board and, on that department's reconstitution as the Ministry of Health, was appointed its first minister. He then promoted an ambitious state-subsidized housing scheme which raised an outcry against the heavy burden upon the taxpayer it would involve and strained the hitherto close relations between himself and Lloyd George. In 1921 Addison was transferred to a ministry without portfolio and in the same year he resigned from the government altogether. In 1922 he transferred his allegiance to the Labour party; in the same year he published *The Betrayal of the Slums* and, in 1926, *Practical Socialism*. In the 1929 general election Addison was returned for Swindon, Wiltshire, in the Labour interest, and the new prime minister, Ramsay MacDonald, appointed him successively parliamentary secretary to the Ministry of Agriculture and Fisheries (1929-30) and minister of agriculture and fisheries (1930-31). In the 1931 general election he lost his seat, but regained it at a by-election in 1934, only to lose it again at the 1935 general election. In 1934 he had published his diary, *Four and a Half Years*, covering June 1914 to Jan. 1919. In 1937 he was created a baron, and when the Labour party was returned to power in 1945 he was elevated to a viscountcy and appointed dominions secretary, remaining in charge when his department became the Commonwealth Relations



The marchpast before the governor of Nyasaland, Sir Geoffrey Colby, at the ceremonial parade held in Blantyre, May 15, 1951, to mark Nyasaland's diamond jubilee as a British protectorate.



King Abdullah *Viscount Addison* *Ernest Bevin* *Lord Birdwood*

office in 1947; he led the British delegation at the Canberra talks on the Japanese peace treaty. In the same year, however, he asked to be relieved of some of his duties because of his heavy responsibilities as leader of the House of Lords, and he was appointed lord privy seal. In 1948-49 he was paymaster general. When in March 1951 Herbert Morrison became foreign secretary, Addison succeeded him as lord president of the council. He was created a K.G. in 1946.

Aitken, Robert Grant, United States astronomer (b. Jackson, California, Dec. 31, 1864—d. Berkeley, California, Oct. 29), was professor of mathematics and astronomy at the College of the Pacific, Stockton, California, from 1891 to 1895. In the latter year began his life-long association with the Lick observatory, Mount Hamilton, California, at which he was assistant astronomer (1895-1907) and astronomer (1907-35); he was associate director of the observatory, 1923-30, director, 1930-35, and emeritus director and astronomer from 1935. Much of his work was on double-star systems, of which he discovered 3,103; among his publications were *Observations of Double Stars* (1914), *The Binary Stars* (1918; 2nd ed., 1935) and a *New General Catalogue of Double Stars within 120° of the North Pole* (1932). In 1932 Aitken was George Darwin lecturer to the Royal Astronomical society, London, and was awarded the society's gold medal.

"Alain" (pseudomym of EMILE-AUGUSTE CHARTIER—from Alain Chartier, French poet and political writer, *c.*1392-*c.*1430), French writer (b. Mortagne, Orne, March 3, 1868—d. Le Vésinet, near Paris, June 2), published about 50 books of which the best known were *Mars ou la guerre jugée* (1921), *Propos sur le Christianisme* (1924) and *Les Eléments d'une doctrine radicale* (1925). His outlook was dominated by sceptism, resignation and pacifism and he was a considerable influence on French intellectuals and politicians. Although he continued to write in the *Nouvelle Revue Française* when it came under German control, he was awarded the Grand Prix National des Lettres in May 1951.

Alderson, Sir Edward Hall, British lawyer and parliamentary officer (b. Dunedin [?], New Zealand, June 2, 1864—d. Tunstall, Suffolk, March 7), was called to the bar in 1890 and joined the southeastern circuit. In 1895 he became private secretary to the lord chancellor, Lord Halsbury. He was reading clerk, House of Lords, 1900-17, clerk-assistant, 1917-30, and clerk of the parliaments, 1930-34. He was created K.B.E. in 1925 and K.C.B. in 1931.

Altamira y Crevea, Rafael, Spanish historian and jurist (b. Alicante, Spain, Feb. 10, 1866—d. Mexico City, June 1), was professor of the history of Spanish law in the University of Oviedo from 1897 to 1910 and was professor of the history of political and civil institutions in America in the University of Madrid from 1914 to 1936. From 1922 to 1946 he was a judge of the Permanent Court of International Justice at The Hague. A republican, he did not return to Spain after the civil war, accepting instead a chair at the National University of Mexico. His principal works were *Historia de España y de la civilizacion española* (4 vol., 1900-11) and *Psicologia del pueblo español* (3rd ed., 1945).

Amelia (MARIE-AMÉLIE-LOUISE-HÉLÈNE DE BOURBON-ORLÉANS), ex-queen of Portugal (b. Twickenham, Middlesex, Sept. 28, 1865—d. Le Chesnay-Versailles, France, Oct. 25), was the daughter of Louis-Philippe-Albert, Comte de Paris, pretender to the throne of France, and of Isabella, an infanta of Spain. English in her upbringing, she married at Lisbon, on May 22, 1886, Dom Carlos, Duke of Braganza, who, from Oct. 19, 1889, was King Carlos I of Portugal. The marriage ended tragically when her husband and her elder son, Luiz, were assassinated at Lisbon on Feb. 1, 1908. Her younger son, Manoel, Duke of Beja, ascended the throne of Portugal as King Manoel II, but the republican revolution of Oct. 3, 1910, forced him to flee the country. Queen Amelia took refuge with her son at Twickenham, but after World War I lived in retirement in France. At the invitation of the Portuguese government she revisited Portugal in 1945. On Nov. 29 her remains were conveyed by a Portuguese warship to rest beside those of her husband at the pantheon of St. Vincent in Lisbon.

Ancaster, Gilbert Heathcote-Drummond-Willoughby, 2nd Earl of, British peer and politician (b. July 29, 1867—d. Bourne, Lincolnshire, Sept. 19), was Conservative M.P. for the Horncastle division, Lincolnshire, from 1894 to 1910 when he succeeded to the earldom. From 1937 he was joint hereditary lord great chamberlain of England but in 1950 he resigned in favour of his son, Lord Willoughby de Eresby.

Andrews, Sir James, 1st baronet, Northern Ireland judge (b. Comber, Co. Down, Jan. 3, 1877—d. Comber, Feb. 18), was called to the Irish bar in 1900 and joined the northeast circuit. He took silk in 1918 and when the Northern Ireland judiciary was set up in 1921 was appointed a lord justice of appeal. He became lord chief justice of Northern Ireland in 1937. He was created a baronet in 1942.

Badeley, Henry John Fanshawe Badeley, 1st Baron, of Badley, Suffolk, British peer and parliamentary officer (b. Elswick, Northumberland, June 27, 1874—d. London, Sept. 27), entered the Parliament office in 1897. He was clerk-assistant, 1930-34, and clerk of the parliaments from 1934 to 1949 when he was created a baron. In 1914 he was elected a fellow of the Royal Society of Painter-Etchers and Engravers, of which he was honorary secretary, 1911-21.

Barnes, Albert Coombs, United States art collector (b. Philadelphia, 1872—d. near Philadelphia, July 24), made a fortune from the development of an antiseptic and from about 1913 devoted himself mainly to connoisseurship. His collection of over 1,400 pieces included 200 Renoirs, 100 Cézannes, 75 Matisses and 35 Picassos. He also set up the Barnes foundation at Merion, Pennsylvania, to promote art historical studies.

Bates, Daisy, Australian writer (b. Tipperary, Ireland, 1861—d. Adelaide, April 19), was commissioned by the London *Times* in 1899 to write a series of articles on alleged cruelties to the natives in northwestern Australia. During her investigations Mrs. Bates resolved to devote her life to the interests of the natives. She became known as *Kabbarli* or "grandmother" to thousands of aborigines and was admitted to their secret religious rites, from which even native women were banned. She was awarded the C.B.E. in 1933. In 1939 she published *The Passing of the Aborigines*.

Beamish, Tufton Percy Hamilton, British rear admiral and politician (b. July 26, 1874—d. Haywards Heath, Sussex, May 2), entered the cadet ship "Britannia" in 1888. He commanded the battle cruiser "Invincible" at the battle of the Falkland islands (1914) and the light cruiser "Cordelia" at the battle of Jutland (1916). He was Unionist M.P. for Lewes, 1924-31 and 1936-45.

Besse, Antonin, French shipowner and college benefactor (b. Carcassonne, Aude, France, June 26, 1877—d. Elgin, Moray, July 2), accumulated great wealth in the middle east as a merchant and shipowner. In 1948 gave £1·25 million for the establishment of a new college in Oxford university, St. Antony's (opened 1950), stipulating that a proportion of French students should be included on the foundation. Besse was created an honorary K.B.E. in 1951.

Bevin, Ernest, British statesman (b. Winsford, Somerset, March 9, 1881—d. London, April 14), son of an agricultural labourer, worked as a farmer's boy, a van boy, a tram conductor and a van driver, and became a trade union organizer. He was a national organizer of the Dockers' union in 1913 and in 1920, as assistant general secretary, he achieved fame as "the dockers' K.C." when he successfully conducted their case before a wage tribunal set up by the government. In 1921 he became secretary of the great Transport and General Workers' union of which he was the creator. From 1925 to 1940 he was a member of the general council of the Trades Union congress and in 1937 was its chairman. During this period of his life he made numerous journeys abroad on international trade union business. In May 1940 he became minister of labour in Winston Churchill's coalition government and entered the House of Commons as M.P. for Central Wandsworth. He became secretary of state for foreign affairs in the Labour government in July 1945. Although his formal equipment for such a task, at this critical time, was slight, he faced it with characteristic courage and shrewdness, showing an immediate grasp of the problems involved. He was present at the Potsdam conference in July-Aug. 1945, where he met Joseph Stalin; he went to Moscow in Dec. 1945 to attend the "Big Three" foreign ministers' conference and returned there in March 1947 to take part in a "Big Four" council of foreign ministers. Until then Bevin had hoped that peace could be achieved through the friendly co-operation of the western powers with the U.S.S.R. and that a German peace treaty, reuniting the four occupation zones, was possible. In the summer of 1947, however, the Soviet veto against the use of Marshall aid by the Soviet-controlled European countries and Vyacheslav Molotov's refusal at the London meeting of the Council of Foreign

Ministers (Nov.-Dec. 1947) to abandon the Soviet plan of a highly centralized Germany closely tied to the U.S.S.R. finally convinced Bevin that he had been too optimistic; political, military and economic co-operation of the free nations of Europe was the only alternative. At Brussels, on March 17, 1948, he signed a treaty of alliance with France, Belgium, the Netherlands and Luxembourg. In Paris, on April 16, he presided over the signature of a convention creating the Organization for European Economic Co-operation. In Washington, on April 4, 1949, Bevin signed the North Atlantic treaty. Having changed his course in 1947, he pursued the new one with determination and his place in history will be that of an architect of the Atlantic community. In other parts of the world his decisions were criticized: he could not bring Israel and the Arab states to terms; the recognition of the Chinese Communist government (Jan. 6, 1950), his last important decision, was regarded by some as precipitate. In his last year of office Bevin's activity was reduced by poor health. On three occasions during 1950 he underwent surgical treatment. In September of that year he attended a meeting of the North Atlantic Treaty council in Washington and addressed the U.N. general assembly at Flushing Meadow, New York. Bevin spoke for the last time in the House of Commons on Dec. 14, 1950. On March 9, 1951, he resigned and was appointed lord privy seal.

Birdwood, William Riddell Birdwood, 1st Baron, of Anzac, and of Totnes, Devon, British field marshal (b. Kirkee, Bombay presidency, India, Sept. 13, 1865—d. London, May 17), was educated at Clifton college, Bristol, and at the Royal Military college, Sandhurst, Berkshire, and was gazetted to the Royal Scots Fusiliers in 1883, but transferred to the 12th Lancers in 1885 and the 11th Bengal Lancers in 1887. From 1899 to 1902 he served in the South African War with the Indian contingent and on Lord Kitchener's staff. In 1902 he returned to India and subsequently commanded the Kohat brigade in the North-West Frontier province (1909-12), was quartermaster general (1912) and secretary to the Army department (1912-14). From 1914 to 1918 he was general officer commanding the Australian and New Zealand Army corps; he led them in 1915 during their gallant but abortive landings on the Gallipoli peninsula where he commanded all the allied troops during the subsequent evacuation. He later commanded the entire Australian Imperial force in the Mediterranean and in France (1915-20) and from May 1918 was g.o.c. in c., British 5th army in France. In 1917 he had been promoted general and from that year until 1922 was A.D.C. general to the King. In 1919 he received the thanks of parliament, a grant of £10,000 and a baronetcy; in 1920 he was appointed honorary general in the Australian army and became g.o.c. in c., Northern army, India. From 1925, when he was promoted field marshal, until 1930, he was c. in c., India. From 1931 to 1938 he was master of Peterhouse, Cambridge, of which college he had been elected an honorary fellow in 1920; he recorded his experiences in his autobiography *Khaki and Gown* (1941) and its companion *In My Time: Recollections and Anecdotes* (1945). In 1935 Birdwood was appointed to the captaincy of Deal Castle and in 1938 was elevated to the peerage.

Blackwood, Algernon Henry, British novelist and short story writer (b. Kent, 1869—d. London, Dec. 10), was educated in France and Switzerland, at a Moravian Brotherhood school in the Black Forest, at Wellington college, Berkshire, and at Edinburgh university. At 20 he was sent to Canada, worked for a time as a children's writer for the *Canadian Methodist Magazine* (Toronto) and was by turns unsuccessful dairy farmer and hotelier, losing most of his money at the hands of swindlers. He drifted to New York, had a series of strange experiences later to be recounted in his *Episodes before Thirty* (1923) and joined the New York *Sun* as a reporter; then, after a period of gold prospecting, he joined the *New York Times*. His first book, *The Empty House*—laid aside by Blackwood but submitted to a publisher by a friend—appeared in 1906. Blackwood subsequently won a considerable reputation as a writer of macabre and supernatural fantasies, at first in the tradition of Poe, then in a more individual style. Among his works were *Jimbo* (1909) and *The Human Chord* (1910), both child-fantasies, *Incredible Adventures* (1914), *The Dance of Death* (1928), *Shocks* (1935) and *Tales* (1939). Large selections of his stories were published as *The Tales of Algernon Blackwood* (1938) and *Tales of the Uncanny and Supernatural* (1949). Blackwood broadcast frequently and latterly appeared successfully on television; he also wrote two or three plays.

Blamey, Sir Thomas Albert, Australian field marshal (b. Wagga Wagga, New South Wales, Jan. 24, 1884—d. Melbourne, May 27), was trained as a teacher but in 1906 joined the Australian permanent force. He later served in India and England and, during World War I, in Egypt, at Gallipoli and in France. In 1918 he became chief of staff of the Australian corps on the western front; his order to the Australians at the start of the final allied offensive became a model for instruction at military schools and staff colleges. In 1919 he was chief of staff, Australian Imperial force. He was second chief of general staff, Australian Commonwealth Military forces, 1923-25, and chief commissioner of police, Victoria, 1925-37. From 1931 to 1937 he also commanded the 3rd Australian division and in 1939-40 was general officer commanding, 6th division, A.I.F. He became g.o.c., 1st Australian corps in the middle east, in 1940 and was appointed deputy c. in c., middle east, under Lord Wavell in 1941; as such he was in charge of the ill-starred expedition to Greece. In 1942-45 he was c. in c., allied land forces, southwest Pacific area, under General Douglas MacArthur, and received the surrender of the Japanese in that theatre in Sept. 1945. Blamey had been knighted in 1935, was created K.C.B. in 1942 and G.B.E. in 1943, and in 1950 became the first Australian field marshal.

Bohr, Harald, Danish mathematician (b. Copenhagen, April 22, 1887—d. Copenhagen, Jan. 22), the brother of the eminent physicist Niels Bohr, was professor at the University of Technology, Copenhagen, 1915-30, and professor of mathematics at the University of Copenhagen from 1930. Before about 1923 his work was chiefly in conformal geometry; in 1923-25 he evolved the theory of "almost periodic functions," the development of which occupied most of the remainder of his life.

Bonomi, Ivanoe, Italian statesman (b. Mantua, 1873—d. Rome, April 20), one of the founders of the Italian Socialist party in 1892, was elected deputy in 1909, but in 1912 was expelled from the party because he supported the Libyan war. In the same year, together with Leonida Bissolati-Bergamaschi, he founded the Socialist Reformist party which at the outbreak of World War I declared itself interventionist, whereas the "official" Socialist party was neutral. He was a minister in the Boselli cabinet (1916) and the Orlando cabinet (1919), and minister of war and later minister of the treasury in the Giolitti cabinet (1920-21). In July 1921 he became prime minister but had to resign in Feb. 1922. Being anti-Fascist he was soon forced to retire from politics, not reappearing again until the German occupation of Rome in Sept. 1943, when he became head of the Roman Committee of National Liberation. From June 9, 1944, to June 12, 1945, he led two successive provisional governments. In 1948 he was elected president of the Senate.

Boyes, John, British adventurer (b. Hull, 1874—d. Nairobi [?], July 19), traded gin and gunpowder up the Niger river in his youth and later went to South Africa, trekked to Bulawayo and took part in the Matabele war. He sailed to East Africa in an Arab dhow and for a time was captain of the sultan of Zanzibar's ship. Boyes became blood-brother to several Kikuyu chiefs, fighting for them in their tribal wars and becoming known as "King of the Wakikuyu." He was charged with waging war and impersonating the government; he arrived for trial in the company of 300 Kikuyu warriors and was acquitted. After serving in World War I, he began coffee-farming.

Bridie, James (Osborne Henry Mavor), British dramatist and physician (b. Pollokshields, Glasgow, Jan. 3, 1888—d. Edinburgh, Jan. 29), was educated at Glasgow High school, the Glasgow academy and Glasgow university. After serving in World War I in the R.A.M.C. he went into general practice in Glasgow; in 1923 he set up as a consultant and for a time held a chair at the Anderson College of Medicine. He had begun to write plays as an undergraduate; in 1928 *The Sunlight Sonata* was produced commercially in Glasgow. *The Anatomist* (1930), the first of his plays to be put on in London, achieved considerable success there in 1931. *A Sleeping Clergyman* (1933) was produced at the Malvern festival and later ran for nine months in London. Among his other successful plays were *Tobias and the Angel* (1930), *Mary Read* (written jointly with Claud Gurney in 1934), *Susannah and the Elders* (1937), *Mr. Bolfry* (1943), *Dr. Angelus* (1947) and *Daphne Laureola* (1949). His last work was *The Queen's Comedy*, written for the 1950 Edinburgh festival. His plays were often criticized for their bewildering inconclusiveness, but he gave to the theatre a procession of highly entertaining comedies, unconventional in their treatment of character, and full of bizarre situations and rich humour. Bridie also wrote an autobiography, *One Way of Living* (1939), and other books.

Broom, Robert, South African palaeontologist (b. Paisley, Renfrew, Nov. 30, 1866—d. Pretoria, April 6), was educated at Glasgow university and arrived in South Africa in 1897. Much of his research was conducted in his spare time while practising medicine, but from 1903 to 1910 he was professor of geology and zoology, Victoria college (later the university), Stellenbosch, Cape Province, and from 1934 was keeper of vertebrate palaeontology and anthropology, Transvaal museum, Pretoria. His most notable work was on the "missing link"—the hypothetical creature relating ape-man and man proper; this work was based on Raymond Dart's discovery of the ape-child (*Australopithecus*) skull at Taungs, Bechuanaland, in 1924 and Broom's own discovery of similar adult skulls at Sterkfontein (1936), Kromdraai (1938) and elsewhere. His discoveries were recorded in *The South African Fossil Ape-Men* (written jointly with G. W. H. Schepers, 1946), *Sterkfontein Ape-Man Plesianthropus* (with J. T. Robinson and Schepers, 1950) and *Finding the Missing Link* (1950). Broom also did important work on the reptilian origin of mammals, described in his book *The Mammal-like Reptiles of South Africa* (1932). He was elected F.R.S. in 1920.

Browne, Arthur Heber, Anglican bishop (b. 1864—d. Hamilton, Bermuda, June 10), was ordained in 1887. He was consecrated first bishop of Bermuda in 1925 and retired in 1948.

Buck, Sir Peter Henry (Te Rangi Hiroa), New Zealand physician, politician and anthropologist (b. Urenui, Taranaki, New Zealand, Aug. 15, 1880—d. Honolulu, Hawaii, Dec. 1), the son of an Irishman, W. H. Buck, and his Maori wife Ngarongo-ki-tua, was educated at Te Aute college and at the University of Otago medical school. He was appointed medical officer of health to the Maoris in 1905, and was M.P. for the Northern Maori constituency and Maori representative in the New Zealand cabinet, 1909-14. He served in World War I in Egypt, Malta, Gallipoli, France and Belgium, and from 1919 to 1927 was director of Maori hygiene in New Zealand. For some time his devotion to Maori welfare had been broadening into an interest in the culture and anthropology of the whole of Polynesia, and in 1927 he went to the Bernice P. Bishop museum, Honolulu, as an ethnologist. He was Bishop museum visiting professor of anthropology, Yale university, 1932-34, 1936 and 1939 (professor emeritus from 1949). In 1936 he became director of the Bishop museum. His many publications included: *The Evolution of Maori Clothing; Samoan Material Culture; Arts and Crafts of the Cook Islands; An Introduction to Polynesian Anthropology* (1945); and *The Coming of the Maori* (1949). Buck was created K.C.M.G. in 1946.

Burton-Chadwick, Sir Robert Burton, 1st baronet, British shipowner and politician (b. Birkenhead, Cheshire, June 20, 1869—d. London, May 27), was Unionist M.P. for Barrow-in-Furness, 1918-22, and for Wallasey, Cheshire, 1922-28, serving as parliamentary secretary

to the Board of Trade during the latter period. He was created a baronet in 1935.

Busch, Fritz, German-born orchestral conductor (b. Siegen, Westphalia, March 13, 1890—d. London, Sept. 15), studied at the Cologne Conservatory of Music and made his debut as a conductor at Bad Pyrmont in 1909. In 1909-10 he was conductor at the *Stadttheater*, Riga, Latvia. From 1912 to 1918 (apart from military service in 1914) Busch was director of music at Aachen. After World War I he was successively musical director at the Stuttgart *Ländertheater* (1918-22) and the Dresden *Staatsoper* (1922-33); under his leadership the latter became one of the world's great opera houses. An incident at the opera house on March 7, 1933 was followed by a Nazi uproar and, after a violent quarrel with Hermann Göring, Busch resigned and left Germany. After a short period (Aug. 8-Oct, 20, 1933) as conductor at the Teatro Colón, Buenos Aires, he returned to Europe and became director of the Stockholm *Konsertföreningen* and the Copenhagen *Stratsradiofonie;* the latter he also built into a first-rate orchestra. Busch attained his greatest distinction as musical director, from its inception, of the Glyndebourne opera festival, inaugurated in 1934 by John Christie in a specially built theatre adjoining his Sussex home. When Copenhagen was overrun by the Germans in 1940 Busch again went to South America and to the United States where in 1946 he published his memoirs. In 1950 and 1951 he again conducted at Glyndebourne and in the latter year directed the opera programme at the Edinburgh festival.

Bustamante y Sirven, Antonio Sanchez de, Cuban jurist (b. Havana, Cuba, April 13, 1865—d. Havana, Aug. 24, 1951), was made a member of the Permanent Court of Arbitration at The Hague in 1908 and a judge of the Permanent Court of International Justice in 1921. In 1928 he was president of the sixth Pan-American conference, held at Havana, and was the author of a code of private international law adopted by that conference. He taught law for many years at the University of Havana and was the author of many works on international law. (*See* also *Encyclopædia Britannica.*)

Butler, Sir Harold Beresford, British labour relations expert (b. Oxford, Oct. 6, 1883—d. Reading, Berkshire, March 26), was educated at Eton college, Berkshire, and Balliol college, Oxford, and was a fellow of All Souls college, Oxford, 1905-12. He entered the civil service in 1907 and served with the Local Government board, the Home Office, the Foreign Office and the Ministry of Labour. He was largely responsible for the British memorandum to the 1919 Peace conference which formed the basis of part XIII of the Versailles treaty under which the International Labour office was set up in 1920. Butler became deputy to Albert Thomas, first director of the I.L.O., and from 1932 to 1938 was director. From 1939 to 1943 he was the first warden of Nuffield college, Oxford, but his work there was interrupted by war service, at first as civil defence commissioner for the southern region of England, 1939-41, then as minister in charge of British information services in Washington, 1942-46; in the latter year he was created K.C.M.G. After the war Butler worked for the success of the Council of Europe. Among his publications were *The Lost Peace* (1941), a study of the inter-war period, and his memoirs, *Confident Morning* (1950).

Cadbury, Dame Elizabeth Mary, British social worker (b. London, June 24, 1858—d. Birmingham, Dec. 4), married George Cadbury (1839-1922), co-founder of Bournville garden village, in 1888, and continued much of his work with characteristic vigour after his death in 1922, when she became chairman of the Bournville Village trust. She was a past president of the National Council of Women, a vice president of the National Liberal association and, in 1935, the first woman president of the National Council of Evangelical Free Churches. She was also actively associated with the Woodbrooke Quaker residential centre and the Selly Oak colleges, and with many of the affairs of the city and university of Birmingham. She had, except when abroad, attended every yearly meeting of the Society of Friends since 1863, and served on many Quaker national committees. She was created D.B.E. in 1934.

Caldecott, Sir Andrew, British colonial governor (b. Boxley, Kent, Oct. 26, 1884—d. Itchenor, Sussex, July 14), entered the Malayan civil service in 1907. In 1934 he became high commissioner for the Malay States. From 1935 to 1937 he was governor of Hong Kong, being created K.C.M.G. in the latter year. In 1937 he was appointed governor of Ceylon. He was promoted G.C.M.G. in 1941 and retired in 1944. In 1948 he was elected an honorary fellow of Exeter college, Oxford.

Campion, Sir William Robert, British politician (b. Hassocks, Sussex, July 3, 1870—d. Hassocks, Jan. 2), was Conservative M.P. for Mid-Sussex from 1910 to 1924. In the latter year he was created K.C.M.G. and appointed governor of Western Australia; he retired in 1931.

Carmona, Antonio Oscar de Fragoso, Portuguese army officer and statesman (b. Lisbon, Nov. 24, 1869—d. Lisbon, April 18), was a full general in 1922 when first brought into contact with politics as a member of a non-party cabinet in Nov.-Dec. 1923. After the military *coup d'état* of May 28, 1926, headed by a triumvirate composed of himself, General Gomes da Costa and Commander Mendes Cebeçâdas, he succeeded in removing his two colleagues. By July he was prime minister and on Nov. 26, 1926, he also assumed by decree the position of president of the republic. Confirmed as president by the plebiscite of March 25, 1928, for five years (prolonged to seven in 1933 in the accordance with constitution of that year), he was re-elected in 1935, 1942 and 1949. Meanwhile Antonio de Oliveira Salazar had become prime minister in 1932 and was Portugal's real leader. On May 28, 1947, Carmona was raised to the rank of first Marshal of Portugal.

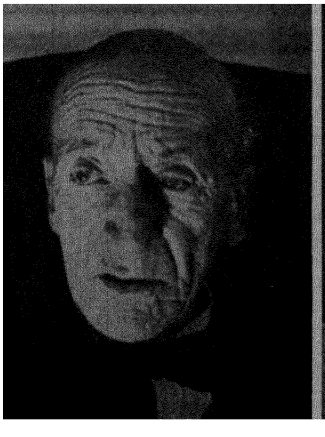
Carton de Wiart, Count Henry-Victor-Marie-Ghislain, Belgian lawyer and statesman (b. Brussels, Jan. 31, 1869—d. Brussels, May 6), entered politics as a member of the Catholic (later Social Christian) party; in 1896 he was elected a member for Brussels of the House of Representatives and was afterwards constantly re-elected. From 1911 to 1918 he served as minister of justice. In 1919 he was appointed minister of state and he served for a short period as minister to The Hague. He was prime minister and minister of the interior in 1920-21, minister of social welfare in 1933-34, minister without portfolio in 1949 and minister of justice in 1950. He was also a writer of distinction: *La cité ardente* (1904) and *Les vertus bourgeoises* (1910) gave him a European literary reputation. Until 1947 he was president of the Inter-Parliamentary union.

Cathcart, George Clark, British ear, nose and throat specialist and concert promoter (b. Edinburgh, June 21, 1860—d. Edinburgh, Jan. 4), studied at Naples under Scafati, one of the last *bel canto* teachers, in order to cure a stammer, before returning to Edinburgh to study medicine. He founded the London Promenade concerts in 1894 and was responsible for the appointment of the young Henry J. Wood as their conductor. His intention in establishing the concerts was to prevent voice strain, by using instruments tuned to French pitch instead of the customary high concert pitch.

Cheatle, Sir (George) Lenthal, British surgeon (b. Belvedere, Kent, June 13, 1865—d. Bushey Heath, Hertfordshire, Jan. 2), was an authority on cancer pathology. His extensive researches in the field of breast tumours were recorded in *Tumours of the Breast* (written jointly with Max Cutler in 1931). He served in the South African War and, as a surgeon rear admiral, in World War I; in 1918 he was created K.C.B. Cheatle was on the staffs of King's College hospital and medical school, London, from his qualifying year, 1887, until 1930. In 1919 he had been elected a fellow of King's college.

Cheyney, Peter (REGINALD EVELYN PETER SOUTHOUSE-CHEYNEY), British novelist (b. London, Feb. 22, 1896—d. London, June 26), worked for a time as a law clerk and an actor. After serving in World War I, during which he also published two volumes of poetry, Cheyney worked as a journalist until 1934. During this period he published several books including *La Dernière Enquête de l'Inspecteur Ralston* (1926) and, as early as 1932, set up the Cheyney Research organization, not only to market his books, but also to keep abreast of developments in crime and its detection. It was not until 1936, however, that he published *This Man is Dangerous*, his first successful crime novel. From 1937 until his death he wrote over 30 books of which perhaps the best-known were *Dames Don't Care* (1937), *It Couldn't Matter Less* (1941), *Sorry You've Been Troubled* (1942), *You Can Always Duck* (1943) and *Dance Without Music* (1947).

Chifley, Joseph Benedict, Australian statesman (b. Bathurst, New South Wales, Sept. 22, 1885—d. Canberra, June 13), was educated at the Patrician Brothers' High school, Bathurst. He worked for a time in a store, then joined the N.S.W. railways and became prominent



Algernon Blackwood



Dame Elizabeth Cadbury



Marshal Antonio Carmona



Joseph Benedict Chifley

in the Railway Locomotive Engine-Drivers' union. In 1928 he was elected representative of Macquarie (the Bathurst constituency) in the federal House of Representatives and from 1929-32 he was minister for defence. But he had lost his parliamentary seat in the election of 1931 and did not return to the house until 1940. In 1941 the Labour party returned to power: Chifley was appointed Commonwealth treasurer and in 1942 was given an additional portfolio, postwar reconstruction. In April 1945, during the illness of the prime minister, John Curtin, Chifley acted for him and on Curtin's death (July 5) he succeeded to the Labour party leadership, and (on July 13) to the post of prime minister. He was confirmed in power in the 1946 elections, but his government's policy of nationalizing the private banks and the increasing labour unrest led to the defeat of the Labour party in 1949, when Chifley was succeeded as prime minister by Robert Menzies. Chifley had been sworn of the Privy Council in 1945.

Clerk, Sir George Russell, British diplomat (b. Kussowlie, India, Nov. 29, 1874—d. London, June 18), was appointed a clerk in the Foreign Office in 1889. From 1903 to 1907 he served at the British agency at Addis Ababa, and in 1913 at Constantinople. Early in 1917 he went to Petrograd with Lord Milner's mission, and in 1919 was special delegate from the peace conference on missions to Bucharest and Budapest. From 1919 to 1926 he was the first British minister to the newly formed Czechoslovak republic. In 1926 he became ambassador to Turkey. Late in 1933 he was transferred to Brussels but in March of the following year was appointed ambassador in Paris. He retired in 1937. In 1917 he had been created K.C.M.G., being promoted G.C.M.G. in 1929. He was also a *grand officier* of the Legion of Honour. In 1926 he had been sworn of the Privy Council. He was elected an honorary fellow of New college, Oxford, in 1937.

Clovese, Joseph, U.S. soldier (b. Louisiana, Jan. 30, 1844—d. Dearborn, Michigan, July 13), was born in slavery and later ran away to join the Union army as a drummer at the siege of Vicksburg. He was the last surviving Negro member of the Union army in the Civil War.

Cochran, Sir Charles Blake, British impresario (b. Lindfield, Sussex, Sept. 25, 1872—d. London, Jan. 31), was educated at Eastbourne and at the Brighton, Hove and Sussex Grammar school, where he shared a study with Aubrey Beardsley, and was articled to a Brighton surveyor. However, in Aug. 1890 he obtained a part with a repertory company at Dover, was dismissed after one performance, went to the United States later that year and, for the next three, played in touring companies without much success. After periods as secretary to the actor Richard Mansfield and as joint proprietor of a New York drama school, he returned to London in 1897 and later set up as a theatrical agent. His first theatrical production in London, *Sporting Simpson* (1902), did not win him much applause, but he enjoyed increasing success in managing other entertainments, acting at various times for Mistinguett, Harry Houdini the "escapist," the wrestler Georges Hackenschmidt and many others; he also promoted boxing and "crazes" like roller-skating, and was responsible for such lavish spectacles as *The Miracle* (Olympia, London, 1911). During World War I he began a long series of revues and light shows with which his name is especially associated. In 1917 he also put on Eugène Brieux's sociological plays *Damaged Goods* and *The Three Daughters of M. Dupont*. Between the wars, Cochran was virtually the leader of the popular entertainment world. At the London Pavilion his series of revues included *London, Paris and New York* (1920), *This Year of Grace* (1928), by Noel Coward, and "Cochran's Revues" of 1926, 1930 (by Beverley Nichols and Vivian Ellis) and 1931 (by Noel Coward). Cochran and Coward collaborated in other productions including, in 1931, *Private Lives* and the famous *Cavalcade*. At the Adelphi theatre, *Ever Green* (1930), *Helen!* (1932), by A. P. Herbert, and *Nymph Errant* (1933) were Cochran's most memorable productions. He also brought to London the Diaghilev ballet, the Chauve-Souris and many other well-known companies and personalities, including Sarah Bernhardt, Eleonora Duse and Fyodor Chaliapin. After World War II he was responsible for the production of a number of musical shows by A. P. Herbert and Vivian Ellis—*Big Ben* (1946), *Bless the Bride* (1947) and *Tough at the Top* (1949). At one time Cochran had seven plays running simultaneously in London; altogether he produced 128 plays and revues there, as well as several in New York. In 1948 he was knighted. Cochran wrote four books of memoirs including *Cock-a-doodle-do* (1941) and *A Showman Looks On* (1945).

Cochrane of Cults, Thomas Horatio Arthur Ernest Cochrane, 1st Baron, British politician (b. April 2, 1857—d. Cupar, Fifeshire, Jan. 17), was Unionist M.P. for North Ayrshire, 1892-1910; he was parliamentary private secretary to Joseph Chamberlain and from 1902 to 1905 was under secretary of state for the Home department. He served in South Africa and World War I and was made a peer in 1919.

Crooke, Sir (John) Smedley, British politician (b. Matlock, Derbyshire, Dec. 24, 1861—d. Alvechurch, Worcestershire, Oct. 12), was Unionist M.P. for the Deritend division, Birmingham, 1922-29 and 1931-45. He was prominent in various ex-servicemen's organizations and in 1938 was knighted.

Dawes, Charles Gates, U.S. lawyer, businessman and politician (b. Marietta, Ohio, Aug. 27, 1865—d. Evanston, Illinois, April 23), studied at the Cincinnati Law school, was admitted to the bar in 1886 and practised in Lincoln, Nebraska, until 1894. He entered Republican politics as Illinois campaign manager for President William McKinley in 1896, and was comptroller of the currency in the McKinley administration from 1898 to 1902. He then went into banking in Chicago. Dawes served in World War I and, returning to the U.S. after the armistice, he advocated U.S. ratification of the Versailles treaty and membership of the League of Nations, despite his party's opposition to both. In 1923 he was appointed to a commission on German war reparations. The result was the "Dawes Plan," which called for a restoration of sound currency in Germany as a prerequisite for reparations payments and advocated more realistic scales of payment. For this effort he was awarded the Nobel peace prize in 1925, jointly with Sir Austen Chamberlain, the British foreign secretary. From 1925 to 1929 Dawes was vice president of the United States, in the Republican administration of President Calvin Coolidge. He was U.S. delegate to the London Naval conference in 1930, U.S. ambassador to Great Britain, 1929-32, and in 1932 was appointed president of the Reconstruction Finance corporation. He resigned in the same year and re-entered banking.

de Basil, Wasily (VASILY GRIGORIEVICH VOSKRESENSKY), Russian ballet impresario (b. Caucasus, Russia, 1886 [?]—d. Paris, July 27), was a colonel in the Imperial Russian army but after the Russian Revolution came to western Europe and was for a time manager to the pianist Vladimir Horowitz. In 1925 he joined Prince Tseretelli in the direction of the Russian Opera company, which appeared at the Lyceum theatre, London, with Fyodor Chaliapin in leading parts. From 1932 de Basil was co-director (and later was sole director) of the Ballets Russes de Monte Carlo which René Blum had formed after the death of Serghey Diaghilev. Under de Basil's direction this company became well-known in Europe and the United States; at various times it engaged such choreographers and dancers as Léonide Massine, Michael Fokine, George Balanchine, Irina Baronova and Tamara Toumanova.

Dickin, Maria Elizabeth, founder and honorary director of the Peoples' Dispensary for Sick Animals of the Poor (b. Shropshire [?], Sept. 22, 1870—d. London, March 1). Her first dispensary was opened in 1917 in an east London cellar and by 1951 her organization was conducting 74 dispensaries and 5 animal hospitals, and an ambulance and caravan-dispensary service in Great Britain, and had branches in Paris, Tangier, Cairo, Capetown, Johannesburg and Tokyo. Mrs. Dickin was appointed C.B.E. in 1948.

Dillwyn-Venables-Llewelyn, Sir Charles Leyshon, 2nd baronet, British civic official (b. June 29, 1870—d. Newbridge-on-Wye, Radnorshire, June 24), served on the Radnor County council for 55 years and was lord lieutenant of the county, 1929-49. He was Conservative M.P. for Radnorshire in 1911. He had succeeded to the baronetcy in 1890.

Dougherty, Dennis Joseph, U.S. cardinal (b. Girardville, Pennsylvania, Aug. 16, 1865—d. Philadelphia, May 31), was ordained in Rome on May 31, 1890. He was bishop of Nueva Segovia, Philippines, 1903-8, and of Jaro, Philippines, 1908-15. In 1915 he became bishop of Buffalo, New York. In July 1918 he was consecrated archbishop of Philadelphia, and on March 7, 1921, was created cardinal-priest.

Douglas, Lloyd Cassel, U.S. pastor and novelist (b. Columbia City, Indiana, Aug. 27, 1877—d. Los Angeles, Feb. 13), was ordained in the Lutheran ministry in 1903 and held Lutheran, Congregational and United Church pastorates in the United States and Canada; from 1911 to 1915 he was a professor in the University of Illinois. His first religious novel, *The Magnificent Obsession* (1929), was an immediate and sensational success, and in 1933 he retired from the pulpit to devote himself to writing. Among his later highly successful novels were *The Robe* (1942) and *The Big Fisherman* (1948).

Douglas, Robert Langton, British art historian (b. Davenham, Cheshire, May 1, 1864—d. Fiesole, Italy, Aug. 14), was professor of modern history in the University of Adelaide, 1900-2, and director of the National Gallery of Ireland, 1916-23. Among his writings were monographs on *Fra Angelico* (1902), *Leonardo da Vinci* (1944) and *Piero di Cosimo* (1946). He also wrote a *History of Siena* (1904) and edited Crowe and Cavalcaselle's classic *History of Italian Painting* (1903-9). In 1903 he was responsible for the attribution to the Sienese painter Duccio (*c.* 1260-*c.* 1339) of the "Rucellai Madonna," long given to the Florentine, Cimabue (1240-*c.* 1302).

Duffy, George Gavan, Irish judge (b. Rock Ferry, Cheshire, Oct. 21, 1882—d. Dublin, June 10), the son of the Irish revolutionary, Sir Charles Gavan Duffy (1816-1903), was educated in France and at Stonyhurst college, and qualified as a solicitor in 1906; he came to prominence in 1916 when he acted for the rebel, Sir Roger Casement, at the latter's trial for treason. Duffy was called to the Irish bar in 1917 and practised in the secret republican courts. From 1918 to 1923 he was *Sinn Féin* M.P. for South Dublin in the illegal first *Dáil Eireann* and in 1919, with Séan T. O'Kelly, he attempted unsuccessfully to obtain recognition of the Irish republic at the Paris peace conference. Duffy stayed on in Paris and wrote propaganda articles and a book, *La République d'Irelande et la presse française*, but during Sept. 1920 was given 24 hours notice to leave France; he then became Irish envoy to Rome. He was a member of the delegation which tried to negotiate with the British in 1921 and after Lloyd George's ultimatum was one of the five signatories of the resultant Anglo-Irish treaty. Duffy was minister of foreign affairs in the provisional government (Jan. 1922) but resigned when the *Sinn Féin* split over the ratification of the treaty. In 1929 he was called to the inner bar at a ceremony conducted for the first time in Irish. With the rise of *Fianna Fáil* he again became politically prominent and took part in many political trials. He became a judge of the High court in 1936 and from 1946 was its president.

Elibank, Charles Gideon Murray, 2nd viscount, of Elibank, Selkirk, British colonial administrator and politician (b. Eddleston, Peebleshire, Aug. 7, 1877—d. Capetown, March 12), entered the colonial service in 1898 when he went to British New Guinea. From 1901 to 1906 he held posts in the Transvaal. After serving in the Colonial office, London, 1907-9, he was administrator of St. Vincent, 1909-15, and of St. Lucia, 1915-17 (acting governor, Windward islands, 1916). He was Unionist M.P., St. Rollox division, Glasgow, 1918-22, and in 1922 took a prominent part in the "diehard" revolt against the Lloyd George administration. He succeeded to the viscountcy in 1927. In 1934 he published his autobiography, *A Man's Life*.

Ellsworth, Lincoln, U.S. explorer (b. Chicago, May 12, 1880—d. New York, May 26), broke off his university studies to work with the first surveying expedition on the Grand Trunk Pacific Transcontinental railroad (1902-7). He went gold prospecting in 1909 and was a mining engineer in Alaska in 1910. In 1924 he led a geological survey to the Andes, sponsored by Johns Hopkins university, but left the expedition in 1925 and flew to the north pole with Roald Amundsen, a venture in which they nearly lost their lives. In 1926, with Amundsen and Umberto Nobile, Ellsworth flew in the airship " Norge " from Spitzbergen to Alaska in three days. In 1931 he navigated beneath the ice of the arctic seas with Sir Hubert Wilkins in the submarine " Nautilus," and in the same year he was on board the " Graf Zeppelin " on its arctic flight. In 1935 he made an unsuccessful attempt to fly over the antarctic continent with Herbert Hollick-Kenyon as pilot, the plane being forced to land in a blizzard; Ellsworth and his companion were finally rescued from the shack that had been occupied by Admiral Richard E. Byrd during his exploration.

Felici, Ettore, Italian archbishop (b. Segni, near Rome, March 12, 1881—d. Dublin, May 9), was ordained in 1903. In 1916 he joined the staff of the papal secretary of state and subsequently served in the Holy See diplomatic service in Belgrade, 1920-25, and Lisbon, 1925-27. He was papal nuncio to Chile, 1927-37, to Yugoslavia, 1938-45, and to the Republic of Ireland from 1949. In 1937 he had been consecrated titular archbishop of Corinth.

Fellowes, Edmund Horace, English musicologist and Anglican clergyman (b. London, Nov. 11, 1870—d. Windsor, Berkshire, Dec. 21), was educated at Winchester and Oriel college, Oxford, and was ordained priest in 1895. In 1897 he was appointed minor canon and precentor of Bristol cathedral and from 1900 until his death he was a minor canon of St. George's chapel, Windsor castle, where, in 1924-27, he preceded Sir Walford Davies as director of the choir and master of the choristers. His immense output of edited texts, the most important contribution to the modern scholarship of Tudor polyphonic music, included: *The English Madrigal School* (36 vols., 1912-24); *The English School of Lutenist Songwriters* (32 vols., 1920-32); and *The Collected Vocal and String Works of William Byrd* (20 vols., 1950). He was also joint editor of the Carnegie trust's edition of *Tudor Church Music* (10 vols. and supplement, completed 1948). His important critical works included *The English Madrigal Composers* (1921), *English Cathedral Music* (1941), the standard life of William Byrd (1923) and a biography of Orlando Gibbons (1925). He also wrote a number of miscellaneous histories—*The Knights of the Garter 1348-1939* (1939), *The Military Knights of Windsor* (1944), etc. - and many other books. Fellowes was president of the Royal Music association, London, 1942-47, and of the Church Music society, 1946. He was created a Companion of Honour in 1944.

Fergusson, Sir Charles, 7th baronet, British general (b. Edinburgh, Jan. 17, 1865—d. Maybole, Ayrshire, Feb. 20), was gazetted to the Grenadier Guards in 1883. In 1896 he joined the Egyptian army and in 1901-3 was adjutant general of that force. From 1909 to 1913 he was inspector of infantry of the British army. During World War I he served as a divisional and corps commander, and in 1918-19 was military governor of Cologne. From 1924 to 1930 he was governor general of New Zealand. He succeeded to the baronetcy in 1907.

Flaherty, Robert Joseph, U.S. film producer (b. Iron Mountain, Michigan, Feb. 16, 1884—d. Brattleboro, Vermont, July 16), while engaged in exploration in northern Canada, saw the possibilities of the cinema for the vivid presentation of fact, and in 1920-22 he produced *Nanook of the North* which gave him claim to be the " father of the documentary film." It was not until 1926, however, in a review of his *Moana* that the word " documentary " was first used to describe his work. In 1931, in collaboration with F. W. Murnan, he produced the Tahitian *Tabu*, and in 1934 the successful *Man of Aran* appeared. In the course of the next year, Flaherty went to India to direct what was perhaps his most popular film, *Elephant Boy*, based on Rudyard Kipling's *Toomai of the Elephants*. His last film, *Louisiana Story*, was awarded the British Film academy's prize for the best documentary film of 1948.

Fyfe, (Henry) Hamilton, British journalist (b. London, Sept. 28, 1869—d. Eastbourne, Sussex, June 15), joined the staff of *The Times* in 1889, subsequently becoming secretary to the editor, G. E. Buckle. In 1902, the Licensed Victuallers' association asked him to reorganize and edit their *Morning Advertiser*. His work there attracted the attention of Alfred Harmsworth (later Lord Northcliffe) who in 1903 made him editor of the *Daily Mirror*. From 1907 to 1918 he was special correspondent to the *Daily Mail* and also contributed to *The Times* (which Northcliffe had bought in 1908). During World War I he served as a correspondent with the French, Russian, Rumanian, Italian and British armies; his vivid account of the retreat from Mons in 1914 caused a sensation. In Dec. 1916 he wrote the first British newspaper account of the career and assassination of Gregory Rasputin. Fyfe was honorary attaché to the war mission to the U.S. led by Northcliffe in 1917 and from July to Nov. 1918 was in charge of British propaganda among the German armies. After the war Fyfe's left-wing political sympathies became more marked and in 1922 he was made editor of the *Daily Herald*. From 1927 until its amalgamation with the *Daily News* in 1929, he was on the staff of the *Daily Chronicle*. Thereafter, he devoted himself increasingly to politics and authorship. From 1930 to 1942 he was political correspondent to *Reynold's News*. Fyfe wrote biographies of Northcliffe and T. P. O'Connor, as well as a large number of political and sociological works, travel books, plays and novels.

Georges, Alphonse-Joseph, French army officer (b. Montluçon, Allier, France, 1875—d. Paris, April 24), graduated from Saint-Cyr and later attended the Ecole Supérieure de Guerre with great distinction. He subsequently served in Algeria and, during World War I, after being badly wounded as an infantry battalion commander, held staff posts at Salonika and on the western front. In 1925 he became chief of staff to Marshal Philippe Pétain during the Moroccan campaign against Abd el-Krim. Appointed to command the Algiers division in 1928, three years later he became commander of the 19th (Algerian) army corps. He was severely wounded in Oct. 1934 while in the company of King Alexander of Yugoslavia at the time of his assassination at Marseilles. General of the army in 1939, Georges became deputy to the Allied commander in chief, General Gamelin, and c. in c. of the northeastern front; however, the two generals quarrelled and Georges found himself deprived of much of his authority. After the French capitulation in 1940 he went into retirement, but in 1943 escaped to Algiers and placed his services at the disposal of General Giraud.

Germanos (LUKAS STRENOPOULOS), Greek Orthodox archbishop (b. Delliona, near Silivri, eastern Thrace, Turkey, 1868—d. London, Jan. 23), was ordained deacon in 1897. In 1907 he was appointed principal of his old theological school on the island of Heybeli (Halki), near Istanbul, a post which he held until 1922 when he was sent to London as the first holder of the newly created archbishopric of Thyateira and as patriarchal exarch of western and central Europe. In 1924 he was appointed *apokrisarios* or personal representative of the oecumenical patriarch to the archbishop of Canterbury. He visited Moscow twice: in 1945 for the enthronement of the Patriarch Alexey and in 1948 for the celebrations of the 500th anniversary of the autocephalus patriarchate of Moscow. He worked to further the oecumenical movement and was a president of the World Council of Churches.

Gide, André Paul Guillaume, French writer (b. Paris, Nov. 22, 1869—d. Paris, Feb. 19), attended the Ecole Alsacienne, Paris, a Protestant secondary school, until the age of 11, when his father died, leaving him in the care of his mother and aunt, women of rigid morals. His first book, *Les Cahiers d'André Walter* (1891), in which he attempted to describe the sufferings of adolescence, was published anonymously and at his own expense. He became a frequenter of the Parisian *fin-de-siècle* literary world revolving round such figures as Paul Valéry, Stephane Mallarmé, Pierre Louys, Maurice Maeterlinck and Oscar Wilde. Entering the literary field as an essayist, André Gide found expression also in poetry, fiction, drama, criticism, reminiscence and translation from English literature. Before World War I he published some 20 books, of which *Les Nourritures terrestres* (1897), *L'Immoraliste* (1902), *Le Retour de l'enfant prodigue* (1909) and *Les Caves du Vatican* (1914) were the most important. He earned, however, small recognition until his emergence after the war as an apostle of revolt against traditional morality: in the atmosphere of disillusion that succeeded victory, works such as the autobiographical *Si le grain ne meurt* (1921), the pederastic *Corydon* (written in 1911 but published in 1924) and the novel *Les Faux-Monnayeurs* (1926) appealed to a large section of French and European youth. A visit to the French Congo in 1926 produced *Voyage au Congo* (1927) in which he attacked the abuses of colonialism. This book marked the awakening of a social consciousness and Gide's conversion to Communism followed in 1932. A journey to Soviet Russia, however, resulted in disenchantment with the Communist régime (*Retour de l'U.R.S.S.*, 1936). During World War II Gide took refuge in the unoccupied zone of France and in 1941 severed relations with the *Nouvelle Revue Française*, of which he was one of the founders in 1909, because of its collaboration with the Germans. He left for north Africa in 1942 and returned to Paris after its liberation. In 1947 he received the Nobel Prize for literature. In the years before his death, the successive volumes of Gide's *Journal*, which had been published in France, since 1930 began to appear in English translation. In 1895 Gide married his cousin and great love, Emmanuelle Rondeaux, who died in 1939; there were no children.

Gillet, Martin-Stanislas, French Dominican (b. Louppy-sur-Loison, Meuse, Dec. 14, 1875—d. Aix-les-Bains, Sept. 4), entered the Dominican novitiate in 1897 and was ordained in 1902. When the religious orders were expelled from France in 1903 he continued his studies at Ghent and Fribourg, and from 1905 to 1910 was professor of moral theology at Louvain university. He served in the medical corps in World War I and afterwards was professor of moral and social philosophy in the Catholic Institute of Paris till 1927. From 1929 to 1946 he was master-general of the Dominican order. In the latter year he was consecrated titular archbishop of Nicea. Archbishop Gillet wrote many books on educational and social matters and translated the *Summa Theologica* of St. Thomas Aquinas into French.

Grayson, Sir Henry Mulleneux, 1st baronet, British shipbuilding executive and politician (b. Liverpool, June 26, 1865—d. London, Oct. 27), was prominent in the Liverpool shipbuilding industry and was director of ship repairs at the Admiralty, London, 1916-19. He was Conservative Unionist M.P. for West Birkenhead, Cheshire, 1918-22. He was created K.B.E. in 1920 and a baronet in 1922.

Grotrian, Sir Herbert Brent, 1st baronet, British lawyer and politician (b. Yorkshire [?], March 29, 1870—d. Leighton Buzzard, Bedfordshire, Oct. 28), was called to the bar in 1894 and was recorder of Scarborough, 1918-46; he took silk in 1925. From 1924 to 1929 he was Conservative M.P. for South West Hull. He was created a baronet in 1934.

Guillemard, Sir Laurence Nunns, British civil servant and colonial governor (b. June 7, 1862—d. Puttenham, near Guildford, Surrey, Dec. 13), entered the Home Office in 1886, transferred to the Treasury in 1888, and in 1908 was appointed chairman of the Board of Customs. From Oct. 1919 to 1927 he was governor of the Straits Settlements, high commissioner for the Malay states and British agent for North Borneo and Sarawak. He had been created K.C.B. in 1910 and K.C.M.G. in 1923; he was advanced to G.C.M.G. in 1927. In 1937 he published his memoirs, *Trivial Fond Records*.



Sir Charles Cochran *André Gide* *Liaquat Ali Khan* *Maxim Litvinov*

Gurney, Sir Henry Lovell Goldsworthy, British colonial administrator (b. Bude, Cornwall [?], June 27, 1898—d. [assassinated] Kuala Kubu-Pahang road, Malaya, Oct. 6), served in World War I, entered the colonial service in 1921 and held posts in east Africa, Jamaica, the Gold Coast and Palestine. In Sept. 1948 he was appointed high commissioner for the Federation of Malaya. He had been knighted in 1947 and was created K.C.M.G. in 1948.

Hardie, Agnes Agnew (MRS. GEORGE DOWNIE HARDIE), British politician (d. London, March 24), was a sister-in-law of James Keir Hardie, the Labour pioneer. She was Labour M.P. for the Springburn division of Glasgow, 1937-45.

Hearst, William Randolph, U.S. publisher and editor (b. San Francisco, April 29, 1863—d. Beverly Hills, California, Aug. 14), the son of wealthy parents, attended Harvard university but left in 1885 without taking a degree. He became editor of the *San Francisco Examiner*, which was owned by his father, and in 1896 purchased the New York *Morning Journal*, which he later renamed the *American*. Then followed a lively contest for circulation between the Hearst publication and Joseph Pulitzer's New York newspaper, the *World*; Hearst now began to use the methods which his opponents called "yellow journalism," based mainly on the sensational presentation of news. Hearst was elected to the U.S. House of Representatives in 1902 and served two terms. In 1904 he received 200 votes in the Democratic national presidential convention at St. Louis, Missouri; Judge Alton B. Packer, however, won the nomination with 658 votes. Hearst next ran for the mayoralty of New York city and was defeated by about 4,000 votes in a poll of nearly 500,000. He then ran for the governorship of New York state against Charles Evans Hughes, but lost by a small margin of votes. In 1909 he was again defeated in the contest for the mayoralty of New York, and after other political setbacks in New York he moved in 1927 to California. At the 1932 Democratic national convention, Hearst was said to have secured the presidential nomination for Franklin D. Roosevelt by swinging his papers' support from John Nance Garner to Roosevelt, in a manoeuvre that gave Garner the vice-presidential candidacy. However, before the New Deal had been in effect for more than a few months, Hearst turned against the administration and thereafter campaigned ceaselessly against it and its successor. At the height of his power Hearst administered more than 20 of the most widely circulated U.S. newspapers and a number of magazines, together with extensive motion-picture and radio holdings. This publishing empire probably enabled him to wield more editorial influence than any other U.S. publicist of his time. A reorganization of his properties in 1937 and 1939 seemed to curtail his personal power and authority, but his organization continued intact until his death.

Hilder, Frank, British politician (b. Surbiton, Surrey, Oct. 3, 1864—d. Ingatestone, Essex, April 23), served with the Egyptian Expeditionary force during World War I. In 1913 he had published *A Senate of Civilisation*, a plan for a league of nations. From 1918 to 1923 he was Conservative M.P. for South-East Essex.

Hoffe, Monckton (REANEY MONCKTON HOFFE-MILES), British playwright and actor (b. Connemara, County Galway, Ireland, Dec. 26, 1880—d. London, Nov. 4), began as a small-part actor but in 1903 wrote his first play, *The Lady Who Dwelt in the Dark*. He became well-known as a writer of artificial and romantic comedy, achieving his greatest success with *The Little Damozel* (1909), *The Faithful Heart* (1921) and *The Unnamed Play* (later called *Many Waters*), 1926; his last play was *Grim Fairy Tale* (1946). He also wrote for the cinema and the radio, and continued to act from time to time; he played Lord Stratford in the film *The Lady with a Lamp* (1951).

Horton, Sir Max Kennedy, British admiral (b. Llanfaelog, Anglesey, Nov. 29, 1883—d. London, July 30), became a "Britannia" cadet in 1898. He served in under-water craft from 1904, and during World War I became well-known for his exploits as commander of the submarine "E.9." Between the World Wars he held various posts at the Admiralty and at sea, including the command of the battleship "Resolution," 1930-32, of the 1st Cruiser squadron, 1935-36, and of the reserve fleet, 1937-39. In 1940 he became flag officer, submarines, but in 1942 was appointed commander in chief Western Approaches, which post he held until the disbandment of the command in 1945. Horton was created K.C.B. in 1939 and promoted to G.C.B. in 1945.

Hugenberg, Alfred, German industrialist and politician (b. Hanover, June 19, 1865—d. Rohbraken, near Rinteln, March 12), was educated at Göttingen, Heidelberg and Berlin universities, obtaining his doctor's degree in economics at Strasbourg in 1888. After serving a year in the army, he entered the civil service in 1891. He left the civil service in 1907 and two years later was appointed managing director at the Krupp works at Essen. In 1919 he entered politics as a Nationalist and in 1928 succeeded Kuno Count von Westarp as leader of the Deutsch-Nationale Volkspartei (D.N.V.P.). At that time he was already the head of a chain of newspapers and magazines (*Lokal-Anzeiger*, *Tag*, *Die Woche*, etc.) and of the biggest German film company, Universum-Film-Aktiengesellschaft (UFA). In 1931 he formed a "national front" with Adolf Hitler and in Jan. 1933 helped the Nazi leader to become the Reich chancellor. After serving five months as minister of economics in the first Hitler cabinet, he was dismissed and soon afterwards ordered to disband his D.N.V.P. In 1946 he was interned by the British authorities, but in 1949 a German court graded him as a Nazi "fellow traveller."

Inverchapel, Archibald John Kerr Clark Kerr, 1st Baron, of Lock Eck, Argyllshire, British diplomat (b. London, March 17, 1882—d. Greenock, Renfrewshire, July 5), was educated privately, entered the diplomatic service in 1906 and during the period 1906-25 served in Berlin, Buenos Aires, Washington, Rome, Tehran, Tangier and Cairo. He was minister to the Central American republics, 1925-28, and to Chile, 1928-30. From 1931 to 1935 (when he was created K.C.M.G.) he was minister to Sweden, and from 1935 to 1938 was ambassador to Iraq. In 1938 he went to Chungking as successor to Sir Hughe Knatchbull-Hugesson, who had been severely wounded in an air attack. In Jan. 1942 he succeeded Sir Stafford Cripps as ambassador to Moscow. In 1946 he went on a special mission to Java to try and effect a settlement of the complex political situation; in the same year he was created a baron. From 1946 to 1948 he was ambassador to the United States. Inverchapel had been promoted to G.C.M.G. in 1942 and sworn of the Privy Council in 1944.

Jouvet, Louis, French actor and producer (b. Crozon, Finistère, Dec. 24, 1887—d. Paris, Aug. 16), first worked as a pharmacist, devoting his free hours to his real interest, the stage. From 1910 he played small parts in Paris, but in 1913 joined Jacques Copeau's newly formed company at the Théâtre du Vieux Colombier. He soon became recognized as a character actor. He served at the front from 1914 to 1917 and visited New York with the Copeau company in 1918. He became stage manager of the Comédie des Champs Elysées in 1922 and its director in 1923. There he produced many successful plays, the most famous being *Knock* by Jules Romains (1923). Jean Giraudoux brought him his first play, *Siegfried*, in 1928: a long collaboration between them began. In 1934 Jouvet moved his company to the Théâtre de l'Athénée and, in addition, directed three plays at the Comédie Française (1936-37). After the occupation of Paris by the Germans in June 1941 he left with his company for South America, played in eight Latin-American countries and returned in Feb. 1945 to his Paris theatre. In 1945 he produced *The Madwoman of Chaillot*, Giraudoux's last play, and played the part of the Ragpicker. From 1932 Jouvet also appeared in many French films. Like Molière he died in his theatre, rehearsing a dramatization of *The Power and Glory* by Graham Greene. In acting as in staging, Jouvet's striking stylizations won the enthusiasm of the theatre-goers of the two hemispheres.

Kania, Sir Harilal Jekisundas, Indian judge (b. Bhavnagar state, Kathiawar, India, Nov. 3, 1890—d. Delhi, Nov. 6), qualified as an advocate in the Bombay High court in 1915 and was appointed to the bench of that court in 1933. He was acting chief justice of Bombay, 1944 and 1945, and in 1946 became a judge of the Federal Court of India. When India became independent in 1947 Kania was appointed chief justice of the Supreme court in Delhi, and thus became head of the Indian judiciary. He had been knighted in 1943.

Kellermann, Bernhard, German novelist (b. Fürth, Bavaria, March 3, 1879—d. Klein Glienicke, Berlin, Oct. 17), turned to authorship from a technical career. He first attracted international attention with his fantasy, *Der Tunnel* (1913), which was later translated into many languages and made into a successful film (1933). He served in World War I as a war correspondent and afterwards wrote *Der Neunte November* (1920), inspired by the German revolution; this

was publicly burned by the Nazis in 1933. His third great success was *Das Blaue Band* (1938), based on the "Titanic" disaster. Besides novels, Kellerman also wrote a number of successful travel books. Although in general he kept out of politics, after World War II he became vice president of the Soviet-sponsored *Kulturbund zur demokratischen Erneuerung* in Eastern Germany.

Kellogg, Will Keith (b. Battle Creek, Michigan, April 7, 1860—d. Battle Creek, Oct. 6), became famous as a manufacturer of breakfast cereals, and devoted much of his wealth to the establishment of the W. K. Kellogg foundation, an organization for child welfare. He was also keenly interested in the scientific study of horse-breeding, and his Arab stud ranch at Pomona, California, later became the institute of animal husbandry of the University of California.

Keysor, Leonard, British army officer (b. London, Nov. 3, 1885—d. London, Oct. 12), took part in the landings on the Gallipoli peninsula in 1915. During the fighting on Aug. 7 the Turks cut down the fuses on their hand grenades, making it impossible to smother the bombs after they had fallen. Lieut. Keysor, a bomb-thrower, realizing this, caught the grenades as if they were cricket balls and threw them back into the enemy trenches, where they exploded. Although wounded, he refused to rest and stayed at his post for more than 50 hr. For this act of valour he was awarded the Victoria Cross.

Koussevitzky, Serge (SERGHEY ALEKSANDROVICH KUSSEVITSKY), Russian-born orchestral conductor (b. Vyshny Volochek, Tver, Russia, July 26, 1874—d. Boston, Massachusetts, June 4), had learned to play the double-bass by the age of 9 and at 10 conducted the theatre orchestra of his native town. He studied the double-bass at the Philharmonic conservatory, Moscow (where he later taught for a time), and conducting under Arthur Nikisch at the Berlin High school. He was double-bass soloist with the Moscow Imperial Theatre orchestra, 1894-97, and from 1898 gave recitals throughout Europe on that instrument. He made his debut as a conductor with the Berlin Philharmonic orchestra in 1907 and in 1910 formed an orchestra of 85 musicians with which he successfully toured Russia. After the Revolution Koussevitzky was appointed director of the Russian State Symphony orchestra (1917) and of Moscow Grand opera (1918) but in 1922 he finally left Russia. After conducting in many of the principal cities of Europe, he settled in the United States and from 1924 to 1949 was conductor of the Boston Symphony orchestra, which became famed under his direction for its renderings of contemporary works. Among Koussevitzky's publications were *Concerning Interpretation*, *Remarks about American Orchestras* and essays on Brahms and Debussy. Latterly he had been working on an opera, *Pique Dame*.

Lambert, Constant, British composer and conductor (b. London, Aug. 23, 1905—d. London, Aug. 21), son of the Australian painter G. W. Lambert, was still a student at the Royal College of Music, London, when Serghey Diaghilev commissioned from him the ballet *Romeo and Juliet*, which was produced at Monte Carlo in 1926. Lambert's later ballets were *Pomona* (1927), *Horoscope* (1938), *Comus* (1939), adapted from the music of Henry Purcell, and the *Prospect Before Us* (1940), for which he arranged music by William Boyce (1710-79), whose symphonies he also revived and edited. In 1951 he composed, and conducted at Covent Garden, the ballet *Tiresias*. His best-known work was the exotic *Rio Grande* (1929), a cantata for chorus, orchestra and piano, to words by Sacheverell Sitwell; this was notable for the use of jazz rhythms in the piano obligato. *Summer's Last Will and Testament* (1936), a choral setting of a masque of Thomas Nashe (1567-1601), was often regarded as his most important work. Lambert was conductor for the Carmargo Ballet society and, from 1938 to 1947, was musical director of the Sadler's Wells ballet. His book *Music Ho!* " a study of music in decline " was published in 1934.

Lehtonen, Aleksi Emanuel, Finnish archbishop (b. Nystad, Finland, June 21, 1891—d. Turku [Åbo], Finland, March 27), was ordained Lutheran minister in 1911. He was professor of theology at Helsinki university, 1932-34. From 1934 to 1945 he was bishop of Tampere and in 1945 was consecrated archbishop of Turku and primate of Finland. His publications included a number on church history and theology, in Finnish, Swedish and German.

Lenormand, Henri-René, French dramatist (b. Paris, May 3, 1882—d. Paris, Feb. 16), had his first success in 1909 with *Les Possédés*; among his later plays were *Terres chaudes* (1913), *Le Mangeur de rêves* and *La Dent rouge* (1922), *Le Lâche* (1925) and *Pacifique* (1937). He also wrote stories many of which, like his plays, had a psychological theme; they were collected in such volumes as *Le Penseur et la crétine* (1920) and *Les Diables du Brabant* (1942). In 1949 he published his first full-length novel, *Une Fille est une Fille*. (*See* also *Encyclopædia Britannica.*)

Leveson Gower, Sir George Granville, British politician (b. London, May 19, 1858—d. London, July 18), was private secretary to the prime minister, William Ewart Gladstone, from 1880 to 1885. He was Liberal M.P. for North-West Staffordshire, 1885-86, and for Stoke-upon-Trent, 1890-95. He was a junior lord of the Treasury in the Liberal government of 1886, and in 1892 was appointed controller of the household and a church estates commissioner. From 1902 to 1924 he was commissioner of woods and forests. He was created K.B.E. in 1921. Leveson Gower wrote a number of books of biography and memoirs.

Lewis, Sinclair, U.S. novelist (b. Sauk Centre, Minnesota, Feb. 7, 1885—d. Rome, Jan. 10), was educated at Sauk Centre High school and Yale university. He began to write as a free-lance journalist while at Yale and later drifted more or less unsuccessfully from one job to another—newspaper work, story-writing, ghost-writing for Jack London and manuscript reading, interspersed with periods of secretarial work—before becoming editor to the George H. Doran company, New York. But by 1916 he had had a number of stories and two novels published and he decided to return to free-lance work. In 1920 he emerged as a blistering satirist with *Main Street*, an exposition of life in a mid-western township, which had an instant success in the United States. This was followed in 1922 by *Babbitt*. At this stage Lewis's probing satire on a society with which they were unfamiliar made less appeal to readers outside the U.S.; his free use of American slang was an added barrier. However, *Babbitt* was later widely read in the old world, and subsequent novels which won him a world-wide reputation included *Arrowsmith* (1925), *Elmer Gantry* (1927), a bitter attack upon hypocrisy personified by its central character, a Baptist minister, and *Ann Vickers* (1933); among his less consciously sociological works was *Dodsworth* (1929). In 1930 Lewis was awarded the Nobel prize for literature. In 1935 he published *It Can't Happen Here*, a comment on the dangers of dictatorship; *Kingsblood Royal* (1947) was on racial problems in the U.S.; his last book was *The God-Seeker* (1949). *Dodsworth* and *It Can't Happen Here* were both dramatized, but Lewis wrote for the theatre (and for a time acted) without conspicuous success. (*See* also *Encyclopædia Britannica.*)

Liaquat Ali Khan, Pakistani statesman (b. Karnal, east Punjab, Oct. 1, 1895—d. [assassinated] Rawalpindi, west Punjab, Oct. 16), the son of a wealthy landowner, was educated at the Mohammedan Anglo-Oriental college, Aligarh, United Provinces, at Allahabad university and at Exeter college, Oxford. He was called by the Inner Temple in 1922, returned to India in that year and in 1923 joined the All-India Moslem league. He was a member of the United Provinces legislative council and leader of the Democratic party in the house from 1926 to 1940 when he was elected to the central legislative assembly. His close association with Mohammed Ali Jinnah began in 1936 when he was elected general secretary of the resuscitated Moslem league; in 1940 he became deputy leader of the party. He was appointed to the viceroy's executive council in 1946 and held the portfolio of finance. On Aug. 15, 1947, Jinnah appointed him the first prime minister and minister of defence of the new dominion of Pakistan. After the death of Jinnah (Sept. 11, 1948), Liaquat became undisputed leader of Pakistan. Virtually the whole of his career from that time until his death was taken up with the protracted dispute with India over Kashmir. In April 1950, however, he negotiated with Jawaharlal Nehru an agreement on the treatment and rights of minorities. It was considered that he had won a considerable moral victory when in Jan. 1951 he succeeded in having the Kashmir dispute discussed at the Commonwealth Prime Ministers' conference in London. While he was addressing a public meeting at Rawalpindi, Liaquat Ali Khan was shot dead by a member of the Khaksar semi-military movement.

Litvinov, Maxim Maximovich (MEYIR MOYSEYEVICH VALLAKH), Soviet diplomat (b. Białystok, Russian-occupied Poland, July 17, 1876—d. Moscow, Dec. 31), was the son of a bank clerk. After an education in the local Russian *Realschule*, Vallakh (as he then was) enlisted in the Tsarist army. On the completion of his service he worked for a time as a factory accountant at Klintz, in the Chernigov province, and in 1898 joined the Russian Social Democratic Labour party (R.S.D.L.P.). The following year he was at Kiev, where he organized a secret printing press for the party. Arrested and deported to Siberia, he escaped in 1902, went to Switzerland and the following year was delegate to the London congress of the R.S.D.L.P., where the party split into the Bolshevik and Menshevik factions, Litvinov joining the former. In 1905 he was sent back to Russia, where he helped to found and also worked on *Novaya Zhizn* ("The New Life"), returning to London two years later after the revolution had failed. He settled under the name of Harrison and made his living as a book-keeper. The Bolshevik revolution gave him his chance. At the beginning of 1918 L. D. Trotsky, then foreign commissar, made him plenipotentiary to Great Britain. In Oct. 1918 he was housed in Brixton gaol as a hostage for Robert Bruce Lockhart held in prison in Russia. The prisoners were exchanged and in Jan. 1919 Litvinov arrived in Leningrad when he joined the *collegium* of the People's Commissariat of Foreign Affairs. In 1920 he was appointed Soviet minister to Estonia and the following year became first deputy commissar of foreign affairs under G. V. Chicherin. He took part in the Genoa and Hague conferences of 1922. From 1927 to 1930 he headed the Soviet delegation to the preparatory commission of the disarmament conference. On July 21, 1930, he succeeded G. V. Chicherin as commissar of foreign affairs; in 1932 he was chief of the Soviet delegation at the disarmament conference at Geneva. In the same year he concluded treaties of non-aggression with Poland, Finland and the Baltic states and on July 3, 1933, in London, he signed with all European and middle-eastern Soviet neighbours a treaty defining the aggressor. He secured the recognition of the Soviet régime by the United States and visited Washington in Oct. 1933. Between 1937 and 1938 he represented the U.S.S.R. on the council of the League of Nations. From 1928 Litvinov was a member of the central committee of the All-Union Communist party, but was not re-elected by the 18th congress in March 1939. On May 3, 1939, he was succeeded as commissar of foreign affairs by V. M. Molotov; as a Jew he could not be helpful in the new policy of collaboration with nazi Germany inaugurated by Joseph Stalin. After the German invasion of the U.S.S.R., however, Stalin appointed him ambassador to Washington on Nov. 6, 1941. On Aug. 21, 1943, Litvinov was replaced by A. A. Gromyko and returned to Moscow where until Aug. 25, 1946, he was nominally a deputy commissar of foreign affairs. In 1916 he had married an Englishwoman, Miss Ivy Low.

Lovett, (Ernest) Neville, Anglican bishop (b. Torquay, Devon, Feb. 16, 1869—d. Droxford, Hampshire, Sept. 8), was ordained in 1892. He was the first bishop of Portsmouth from 1927 to 1936 and bishop of Salisbury from 1936 to 1946. In the latter diocese he revived the keeping of agricultural feast days and upheld the dedicated character of rural occupations.

Łukasiewicz, Juljusz, Polish diplomat (b. Zhitomir, Ukraine, May 6, 1892—d. Washington, D.C., April 5), helped to organize at St. Petersburg university in 1912 a section of the secret Polish Military organization headed by Joseph Pilsudski. From 1933 to 1937 he was Polish ambassador in Moscow, and in June 1936 was appointed ambassador in Paris. His opposition to the appeasement policy of Edouard Daladier and Georges Bonnet earned him unpopularity. In Nov. 1939 he was recalled by the government of General W. Sikorski, then in Paris. From 1940 he lived in Great Britain. Six months after being sent to Washington as a representative of the Poles in exile he committed suicide.

Maclagan, Sir Eric William Dalrymple, British art historian (b. London, Dec. 4, 1879—d. Santa Cristina de Lena, near Oviedo, Spain, Sept. 14), joined the staff of the Victoria and Albert museum, London, in 1905 and from 1924 to 1945 was director and secretary; he was responsible for greatly increasing the museum's importance as a centre of art historical scholarship and popular exposition. He also served on many bodies concerned with the arts and the preservation of historic buildings; he was president of the Museums association, 1935-36, and chairman of the National Buildings record. He lectured widely, being Charles Eliot Norton professor at Harvard university, 1927-28. Among his publications were a *Guide to English Ecclesiastical Embroideries* (1907), a *Catalogue of Italian Sculpture* (1924) and *Italian Sculpture of the Renaissance* (1935). Maclagan was knighted in 1933 and created K.C.V.O. in 1945.

MacManaway, James Godfrey, Irish politician and Anglican clergyman (b. Fivemiletown, County Tyrone, April 22, 1898—d. Belfast, Nov. 3), served in World War I in the Royal Flying corps and in World War II as a chaplain. He had been ordained in 1923 but resigned his living in 1947 when he was elected M.P. for the City of Derry in the Northern Ireland parliament. In 1950 he was elected to the Westminster parliament as Ulster Unionist M.P. for West Belfast. However, he was later excluded under the House of Commons (Clergy Disqualification) act, 1801, as an ordained priest of the Church of Ireland. He subsequently also resigned from the Ulster parliament.

Mannerheim, Baron Carl Gustaf Emil, Finnish army officer and statesman (b. Villnas, near Turku, Finland, June 4, 1867—d. Lausanne, Switzerland, Jan. 27), was the son of a Swedish-Finnish landowner, and attended the Frederikshamm Cadet school near Viipuri and the Nikolayevskaya Cavalry school in St. Petersburg. He distinguished himself in the Russo-Japanese war in which he rose to the rank of colonel. In World War I he commanded a cavalry division in Poland and later an army on the Rumanian front. Finland proclaimed its independence and in Jan. 1918 Mannerheim was appointed commander in chief of the nascent Finnish army. Through his leadership, the Finnish Communists, armed and supported by the Russians, were defeated. In Dec. 1918 he was elected regent of Finland and on July 17, 1919, he promulgated the republican constitution; in the first presidential election he was defeated. In 1931 he was called back from retirement to serve as chairman of the Council of National Defence. In May 1933 he was created field marshal and it was his decision to build the defences across the Karelian isthmus which came to be known as the Mannerheim line. On Nov. 30, 1939, the U.S.S.R. attacked Finland and Mannerheim, at 72, took command of his country's forces. Despite his skill and the Finns' heroism, the Mannerheim line was broken and Finland had to accept terms (March 12, 1940). On June 27, 1941, in Finland's second war with Russia, Mannerheim again assumed command and on June 4, 1942, he was made marshal of Finland. On the same day he was visited at his headquarters by Adolf Hitler, who was pressing him to cut the Anglo-Soviet supply route to Murmansk and to attack Leningrad; but the Finnish army remained passive. On Aug. 1, 1944, Mannerheim was elected president of the republic. On Sept. 19 the armistice was signed with the U.S.S.R., and on March 4, 1946, he resigned. He spent the remaining years of his life in Switzerland.

Marchetti-Selvaggiani, Francesco, Italian cardinal (b. Rome, Oct. 1, 1871—d. Rome, Jan. 13), was ordained priest in 1896 and later served in the papal diplomatic service in Bavaria, Switzerland and elsewhere. He was consecrated titular archbishop of Seleucia in Isauria in 1916. In 1918 he went to Venezuela, being papal nuncio there in 1920. From 1920 to 1923 he was nuncio to Austria. He was elevated to the Sacred College of Cardinals in 1930 and in 1936 was consecrated bishop of Frascati, Italy. In 1948 he became dean of the Sacred College.

Marillier, Henry Currie, British art historian (b. Grahamstown, South Africa, 1865—d. Upperton, near Petworth, Sussex, July 27), was managing director of William Morris's firm of industrial artists from 1903 to 1948. He wrote several books on art, including monographs on D. G. Rossetti and Aubrey Beardsley (both 1899), and a history of Christies' (1926). But he was best known as an authority on tapestries, and supervised the preservation of most of the famous English tapestries. Among his writings in this field were *English Tapestries of the Eighteenth Century* (1930), a *Guide to the Tapestries of Hampton Court* (1931) and a 50-volume catalogue for the Victoria and Albert museum, London.

Matters, Leonard Warburton, British journalist and politician (b. Adelaide, South Australia, June 26, 1881—d. Much Hadham, Hertfordshire, Oct. 31), joined the Perth (Western Australia) *Daily News* at the age of 13 as a messenger and later became its editor. After serving in the South African War he worked on newspapers in South America (being for a time managing editor of the *Buenos Aires Herald*), Canada, Japan, the West Indies and Great Britain. He was Labour M.P. for Kennington, London, 1929-31, and in 1932 was a member of the India league delegation investigating political conditions in the sub-continent. He had latterly been London representative of the *Hindu* (Madras). Among his books was *Through the Kara Sea* (1932).

Maude, Cyril Francis, British actor-manager (b. London, April 24, 1862—d. Torquay, Devon, Feb. 20), first appeared on the stage in 1883, at Denver, Colorado, and made his London debut in 1886. Among the successful parts he played in London at this time were the Duke of Courtland in *Racing*, Austin Woodville in *Handfast* (both in 1887), Palsom in Henry Arthur Jones's *The Crusaders* (1892) and Cayley Drummle in the first production of Sir Arthur Pinero's *The Second Mrs. Tanqueray* (1893). From 1896 to 1905 he was joint manager of the Haymarket theatre, London. Among the new plays which he produced there, and in which he acted, were J. M. Barrie's *The Little Minister* (1897), H. H. Davies's *Cousin Kate* (1903) and W. W. Jacobs's *The Monkey's Paw* (1903). In 1905 he bought the Avenue theatre which he rebuilt and re-opened as the Playhouse in 1907. From 1913 he toured the United States, Canada and Australia, and it was not until 1919 that he re-appeared in London, in *Lord Richard in the Pantry*. *Grumpy*, produced in Glasgow in 1913 and revived in New York, London and Australia, was one of the most successful plays of his later years. Maude retired in 1927 but made occasional re-appearances thereafter, acting also in films and radio plays. His publications included *The Haymarket Theatre* (1903), a novel, *The Actor in Room 931* (1925), and *Behind the Scenes with Cyril Maude* (1927).

Maurice, Sir Frederick Barton, British major general, military historian and college principal (b. Dublin, Jan. 19, 1871—d. Cambridge, May 19), was gazetted to the Derbyshire regiment (afterwards Sherwood Foresters) in 1892 and served in the South African war. He later held a succession of staff appointments, being head of the operations branch, British Expeditionary force in France (1915) and director of military operations, Imperial General staff (1915-18). Maurice's military career came to an abrupt end in May 1918 when he was removed from the active list after exposing, in a letter to *The Times*, the incorrectness of figures on British strength in France quoted in the House of Commons by the prime minister (Lloyd George). Earlier in the year he had been created K.C.M.G. He then became military correspondent to the *Daily Chronicle* and the *Daily News*. From 1927 to 1933 he was professor of military science in the University of London at King's college, and from 1933 to 1944 was principal of East London college (Queen Mary college from 1934) of which he was an honorary fellow from 1946. In 1944 he had also been elected an honorary fellow of King's college, Cambridge. His military historical writings included *Forty Days in 1914* (1920), *Robert E. Lee, The Soldier* (1925), *Governments and War* (1926) and *British Strategy* (1929). He was president of the British Legion, 1932-47.

Meyerhof, Otto Fritz, German-born U.S. physiologist (b. Hanover, March 12, 1884—d. Philadelphia, Oct. 6), was awarded the Nobel prize in physiology and medicine (jointly with A. V. Hill) in 1922 for his work on the chemistry of the functioning muscle. He was director of the Kaiser Wilhelm Institute of Physiology, Heidelberg, from 1929 until 1938 when the nazi persecution of Jews forced him to leave Germany, and he then became director of research, Institute of Biology, Paris. When France was invaded in 1940 he escaped to the U.S. He was appointed research professor of biochemistry, University of Pennsylvania, and became a U.S. citizen. Professor Meyerhof was a foreign member of the Royal Society, London.

Mitchell, Sir James, Australian politician (b. Bunbury, Western Australia, April 27, 1866—d. Perth, Western Australia, July 26), entered the legislative assembly of Western Australia in 1905 and in 1909-11 was minister of lands. From 1919 to 1924 he was state premier and was also responsible for lands and repatriation; he was again premier in 1930-33. He was governor of Western Australia from 1940 until June 1951. Mitchell was the author of the land settlement system practised in the state for many years, and in 1922 had visited Great Britain to encourage emigration. In 1933 he led a campaign for the secession of the state from the Commonwealth of Australia and its development as a separate dominion. He was created K.C.M.G. in 1921 and advanced to G.C.M.G. in 1947.

Moffat, Howard Unwin, Southern Rhodesian politician (b. Kuruman, Cape province, South Africa, Jan. 13, 1869—d. Bulawayo, Jan. 19), was an interpreter to Khama, king of the Bamangwato, and to Khama's regiment in the Matabele war. In the South African War he served with General Plumer's column at the relief of Mafeking. He entered parliament in 1920, was minister of mines and public works, 1923-27, and premier and minister of native affairs, 1927-33.

Molamure, Sir (Alexander) Francis, Ceylonese parliamentarian (b. Ratnapura district, Ceylon, Feb. 7, 1886—d. Colombo, Jan. 25), was called to the bar in 1910. He became a member of the Ceylon legislative council in 1924 and of the executive council in 1926. From 1931 he was a member of the state council, of which he became speaker in the same year. In 1947 he entered the House of Representatives and was elected its speaker.

Montague-Barlow, Sir (Clement) Anderson (SIR MONTAGUE BARLOW before 1946), British lawyer and politician (b. Bristol, Feb. 28, 1868—d. Oxford, May 31), was called to the bar in 1895 and practised mainly in educational and charity cases. He was Conservative M.P. for South Salford, 1910-23, parliamentary secretary to the Ministry of Labour, 1920-22, and minister of labour in the Bonar Law and Baldwin administration of 1922-24. In 1937-40 he was chairman of the Royal Commission on the Location of Industry (the "Barlow commission"). He was created K.B.E. in 1918 and a baronet in 1924; in 1922 he was sworn of the Privy Council.

Montgomery, Henry Greville, British technical journalist and politician (b. London, 1864—d. Bacton, Norfolk, Dec. 2), founded the trade journal the *British Clayworker* (London) in 1892, and later founded the *Brickbuilder*. He revived the annual London Building Trades exhibition in 1895 and inaugurated the Colliery exhibition. He was Liberal M.P. for Bridgewater, Somerset, 1906-10. Montgomery was a past master of the Tylers and Bricklayers company.

OBITUARIES

Mushanov, Nikola, Bulgarian statesman (b. Drenovo, Bulgaria [then a Turkish province], 1872—d. [in prison] Bulgaria, June), as a leader of the Democratic party, became a minister in the Malinov cabinet (1906-11). From 1911 to 1918 he was one of the foremost opposition leaders in the *Sobranye*, criticizing the pro-German policy of King Ferdinand. In 1918 he was a member of the Malinov cabinet which signed the armistice with the Allies. From 1919 to 1923 he opposed the Stambolisky Peasant government and from 1923 to 1931 he led the opposition against the Rightist Tsankov and Liapchev cabinets. Mushanov became prime minister in Oct. 1931 but was overthrown by the army *coup d'état* of May 1934 and for the next decade was the leader of the whole Bulgarian democratic opposition. On Sept. 2, 1944, he joined the Muraviev cabinet which a week later was replaced by a Communist-controlled government. Imprisoned but released after strong British and American protests, Mushanov was allowed to lead the Democratic party which, however, was dissolved in 1947; he was interned near Trnovo. In May 1951 he was taken to the prison where he died.

Nelles, Percy Walker, Canadian admiral (b. Brantford, Ontario, Jan. 7, 1892—d. Victoria, British Columbia, June 13) was one of the first term of Canadian naval cadets (1908). He served in the cruisers " Antrim " and " Suffolk " during World War I. As commander in chief of the Royal Canadian Navy during World War II he was responsible for its growth from a few ships to a compact but powerful force. He became senior Canadian flag officer (overseas), London, in 1944 and was promoted admiral on his retirement in 1945, being the first Canadian to attain that rank.

Nethersole, Olga Isabel, British actress (b. London, Jan. 18, 1870—d. Bournemouth, Hampshire, Jan. 9), first appeared in the West End of London in 1888. Among parts in which she achieved considerable success were Janet Preece in Arthur Pinero's *The Profligate* (1889), Floria Tosca in *La Tosca* (1889), Comptesse Zicka in *Diplomacy* (1893) and Paula in Pinero's *The Second Mrs. Tanqueray* (1899). She made a number of tours in the United States and from 1900 mainly appeared there; in 1910 she created the name part in Maurice Maeterlinck's *Mary Magdalene* in New York. During World War I she became increasingly interested in health educational work in England, and in 1917 founded the People's League of Health. She made her last stage appearance, for a single performance, at Wyndham's theatre, London, in 1923.

Novello, Ivor (DAVID IVOR DAVIES), British actor-manager, playwright and composer (b. Cardiff, Jan. 15, 1893—d. London, March 6), son of the well-known Welsh musician, Dame Clara Novello Davies, was educated at Magdalen College school, Oxford, and was a chorister at the college, 1905-11. While still a boy he showed talent for writing light music and during World War I, in which he served with the Royal Naval Air service, his song " Keep the Home Fires Burning " became very popular. He first appeared on the stage in 1921, and in 1924 presented his first play, *The Rat* (written in collaboration with Constance Collier). He subsequently wrote, produced and acted in such successful comedies as *The Truth Game* (1928), *A Symphony in Two Flats* (1929), *Party* (1932) and *Proscenium* (1933), and wrote *Comedienne* (1938), in which Dame Lilian Braithwaite took the lead. But he became best-known for his " Ruritanian " musical plays like *Glamorous Night* (1935), *Careless Rapture* (1936), *The Dancing Years* (1939), *Perchance to Dream* (1945) and *King's Rhapsody* (1949), which were all characterized by an atmosphere of youthful optimism and assured of success by his dashing and polished acting, his appealing music and highly finished production. In 1947 he took *Perchance to Dream* to South Africa. His last musical play, *Gay's the Word* (1950), with Cicely Courtneidge in the lead, was a cheerful travesty of the spectacular romances which had brought him success. Novello rarely acted in other plays than his own, but in 1936 played Lord George Hell in Sir Max Beerbohm's *The Happy Hypocrite* and in 1938 the King in his spectacular revival of Shakespeare's *Henry V* (for which he wrote incidental music). He also acted in many British and U.S. films.

Page, Sir Leo Francis, British lawyer (b. April 2, 1890—d. Farringdon, Berkshire, Aug. 31), was called to the bar in 1918 and joined the southeastern circuit. He wrote several books on the problems of crime and punishment including *Justice of the Peace* (1936), *For Magistrates and Others* (1939) and *The Young Lag* (1950). He was secretary of the Commissions of the Peace from 1940 to 1945; he also served on various Home Office committees concerned with the treatment of criminals. He was knighted in 1948.

Peniakoff, Vladimir, British army officer of Russo-Belgian origin (b. Huy, Belgium, March 30, 1897—d. London, May 15), served during World War I in the French army. He began business in Egypt in 1924 and in 1939 he joined the British army there and became a member of the Long Range Desert group. He was subsequently in command of a small volunteer force which enjoyed considerable autonomy and became known as " Popski's Private Army." In both the North African and Italian campaigns they effectively harassed German and Italian troops, often far behind the lines. After demobilization in 1946 he settled in England. In 1950 he published *Private Army*.

Perowne, Sir (John) Victor Thomas Woolrych Tait, British diplomat (b. London [?], July 30, 1897—d. Rome, Jan. 8), joined the diplomatic service in 1920, and between that year and 1947 served in the Foreign Office and at Madrid, Lisbon, Copenhagen and Paris. In 1947 he was appointed British minister to the Holy See. He was created K.C.M.G. in 1950.

Perth, (James) Eric Drummond, 16th Earl of, British diplomat (b. Fulford, near York, Aug. 17, 1876—d. Rogate, Sussex, Dec. 15), entered the Foreign Office in 1900. On May 15, 1919, he took office as the first secretary general of the League of Nations, a post which he held until 1933. From that year until May 1939, when he retired from the foreign service, he was British ambassador to Italy. In 1939-40 he was chief adviser on foreign publicity, Ministry of Information, London. In 1946 he was appointed deputy leader of the Liberal party in the House of Lords. He succeeded his half-brother as Earl of Perth and chief of Clan Drummond in 1937; he was elected a Scottish representative peer in 1941. He had been sworn of the Privy Council in 1933, and was created G.C.M.G. in 1934.

Pétain, Henri-Philippe-Benoni-Omer-Joseph, French soldier and statesman (b. Cauchy-à-la-Tour, Pas-de-Calais, April 24, 1856—d. Port-Joinville, Ile d'Yeu, July 23), graduated from Saint-Cyr in 1878. The outbreak of war on Aug. 3, 1914, found him in command of the 33rd Infantry regiment; at the end of August he was promoted brigadier; at the battle of the Marne he commanded the 6th division; and in October he was at Arras commanding the 33rd army corps. In Feb. 1916, when the situation at Verdun became critical, General Joffre sent Pétain there as army commander. Pétain's rallying cry, " Ils ne passeront pas, on les aura! " made him the hero of France. In May 1916 he was appointed commander of the centre army group, and a year later he succeeded General Nivelle as French commander in chief. When General Ludendorff launched his offensive in March 1918, Pétain's nerve showed signs of cracking: Raymond Poincaré described him in his memoirs as " defeatist " and Georges Clemenceau preferred Foch, chief of the general staff, as candidate for the supreme command of the Allied armies in France. On July 23, 1918, Pétain was awarded the *Médaille Militaire* and on Nov. 21, 1918, he was made marshal of France.

After the war he was appointed vice-president of the Supreme War council and in Jan. 1922 he was also made inspector general of the army. In 1925, jointly with General Primo de Rivera, he led the French-Spanish forces against the revolt of Abd el-Krim in Morocco. In 1934 he was minister of war in the Doumergue cabinet. In March 1939 Edouard Daladier appointed Pétain French ambassador to Spain, but Paul Reynaud recalled the marshal in May 1940 and made him vice premier in the hope that his presence would strengthen the national morale. In June Pétain led the cabinet majority in favour of capitulation and asked Hitler for an armistice. On July 10, at Vichy, a panic-stricken National Assembly voted by 569 votes to 80 full executive and legislative powers to him as head of the *Etat Français*. On Oct. 24 he met Hitler at Montoire and an agreement in principle on collaboration was reached.

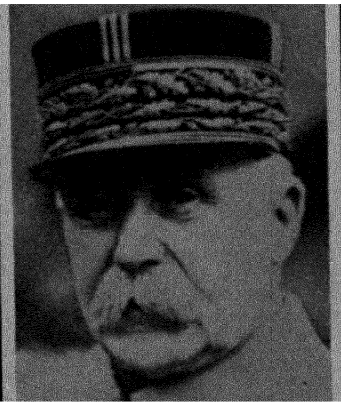
Until 1944 Pétain hoped for a peace of compromise, with France acting as intermediary. On Aug. 20, 1944, the Germans forced him to leave Vichy for Belfort and later Sigmaringen, Germany. On April 25, 1945, he presented himself at the Swiss-French frontier. His trial before the High Court of Justice opened on July 23, and on Aug. 15 he was sentenced to death, degradation and loss of property, but with a recommendation to mercy. General de Gaulle,



Marshal Carl Mannerheim



Ivor Novello



Marshal Henri-Philippe Pétain



General Ali Razmara

then prime minister, commuted the sentence to detention for life. Pétain was imprisoned in the fortress of Portalet, was transferred to a fort on the Ile d'Yeu in Nov. 1945 and thence, a month before he died, to the Villa Luco. (*See* also PÉTAIN, HENRI PHILIPPE BENONI OMER JOSEPH in *Encyclopædia Britannica.*)

Petsche, Maurice, French politician (b. Paris, Dec. 1, 1895—d. Paris, Sept. 16), joined politics as a "Left Republican" (Conservative) and in June 1925 was elected deputy for the Hautes-Alpes. Between Nov. 1929 and May 1932 he held various under secretaryships and was president of the council. He did not collaborate during World War II, and was re-elected in his old constituency in June 1946. He was under secretary of state for finance, from July 1948 to Jan. 12, 1949, when he was appointed minister of finance. In the summer of 1951 he was candidate for the premiership but on Aug. 2 failed to secure the necessary absolute majority. From Aug. 11 he served in the Pleven cabinet as minister of state.

Pitoeff, Ludmilla, Russian-born French actress (b. Tiflis, Georgia, 1896—d. Rueil, near Paris, Sept. 16), first appeared on the stage in 1917 at the semi-professional theatre in Geneva run by her husband, the Armenian-born actor Georges Pitoeff (1887-1939). There they produced and acted in their own translations of the great English, Russian and Scandinavian plays as well as the early works of such French dramatists as Henri-René Lenormand (*v. supra*). In 1919 they moved to Paris and appeared in such theatres as the Comédie des Champs-Elysées and the Vieux Colombier; from 1924 they managed the Théâtre des Arts and in 1934 moved to the Mathurins. After her husband's death, Ludmilla Pitoeff took their company on tour in the United States. The name-part in Bernard Shaw's *St. Joan* was regarded as her greatest acting triumph; her other notable performances were as Marguerite Gautier in *La Dame aux camelias*, Nora Helmer in *A Doll's House* and the leading part in Lenormand's *Le Temps est un songe*. She visited London twice, in 1930 (in *St. Joan*) and in 1933.

Rahmat Ali, Choudhary (Chaudhury), Pakistani propagandist (b. Mohar [?], India, 1896—d. Cambridge, Feb. 3), went to England as a law student in 1932. From that year he devoted himself to propagating, through pamphlets and his "Pakistan National (Liberation) movement," the concept of a separate Moslem nation in India (the "two-nation" theory). He derived "Pakstan" or "Pakistan" from the names of the Moslem home-lands in north-west India—Punjab, Afghan (North-West Frontier Province), Kashmir, Sind, Baluchis**tan**; (*pak* also means "pure" or "noble" in Urdu); but unlike the Moslem league proposals for a centralized Moslem state, his "Pak plan" provided for the dividing off, on a population basis, of nine Moslem enclaves in various parts of the sub-continent. He regarded the 1947 partition as "a great betrayal" and never accepted M. A. Jinnah's leadership. Rahmat Ali conducted all his propaganda from Cambridge and had few disciples in India.

Razmara, Ali, Persian army officer and statesman (b. Tehran, 1901—d. Tehran, March 7), graduated in 1925 from the French military academy of Saint-Cyr. He served in the pacification campaigns in the Kurdistan and Laristan provinces. In 1938 he became director of the Tehran Military Cadet college. His book on the military history of Persia earned him international repute. In 1944, during the Allied occupation of Persia, the shah made him general and ordered him to reorganize the military forces. Two years later he was appointed chief of staff and was responsible for the entry of the central government forces into Persian Azerbaijan to supervise the elections there, from which resulted the collapse of the Soviet-sponsored puppet rule. On June 26, 1950, the shah appointed him prime minister. Though efficient and hard-working, he had no large personal following. He tried to make the rich carry more of the burden of the state and he was opposed to the nationalization of the oil industry on the grounds that, for the time being, it would be impossible to run the industry with Persian technicians only. On March 7 he was assassinated outside the Maschede Soltaneh mosque by a member of the Fadayian Islam (Devotees of Islam) organization.

Robertson, Sir Malcolm Arnold, British diplomat and politician (b. London, Sept. 2, 1877—d. Walmer, Kent, April 23), entered the Foreign Office in 1898. From 1903 to 1919 he served in various diplomatic posts in Europe, the far east, South America and the United States. He was British high commissioner, Inter-Allied Rhineland commission, 1920-21, and agent and consul general, Tangier, 1921-25; in 1924 he was made a K.B.E. During 1925-27 he was minister at Buenos Aires, and served as ambassador there, 1927-29; in 1929 he was created K.C.M.G., being advanced to G.C.M.G. on his retirement in the following year. Robertson was Conservative M.P. for Mitcham, Surrey, 1940-45, and was chairman of the British Council, 1941-45. In 1927 he had been sworn of the Privy Council and in 1940 was elected a fellow of St. Catharine's college, Cambridge.

Romberg, Sigmund, Hungarian-born U.S. composer (b. Szegedin, Hungary, July 29, 1887—d. New York, Nov. 9), arrived in New York in 1909 and published his first song in 1911; one of his earliest musical plays was *The Midnight Girl* (1913). He achieved phenomenal success as a prolific composer of songs, operettas and *revues* in the popular-romantic manner. He was best known for the musical plays *The Student Prince* (1924), *The Desert Song* (1926) and *The New Moon* (1927). He also composed much film music.

Ross, Harold Wallace, United States editor (b. Aspen, Colorado, Nov. 6, 1892—d. Boston, Dec. 6), was editor of the U.S. army newspaper *Stars and Stripes* and became leader of a circle called the "Thanatopsis Literary and Inside Straight club." One of the circle was Raoul Fleischmann, of the yeast-manufacturing family, who in 1925 financed the *New Yorker*, of which Ross became editor. Under Ross's direction the *New Yorker* became the leading U.S. humorous and critical periodical.

Rowntree, Arnold Stephenson, British company director, politician and educationist (b. York, Nov. 28, 1872—d. Pickering, Yorkshire, May 21), was from 1897 to 1931 a director of the well-known confectionery firm founded by his uncles. He was associated with many Quaker and other adult educational bodies. From 1910 to 1918 he was Liberal M.P. for York.

Russell, Mabel (MRS. HILTON PHILIPSON), British actress and politician (b. Jan. 1, 1887—d. Brighton, Sussex, Jan. 9), played leading roles in musical comedy and later on the legitimate stage. She was Conservative M.P. for Berwick-on-Tweed, 1923-29. She returned to the stage in 1929 and made her last appearance in 1933.

Russell, Sir Odo William Theophilus Villiers, British diplomat (b. Rome, May 3, 1870—d. London, Dec. 23), was nominated attaché in the diplomatic service in 1892 and served at the Foreign Office, London, and in Rome, Athens, St. Petersburg, Buenos Aires, Vienna and Berlin. He was diplomatic secretary to the secretary of state for foreign affairs, 1915-19. He was British minister at Berne, 1919-22, to the Holy See, 1922-28, and at The Hague from 1928 to 1933 when he retired. He was created K.C.V.O. in 1923 and K.C.M.G. in 1926.

Sadako, dowager empress of Japan (b. Tokyo, June 25, 1884—d. Tokyo, May 17), the eldest daughter of Prince Michitaka Kujo, married the Emperor Yoshihito on May 10, 1900, at Tokyo. Her eldest son, Hirohito (b. 1901), became emperor on the death of his father on Dec. 25, 1926.

Sapieha, Adam Stefan, Polish cardinal (b. Krasiczyn, near Przemyśl, May 14, 1867—d. Cracow, July 23), of princely birth, was ordained in Oct. 1893. For a few years he was professor at the Lwów seminary and canon of the metropolitan chapter, but Pope Pius X called him to Rome in 1905, and he remained at the pontifical court until, on Dec. 17, 1911, the pope consecrated him prince-bishop of Cracow. During World War I Sapieha did important work as chairman of an episcopal relief committee and in the restored Polish state he at once became prominent in the nation as well as in the church. In 1925 Cracow was made a metropolitan see. During the German occupation, 1939-45, the archbishop spoke again and again for the Polish nation. He was created cardinal priest by Pius XII in Feb. 1946. He was the last cardinal at liberty behind the Iron Curtain.

Sauerbruch, (Ernst) Ferdinand, German surgeon (b. Barmen [part of Wuppertal from 1929], Germany, July 3, 1875—d. Berlin, July 2), was professor of surgery at Zürich university, 1911-18, at Munich university, 1918-28, and at Berlin university, 1928-49. He was noted for his method of using a loop of skin-protected muscle in the stump of an amputated member to operate, for instance, the hand, or even the fingers, of an artificial arm. His main publication on this topic was *Die willkürlich bewegbare künstliche Hand* (1911).

Saunders, Hilary Aidan St. George, British military historian and novelist (b. Clifton, Bristol, Jan. 14, 1898—d. Nassau, Bahamas, Dec. 16), was educated at Downside school, Somerset, served in the Welsh Guards in World War I, during which he was awarded the Military Cross, and afterwards went up to Balliol college, Oxford. From 1920 to 1937 he was on the secretariat of the League of Nations at Geneva, with intervals in 1921-23 when he was secretary to Fridtjof Nansen. While at Geneva he wrote several detective novels with a colleague, John Palmer, under the pseudonym "Francis Beeding"; they later collaborated in historical novels under the sobriquet "David Pilgrim." In 1938 he was appointed assistant librarian of the House of Commons, but on the outbreak of World War II was seconded first to the Air Ministry and later to the British embassy in Paris. With *The Battle of Britain* (1941), Saunders began the remarkable series of official popular war histories for which he was best known: subsequent volumes included *Bomber Command* (1941), *Coastal Command* (1942), *Combined Operations* (1943), *Valiant Voyaging* (on the merchant navy, 1949), *The Green Beret* (commandos, 1949) and *The Red Beret* (paratroopers, 1950). His *Per Ardua, The Rise of British Air Power 1911-39* appeared in 1944. In 1946 he returned to the House of Commons as librarian. He retired in 1950 because of ill-health. Among his other writings were histories of the Middlesex hospital (1950) and of Westminster hall (1951).

Schnabel, Artur, Austrian pianist (b. Lipnik, Austria, April 17, 1882—d. Axenstein, Lake Lucerne, Switzerland, Aug. 15), studied music under Hans Schmitt from the age of seven, later worked under Theodor Leschetizky and Mendyszewski, in whose house he met Brahms, and in 1896 began to give concerts and to teach. He toured extensively in Europe and the United States, visited Russia five times and played in Egypt, Palestine and Australia. From 1926 to 1931 he taught the pianoforte at the State Academy of Music, Berlin; he also lectured at Manchester university (in 1933) and at various U.S. universities. In 1933 he had left Germany, and in 1939 settled permanently in the United States, of which he became a citizen in 1944. Schnabel was best-known as an exponent of the great German masters, especially Beethoven and Brahms, much of whose music he edited. He himself composed symphonic, choral, chamber and piano music, and was the author of *Reflections on Music* (1933) and *Music and the Line of Most Resistance* (1942).

Schönberg, Arnold, Austrian composer and musicologist (b. Vienna, Sept. 13, 1874—d. Brentwood, California, July 13), was educated at the Volksschule and the Realschule, Vienna. He had learned to play the violin and violoncello at an early age. In musical theory he was mainly self-taught, but he also studied under Alexander von Zemlinsky, a friend of Johannes Brahms; he was later helped by Richard Strauss and Gustav Mahler. His early works were strongly influenced by Wagner, though much of the technique of Brahms is apparent. *Verklärte Nacht* (1899), a string sextet with the symphonic form of a tone poem, first drew attention to his music. His best-known work, the *Gurrelieder*, a cantata for soli, chorus and orchestra, also belongs to this period (1900). In 1902 Strauss obtained for him a teaching post at the Sternsches Conservatorium, Berlin. His *Kammersymphonie*, opus 9 (1906), marked the beginning of his breakaway from tradition, which was completed in the three piano

pieces, opus 11 (1909). These were written on the revolutionary 12-note scale-system with which his name is chiefly associated. He expounded this principle in *Harmonielehre* (1911) and other books. During this period he also wrote *Pierrot Lunaire* (1912), an accompanied poem-cycle for recitation in a kind of song-speech. From 1911 to 1914 Schönberg taught in Berlin. He succeeded Ferruccio Busoni as professor of composition at the Akademie der Kunst, Berlin, 1925-32, but left Germany in 1933 and for a time taught composition at the Malkin conservatory, Boston, Massachusetts. In 1935-36 he was the first Alchin professor of music at the University of Southern California, Los Angeles. He was professor of music at the University of California at Los Angeles from 1936 until his retirement in 1944. His compositions also included *Pelleas und Melisande* (1903), several string quartets, the monodrama *Erwartung* (1909) and the operas *Die Glückliche Hand* (1913) and *Von Heute auf Morgen*. As a teacher and theorist Schönberg had a profound influence on European and American music and numbered among his pupils Alban Berg and other composers. He also painted, professing allegiance to the expressionistic school of Wassily Kandinsky.

Seton-Watson, Robert William, British historian (b. Ayton, Perthshire, Aug. 20, 1879—d. Isle of Skye, July 25), was educated at Winchester college and at New college, Oxford. When visiting Vienna and Budapest in 1905 he became interested in political movements of the Habsburg monarchy; he started writing to the *Spectator* as "Scotus Viator" and in 1908 published a book on the *Racial Problems in Hungary*, followed in 1911 by *The Southern Slav Question*. In 1910 he met Thomas Masaryk and their friendship enabled Seton-Watson to render outstanding services to the Czechoslovak cause. Masaryk in exile was on the board of Seton-Watson's *The New Europe* (1916-20), a weekly review which stood for the reconstruction of central and eastern Europe on national and democratic principles. In 1922 Seton-Watson was appointed professor of central European history in the University of London and became joint editor (with Sir Bernard Pares) of *Slavonic and East European Studies*. He held the London chair until 1945 when he became the first professor of Czechoslovak studies at Oxford; he retired in 1949. His most notable books included *A History of the Roumanians* (1934), *Britain in Europe 1789-1914* (1937), *From Munich to Danzig* (1939) and *History of the Czechs and Slovaks* (1943). He contributed to the *Encyclopædia Britannica*.

Sherman, Forrest Percival, U.S. admiral (b. Merrimack, New Hampshire, Oct. 30, 1896—d. Naples, July 22), graduated from the U.S. Naval academy, Annapolis, Maryland, in 1917. He served in the Atlantic and the Mediterranean during World War I. He qualified as a naval aviator in 1922 and at the outbreak of World War II was fleet aviation instructor on the staff of the commander in chief, U.S. fleet. In May 1942 he assumed command of the U.S. aircraft carrier "Wasp" which was sunk by the Japanese later in the same year. He then became chief of staff to Vice Admiral John H. Towers and later chief of staff to Admiral Chester W. Nimitz, c. in c. of the U.S. Pacific fleet. In Dec. 1945 he became deputy chief of naval operations and in Jan. 1948 he was promoted commander of the U.S. forces in the Mediterranean. He was recalled to Washington on Nov. 1, 1949, to become chief of naval operations, being the youngest officer to hold that appointment. Admiral Sherman was one of the first to testify in support of the removal of General Douglas MacArthur (*q.v.*) from his command in the Pacific in 1951. He was on a mission to Europe involving the collaboration of the Spanish government in the defence of western Europe when he died.

Shidehara, Kijuro, Japanese diplomat and statesman (b. Osaka, Aug. 11, 1872—d. Tokyo, March 10), entered the Japanese foreign service in 1899 and served in Washington, 1912-14, London, 1914, and The Hague, 1914-15. He was a member of the Japanese delegation who signed the Versailles treaty. From 1919 to 1922 he was ambassador to the U.S. He was twice foreign minister (1924-27 and 1929-31). Attached to liberal policies, he was convinced that Japan's interests could best be served by maintaining friendly relations with both the U.S. and the U.K. In protest against the military occupation of Manchuria he resigned in 1931. He faded from leadership during World War II, but emerged on Oct. 6, 1945, as the first prime minister of Japan under the Allied occupation. Following the election of April 10, 1946, he was succeeded by Shigeru Yoshida. At the time of his death he was speaker of the House of Representatives. In postwar reforms the title of baron granted him in 1920 was taken away. (*See* also *Encyclopædia Britannica*.)

Sikelianos, Angelos, Greek poet (b. Levkas, Ionian islands, Greece, 1884—d. Athens, June 19). Much of his verse and prose which followed the publication of *Alavroiskioton*, an anthology of his first poetic works, was inspired by the Balkan wars, in which he fought, and all his writing was pervaded by a national consciousness and religious feeling. He wrote a number of plays and in 1926 and 1932 endeavoured to revive the Delphic festival.

Smith, Eric Martin, British banker and politician (b. Hitchin, Hertfordshire, Dec. 28, 1908—d. Hitchin, Aug. 13), was Conservative M.P. for Grantham, Lincolnshire, from 1950. In 1931 he was amateur golf champion.

Stacpoole, Henry de Vere, British novelist (b. Kingstown [now Dun Laoghaire], Co. Dublin, Ireland, April, 1863—d. Shanklin, Isle of Wight, April 12), practised medicine for some years. *The Blue Lagoon* (1909), with its exotic setting, was the first of his novels to command widespread attention. He wrote over 50 books, including translations from Sappho and François Villon, and a biography of the latter. The best known of his later novels are *The Reef of Stars* (1916), *Pacific Gold* (1931) and *Green Coral* (1935). In 1942 he published *Men and Mice*, an autobiography, and its continuation, *More Men and Mice*, in 1945.

Strasburger, Henryk, Polish diplomat and economist (b. Niemce, Poland, May 28, 1887—d. London, May 2), was Polish general commissioner in the Free City of Danzig, 1924-32. During World War II he served in the Polish governments in exile in Paris and London, 1939-42, but adhered to the Communist government in Warsaw from June 1945; he was appointed ambassador to the Court of St. James's in Aug. 1945, but resigned in Sept. 1946.

Suhl, Riad es-, Lebanese statesman (b. 1894 [?] -d. [assassinated] Amman, Jordan, July 16), was sentenced to death during World War I by a Turkish court martial for his pro-Arab activities, but the sentence was commuted to deportation. After World War I he fought against the French mandate in the Lebanon, was sentenced to death by a French court martial, but was pardoned in 1924. He opposed the Franco-Lebanese treaty of Nov. 13, 1936, and was exiled. From Sept. 1943 to Jan. 1945 he was the first prime minister of Lebanon; he returned to power in June 1947 and resigned in Feb. 1951. His assassination, while on a visit to King Abdullah, was attributed to members of the Syrian Nationalist party.

Sumner, (Benedict) Humphrey, British historian and college principal (b. London, Aug. 8, 1893—d. Oxford, April 25), was educated at Winchester college, Hampshire, and Balliol college, Oxford. He served in World War I and from 1919 to 1925 was a fellow of All Souls college, Oxford. He was a fellow of Balliol, 1925-44, and professor of history, Edinburgh university, from 1944 to 1945 when he returned to Oxford as warden of All Souls. He published *Russia and the Balkans, 1870-1880* (1937) and a *Survey of Russian History* (1944).

Swinton, Sir Ernest Dunlop, British major general and military historian (b. Bangalore, India, Oct. 21, 1868—d. Oxford, Jan. 15), was commissioned in 1888 and served in the South African War and World War I. In 1914 he contributed much to the invention of the tank by conceiving the idea of a tracked machine-gun-destroying vehicle; in 1916 he was appointed to raise the Heavy Section, Machine Gun corps, the forerunner of the Tank corps (of which he was colonel commandant, 1934-38). From 1925 to 1939 he was Chichele professor of military history in Oxford university and a fellow of All Souls college. His *The Defence of Duffer's Drift* (1904), a fictional tactical study, became an unofficial textbook in the British army and an official one in the U.S. army. His book of short stories *The Green Curve* (1909) gained a wide reputation; he also produced other historical and fictional works. He was created K.B.E. in 1923. (*See* also *Encyclopædia Britannica*.)

Tennyson, Lionel Hallam Tennyson, 3rd Baron, British amateur cricketer (b. London, Nov. 7, 1889—d. Bexhill-on-Sea, Sussex, June 6), a grandson of the poet-laureate, first played for Hampshire in 1913 and captained the county side from 1919. He played for the M.C.C. in South Africa in 1913-14, captained England against the Australian touring team in 1921 and led M.C.C. teams which toured South Africa, 1924-25, and the West Indies, 1925. He scored 16,425 runs in first-class cricket before he retired in 1937. He had succeeded to the barony in 1928. He wrote *From Verse to Worse* (1933) and *Sticky Wickets* (1950).

Tennyson-D'Eyncourt, Sir Eustace Henry William, British naval architect (b. Hadley, Hertfordshire, April 1, 1868—d. Hailsham, Sussex, Feb. 1), was director of naval construction, Admiralty, 1912-23, and designed the battleships "Nelson" and "Rodney" (completed 1925), which were unique in having all the main gun turrets in the forepart of the ship. Tennyson D'Eyncourt was also head of the Admiralty committee responsible for the production of the first tank. He was created K.C.B. in 1917 and a baronet in 1930.

Thomas, Sir Robert John, 1st baronet, British shipbroker and politician (b. Liverpool [?], April 23, 1873—d. Holyhead, Anglesey, Sept. 27), was Coalition Liberal M.P. for the Wrexham division, Denbigh, 1918-22, and Liberal M.P. for Anglesey from 1923 to 1929, when he retired from parliament to give more time to his shipping interests. He was created a baronet in 1918.

Thyssen, Fritz, German industrialist (b. Mülheim-Ruhr, Nov. 9, 1873—d. Buenos Aires, Feb. 8), inherited an immense fortune from his father August (1842-1926), one of the founders of the German iron and steel industry. He was successful in increasing this industrial empire and in the 1930s held 15% of the capital of the Vereinigte Stahlwerke, a trust that employed 200,000 workers. He was one of the earliest supporters of the National Socialist movement and spent some Rm. 3 million in sponsoring it; he held that Hitler would save Germany from Communism. After Germany's pact with the U.S.S.R. and the outbreak of World War II he decided to leave the country: in Sept. 1939 he fled to Switzerland, then went to France. On Dec. 15, 1939, it was announced in Berlin that his property, then valued at £17·6 million, had been confiscated and on Feb. 4, 1940, he was deprived of his citizenship. In 1941, while trying to escape to Spain, he was arrested by the Vichy police and turned over to the Germans, who deported him to Dachau concentration camp. Captured on May 7, 1945, by the U.S. 5th army near Dobbiaco, in the south Tirol, he was granted an amnesty in Oct. 1947 by the U.S. military governor in Germany. In 1948 a German denazification court found him guilty of being a "lesser nazi," and he was ordered to turn over 20% of his available property in Germany to the fund for victims of nazi persecution.

Tuckwell, Gertrude Mary, British social worker (b. Oxford, July 17, 1861—d. Guildford, Surrey, Aug. 5), campaigned ceaselessly for the improvement of the position of women in industry, and from 1904 to 1921 was president of the Women's Trade Union league. She served on many government and unofficial bodies concerned with women's affairs and in 1920 became the first woman justice of the peace in the County of London. In 1930 she was created a Companion of Honour. She wrote widely on industrial affairs and was joint author with Stephen Gwynn of a biography of the politician Sir Charles Dilke (1917).

Tyrwhitt, Sir Reginald York, 1st baronet, British admiral of the fleet (b. Oxford, May 10, 1870—d. Hawkhurst, Kent, May 30), entered

the Royal Navy in 1883. From 1914 to 1919 he commanded the "Harwich force" of cruisers and destroyers; he led the destroyers in the Heligoland Bight action (Aug. 28, 1914) and at the battle of the Dogger Bank (Jan. 24, 1915). In 1921-22 he commanded the 3rd Light Cruiser squadron. He was commander in chief, China station, from 1927 to 1929, when he was promoted admiral. From 1930 to 1933 he was commander in chief, the Nore. In 1934 he was promoted admiral of the fleet. Tyrwhitt had been created K.C.B. in 1917 and a baronet in 1919, and was promoted to G.C.B. in 1929.

Usborne, Cecil Vivian, British vice admiral (b. Queenstown [Cobh], Ireland, May 17, 1880—d. London, Jan. 31), entered the navy in 1894 and served in both World Wars. In 1915 he invented the earliest form of the Paravane anti-mine equipment. Among his commands were those of the battleships "Malaya" (1927-28) and "Resolution" (1928). Admiral Usborne's books included *Smoke on the Horizon* (1933) and *Blast and Counterblast* (1935).

Vandenberg, Arthur Hendrick, U.S. politician (b. Grand Rapids, Michigan, March 22, 1884—d. Grand Rapids, April 18), began to study law at the University of Michigan, Ann Arbor, but after family financial reverses became a journalist and later won wide attention with his editorials. In 1928 he was appointed to the U.S. Senate. Before World War II he was a leading isolationist, and it was therefore a spectacular political development when he announced in the Senate in Jan. 1945 that he now favoured positive U.S. leadership in world affairs. After the 1946 elections, when the Republicans obtained control of the Senate, Vandenberg, as chairman of the committee on foreign relations, began to steer legislation through the Senate under what he termed an "unpartisan" foreign policy. He was a delegate to the United Nations conference at San Francisco in 1945. He served as U.S. adviser at the 1946 Paris peace conference and was an early exponent of the policy of firmness in dealing with the U.S.S.R. The culmination of his bipartisan leadership was his sponsorship in the Senate of the Marshall plan for economic aid to Europe, and the later plan for military aid that was eventually embodied in the North Atlantic Treaty organization.

Vavilov, Serghey Ivanovich, Russian scientist (b. Moscow, 1891—d. Moscow, Jan. 25). He graduated from Moscow university in 1914, served in the Russian army and, after World War I, was appointed lecturer in physics at his old university. For his research in optics he was elected in 1931 corresponding member of the Soviet Academy of Sciences, was made full member a year later and in 1945 was elected president. He was editor in chief of the *Bolshaya Sovietskaya Entsiklopedia.* He was awarded the Stalin prize in 1943 and 1946.

Voronoff, Serge (SERGHEY VORONOV), Russian-born French surgeon (b. Voronezh, Russia, July 10, 1866—d. Lausanne, Switzerland, Sept. 2), served as surgeon-in-chief of the Russian hospital in France during World War I, much of his surgery being devoted to bone-grafting. In 1921, he became director of experimental surgery at the Collège de France, Paris, where he carried out experiments in grafting glands into sheep, with a view to improving their physique and the quality of their wool. On Oct. 5, 1937, he attracted attention when he informed the Société de Pathologie Comparée, Paris, that much physical and intellectual energy could be restored to the aged by the grafting of monkey glands. Among his published works were *Life, a Study of the Means of Restoring Vital Energy* (1921); *The Study of Old Age and My Method of Rejuvenation* (1926); and *Conquest of Life* (1932). Voronoff became a French citizen in 1897.

Walkden, Alexander George Walkden, 1st Baron, of Great Bookham, Surrey, British politician and trade union official (b. London, May 11, 1873—d. Great Bookham, April 25), became a Great Northern railway clerk in 1889 and in 1906 was appointed general secretary of the Railway Clerks' association, of which he had been a founder member in 1897. In 1921 he became a member of the general council of the Trades Union congress, and was chairman in 1932. He was Labour M.P. for South Bristol, 1929-31, and from 1935 until 1945 when he was elevated to the peerage and appointed captain of the King's bodyguard of the Yeomen of the Guard; he resigned from this post in 1949.

Walker, Dame Ethel, British painter (b. Edinburgh, June 9, 1861—d. London, March 2), studied under Frederick Brown at the Westminster School of Art and at the Slade school, University college, London. She treated a broad range of subjects in oil painting and also undertook murals and sculpture. She exhibited at the New English Art club, the Royal Society of British Artists and the Royal Academy, of which she was elected an associate in 1940. She was created D.B.E. in 1943. Her work is to be found in the Tate gallery, London, and elsewhere.

Waltz, Jean-Jacques ("ONCLE HANSI"), French caricaturist and writer (b. Colmar, France, Feb. 23, 1873—d. Colmar, June 10), lampooned pan-Germanism before World War I and was sentenced to a year's imprisonment at Leipzig in 1914 but was never caught. He joined the French army and was employed in its propaganda services to produce the imitation *Strassburger Post* which contributed to the demoralization of the German troops. Between the wars he wrote several books on the reunion of Alsace-Lorraine with France, notably *L'Alsace heureuse* (1920). During World War II "Hansi" escaped to Switzerland. In 1945 he returned to Colmar where he worked on his memoirs and on monographs on Alsation history.

Weizsäcker, Freiherr Ernst Heinrich von, German naval officer and diplomat (b. Stuttgart, May 25, 1882—d. Lindau, Bavaria, Aug. 4), served in the German navy, 1900-20, and joined the diplomatic service in 1920. He was minister to Norway (1931) and ambassador to Switzerland (1933), became political director at the German foreign office in June 1936 and secretary of state in Feb. 1938, and was ambassador to the Vatican, 1943-45. Arrested in July 1947 he was one of the 21 defendants in the so-called "Wilhelmstrasse trial" of diplomats and civil servants at Nuremberg (Dec. 1947-April 1949). Found guilty of planning aggressive war, Weizsäcker was sentenced to seven years' imprisonment, but in Feb. 1950 a U.S. military tribunal reduced this sentence to five years. On Oct. 14, 1950, he was released from Landberg prison under the clemency order of the U.S. high commissioner. Soon after, Weizsäcker published his *Erinnerungen* (Eng. trans., *Memoirs*, London, 1951), a book declaring that he had been prepared to serve loyally so long as Hitler seemed to realize nationalist aims without provoking a major war.

White, James Dundas, British lawyer and politician (b. Rutherglen, Lanark, July 10, 1866—d. London, April 30), was called to the bar in 1891 and became known as an authority on marine law and insurance. He was Liberal M.P. for Dunbartonshire, 1906-10, and for the Tradeston division, Glasgow, 1911-18. In 1919 he joined the Independent Labour party. He published many books and articles on legal, economic and nautical topics.

Wiles, Thomas, British politician (b. St. Albans, Hertfordshire, June 19, 1861—d. Stoke Poges, Buckinghamshire, May 18), was Liberal M.P. for South Islington, London, 1906-18. In 1916 he was sworn of the Privy Council. From 1941 to 1946 he was chairman of the Port of London authority.

Wilhelm (FRIEDRICH-WILHELM-VICTOR-AUGUST-ERNEST) **von Hohenzollern,** former crown prince of Germany (b. Potsdam, May 6, 1882—d. Hechingen, Württemberg, July 20), was the eldest son of the ex-Kaiser Wilhelm II. At 14 he entered the Plön Cadet school and in 1900 became an officer in the 1st Foot guards. The next year he entered Bonn university and studied law until 1903. On June 6, 1905, he married Cecilia, Duchess of Mecklenburg-Schwerin, and soon afterwards was appointed commander of the "Death's Head" hussar regiment stationed at Danzig. In 1913 he was seconded to the general staff in Berlin. He made himself famous by a telegram he sent in that year to a German officer bullying the Alsations of Saverne in which he used the phrase "Hit hard, always hard." He was given command on the outbreak of World War I of the 5th army and in 1915 of the army group which in 1916 tried to take Verdun. On Nov. 10, 1918, following his father, he fled to Holland and on Dec. 1, 1918, he formally renounced his rights of succession to the crown of Prussia and the German Empire. In Nov. 1923 Gustav Stresemann, then the chancellor, authorized him to return to Germany on condition that he would take no part in politics. In 1932, however, "Little Willie" urged Berliners to vote for Hitler and in 1933 he joined the N.S.K.K. (Nazi motorized corps). During World War II he stayed on his estate at Oleśno (Oels), Silesia; in 1944 he moved to his Potsdam palace, the Cecilienhof, and in 1945 he fled to Lindau, Bavaria. He was later captured by the French.

Wittgenstein, Ludwig, Austrian philosopher (b. Vienna, 1889—d. Cambridge, April 29), was educated in Vienna, at Berlin-Charlottenburg, at Manchester university and at Trinity college, Cambridge, where he studied under Bertrand Russell. His *Tractatus Logico-philosophicus* (1921; Eng. trans., 1922) quickly gave him an international reputation as a philosophical innovator of the first importance and helped to originate the logical positivism of the "Vienna Circle." In 1929 he returned to Cambridge where he became a fellow of Trinity college in 1931 and, in 1939, successor to G. E. Moore (*q.v.*) in the chair of philosophy; during this period two sets of notes dictated to groups of pupils and known respectively as *The Blue Book* and *The Brown Book* were (contrary to Wittgenstein's wishes) widely circulated. In these he departed from the *Tractatus* and gave impetus to a new philosophical method of "ordinary language" and his later work, most of which is unpublished, bears largely on the philosophy of psychology and mathematics. Throughout his life he alternated between periods of academic prominence and hermit-like retirement, and in 1947 he resigned his chair when he found that his teaching duties hindered creative writing. In 1939 Wittgenstein was naturalized as a British subject.

Wood, Sir John, 1st baronet, British lawyer and politician (b. Glossop, Derbyshire, Sept. 8, 1857—d. Hengrave, Suffolk, Jan. 28), was called to the bar in 1883. He was Conservative M.P. for Stalybridge, Cheshire, 1910-18, and Unionist M.P. for the Stalybridge and Hyde division, 1918-22. He was created a baronet in 1918.

Woods, George Saville, British Unitarian minister and politician (b. Edmonton, London, Sept. 13, 1886—d. York, July 9), held pastoral appointments at Taunton, Somerset, and at York. He was Labour and Co-operative M.P. for Finsbury, London, 1935-45, for Mossley, Lancashire, 1945-50, and for Droylesden, Manchester, from 1950. He was also on the national executive of the Co-operative union.

Worthington, Sir John Vigers, British politician (b. Lowestoft, Suffolk[?] 1872—d. Lyme Regis, Dorset, June 16), supported Ramsay MacDonald in the general election of 1931: from then until 1935 he was National Labour M.P. for the Forest of Dean and parliamentary private secretary to the prime minister. He was knighted in 1935.

Yahuda, Abraham Shalom Ezekiel, Jewish Biblical scholar (b. Jerusalem, June 18, 1877—d. Saratoga Springs, New York, Aug. 13), was educated at Heidelberg and Strasbourg universities and was appointed professor of Biblical exegesis and Semitic philology at the High School of Hebrew Learning, Berlin, at the age of 28. In 1915 he became professor of rabbinical language and literature at the Central university, Madrid; he was thus the first Jew to be appointed to a Spanish university chair since the expulsion of the Jews from Spain under Ferdinand and Isabella. His most important book was *Die Sprache des Pentateuch in Ihren Beziehungen zum Agyptischen* (1929; English translation by Yahuda, 1933) in which he set out to disprove those who regarded the Pentateuch as post-exilic.

Yefremov, Aleksandr Illarionovich, Soviet politician of Russian nationality (b. Moscow, April 23, 1904—d. Moscow, Nov. 23) joined the Communist Youth league in 1918 and the Communist party in 1924. After a period as a railway mechanic he studied at the Moscow Institute of Machine Tools and later became director o

the Moscow Ordzhonikidze machine tool factory. In 1938 he was elected chairman of the Moscow soviet and deputy to the supreme soviet of the Russian S.F.S.R.; in 1939 the All-Union Communist party elected him to its central committee. In 1939 also he was appointed deputy people's commissar for heavy machine construction; in 1941 he was promoted people's commissar at the same ministry which during World War II administered tank construction. In 1946 he was appointed minister of machine-tool building industry and in 1949 became one of the deputy chairmen of the Soviet council of ministers. In 1946 and 1950 he was elected deputy to the Soviet of the Union.

OBSTETRICS: *see* GYNAECOLOGY AND OBSTETRICS.

OCEANOGRAPHY. A. F. Bruun, leader of the Danish Deep Sea expedition, which in 1951 started a two-year circumnavigation of the oceans in the ship "Galathea" lent by the Danish navy, reported that living animals, clay and stones had been dredged from the sea bottom in depths greater than 10,000 m. east of the Philippine Islands; Professor C. F. Zobell of the Scripps Institution for Oceanography found living bacteria in the samples. The "Challenger," a Royal Navy ship, reported a sounding of 10,854 m., 370 m. more than the previously accepted greatest oceanic depth in the same neighbourhood. The U.S. Mid-Pacific expedition found a large submerged mountain range between the Hawaiian Islands and Wake Island, and a 1,000-mi.-long, half-mile-high submerged escarpment running west from the coast of California at Cape Mendocino 200 mi. north of San Francisco. Continued examination of the observations made by the Swedish Deep Sea expedition in the "Albatross" (1947-48) afforded more evidence that there are water movements at the bottom of the ocean sufficiently strong to erode bottom elevations and to transport eroded material in clouds of finely divided particles.

United States research on the Gulf Stream was extended into the Atlantic ocean east of Newfoundland. Walter H. Munk, G. W. Groves and G. F. Carrier added to the previous work by Munk and H. Stommel on the wind-driven circulation of water in the oceans by allowing for the effect of the density layering. Their more detailed theory explained the counter current between the Gulf Stream and the American coast, and the sharpness of the western boundary of the stream after it leaves the coast. U.S. research in the Mediterranean sea showed that the bottom water in the eastern half of the sea is formed to a large extent round the northern margin of the Ionian sea.

There was growing reason to believe that the slicks or calm streaks often seen on the rippled water of seas and lakes are caused by the ripple-damping action of a surface film of organic matter which occurs naturally in biologically productive water. The ability of the surface film to damp the ripples is believed to depend on its thickness, which may be increased by horizontal convergence of water movement or wind stress. In addition to the closely spaced streaks which occur in winds stronger than 7 to 10 knots, well-known to airmen as wind streaks, there can be parallel calm lanes in weaker winds; Gifford Ewing attributed these to the convergent movements due to the presence of internal waves in shallow density layers. Further theoretical and experimental work was in progress.

The British Admiralty reported the successful use of underwater television for the examination of wreckage lying on the sea bottom. The British Fishery laboratories used swimmers with underwater cameras to film the operation of trawling and fishing gear. More information was obtained about echo-sounding traces from fish shoals by using lights and bait to influence the movements of the shoals. N. B. Marshall summarized the echo-producing potentialities of deep-sea fishes.

The British research ship "William Scoresby," operated by the National Institute of Oceanography, discovered the breeding ground of the pilchard (*Sardinops sagax*) on which the modern South African pilchard fishery is based. Preliminary examination of the catches of eggs and larvae showed that spawning takes place in the spring, within 25 mi. of the coast in depths of 50 to 150 m., mainly between 22° and 26°S.

At the general assembly of the Association of Physical Oceanography in Brussels in September there were symposia on the ocean floor, currents, waves and turbulence. Abstracts of the papers, and reports of the activity of member countries were published by the association. Rachel Carson wrote a comprehensive popular account of present oceanographical knowledge in *The Sea Around Us*, published in the United States and the United Kingdom. (G. E. R. D.)

OIL: *see* PETROLEUM.

OILS AND FATS, VEGETABLE AND ANIMAL: *see* VEGETABLE OILS AND ANIMAL FATS.

OMAN AND MUSCAT: *see* ARABIA.

ONN BIN JA'AFAR, DATO*, Malayan politician (b. Johore, 1895), was the son of a Malayan official and his Circassian wife. His father was prime minister to the sultan of Johore who sent the young Onn to an English preparatory school (1904-10). After a year at the Malay college, Kuala Kangsar, Onn entered the Johore civil service. Ten years later, after differences with the sultan, he took up journalism in Singapore. In 1936, at the sultan's request, he returned to Johore and became a state councillor on condition that he was allowed "full freedom of speech and action." At the beginning of World War II he joined the Johore Defence corps as a private and during the Japanese occupation he was food controller in Johore. In 1946 Onn became acting prime minister of Johore and organized the Movement of Peninsular Malays in opposition to the Malayan union plan proposed by Great Britain. He stressed the "sovereign rights" of the Malay states "not as pawns in the hands of Chinese Communists or Indonesian-cum-Malay nationalists." After the British government had substituted a federal constitution for the Malayan union plan he moved slowly in the direction of political co-operation with Chinese and Indian leaders in Malaya. In 1949 the sultan of Johore dismissed him as prime minister, and the following year Onn, as chairman of the United Malays National organization (U.M.N.O.), agreed to substantial concessions in fixing citizenship qualifications for non-Malays. He was nominated chairman of a new Rural and Industrial Development authority in 1950 and member for home affairs in the federal government in the following year. In 1951, after U.M.N.O. had rejected his proposal to admit non-Malays to membership, Onn resigned and launched, in conjunction with Chinese, Indian and Eurasian leaders, an "Independence for Malaya" party open to all residents of Malaya and with independence in ten years as its goal. (D. A. SN.)

ORGANIZATION FOR EUROPEAN ECONOMIC CO-OPERATION (O.E.E.C.): *see* EUROPEAN RECOVERY PROGRAMME.

ORGANIZATION OF AMERICAN STATES. On Dec. 13, 1951, Colombia deposited its ratification of the charter of the Organization of American States (O.A.S.), signed at Bogotá in 1948, bringing the number of ratifications to 14—the necessary two-thirds of the 21 signatory states to bring the charter into legal force. Later in the month the government of Venezuela also ratified the charter. Ratifications by Argentina, Chile, Cuba, Guatemala, Peru and Uruguay were still pending.

* Dato = "chief official," a title adopted by Onn when prime minister of Johore.

The charter established seven agencies to accomplish the organization's purposes: the Inter-American conference; the meeting of consultation of ministers of foreign affairs; the council of the O.A.S.; the Pan American Union; the specialized conferences; and the specialized organizations. No meeting of the Inter-American conference was held during 1951, but the council of the organization began preliminary preparations for the tenth conference, scheduled to meet in Caracas, Venezuela, in 1953.

By the terms of the charter, the council of the organization, with one representative from each member state, became in effect the permanent executive organ of the organization. It established its headquarters at the Pan American Union in Washington. In 1951 the council, in addition to exercising general supervision over the other agencies of the organization and making arrangements for the fourth meeting of consultation of ministers of foreign affairs, continued its study of the structural development of the inter-American system.

The fourth meeting of consultation of ministers of foreign affairs was an outstanding event of 1951. It met in Washington, D.C., from March 26 to April 7, following a request of the United States for a meeting to consider the aggressive policy of Communism and the measures that should be taken to meet it. All 21 of the American republics were represented, 20 of them by their foreign ministers. The three topics of the agenda dealt with political and military co-operation, internal security and emergency economic co-operation.

On the subject of political and military co-operation the conference adopted the "declaration of Washington" in which the foreign ministers declared the firm determination of the American republics to remain united in the existing emergency, or in the face of any aggression or threat against any one of them. Measures of inter-American military co-operation were agreed upon, and the Inter-American Defence board was charged with the preparation of military plans for common defence of the hemisphere.

The meeting emphasized the need for each country to review its laws and regulations to assure its internal security against the encroachments of Communism, and to prevent and punish subversive activities. The Pan American Union was requested to undertake technical studies for the purpose of facilitating the execution of this resolution.

Major consideration was directed to questions of an economic character, and resolutions of a two-fold character were adopted: the production and distribution of products in short supply and utilization of necessary services to meet the requirements of the economies of the American republics; and measures to facilitate the carrying out of programmes of economic development.

At the meeting of the council of the O.A.S. held Nov. 21, John C. Dreier (United States) was elected chairman for the following year, succeeding Hildebrando Accioly (Brazil).

(W. MR.)

ORNITHOLOGY. Both as a science and a recreation ornithology continued to show great diversity of approach in 1951. United States ornithologists made the centenary of J. J. Audubon an occasion for special emphasis on conservation, and 1951 also saw the 25th anniversary of the Nederlandische Ornithologische Vereeniging in Holland. By staying at camps in nature reserves or at field centres, or by means of long-distance coach trips, thousands of bird-watchers in the English-speaking countries indulged their hobby on vacations and short holidays. Because birds know no frontiers, there were recoveries of marked individuals across the political barriers dividing Europe, and, in this sphere at least, a measure of international co-operation.

The popularity of studies of migration and orientation in western Europe was reflected both in the development and



Peter Scott (left), leader of the Severn Wildfowl Trust expedition to Iceland in 1951, marking a pinkfooted gosling.

increase of coastal and insular bird observatories, and in the objects of several expeditions. The Anglo-Icelandic members of the Severn Wildfowl trust party in the central desert of Iceland succeeded in marking 1,152 goslings and flightless adults of the pinkfooted goose (*Anser brachyrhyncus*). Before the end of 1951, 50 of these Iceland-marked birds had been recovered in Great Britain on their next migration. Cambridge undergraduates, equipped with portable traps, marked over 300 birds of many species in southern Norway before their take-off across the North sea, and the visit fortunately coincided with a remarkable movement of the European robin (*Erithacus rubecula*) and other small birds, which reached British bird observatories in the first week of October. As regards North America, a paper by A. Sprunt (see *Auk*, 68: 218-226, Lancaster, Pennsylvania, 1951) suggested that all the conditions needed for a successful island observatory were present on the Dry Tortugas in the Gulf of Florida. G. V. T. Matthews (Cambridge) and Gustav Kramer (Wilhelmshaven) continued their researches into orientation and homing.

Intensive observations on particular species engrossed ornithologists all over the world, from Point Barrow, 71°N. in Alaska, where work on three common species was begun, to New Zealand, where a team published their studies of the life-history of *Notornis*, the flightless rail rediscovered in 1948 after 50 years. Another mysterious bird, the Bermudan cahow (*Pterodroma cahow*), was reported on by R. C. Murphy and L. S. Mowbray; A. F. Skutch published more studies of central American birds, and D. and E. Lack's work on the swift (*Apus apus*) was also published during 1951. In Finland, L. von Haartman published a second paper on the pied flycatcher (*Muscicapa hypoleuca*), a species on which ornithologists were concentrating right across its European breeding range.

Knowledge of bird behaviour was increased by W. H. Thorpe's long paper on the learning abilities of birds (see *Ibis*, 93: 1-52, 252-296, London, 1951) and Thorpe, with R. A. Hinde, began experimental work at the new ornithological field station near Cambridge. Other important papers dealt with group adherence (O. L. Austin), the nature

and function of animal mimesis (E. A. Armstrong), familial recognition (A. O. Ramsay) and the behaviour of the European jay (*Garrulus glandarius*) (D. Goodwin).

Faunistic work was a feature of Asiatic, African, South American and Australasian ornithology. In India, where increasing interest led to the formation of a Delhi Bird Watching society, Dillon Ripley and H. G. Alexander collected in the Naga hills, on the borders of Burma, and Salim Ali, of the Bombay Natural History society, took photographs in Kashmir. Twenty years' work was crowned by the appearance of the eighth and final volume of D. Bannerman's *Birds of Tropical West Africa* (London, 1951), and studies of the avifauna of Eritrea, Malta, the Canary Islands, Pico (Azores), the Crimea, Bengal, Micronesia, Greenland, Colombia and British Columbia indicated the great activity in this field. In the field of systematics the chief event was the appearance of volume 7 of J. L. Peters' *Check-List of the Birds of the World* (Cambridge, Massachusetts, 1951), in which he began to tackle the great Passerine order; J. Delacour published an illustrated monograph on the pheasants (*Phasiani*) of the world, and there was an important contribution by E. Mayr and D. Amadon on the classification of recent birds. On the subject which he had made very much his own, E. Stresemann published *Die Entwicklung der Ornithologie* (Berlin, 1951), and both in Australia and the U.S. some attention was given to the effect of modern insecticides on bird-life. (*See* also WILD LIFE CONSERVATION; ZOOLOGY.) (B. CL.)

ORTHODOX EASTERN CHURCHES. The 19th centenary of the arrival of St. Paul in Greece was observed in that country from June 15 to 30, 1951. Some 280 pilgrims visited the places connected with the journeys of St. Paul, after which solemn services were held, on June 28 on the Areopagus, when Archbishop Spiridon of Athens preached in the presence of the king and queen of Greece, and on June 29, the feast of St. Paul, in Athens cathedral. It was especially significant that not only were the historic patriarchates of Istanbul (Constantinople), Antioch, Alexandria and Jerusalem represented, but many pilgrims came from Serbia and from the western countries. A youth group from 18 nations, including Japan and Iceland, also took part, and the Student Christian association of Greece was responsible for the publication of a valuable commemorative symposium. The Vatican declined an invitation from Archbishop Spiridon to send a delegation, although some Roman Catholics participated in a private capacity. The patriarch of Moscow also declined, although he sent a letter of congratulations to the Church of Greece.

It was learnt in the spring that a committee of Orthodox metropolitans had been appointed by the Holy Synod of the oecumenical patriarchate to visit the patriarchates of Alexandria, Jerusalem and Antioch to discuss the proposal that a Pan-Orthodox council should be convened by the oecumenical patriarch Athinagoras I. The patriarch Christopheros II of Alexandria had earlier expressed the hope that by means of such a council relations might be re-established between the Greek, Coptic and Armenian Churches. The council would also discuss the position of the Orthodox in the United States where, according to the patriarch Christopheros, political and ecclesiastical divisions had created a disorder that could not be allowed to continue. The Holy Synod in Istanbul examined this proposal on Feb. 8, and the opinion of the autocephalous Orthodox Churches was sought in the oecumenical patriarch's encyclical letter of Feb. 12. The proposed council would take place at Mount Athos.

The cleavage in the Orthodox world precipitated by developments in the Communist-dominated countries continued meanwhile to harden. Delegates of the Rumanian Orthodox parishes in the United States met in Chicago in July, having broken relations with the Rumanian patriarch; and they refused to accept his exarch, Bishop Moldovan. They unanimously elected Viorel Trifa as their bishop.

In Bulgaria, on the other hand, the government ratified a new statute giving control over the church to a National Ecclesiastical council and at the same time raising the exarchate at Sofia to the dignity of a patriarchate. On Jan. 3 the Holy Synod elected the Metropolitan Kyril of Plovdiv to be *locum tenens* in Sofia.

The *Journal of the Patriarchate of Moscow* continued to be preoccupied with "the struggle for peace," a theme which was even worked into the Pastoral Letter with which the patriarch Aleksey commemorated the Council of Chalcedon in October. Archbishop Boris was appointed in November to be exarch of the patriarch of Moscow in Western Germany.

The Metropolitan Josip of Skoplje, who had been in "protective custody" in various monasteries since the election of the new Serbian Patriarch in June 1950 (see *Britannica Book of the Year 1951*) was given his freedom in Nov. 1951.

Archbishop Germanos, metropolitan of Thyateira, exarch of the oecumenical patriarch for western and central Europe, died on Jan. 23 in London where he had worked for 30 years (*see* OBITUARIES). He was succeeded by Archbishop Athinagoras and one of the first engagements of the new exarch was to preside at a conference held at Baden-Baden, Germany, from June 11 to 13, when more than 50 heads of Orthodox groups in six western European countries met to discuss their common problems.

Archbishop Gennadios, metropolitan of Salonika, died on March 17 and was succeeded by Archbishop Panteleimon, previously metropolitan of Edessa and Pella and a member of the central committee of the World Council of Churches. Archbishop Sawa Sowietow, of the Polish Orthodox Church, formerly archbishop of Grodno and Nowogródek, and since 1943 head of the Polish Orthodox community in Great Britain, died in London, on May 20. (M. DK.)

OSTEOPATHY. The year 1951 was one of further progress. The enrolment of students at the British School of Osteopathy was well maintained, and the remarkable growth of the school since the end of World War II seemed likely to continue. During the year 11 students graduated and it was expected that the number would be larger in 1952.

There was a further increase in the membership of the General Council and Register of Osteopaths, which had risen to 193 in 1951. There was also a welcome tendency for younger osteopaths to start practice in provincial centres where osteopathy was little known and supplied a real need.

Despite the inauguration of the national health scheme, osteopaths felt that their policy of maintaining the independence of the profession and of its educational system had been amply justified. There was some interest shown in manipulative treatment by sections of the medical profession, but the manipulation being practised by doctors, both inside and outside the hospitals, was inadequate both in quantity and quality to meet the needs of the public in the field of manipulative therapy. Moreover, the number of doctors who appeared anxious to learn the possibilities and techniques of osteopathic treatment was surprisingly small, and the attempt of one osteopathic group to provide a course of training designed for medical men met with little response. It seemed, therefore, that if osteopathy was to survive and develop in Great Britain it would have to be organized as a separate profession with its own training establishments, educational system and professional research organizations, and its own clinics for the treatment of those unable to afford

the services of a private practitioner. It was on these lines that the profession was working and already, in 1951, it seemed to be achieving some success. (J. C. P. P.)

OXFORD UNIVERSITY. In June 1951, 6,122 men and 1,085 women were in residence, a total of 7,207 which was 587 less than the largest number since World War II. The distribution between arts and other subjects remained about the same. The proportion of men coming up under the age of 19 increased from 10% in 1949 to 17% in 1950, while the proportion of women fell from 43% to 35%. It seemed therefore that more of the men intended to do their national service after taking their degrees.

The trend of interest of undergraduates in the arts faculties is shown by the increase between 1939 and 1951 in the numbers taking certain final honour schools. Candidates in modern history increased from 268 to 384, in English from 120 to 244, in modern languages from 123 to 229 and in Modern Greats (politics, philosophy and economics) from 152 to 256. In Greats proper (the final classical school) candidates decreased from 146 to 131. The number of research students rose from 3·46% to 5·27% of the total number of students, and the percentage of such students who had previously been to other universities rose from 6·01% to 10·39%.

The new botany laboratory, which adjoins the Imperial Forestry institute, was opened by Lord Rothschild on Oct. 8. The new physiology laboratory was expected to be finished by July 1953. Plans for the extension of the inorganic chemistry laboratory were approved and building would commence in the academic year 1951-52.

Sir Maurice Bowra, the warden of Wadham, succeeded the Very Rev. John Lowe, dean of Christ Church, as vice chancellor on Oct. 10. Sir Hubert Henderson, professor of political economy, was elected warden of All Souls in succession to B. H. Sumner, who died on April 25. Other elections to the headship of colleges were: Corpus Christi college, W. F. R. Hardie in succession to Sir Richard Livingstone; University college, Professor A. L. Goodhart in succession to the Rev. J. H. S. Wild, appointed dean of Durham; St. Edmund hall, Canon J. N. D. Kelly in succession to A. B. Emden. John Thomson, curator of the university chest since 1949, was appointed deputy steward in succession to the late Sir William Goodenough.

The following professorial changes occurred in 1951: poetry, C. Day Lewis succeeded Sir Maurice Bowra; Egyptology, J. Cerný succeeded Battiscombe Gunn; philosophy of the Christian religion, I. T. Ramsey succeeded L. W. Grensted; Rouse Ball mathematics, C. A. Coulson succeeded E. A. Milne; George Eastman visiting professorship, D. A. Stauffer of Princeton succeeded Wallace Notestein of Harvard; Harmsworth American history, L. H. Gipson of Lehigh, Pennsylvania, succeeded C. S. Sydnor; modern history. R. B. Wernham succeeded E. L. Woodward.

Keble college applied to the Privy Council for a new charter of incorporation under which it would in future be governed by its warden and fellows instead of by an external council. The university would on the grant of the charter admit it to the full status of a college. On behalf of St. Anne's society, the most recently founded of the women's societies, the university applied for a charter of incorporation as a college. It was founded as the Home Students' society. Its title was changed, however, to St. Anne's society in 1942, and it would become St. Anne's college if the charter were granted. (D. V.)

See *Oxford University Handbook; Oxford University Gazette*, Oct. 11, 1951, suppl. 2 containing the vice chancellor's review of the year; *Oxford*, magazine of the Oxford Society.

PACIFIC ISLANDS, BRITISH. Territories administered by the high commissioner, western Pacific. The principal are: Gilbert and Ellice islands (colony; 375 sq.mi.; pop. 1947 census, 36,000); Solomon islands (protectorate; 11,000 sq.mi.; pop. 1950 est., 99,338); Tonga (protectorate; 250 sq.mi.; pop. Dec. 1949 est., 46,870); New Hebrides (*q.v.*) Populations: Micronesian; Polynesian; Melanesian. Administration: resident commissioners, agents or administrative officers appointed by the high commissioner; (Tonga) sovereign, cabinet, legislative assembly. High commissioner, Sir Leslie Brian Freeston; ruler of Tonga, Queen Salote Tupou.

History. The two most important events were the tour of John Dugdale, minister of state for the colonies, in August and the announcement then made that in future the offices of governor of Fiji and high commissioner for the western Pacific would not be held by the same individual and that the headquarters of the high commission would be moved to Honiara, in the Solomons. On Feb. 16 Tonga celebrated the 50th anniversary of its treaty with Great Britain and Queen Salote received a special message from King George VI.

Education. Solomon islands: 1 government school at Auki; several missionary schools. Gilbert and Ellice: free and compulsory education to 16; 233 primary schools (2 government, remainder mission), 8,000 pupils; many pupils sent to Fiji and New Zealand for further education. Tonga: free and compulsory to 14; 129 primary, 9 secondary schools; 1 teacher training college; pupils sent to New Zealand and Fiji for higher education.

Finance and Trade. Currency: Australian pound (£A 125=£100 sterling) and sterling; Tonga issues its own notes.

	Revenue*	Expenditure*	Imports 1950	Exports 1950
Solomon Islands	£A 619,000	£A 619,000†	£A 618,882	£A 857,980
Gilbert and Ellice	£A 491,205	£A 491,205‡	£A 251,000	£A 255,000
Tonga . .	£A 373,149	£A 391,668	£A 581,000	£A 862,000

* 1951 est. † incl. grants-in-aid £A 215,656. ‡ incl. grant-in-aid and surplus balances £A 193,074.

Principal exports: phosphates (Ocean island); copra. (K. G. B.)

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PACIFIC ISLANDS, FRENCH. Two former French colonies, the status of which was changed in 1946 to that of overseas territories, and the Anglo-French condominium of the New Hebrides (*q.v.*). Areas and populations are:

	Area (sq.mi.)	Population (1936 census)	Population (1946 census)
New Caledonia and dependencies	7,654	53,245	61,250
French Settlements in Oceania	1,545	43,962	55,734

Population, New Caledonia proper (6,533 sq.mi.) and the dependencies: Melanesian with Polynesian admixtures; Europeans (1946) 18,737, mostly French; 8,600 Javanese; 4,100 Annamese immigrants. Nouméa (pop. 1946, 10,466) is the seat of the commissioner general for the Pacific ocean, Raoul Angammare.

The Etablissements Français de l'Océanie consist of the Society Islands (the largest of which is Tahiti), the Marquesas, Tuamotu and other smaller islands. Pop.: Polynesian, majority Christian; Europeans (1946) 1,700, incl. 900 French and 500 British; also 6,390 Chinese immigrants. Papeete, on Tahiti (pop., 1946, 12,428), is the seat of the governor.

History. Demographic statistics showed considerable increases in New Caledonia: in 20 years Europeans had increased by 33%, natives by 18%. Expansion of the areas under cultivation (only 6,500 hectares out of 318,000 taken over) became imperative. Livestock (90,000 head) could also be increased. It was suggested that new labour might be recruited amongst the Javanese.

An Institut Français d'Océanie has its seat at Nouméa. A geological map was in preparation, and prospecting revealed

new deposits of chrome. The South Pacific commission (*q.v.*), likewise with its seat at Nouméa, undertook an extensive survey with a view to improving economic and social conditions throughout the isles.

New Caledonia's airline communications were improved: two flights a month between Saigon and Nouméa put the town within two days reach of Paris. Pan-Air American and an Australian company provided a weekly link with Sydney and San Francisco.

In Oceania new vistas were opened by the survey of the wealth of the seas, especially when the presence of tunny was revealed. Work was in progress to develop communications.

Deputies elected on June 17, 1951, to the National Assembly in Paris were: an Independent in New Caledonia and an Autonomist (Pouvanoa Ooba) in Oceania.

Education. New Caledonia (1950): pupils, primary 9,522, secondary 508, technical 132; bursaries in France 35. Oceania (1950): pupils, primary 11,408, secondary 285, technical 96; bursaries in France 23.

Foreign Trade. (1950, million Fr. C.F.P.) *New Caledonia.* Imports 732, incl. 297 from France and 200 from Australia; exports 522, incl. 382 to France. Principal exports: nickel 70, chrome 48, coffee 40. *Oceania.* Imports 535, incl. 272 from the U.S. and 116 from the French Union; exports 478, incl. 264 to France and 91 to New Zealand. Principal exports: copra 258, phosphates 146, vanilla 44.

Transport and Communications. Cargo handled in ports (1950, '000 metric tons): Nouméa 480, Papeete 250.

Finance. Budget: New Caledonia (1951 est.), balanced at Fr. C.F.P. 387 million; Oceania (1951 est.), balanced at Fr. C.F.P. 238 million. Monetary unit: franc C.F.P. (Colonies Françaises du Pacifique) =metropolitan Fr. 5·50. (HU. DE.)

PACIFIC ISLANDS, U.S. Under this heading are grouped the possessions and trust territory of the United States in the Pacific.

American Samoa. An unorganized U.S. possession consisting of the islands of Tutuila, Tau, Olosega, Ofu, Aunuu and Swain and the coral atoll, Rose island, 2,200 mi. S. of the Hawaiian islands. Total area: 76 sq.mi. Pop. (mid-1951 est.): 19,000 (*c.* 80% on Tutuila). Capital, Pago Pago, on Tutuila. Governors (1951): Capt. Thomas F. Darden Jr. and (from Jan. 22, 1951) Phelps Phelps. Administration was transferred from the U.S. navy to the Department of the Interior on July 1, 1951.

Education. Schools (1951): 51 elementary and junior high; 1 senior high; 1 vocational; 6 private; total pupils 5,301.

Finance and Trade. Budget (1950-51 actual): revenue $397,009; expenditure $632,001; deficit met from accumulated surpluses. Foreign trade (1950-51): imports $790,978; exports $197,655. Principal exports: copra.

Guam. Southernmost island of the Marianas, unincorporated U.S. Territory. Area: 206 sq.mi. Pop. (mid-1951): 58,170 (incl. *c.* 15,000 U.S. military and civil service). Guamanians are Chamorros. Religion: mainly Roman Catholic. Governor: Carlton Skinner.

Administration was transferred from the U.S. navy to the Department of the Interior on Aug. 1, 1951. Under the Organic Act of Guam passed by the U.S. congress and effective from Aug. 1, 1951, Guamanians became full citizens of the U.S., replacing their former status as citizens of the territory and nationals of the U.S.

The legislature of Guam, which replaced the Guam congress under the new legislation, was a unicameral body with not more than 21 members, popularly elected for two years by all persons of 21 yr. and over who had been residents of Guam for at least two years. It had the power to override the governor's veto by a two-thirds vote. Each of 15 municipalities was headed by a popularly elected native commissioner.

Education. Schools (1951): 21 elementary and junior high and 1 high, pupils 9,225; 4 parochial, 1,164 elementary and secondary pupils.

Finance and Trade. Budget (1950-51 actual): revenue $4,168,926; expenditure $5,114,405 (U.S. grant-in-aid $1,200,000). Foreign trade (1950-51): imports $10,672,132; exports $2,212,416. Principal exports: scrap metal and salvage.

Marshall, Caroline and Marianas Islands. These constitute, with the exception of Guam in the Marianas, the U.S. trust territory in the Pacific Islands. It contains *c.* 2,000 islands in 96 groups, of which 64 are inhabited. Total land area: 687 sq.mi. Pop. (mid-1951): 56,178 (*c.* 60% live on the six principal groups, Saipan, the Palaus, Yap, Truk, Ponape and Majuro). Languages: 11 are spoken, incl. English and Japanese. High commissioners in 1951: Admiral A. W. Radford and (from Jan. 8) Elbert D. Thomas. Administration was transferred on July 1, 1951, from the U.S. navy to the Department of the Interior.

Education. Schools (1951): 138 elementary, 6 intermediate, 1 advanced, 1 technical, 7,526 pupils; 20 mission schools, 1,760 pupils.

Finance and Trade. Budget (1950-51 actual): revenue $467,304; expenditure $2,492,704; U.S. grant-in-aid $2,025,400. Foreign trade (1950-51): imports $2,223,174; exports $2,213,622. Principal export, copra. (S. NR.)

PACIFIC ISLANDS UNDER TRUSTEESHIP: *see* TRUST TERRITORIES.

PADILLA NERVO, LUIS, Mexican statesman (b. Zamora, Michoacan, Mexico, Aug. 19, 1898), studied law and economics in Mexico, Buenos Aires, Washington and London. At the age of 22 he joined his country's diplomatic corps, attaining the rank of minister in 1933 and ambassador in 1945. He was an adviser to the Mexican delegation at the San Francisco conference in 1945 and subsequently was a delegate to every United Nations general assembly. He was appointed Mexico's permanent representative to the U.N. and in 1949 was vice president of the Trusteeship council. At Paris, on Nov. 6, 1951, he was elected president of the general assembly in succession to Nasrollah Entezam of Persia.

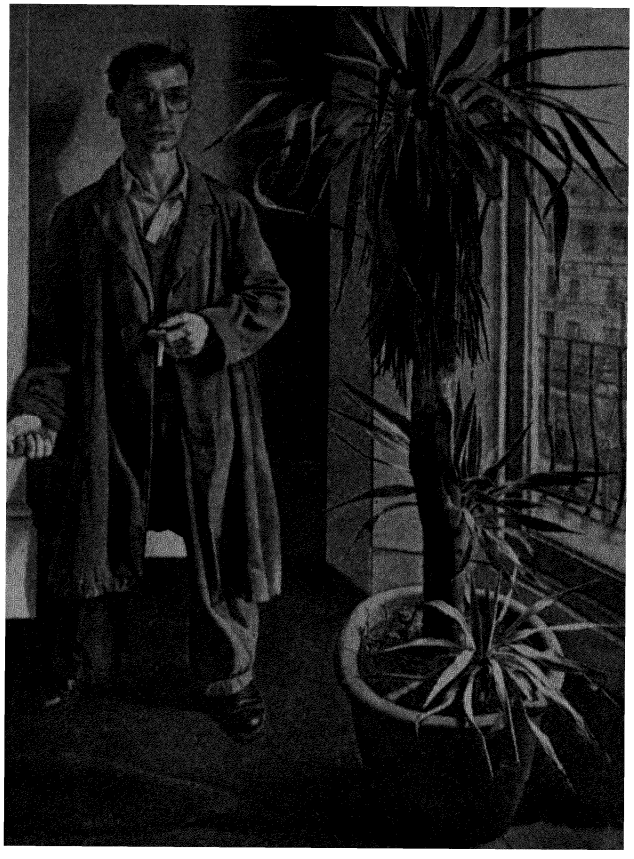
PAINTING. The Festival of Britain provided British painters with more state patronage than they had enjoyed within living memory. A number of them were commissioned to paint murals for the South Bank exhibition, London, and 60 were invited by the Arts Council of Great Britain to enter a painting in a competition for which five prizes of £500 each were awarded. The prizewinners were Lucian Freud, William Gear, Ivon Hitchens, Robert Medley and Claude Rogers. It was laid down that the dimensions of the pictures were to be not less than 45 in. by 60 in., but the subjects were of each artist's own choosing. Thus state patronage for the festival was concentrated on the big picture. It was unfortunate—though not altogether unexpected—that the majority of the beneficiaries showed little skill in working on a large scale. All but a handful of the painters who designed murals for South Bank or participated in the Arts Council's competition produced works conceived on a smaller scale than that on which they were executed. The outstanding exception was Victor Pasmore with his "Waterfall," a painting on tiles on an external wall of the Regatta restaurant on South Bank. Consisting simply of vortices in black on a white ground, it was composed in such a way as to profit from its situation: it exploited the absence of a frame and it was seen to advantage, not when subjected to deliberate contemplation, but as one walked past it; seeing it obliquely, one was caught up in its rhythms and carried forward by it.

In France, too, during 1951 leading painters undertook a number of large-scale works. Here there was evinced a thorough command of the problems of monumental or decorative design—as, indeed, was only to be expected from artists who, throughout their careers, had been preoccupied with the organization of the picture-plane and had aspired to covering surfaces as extensive as those of the Byzantine mosaics and Romanesque frescoes upon which they had founded their treatment of space. This technical mastery,

however, was not in all cases matched by a corresponding interest of conception and content. Henri Matisse's frescoes for the chapel of Notre-Dame du Rosaire at Vence, Alpes Maritimes (of which he himself had been the architect), carried economy of means—they were simply magnified line-drawings—to a point dangerously near flimsiness, while Joan Mirò's mural for the Commons building of the Harvard Graduate centre was, like most of his recent production, slighter and less poetic than his work of an earlier period. On the other hand, Pablo Picasso's " La Toilette," a cartoon for tapestry executed in *collage* (the actual date of execution was not published, but the work was first shown publicly in 1951), ranks among the supreme *tours de force* of modern art: the cut-out pieces of wallpaper of various designs of which it was composed were combined and contrasted in such a way that plastic forms were startlingly realized in a mere kaleidoscope of ornamental patterns. Fernand Léger's " Les Constructeurs," a canvas ten feet high, was probably the greatest achievement of the artist's career, confirming as it did the belief of his admirers that only a mural scale could give him scope for the full exercise of his particular gifts. This picture, which represented builders variously employed or perched on the girders of a large edifice in the course of construction, combined the Rousseau-esque rendering of the human figure that had characterized much of Léger's recent work with the highly formalized yet vigorous treatment of architectural motives which had run through his development since his Cubist days. The claims of this work to being considered the picture of the year were strengthened by its magnificently forthright approach to the creation of a social realist art; for this issue was a prominent bone of contention in 1951, not the least reflection of which was the mounting interest in Courbet, Goya, Frans Hals and Caravaggio.

The emergence of new forms of realism—with or without social implications—became even more apparent in 1951 than it had been in the late 1940s, and was probably the most significant tendency of the year. In England, the leader of this trend was Francis Bacon, whose horrific visions were presented in a form which simulated the casual, impersonal, blurred effect of photographs reproduced on newsprint. Bacon's work manifestly inspired the figures in landscapes and portraits (of Somerset Maugham and Lord Beaverbrook), in which Graham Sutherland (working in the south of France) departed from the familiar manner of his previous work. Other exponents of the tendency towards realism included Rodrigo Moynihan and Lucian Freud. In France, the tendency was manifested in the paintings of André Masson, Alberto Giacometti, Balthus, Jean Hélion, Dora Maar and (a new convert, working under Giacometti's influence) Gaston-Louis Roux, as well as such members of the younger generation as André Minaux, Bernard Buffet and Paul Rebeyrolle, in whose work there was a conspicuous residue of expressionism. In Italy, Gabriele Mucchi and Renzo Vespignani headed a group of young Communist realists working in Rome, whose style was in complete contrast with that of the better-known group of Communist painters, the *Fronte Nuova*, led by Renato Guttoso and Armando Pizzinato, whose social-realist iconography was expressed in a style deriving from Cubism and Fauvism, like that of Edouard Pignon in France. Certain other Communist painters in western Europe, in giving their allegiance to the official Soviet manner known as Socialist realism, also announced their aspiration towards realism, but their achievement hardly matched their declared intentions.

The moribund Surrealist tradition in Europe was given an infusion of new life by the migration there of the two leading transatlantic Surrealist painters, Matta and Wifredo Lam—the former to Italy, the latter to France. The ranks of non-figurative painters grew. Their predominant styles were a form of abstract expressionism related to the prevalent non-figurative idiom in the United States and ultimately deriving from the early Wassily Kandinsky, and a more geometric manner stemming from Alberto Magnelli, which, eschewing the extreme rigour and immobility of Piet Mondrian, juxtaposed and superimposed highly-coloured planes the shapes of which varied, in a single picture, from the rectilinear to the biomorphic.



" Interior near Paddington " by Lucien Freud, one of the paintings which received awards in the festival competition organized by the Arts Council.

The aforementioned style synthesizing Cubist and Fauvist influences, which had represented a middle way between realism and abstraction in the years immediately following World War II, tended to lose adherents, while its faithful adherents tended to lose their reputations. (A. D. B. S.)

United States. During 1951 national and regional exhibitions in the United States illustrated the continued trend towards abstraction. Some critics objected to this trend on the grounds that the young artists merely repeated the concepts of the older generation of abstract painters and that there appeared to be no real masters among them. Many critics, however, remained sympathetic and followed the lead of the Museum of Modern Art, New York, in supporting experimentalism and in looking with special favour upon a group, some of whom spoke of themselves as the " New York school." This loosely defined group, which could be said to include such artists as Robert Motherwell, William De Kooning, Jackson Pollock, William Baziotes, Gottlieb, Bradley Tomlin, Rothko, Stamos and Hans Hofmann, painted non-geometric and informal abstractions, emphasizing the symbolic import of non-representational shapes and signs to the " unconscious " of the spectator. In their work, the use of the decorative possibilities of non-objective form was usually a secondary aim.

The use of art for religious purposes was given encouragement in 1951 by the completion during the summer, by Motherwell, Gottlieb and the sculptor Herbert Ferber, of the decoration of the synagogue at Millburn, New Jersey. An exhibition of French contemporary religious art which had been shown at the Musée d'Art Moderne, Paris, in the spring, later began a tour of the United States.

The principal gift of paintings during the year was the Walter and Louise Arensberg collection of 20th century art, which went to the Philadelphia museum. This, added to the Albert E. Gallatin collection, made the Philadelphia museum one of the most important in the world in the field of modern art. In July the Philadelphia collector Albert C. Barnes died in a motor accident, leaving one of the finest collections of modern painting in the world in the care of the trustees of the Barnes foundation, Philadelphia. On March 13 Sam A. Lewisohn died. He had been a noted collector of modern painting and a trustee of the Metropolitan museum, the Museum of Modern Art and the Brooklyn museum. He left a valuable collection of paintings to these three institutions and to the National gallery, Washington, and Princeton university. (*See* also ART EXHIBITIONS; ART SALES; DRAWING AND ENGRAVING; MUSEUMS.)

(L. D. L.)

PAINTS AND VARNISHES. An interesting feature of paint-oil developments in 1951 was the increasing use in the paint industry of menhaden fish oil which accounted for more than 50% of the United States fish oils used in paints, varnishes and printing inks.

In the field of vegetable oils, an improved tall oil was developed which was said to have lighter colours, improved film properties and greater uniformity. The oil was esterified with pentaerythritol for fast, hard drying and chemical resistance.

In the Netherlands, a treated linseed oil was developed for use in matt or semi-matt paints, and in the U.S. a new improved reinforcing oil was announced which was described as an electronic blend of many oils, with tung oil as the principal ingredient. It was a single oil with a wide range of uses and had unusual resistance to rust and decay.

Considerable investigation was undertaken on the potentiality of the horse-chestnut as a source of oil, and both the European and U.S. varieties were examined for this purpose. The oil from the seed of the shrub *Sebastiana lingustrina*, found in the southern U.S., was also investigated. The plant is of the same order as *Stillingia sebifera*, whose seeds bear a good drying oil.

In India, an investigation was made into the preparation of modified drying oils from raw tobacco seed and safflower seed. Work was also done on the combination of styrene and drying oils, and an interesting study was made of the kinetics of esterification of diglycerol with soya-bean fatty acids and the properties of the resulting oils.

At the beginning of 1951, details of a new series of resins came from the U.S. These were reputed to have excellent adhesion, chemical resistance and flexibility. Early in the year a new resinous alcohol, made up largely of monoglyceride esters of abietic and linoleic acids, was also announced.

Research on paint pigments was concentrated particularly on titanium dioxide; titanium ores were found in great quantities in Canada, in the province of Quebec and in Montreal. Interest was shown in the possible use of bauxite waste as a pigment source and considerable attention was also given to the use of coated pigments. The decorative and protective characteristics of metallic pigments were also the subject of investigations. In Great Britain, a new maroon pigment dyestuff with no lake-forming qualities was developed, and the popularity of fluorescent pigment materials for showcard and poster applications continued to grow.

(E. N. T.)

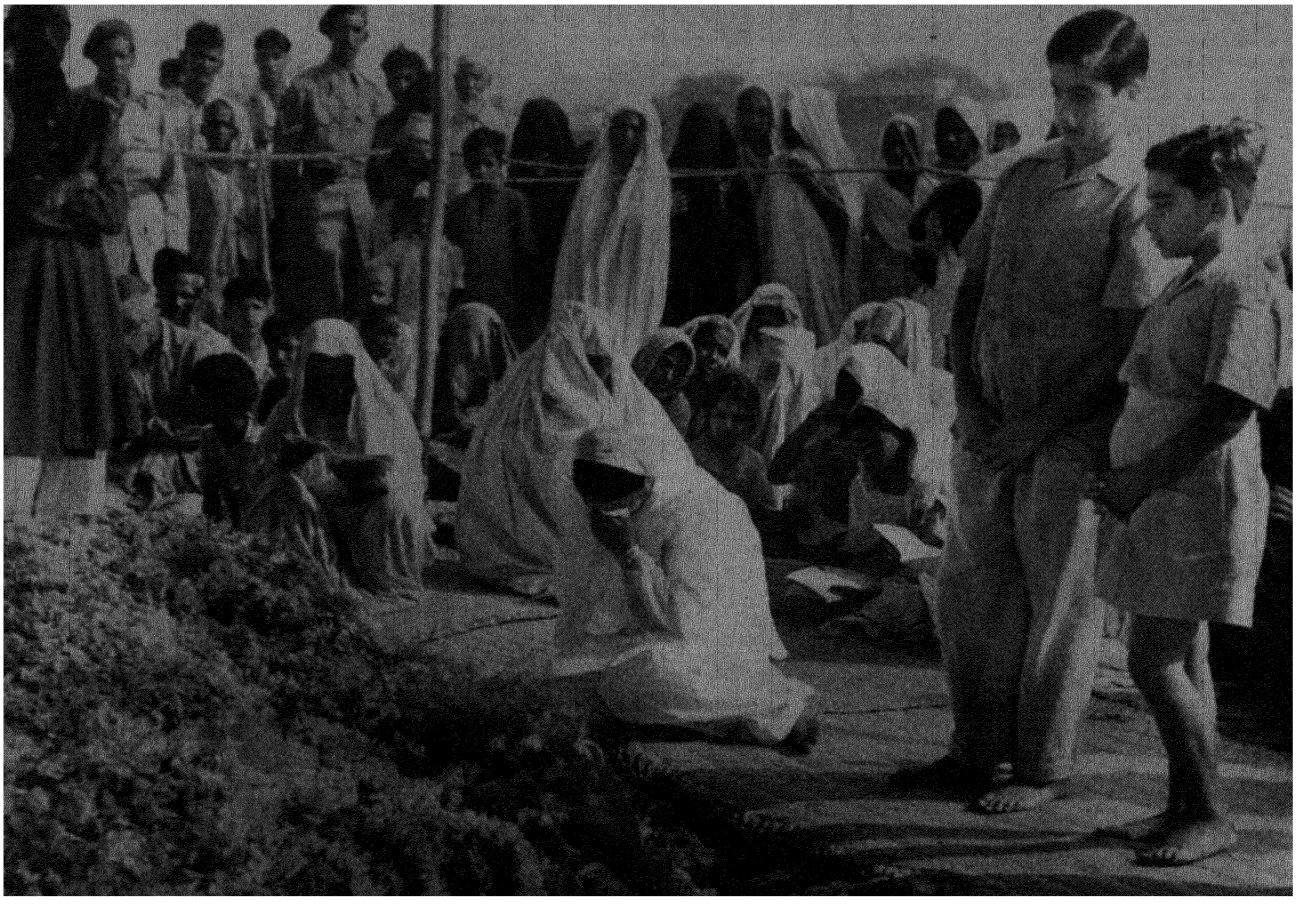
PAKISTAN. Self-governing member of the Commonwealth of Nations, a federation of five provinces, 12 states and tribal areas. Areas and populations are:

*Provinces and states**	*Area* (sq.mi.)	*Population* (1941 census)	(1951 census)
Sind	50,443	4,175,500	4,619,000
Khairpur state	6,050		320,000
West Punjab	62,987	15,800,000	18,814,000
Bahawalpur state	15,918		1,820,000
North-West Frontier Province:			
(a) settled districts	13,815	3,038,100	3,239,000
(b) tribal areas	27,242	2,500,000	2,460,000
Baluchistan	52,900	857,800	622,000
Baluchistan states	81,239		556,000
Karachi, fed. capital area	812	359,500	1,118,000
	311,406	26,730,900	33,568,000
East Pakistan (East Bengal)	54,501	41,880,000	42,119,000
Total	365,907	68,610,900	75,687,000

* Excluding Jammu and Kashmir (*q.v.*).

Language: Urdu, Punjabi, Baluchi and Pashtu in West Pakistan and Bengali in East Pakistan; English used as a medium of instruction in higher education. Religion: Moslem (72·9%); Sikh, Hindu, Christian, Parsee and other minorities. Chief towns (pop. 1951 census): Karachi (cap., 1,005,000); Lahore (849,000); Dacca (401,000); Chittagong (269,000); Rawalpindi (243,000); Hyderabad, Sind (229,000); Multan (190,000); Lyallpur (180,000); Peshawar (114,000). Governors general of Pakistan in 1951, Khwaja Nazimuddin and (from Oct. 17) Ghulam Mohammad (*q.v.*); prime ministers, Liaquat Ali Khan (*see* OBITUARIES) and Khwaja Nazimuddin (*q.v.*).

History. *The New Constitution.* The leading event of 1951 was the promulgation of the new constitution, the draft of which had been prepared by Sir Robert Drayton, who had framed the Ceylon constitution in 1947. The new constitution was to be a federation of the provinces of the West Punjab, the North-West Frontier Province, East Bengal, Sind, Baluchistan and the princely states acceding to Pakistan; the federal capital was to be at Karachi. The constitution was to be basically in accordance with Islamic principles but would embody features borrowed from the Government of India act, Oct. 1935, and the governments of Great Britain and the United States. The supreme executive power would vest in the head of the state, who would be elected by a joint session of both houses for a term of five years and would act on the advice of his ministers. The danger of a dictatorship was ruled out by a provision that he could not hold office for more than two consecutive terms. Parliamentary government was to be conducted by the central and provincial legislatures, the former being bicameral and the latter unicameral. In the event of a conflict of opinion between the two houses of the federal legislature or in the election or removal of the head of the state, the matter should be decided at a joint session. Residuary powers would rest with the federal legislature, and the interpretation of the constitution would rest with the judiciary. Amendments of the constitution would have to obtain a two-thirds majority in both houses of the central legislature and a majority in the provinces. The question whether Pakistan was to remain a member of the Commonwealth of Nations was left open, but no titles could be conferred on Pakistani citizens, except decorations for distinguished service in the defence forces. Urdu was to be the official language of the state, but the constitution was to be drawn up in Urdu and English. The chief criticisms came from East Pakistan and the Punjab. It was claimed that not



Begum Liaquat Ali Khan (seated) and her two sons Akbar and Ashraf at the graveside in Karachi of Liaquat Ali Khan, prime minister of Pakistan from Aug. 1947 until he was assassinated on Oct. 16, 1951.

enough stress had been laid on Islamic tenets, that too much power was given to the federal government at the expense of the provinces and that the checks on the abuse of his powers by the head of the state were insufficient.

The first provincial election was held at Lahore in the Punjab in March and was aptly described as an experiment in Asian democracy. For the first time in the history of the dominion 20 million people were going to the polls, illiterate voters being guided by pictorial symbols representing their candidates and special arrangements being made for purdah women. The new assembly would consist of 197 seats, 40 being reserved for refugees who had fled from India to Pakistan in 1947, five for women and one each for minority groups, Christians and graduates of the Punjab university. It was felt that the result would be a decisive test, not only of the Moslem league, but of the premier, Liaquat Ali Khan. It was expected that the opposition would come chiefly from the left-wing Azad Pakistan party and from the party led by Khizar Hayat Khan Tiwana, the premier in the days preceding the partition. In April it was announced that the Moslem league had headed the poll with 153 seats out of 197.

The Budget. The prosperity of Pakistan, in spite of the crushing burden of armament mainly due to the Kashmir dispute, was reflected in the fourth annual budget, presented to parliament on March 19 by the finance minister, Ghulam Mohammad. After the substantial surplus and wide spread of taxation relief, the outstanding features were the substantial amounts available for social services and the relief of refugees. The current financial year closed with a surplus of Rs. 289·6 million. This happy result was largely due to the decision not to devalue the rupee. Trade with countries other than India, which amounted to Rs. 1,740 million during 1949-50, was expected to reach Rs. 3,000 million during 1951.

Some of the leading purposes to which the surplus was devoted were special funds for uplift schemes, economic development and defence, provincial grants for social services and a substantial contribution to the refugee rehabilitation fund. Referring to the six-year development plan, the finance minister stressed the fact that it represented a first endeavour to specify the economic objectives of the country so as to go ahead on a carefully worked-out plan, with due regard to basic needs. Some of the projects had been examined by the body of experts sent by the International Bank for Reconstruction and Development, and their soundness was proved by its readiness to negotiate loans up to a large amount to meet Pakistan's requirements. A considerable sum was earmarked for the modernization of agriculture. No fresh taxation was proposed and substantial relief on existing taxes was provided to ease the burden on the common man and encourage industrial development. Income tax was substantially reduced. In September it was announced that, arising out of the Colombo plan (*q.v.*), Canada would contribute $6 million for expenditure on agricultural equipment and machinery for docks and railways.

The Military Conspiracy. In March the country was startled by the arrest of a number of prominent persons, including Major General Akbar Khan, chief of general staff, Brigadier M. A. Latif, brigade commander at Quetta, and Faiz Ahmad Faiz, editor of the *Pakistan Times*, for conspiracy. Nine more army officers and Air Commodore Mohammad Khan Janjua were arrested in May. They were tried by a special tribunal consisting of Mr. Justice Abdurrahman,

Federal High court judge (president); Mr. Justice Mohammad Sharif, of the Lahore High court, and Mr. Justice Aminuddin Ahmed, of the Dacca High court. The trials were held *in camera* at Hyderabad, Sind. The defence minister announced that the object of the conspiracy, of which the ringleader was Major General Akbar Khan, was, by the use of violence and the subversion of the armed forces supported by revolutionary Communist elements, to remove high civil and military officers and, when the existing authorities, civil and military, had been eliminated, to bring the country under dictatorship. The government was then to be formed on the Communist model, and for this purpose economic and constitution-making missions were to be invited from the Soviet Union. The minister paid a warm tribute to the loyalty and efficiency of the armed forces of Pakistan, who had nipped the rising in the bud and had effected the arrest of the ringleaders without firing a shot. The press was also commended for its restraint from publishing inflammatory rumours and for the vigorous and patriotic lead which it had given to the country in a moment of supreme crisis.

Relations with India. Apart from the dispute over Kashmir, relations between Pakistan and India had considerably improved by the early part of 1951. The Minorities commission had functioned smoothly, and the exodus of Bengal Moslems into East Pakistan had appreciably diminished. In Feb. 1951, a six months' agreement for the exchange of commodities was signed. Imports from India were to include coal, iron, steel, timber, cement, cotton yarn, jute manufactures, paper, rubber tyres and mustard oil; India would receive in return raw jute, cotton, cowhides and sheepskins. Pakistan would sell to India 70,000 tons of foodgrains and India informed the Pakistan government that it was prepared to conduct exchange transactions on the basis of the existing par value of Pakistan currency. But these promising signs were marred by the intense feeling aroused when it became known that Sheikh Abdullah was about to summon a constituent assembly for the purpose of drawing up a constitution for Kashmir, with the approval of India but against the advice of Frank Graham (*see* KASHMIR). It was felt that this would prejudge the whole question of accession, at present before the Security council, and at one time there was wild talk in extremist circles of a *jihad* or holy war. Attempts to bring about a meeting between the premiers of the two countries ended in failure.

Murder of the Prime Minister. The murder of the Pakistani prime minister, Liaquat Ali Khan, by a fanatic during a political meeting at Rawalpindi on Oct. 16, brought both Pakistan and India to a more realistic frame of mind. Messages of sympathy for the people of Pakistan in their bereavement poured in from all sides, including moving tributes from the Indian president and Jawaharlal Nehru. Liaquat Ali Khan's death necessitated administrative changes. The governor general, Khwaja Nazimuddin, took over his portfolio, and was succeeded in office by the finance minister, Ghulam Mohammad. Ismail Chandrigar, governor of the North-West Frontier Province, took over the governorship of West Punjab from Abdurrab Nishtar who was made minister of industries. In answer to a message of congratulation on his assumption of office from Nehru, the new prime minister said, " I shall always try for close co-operation and lasting friendship between our two countries." Nehru responded with a renewed offer of a mutual non-aggression pact, " always including Kashmir." (H. G. RN.)

Education. *Baluchistan:* Schools (Oct. 1949): primary 186, secondary 23, private 4, European 2, institutions of higher education 1; total pupils 18,500. *North-West Frontier Province:* Recognized educational institutions (1947-48): for males 1,059, students 101,377; for females 156, pupils 11,035. *Sind:* Schools (March 1946): primary, for boys, 2,327, pupils 165,653; for girls, 398, pupils 40,257; secondary, for boys, 206, pupils 34,810; for girls, 37, pupils 9,262. Colleges 9, students 3,700.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): rice 12,403 (12,500); wheat (1950; 1951 in brackets) 4,022 (3,741); barley 182 (157); maize 430; sugar, raw value, excluding palm sugar production, 678 (570); jute 820 (910); cotton, ginned, 221 (253); linseed 13 (11); rapeseed and mustard seed 240 (282); sesame 25·4 (34·0); chick peas 798; tea 17·6 (23·8); tobacco 66·8. Livestock ('000 head, 1947-48): cattle 24,296; buffaloes 5,600; goats 10,067; sheep 6,145; camels 454; horses 470; mules 41; geese 61; chickens 22,248; ducks (1949) 5,063. Wool production, greasy basis (1950) 11,000 m. tons. Meat production (1949) 308,000 m. tons. Milk production (1949) 5,917,000 m. tons. Fisheries (1949-50): total catch 250,000 m. tons.

Industry. Employment (1949): all industries 662,000; manufacturing 200,000. Fuel and power: coal and lignite ('000 metric tons, 1950; 1951, six months, in brackets) 444 (269); crude oil ('000 metric tons, 1950; 1951, six months, in brackets) 165·6 (75·8); electricity (million kwh., 1950) 164·4. Raw materials ('000 metric tons): chromite (1949; 1950 in brackets) 16·7 (18·7); salt (1948) 339. Manufactured goods (1950, '000 metric tons): cement 412; cotton yarn 19·7; cotton cloth (million m.) 836.

Foreign Trade. (Million rupees, 1950; 1951, six months, in brackets): imports 1,482 (801); exports 2,230 (1,505). Main sources of imports (1950): U.K. 26·4%; Japan 14·9%; India 12·6%; U.S. 9·4%. Main destinations of exports: U.K. 17·1%; Japan 11·0%; U.S. 10·9%; France 8·6%. Main imports (1949-50): cotton piece-goods 22·6%; cotton yarn and twist 14·7%; machinery and millwork 7·4%; vehicles (excluding locomotives, etc.) 5·6%. Main exports: raw cotton 46·0%; raw jute 32·5%; black tea 6·4%; raw wool 4·1%.

Transport and Communications. Roads (1949): 55,913 mi. Licensed motor vehicles (Dec. 1950): cars 17,000, commercial 12,000. Railways (1950): 6,994 mi.; passenger-mi. 5,456 million; goods ton-mi. 2,500 million. Shipping (1949): merchant fleet 120,000 gross tons. Air transport (1949-50): mi. scheduled per week 136,030. Telephones (Jan. 1949): 16,454. Radio receiving sets (1949): 75,000.

Finance and Banking. (Million rupees) Budget: (1950-51 actual) ordinary revenue 1,237, ordinary expenditure 947; (1951-52 est.) ordinary revenue 1,163, ordinary expenditure 955. Internal debt (March 1951): 952. Currency circulation (July 1950; July 1951 in brackets): 1,727 (1,960). Bank deposits (July 1950; July 1951 in brackets): 1,083 (1,258). Gold and foreign exchange (million U.S. dollars, July 1950; July 1951 in brackets): 456 (597). Monetary unit: Pakistan *rupee*, with an exchange rate of Rs. 9·27 to the pound and Rs. 3·31 to the U.S. dollar.

See Liaquat Ali Khan, *Pakistan: The Heart of Asia* (Cambridge, Massachusetts, 1951).

PALAEONTOLOGY. The year 1951 saw an interesting and satisfactory increase of knowledge in the controversial field of the evolution of man. Outstanding new finds were not made, but those of previous years, in the rich fields of east Africa, made by L. S. B. Leakey, A. Hopwood and others, were re-studied and assessed by W. E. Le Gros Clark and Leakey himself in a valuable joint paper.

The foundations of this study were made as early as 1931, when Arthur Hopwood collected three new genera of Miocene hominoids at Koru, Kenya. His preliminary observations were published in 1933. These genera were *Proconsul*, *Limnopithecus* and *Xenopithecus*. In the intervening years much more material was accumulated and the whole was surveyed by 1951. It was clear that these forms had no near relationship with the emergence of man but they were indicative of a step on the way. On the basis of tooth structure, *Propliopithecus* of the Oligocene appears as one of the very first anthropoid apes. From it, in the Miocene, the lightly built hylobatine *Limnopithecus* probably arose, and from it came *Proconsul*. The apes were diversified as early as the Miocene and if there has been controversy about the inclusion of some of these in the term Hominoidea, the increase of knowledge must always extend backwards as well as forwards, and terms must be somewhat elastic.

The most important work on fossil mammals was the posthumous publication of long studies on the teeth of rodents by Hans Georg Stehlin in a richly illustrated monograph with the supervision of Samuel Sehaub. In the fossil reptiles, Edwin Colbert and Charles Mook of the American Museum of Natural History, New York, fully described and figured an ancestral crocodile, *Protosuchus richardsoni*, from the Upper Trias or Lower Jurassic of northern Arizona. This animal is known by an almost complete skeleton and portrays several

specialized crocodilian characters as well as evidence of its thecodont ancestry. Their paper included a reconstruction of the appearance in life of the crocodile. In its relationships, this early form has affinities with South African fossils already described. In a related field was the interesting discovery of alleged dinosaur eggs by the geological survey of Tanganyika. At first the specimens seemed to be too well preserved in red sandstone for the diagnosis to be correct but further search in the locality yielded undoubtedly contemporaneous dinosaur bones. A Cretaceous age is most probable for the fossils.

Invertebrate studies included two splendidly illustrated papers by United States workers. In the first, A. K. Miller described the nautiloids from the Eocene and Palaeocene of Morocco, Senegal, French Sudan and Niger, Belgian Congo and Togo, and Miocene of Angola and South-West Africa. In the second, Reuben Ross, Jr., dealt with an important series of silicified trilobites of Ordovician age from northeast Utah, in which 47 genera and 86 species of small, shallow-water forms were carefully described and the technique of their examination and photography explained. T. H. Withers, in England, described some Jurassic and Cretaceous crabs from the British Museum collection, and produced additional evidence as to their structure and the evolution of the group.

Palaeobotany. Tertiary plants and leaves were reviewed during 1951. In Germany, Emil Fischer dealt fully with fossil leaves of Eocene age found in the neighbourhood of Mosel in 1937. In 1951, for the first time, they were carefully studied and compared with other fossil and living forms. It appeared that they were typical of the kind of vegetation found in the rain forests of Malaysia. The leaf impressions were very well illustrated and were of interest to workers in climatology as well as palaeobotany. Georg Leschik worked upon the flora of the younger Pliocene brown coal of Buchenau (Kreise Hunfeld, Germany). This also was a well illustrated study and important for its clear description of the methods employed in the author's micro- and macro-palaeobotanical work.

In the United States, Daniel Axelrod published *Studies in Late Tertiary Paleobotany* (a Carnegie institute publication, dated 1950, but which came to the libraries in 1951). All this work described floras in southern California, those of Mount Eden, Piru Gorge, Sonoma, and Anaverde being specially treated. An important essay on the evolution of desert vegetation was included and the author reached the conclusion that most modern desert environments are of latest Cenozoic age. He discounted the theory that their beginnings were laid in Cretaceous times, but showed that the gradual changes in environmental condition stimulated evolution, especially of grassland types. (W. E. SN.)

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PALAU (PELEW) ISLAND: *see* PACIFIC ISLANDS, U.S.

PALESTINE: *see* ISRAEL; JORDAN.

PANAMA. Republic of Central America adjoining South America and bisected by the Canal Zone (leased to the U.S.). Area: 28,575 sq.mi. Pop. (1950 census): 801,982. Both area and population are exclusive of the Canal Zone. The racial composition includes Europeans (11%), native Indians (9%), Negroes (14%), *mestizos* or mixed (65%), the rest being Asiatics. Language: Spanish. Religion: Roman Catholic 93%, Protestant 6%. Chief towns (1949 est.): Panamá City, on the Pacific coast (cap., 146,117); Colón, on the Atlantic coast (54,334). Presidents in 1951: Arnulfo Arias Madrid and (from May 10) Alcibiades Arosemena.

History. The political tension heightened early in Jan. 1951 with the return from exile of former president (1941-44) Ricardo de la Guardia. José Remón, the police chief, appeared to hold the balance of power between the followers of Guardia and President Arias. Early in March the government closed down the Federal Trust company, Panama's only privately owned bank. Opposition party leaders on March 8 called for a general strike in protest against that measure, and Guardia announced his support of the strike. He was arrested the following day. On March 10 Guardia was sentenced to 15 days' imprisonment on charges of publicly expressing contempt of Arias; he was released on the same day when a higher court ruled that his arrest had been illegal. Arias' position in the struggle was further weakened on April 10, when the Panamanian Supreme court declared that his 1950 order removing all Communists from public office was unconstitutional.

Early in May, a large-scale run on the government-supported savings bank deepened the crisis. Sixteen persons, including former President de la Guardia and Roberto Arias, the president's nephew, were imprisoned on May 6, charged with inciting the bank run with subversive purposes. The next day, President Arias suspended the constitution of 1946, declaring that the 1941 constitution, authoritarian in pattern, would again be in force. This action touched off the long-smouldering climax: on May 10 Remón, the police chief, turned against Arias, who was overthrown amid disorders in which 16 were killed. The next day Alcibiades Arosemena, the vice president, assumed the presidency.

Arosemena proceeded to form a cabinet representing all Panamanian political groups except the Communists and to pledge full co-operation with the United States. On May 25 Arias was declared guilty of abusing his constitutional powers while in office. (G. I. B.)

Education. Schools (1951-52): state, primary 904, teachers 3,153, pupils 110,038; secondary 20, teachers 718, pupils 15,963; vocational 7, teachers 253, pupils 5,552. In addition, private primary schools 70, teachers 200, pupils 5,544; private secondary schools 57, teachers 292, pupils 5,474. National university, students 1,805.

Foreign Trade. Exports in 1950 totalled $10,140,912, re-exports $4,966,778; imports $67,055,745. Chief exports: bananas (57%), abacá (15%) and cacao (12%). Leading customers: U.S. (91%), Colombia (3%). Leading suppliers: U.S., including the Canal Zone (71%), Chile (7%).

Transport and Communications. Railways: 223 mi. Highways (1949) 1,071 mi., of which 348 mi. paved. Merchant marine (June 30, 1950), 573 vessels (100 tons and over) aggregating 3,361,339 gross tons.

Finance. The monetary unit is the *balboa*, at par with the U.S. dollar. Budget (1951 est.): expenditure $33,464,433; revenue $33,464,354. National debt (Aug. 31, 1951) $32,849,508, of which $11,134,487 external. Currency in circulation (June 30, 1950) $1,500,000.

(J. W. Mw.)

PANAMA CANAL ZONE. A United States military reservation comprising a ten-mile strip across the Isthmus of Panama, leased for the protection and administration of the Panama canal. Area: 553 sq.mi., incl. 191 sq.mi. of fresh water. Pop., excl. military personnel (1950 census): 52,822. Administrative centre: Balboa Heights (pop., 1946, 12,623). Governor: Brigadier General Francis K. Newcomer.

Total canal revenues for the fiscal year 1949-50 were $24,810,324; net expenses were $22,557,704; and net capital investment (June 30, 1950) was $672,962,143. During the year 5,448 ships (of 300 net tons and over) paid tolls of $24,430,206. The canal net tonnage of vessels by nationality

GOODS IN TRANSIT THROUGH THE PANAMA CANAL
('000 metric tons)

	1939	1946	1949	1950	1951 (6 months)
Atlantic-Pacific	9,156	6,216	10,056	9,636	6,301
Pacific-Atlantic	19,152	9,000	15,648	19,704	9,402
Total	28,308	15,216	25,704	29,340	15,703

Included: U.S. 19,526,719; British 5,154,273; Norwegian 2,085,425; Panamanian 901,570; and Honduran 881,708. Employees of the canal and the railway on June 30, 1950, included 4,322 paid at U.S. rates and 14,470 paid at local rates.

Education. In Feb. 1950 there were 14 schools for white pupils with an enrolment of 4,511 pupils and a junior college with an enrolment of 206 day-time pupils. For non-white pupils there were 14 schools with an enrolment of 3,412 and a normal training school.

(J. W. Mw.)

PAN AMERICAN UNION: *see* ORGANIZATION OF AMERICAN STATES.

PAPER AND PULP INDUSTRY. The chief feature of the world paper and pulp industry during 1951 was the continuance of an overwhelming demand which production had been incapable of satisfying. This tended to raise prices of both pulp and paper to a level of about 200%-250% above the previous year's prices. As the year progressed, it became obvious that prices were straining purchasing power and an attempt at stabilization was made. From the second quarter onwards, European pulp prices were held at the previous quarter's level and shortly afterwards paper prices followed this example. This created an anticipation of possible downward price adjustment and consequently demand receded, stockpiling ceased and consumption of existing stocks tended to replace further purchasing. Confirming this U.N.E.S.C.O. warned that if only 5% more people throughout the world learned to read during the coming year there would not be enough paper to supply them with books, newspapers, periodicals or even exercise books.

Meanwhile, the search for new papermaking materials to substitute or augment wood pulp continued. Straw pulping plants were being erected in several countries and new mills using Bargasse (sugar-cane refuse) were in operation; also, production from hardwood progressed and experiments continued on waste wood and native grasses. There was increased production at established mills as a result of new machinery and improved methods, and information from many papermaking countries confirmed the erection of new mills. This was a particular feature of the Canadian pulp and paper trade. India had a new tissue mill with rated capacity of 240 tons a month, making cigarette tissue for home and export, and also a newsprint mill with a capacity of 30,000 tons. Turkey, South Africa, New Zealand, Australia and the United States, gave evidence of similar efforts.

In Great Britain, production of paper and paper boards passed the prewar total of 2·5 million tons and imports of papermaking materials were slightly higher than in 1939, but imports of paper and boards were still less than prewar by about 10%. On Nov. 8, licences were re-introduced for the importation of paper and papermaking materials. Norway reached the prewar level of production at 475,000 tons and Italy advanced production by 20% over 1950; and the Australian paper trade was expanding. Production in Sweden was expected to increase by 300,000 tons within the next four years, bringing its total to 1·5 million tons; also, production in Western Germany was improving. In Switzerland, where the highest prewar production was 120,000 tons, output was expected to reach 200,000 tons during 1951. Meanwhile, New Zealand expanded production by 60% over 1946. In Japan plans were afoot to raise output to meet the increasing demand for rayon and paper; there were 108,000 tons of dissolving pulp and 728,000 tons for the paper industry manufactured in 1951.

Canadian newsprint production represented 54% of the world total. Consumption of paper and paper board in the U.S., where production was 26 million tons in 1951, was moving towards the record figure of 400 lb. a head and it was estimated that this country alone would increase consumption to a figure between 35 million tons and 40 million tons during the next 25 years, owing to growth of population and increased usage. Most other countries had not returned to prewar consumption. To ease the world gap between demand and supply, an international allocation was considered by the International Materials conference in Washington.

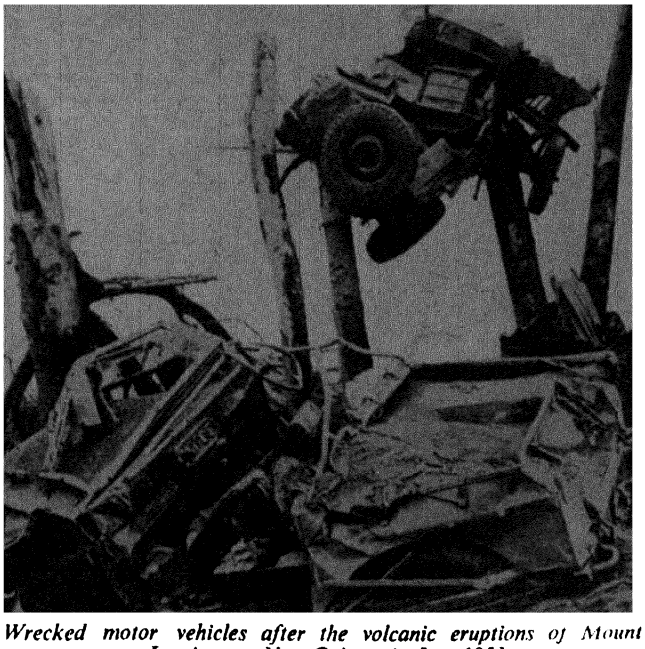
The world wood pulp production was estimated at 30·25 million metric tons. It was expected that, by 1955, demand would increase by 30%, but production would be up by only 27%. The Canadian share of current production was given as nearly 7·5 million tons, U.S., 13,200,000 tons, Sweden just over 3 million tons and Finland 2 million tons. In the logging countries labour shortages were being experienced, and in European pulp-producing countries there was constant overcutting. In the case of Great Britain, the re-introduction of licensing at the end of 1951 would reduce the importation of materials by about 20% and paper and boards by about 50%.

See *The Pulp and Paper Industry in the U.S.A.* (O.E.E.C., Paris, 1951).

(V. S. S.)

PAPUA-NEW GUINEA. The territory of Papua and the trust territory of New Guinea have been administered from 1949 as a single area, by the Australian Commonwealth government. Areas: Papua, 90,540 sq.mi.; New Guinea, 69,700 sq.mi.; New Britain, New Ireland, Admiralty islands and certain of the Solomon islands included in the trust territory, 23,300 sq.mi. Pop. (1941 est.): Papua, native 300,000, white 3,070; New Guinea (including the islands), native 690,000, white 4,200. Capital of the joint administration, Port Moresby. Administrator, Colonel J. K. Murray.

History. In Jan. 1951 4,000 natives and 30 Europeans were killed in the volcanic eruption of Mt. Lamington in northeast New Guinea. The village and government station at Higaturu were destroyed and Andemba village and Sangara



Wrecked motor vehicles after the volcanic eruptions of Mount Lamington, New Guinea, in Jan. 1951.

mission were almost completely wiped out. The new administrative system announced in 1950 by the Australian government proceeded only a short distance into practice. P. Hasluck was appointed minister for territories and J. R. Halligan special adviser to the minister. The ministry was engaged during the year on exploratory steps. The practical achievements of the new administrative system were bound to be affected by the government's policy of economy to combat inflation in Australia. The policy of the government was to encourage private enterprise rather than to continue the type of direct activity which was the policy of its predecessor.

In July the minister announced that the Papua-New Guinea legislative council would be formed. The original Papua-New Guinea act provided for the general structure of the council but not its details. It was to consist of the administrator, 9 members (3 of them natives) to be appointed or nominated by the administrator, 16 officers of the territory and 3 members to be elected. Draft proposals were prepared to divide the area into three constituencies—Papua, New Guinea mainland and New Guinea islands—for the election of one member each under a system modelled on Commonwealth laws. The minister announced that any qualified person who had resided in the territory for one year immediately preceding the date of the election would be eligible to vote and if such a person had been resident in the territory for three years he was eligible to stand as a candidate. There was considerable criticism in the territory and elsewhere on the ground that the council was not representative of interests outside the administration because of its very restricted composition and that it was not clear what "qualified person" meant. The council was inaugurated at Port Moresby on Nov. 26 by Sir John Northcott, the administrator of the Commonwealth of Australia. (J. F. C.)

PARAGUAY. South American republic bounded N. and E. by Brazil, S. by Argentina and W. by Bolivia. Area: 157,047 sq.mi.; the 61,709 sq.mi. east of the Paraguay river contain 95% of the population. Pop. (1950 census): 1,406,000; homogeneous mixture of Spanish and Guarani (with some Portuguese and Italian). Language: Spanish; Guarani is secondary and recessive. Religion: Roman Catholic. Chief towns (pop., 1948 est.): Asunción (cap., 130,067); Villarica (31,081); Concepción (16,487); Encarnación (16,078). President, Federico Chaves.

History. After the protracted civil wars of 1947 and 1948 a condition of stability gradually supervened in 1949 and 1950; and the Democratico Colorado party prevented any political activity by the Liberales, the Franquistas and the Communists. Its long-time chief, Federico Chaves, was president, and the unicameral congress was composed wholly of his chosen supporters. The outstanding development of 1951 was the government's effort to build a managed economy with numerous controls. It launched a plan for resettling in the border regions 300,000 Paraguayans who had migrated to neighbouring countries during the previous two decades; but the economic and political factors involved had not been fully worked out.

Education. Schools (1949): 1,262 primary, 5,479 teachers, 186,101 pupils; 41 secondary; 4 regional agricultural (in 1951); at San Lorenzo, near Asunción, the Estigarribia National School of Agronomy. A National junior college at the capital had several hundred students, and the National university at Asunción had 1,800 students in 1950.

Agriculture. Main crops (1950, metric tons): mandioca 750,000; maize 115,000; sweet potatoes 77,000; cotton 41,681; beans 20,000; rice 18,000; sugar 16,000; tobacco 10,000; oranges 12,125,000 boxes. Cattle (1950) 3,400,000 head.

Foreign Trade. (1950 million guaranio) imports 87·7; exports 173·0. Principal exports: timber, cotton, quebracho, meat products, hides.

Transport and Communications. Water transport on Paraguay and Paraná rivers handled 440,000 metric tons in 1948 (last est.); rail transport handled 227,000 metric tons in 1950. Railways (1950): 278 mi. Roads (1950): paved 580 mi., other *c.* 4,000 mi. Motor vehicles (Jan. 1950): 1,800 cars; 1,000 lorries; 300 buses. Telephones (Jan. 1951): 5,111 subscribers: wireless receiving sets (Jan. 1951) *c.* 30,000.

Finance. (Million guaranis). Budget (1949 est.): revenue 54·8; expenditure 70·8. Currency circulation (Dec. 1950) 189·0. Monetary unit: *guarani*, with official rate of 16·80 guaranis to the pound sterling; rates up to 25 to the £ were in use in 1951. (W. FT.)

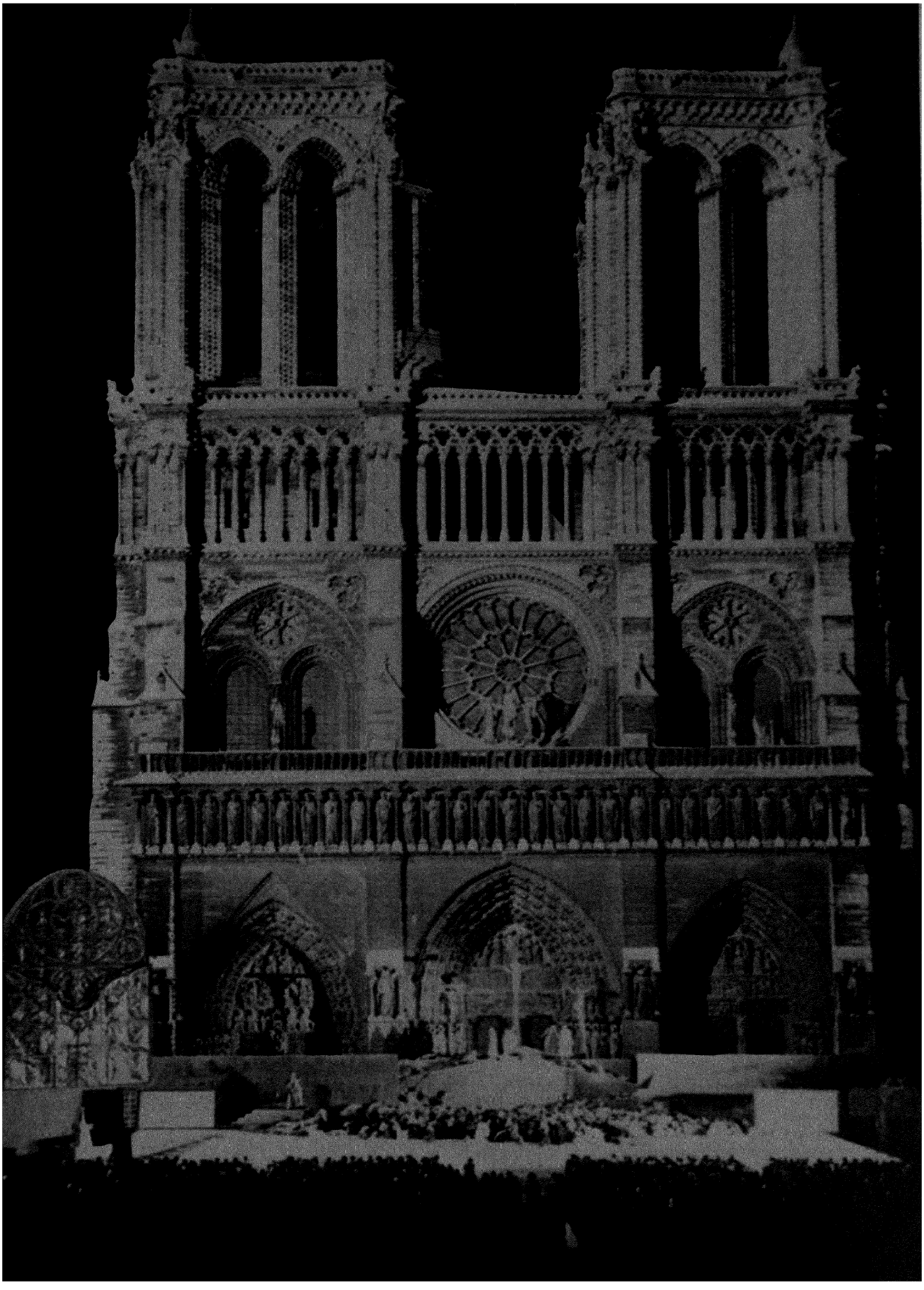
PARIS. Capital and largest city of France. Pop. (1946 census): 2,725,374. Presidents of municipal council in 1951: Pierre de Gaulle and (from Nov. 19) Paul Coirre.

The main tourist attraction of 1951 was a series of festivities of every variety—artistic, historic, academic, diplomatic, commercial—organized in honour of the 2,000th anniversary of the city's founding. This Paris Bimillenary celebration, as it was called, lasted from early spring till mid-December and attracted well over a million foreign visitors, in addition to great numbers from other parts of France. During this period the city's official reception committee, known as L'Accueil de Paris, arranged functions to which more than 25,000 guests were invited, including representatives of some 500 foreign groups that ranged from a delegation of 25 British policemen to the chief magistrates of 40 world capitals. A particularly brilliant banquet, attended by the president of the republic and other high government officials, honoured 300 leading delegates to the United Nations whose sixth general assembly opened in November at the Palais de Chaillot, greatly enlarged for the occasion. Paris was also host to the sixth general assembly of the United Nations Educational Scientific and Cultural Organization (U.N.E.S.C.O.), to an important inter-continental congress of tourist agencies, and to numerous international congresses that met to discuss the latest findings in surgery, anaesthesiology, cardiology, cancer, family insurance, sinology, etc. Princess Margaret, daughter of King George VI, and Margaret Truman, daughter of the U.S. president, paid semi-official visits to Paris during 1951.

Among the urgent problems demanding solution by the municipal authorities was that presented by the 25% increase of registered motor cars during the year. Numerous "one-way" and "no-parking" streets were designated, and a project designed to relieve congestion through the construction of centrally located tunnels was under consideration. The re-opening in December of three underground stations that had been closed during the war, and the reintroduction of midnight service on certain bus lines, also suspended since 1940, were welcome decisions.

For the most urgent of all the city's problems, housing, no solution was in sight. By the end of the year more than 100,000 unsatisfied priority requests had accumulated, and it was officially recognized that over 25,000 permanent residents were living in exorbitantly priced furnished rooms. Apartment ownership having become a liability as a result of demagogic rent legislation, owners were selling their flats piecemeal at rates that ranged, according to standing, neighbourhood and possibility of immediate occupancy, from Fr. 500,000 to Fr. 1,000,000 a room. Apartment construction, except in the high rental class underwritten in advance by the future owners, was at a standstill. One result of this situation was the steady material deterioration of many buildings for want of care. According to figures published in December, 15% of these were not provided with water, gas and electricity. In a report on the subject to the

The scene outside the cathedral of Notre Dame, Paris, in June 1951 when each night a mystery play was performed as part of the 2,000th anniversary celebrations of Paris.



municipal council the prefect of the Seine, Paul Haag, declared in December that the most significant feature of the time, the one by which the entire epoch would one day be judged, was the wretched condition of housing facilities. To a certain extent, the same was true of the schools, concerning which the minister of education, André Marie, stated that only a government-sponsored loan, which he estimated at Fr. 9,000 million, would make it possible to build and equip sufficient classrooms (there were already 1,650 too few of these in 1951) to accommodate the rapidly increasing school population of Paris.

An inflationary rise in the cost of living which, on Nov. 30, registered an index figure of 140, as compared with 100 in 1949, was accompanied by manifestations of discontent among the workers. A fortnight's bus and underground strike in the spring, followed by several short stoppages in the metal trades, resulted in a union demand that the basic monthly salary be raised from Fr. 18,225 to Fr. 20,000. This was granted in September. A dull season in the *Haute Couture* forced several well-known workrooms to close and, by December, 1,600 girls in the needle trades were unemployed.

Against this rather sombre social and economic background, it was gratifying to note that health conditions in Paris were unusually satisfactory. The number of tuberculosis cases registered a sharp decline and the birth rate was well in advance of the death rate. An increase in the number of deaths from cancer was, however, a source of alarm.

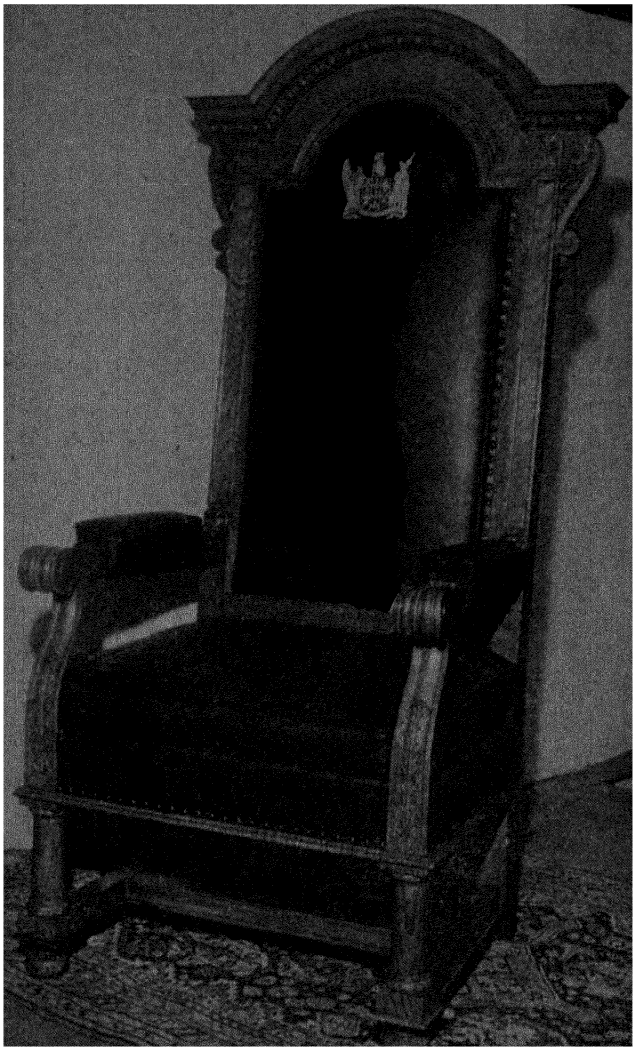
The original budget for 1951 of Fr. 47,050 million was increased in December to Fr. 53,127 million. (M. JOL.)

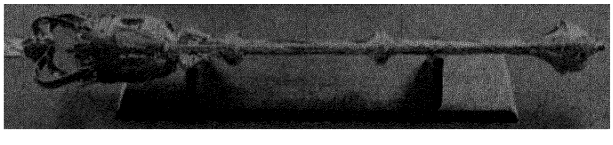
PARLIAMENT, HOUSES OF. The 39th parliament of the United Kingdom, elected on Feb. 25, 1950, reassembled on Jan. 23, 1951, after the Christmas recess. Both houses rose for the summer recess on Aug. 2 only to return on Oct. 4 for the act of prorogation. During the recess the prime minister, C. R. Attlee, announced that a general election would be held on Oct. 25.

The narrow Labour majority of the 1950-51 parliament was replaced by a Conservative majority of 17 over all other parties. The Conservatives and their allies obtained 321 seats, Labour 295, Liberal 6, Irish Labour 1 and Irish Nationalists 2. The Conservatives, under Winston Churchill (Woodford) formed a government, their first since July 1945.

There were 29 members who did not seek re-election. They included the father of the house, Earl Winterton, who was first elected for Horsham in 1904, and Douglas Clifton Brown (Hexham), speaker of the house from 1943. After his retirement, in accordance with precedent, he was granted a pension of £4,000 a year and was created Viscount Ruffside of Hexham.

The 1950-51 parliament divided 234 times resulting in five government defeats, three of them in 1951. Early in the year the Conservative opposition put down for discussion a large number of prayers to annul statutory instruments. Discussion on these prayers took place after 10 P.M., at the end of government business, and during March the house continued sitting after midnight every night until March 19. A prayer against an order reducing the cheese ration was carried by 237 votes to 219 (April 9, 1951); a prayer against an order fixing the price of plasterboard produced by the British Plasterboard group was carried by 157 votes to 141 (July 5) and an opposition amendment to the Forestry bill was carried by 232 votes to 229 (July 16). There were 77 divisions during the committee and report stages of the Finance bill, the government majority varying from 6 to 211. During the discussion of this bill there occurred the longest sitting of the parliament: at 10.16 P.M. on June 12 the house rose after being in continuous session from 2.30 P.M. the previous day. During this sitting there were 25 divisions and in every one more than 550 members voted.





The speaker's chair of English oak (above) which was presented to the House of Representatives of New Zealand on Nov. 20, 1951, and the silver mace (below) presented to the Australian House of Representatives on Nov. 29.

The 40th parliament met on Oct. 31. Its first act was to elect W. S. Morrison (*q.v.*, Conservative, Cirencester and Tewkesbury) as speaker. In the first contested election for the speakership since 1895, he received 318 votes to 251 for Major Milner (Labour, Leeds, South East). Sir Charles MacAndrew (Conservative, Bute and North Ayrshire) was elected chairman of ways and means, and R. Hopkin Morris (Liberal, Carmarthen) deputy chairman. In the House of Lords, Lord Simonds succeeded Viscount Jowitt as lord chancellor and the Earl of Drogheda was re-elected lord chairman of committees. In the first session of the new parliament until Dec. 7 there were 26 divisions in the House of Commons: the government received majorities ranging from 22 to 79.

There were six by-elections in 1951 up to the date of the general election. The Conservatives retained 3 seats, Labour 2

and the Ulster Unionists 1. Sir Walter Monckton, solicitor general in the caretaker government of 1945, entered the Commons for Bristol West in February and Sir Arthur Salter, independent member for Oxford university, 1937-50, was returned in April as Conservative member for Ormskirk. Ernest Bevin, foreign secretary, 1945-51, was succeeded as member for Woolwich East by his former parliamentary under-secretary, Christopher Mayhew. At the end of 1951 one by-election (at Leeds, South-East) was pending.

Four peers were created in the resignation honours list. Major Milner (Labour member for Leeds, South-East) became Lord Milner of Leeds. The others were Lord Kirkwood (David Kirkwood, who sat for Dumbarton Burghs, 1922-50, and Dunbartonshire, East, 1950-51), Lord Wise (F. J. Wise, member for King's Lynn, 1945-51) and Lord Mathers (George Mathers, member for Edinburgh West 1929-31, Linlithgowshire, 1935-50, and West Lothian, 1950-51). Viscount Jowitt, lord chancellor, 1945-51, was created an earl. Other peers created in 1951 were:—Lord Freyberg (General Sir Bernard Freyberg), Lord Hungarton (A. Crawford), Lord Kenswood (E. A. Whitfield), Lord McEntee (V. La Touche McEntee), Lord Macpherson of Drumochter (T. Macpherson), Lord Asquith of Bishopstone (Lord Justice Asquith) and Lord Cohen (Lord Justice Cohen). The last two were life peers.

The committee of privileges considered only one case. J. Lewis (Labour, Bolton West) complained that on July 3 he was obstructed by the police on his way to the house. The committee reported that no breach of privilege had been committed. The Criminal Law Amendment bill, the first bill introduced under the " ten-minute rule " to pass through all its stages, received the royal assent. The Reverend J. G. MacManaway's Indemnity act was passed; this fulfilled a government promise made in Nov. 1950 when he was disbarred from membership of the House of Commons.

On Nov. 20 a delegation of three members presented a speaker's chair to the New Zealand House of Representatives and on Nov. 29, the delegation presented a silver mace to the Australian House of Representatives. The presentation to New Zealand was to mark the centenary of the constitution in 1952, and to Australia to mark the 50th anniversary of the Commonwealth. On March 29, when the first session of the newly constituted legislative assembly of the Gold Coast was opened in Accra, a delegation from the House of Commons was present.

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PATENTS. The year 1951 was comparatively uneventful in the field of patents. The protection of inventions proceeded under normal conditions generally and was governed in the United Kingdom by the Patents act, 1949, which had first come into operation in 1950. Heavy arrears continued, however, in the applications for patents awaiting official examination in the U.K. and in many other countries.

The German Patent office at Munich made substantial progress towards becoming a fully functioning Patent office. Extensions of time were granted for filing applications for patents in the United Kingdom and in New Zealand with priorities based on recent corresponding applications in Germany. United Kingdom patents that were in German proprietorship at the outbreak of World War II were vested in the custodian of enemy property and the 1946 agreement on the treatment of these patents continued in effect.

The Japanese peace treaty, signed at San Francisco in September, provided that the restoration of allied patents and patent rights in Japan, under provisions made in that country since 1945, should be maintained. United Kingdom patents in Japanese proprietorship when Japan entered the war were vested in the custodian of enemy property and there was no provision in the peace treaty for their return to their prewar Japanese owners.

In the United States, codification and revision of patent law was under consideration. In Australia, an officially appointed committee reviewed patent law. In New Zealand, a similar committee had made recommendations in 1950 for amendment of patent law and procedures, and regulations were made in Aug. 1951 varying the official fees payable on applications for, and renewals of, patents. Following an agreement between the U.K. and Israel, extensions of time were available early in the year in each country for securing priorities based on applications for patents filed in the other country on or after May 15, 1947.

The International Institute of Patents, inaugurated at The Hague during 1950 under the agreement between Belgium, France, Luxembourg and the Netherlands to investigate the novelty of inventions described in applications for patents in those countries or put forward by nationals of those countries, began operations on a limited scale with the assistance of the Netherlands Patent office. The project before the Council of Europe for the establishment of a European Patent office was under consideration by an international committee of experts which reviewed possible simplifications of patent procedures. The United Kingdom and Italy made an agreement for the prolongation in each country of the patents of the nationals of the other to compensate for losses arising from the war. (J. L. BE.)

See The Chartered Institute of Patent Agents, *The Patent Act, 1949* (London, 1950); T. A. B. White, *Patents for Inventions and the Registration of Industrial Designs* (London, 1950).

PEASANT MOVEMENT. The European Agricultural federation (Confédération Européenne de l'Agriculture or C.E.A.), formed by western European farmers' associations on the initiative of Professor Ernst Laur, of the Schweizerisches Bauernsekretariat, in Oct. 1948 at Brugg, Argau, Switzerland, by 1951 had 180 member associations in 18 countries and claimed the right to speak in the name of 35 million European farmers. At Strasbourg, in Oct. 1950, under the chairmanship of Christian d'Andlau (France), the C.E.A. general assembly had resolved that the fundamental condition of European prosperity was to maintain a large and free farmer population based on independent family farms and free agricultural co-operatives.

In France, the most far-reaching programme was that of Waldeck Rochet, agricultural expert of the Communist party, who in 1950 had advocated the expropriation without compensation of land owned by big landlords of whom, he claimed, there were 114,000 owning 30% of cultivated land. The Peasant party, reorganized in 1946 by Paul Antier, Camille Laurens, Paul Ribeyre and others but too small to contest the 1946 election alone, had allied itself with other Conservative groups and secured the election of 14 candidates: only 8 of these, however, formed a Peasant group in the National Assembly, the remaining 6 joining other groups. Shortly before the June 1951 election, as the result of splits in other parliamentary formations, the Peasant group had 30 members and in the new National Assembly its membership increased to 42. Antier, chairman of the group, joined the Pleven cabinet as minister of agriculture, but in November was forced to resign for flirting with the Gaullists and was replaced by Laurens. As a result, 17 members of the Peasant group left it on Nov. 29 to form under Antier's leadership a Peasant and Middle Class Defence group.

Addressing the annual conference of the Western German Peasant union (Bauernverband) at Rendsburg, Schleswig-Holstein, in September, the chairman, 73-year-old Andreas

PEASANTS' PARLIAMENTARY REPRESENTATION IN EUROPE*
(Figures in brackets are those of the preceding election)

Country	Party corresponding to Peasant	Date of last election	Votes obtained		% of total votes		Peasants' Seats		Total No. of seats
Denmark	Venstre	Sept. 5, 1950	437,952	(574,895)	21·4	(22·9)	32	(49)	151
Finland	Agrarian party	July 2-3, 1951	475,747	—	23·4	(24·2)	51	(56)	200
France	Parti Paysan d'Union Sociale†	June 17, 1951	2,496,570	(2,465,526)	13·1	(12·8)	42	(30)	627
Iceland	Progressive party	Oct. 23, 1949	17,659	—	24·5	—	17	(14)	52
Ireland	Clann na Talmhan	May 30, 1951	38,872	(71,686)	2·9	(5·4)	6	(7)	—
Norway	Agrarian party	Oct. 10, 1949	85,008	(73,537)	4·9	(4·9)	12	(10)	150
Sweden	Farmers' party	Sept. 19, 1948	480,360	(421,094)	12·6	(13·6)	30	(35)	230
Switzerland	Peasants', Artisans' and Middle-Class party	Oct. 27-28, 1951	—	—	—	—	23	(21)	196

* Only European countries having a parliamentary system and free elections are included.
† At the 1946 and 1951 election the French Peasant party went to the polls in an alliance with the Conservative and Independent Republicans. After the election it formed its own "group" in the National Assembly.

Hermes, stated that the union although not a political party was prepared, in alliance with other middle-class organizations, to fight for individual freedom against collectivization and capitalist concentration.

In Switzerland, where Eduard von Steiger, a leader of the Peasants', Artisans' and Middle-Class party, was 1951 president of the confederation, Markus Feldmann, another Peasant leader, was elected minister of justice and police by the Federal Assembly (joint session of the National Council and Council of States) on Dec. 13, by 184 votes to 18. At the October election the party increased its representation from 21 to 23 in the National Council.

In Denmark, a partial indirect election of 28 members of the Landsting or Upper Chamber took place in April: out of 2,070 grand electors returned 556 were members of the Peasant "Venstre" compared with 488 at the preceding election in 1943. During the year Erik Eriksen, Peasant leader, remained premier of a Peasant-Conservative coalition government.

In Sweden, four leading members of the Agrarian party joined with the Social Democrats in a coalition cabinet formed on Oct. 1: the leader, Gunnar Hedlund, became minister of the interior.

In Finland, the Agrarian party leader, Urho Kaleva Kekkonen, re-formed his cabinet after the July election as before in coalition with the Social Democrats.

In Bulgaria, Czechoslovakia, Eastern Germany, Hungary, Poland and Rumania the Peasant parties continued to be nominally represented both in parliaments and governments. In Poland, four Peasant members of the Sejm were in March deprived of their immunity and imprisoned; Józef Putek, a left-wing Peasant leader in prewar Poland and in 1946-48 minister of posts and telegraphs, was arrested in November; Stanisław Mierżwa, a Peasant leader sentenced to 10 years' imprisonment in 1947, died in April. Piotr Bańczyk, an alleged Gestapo agent, was sentenced to death in Warsaw in December; his brother Stanisław, a Peasant leader who had succeeded in escaping abroad, was also accused of being a Gestapo agent.

The International Peasant union, whose president was Stanisław Mikołajczyk and secretary general George M. Dimitrov, on Aug. 30 presented to the U.N. general assembly a memorandum with many annexes conveying an up-to-date picture of conditions in eastern Europe under Soviet rule. At the end of the year the central committee of the I.P.U. was composed of representatives of the Albanian, Bulgarian, Croat, Czechoslovak, Estonian, Hungarian, Lithuanian, Polish, Rumanian, Slovak and Serbian parties. (K. SM.)

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PEMBA: *see* ZANZIBAR.

PERFUMERY: *see* SOAP, PERFUMERY AND COSMETICS.

PERÓN, JUAN DOMINGO, Argentine statesman (b. Lobos, Buenos Aires, Oct. 8, 1895), was educated in military schools. He became one of the leaders of the Grupo de Oficiales Unidos (G.O.U.), a nationalist clique of young army officers who, in 1943, helped to overthrow the régime of President Ramon S. Castillo. Perón became war minister and later vice president under President Edelmiro Farrell, and in 1946 was elected president on the Labour party ticket. From 1948 on, progressive political steps were undertaken by Perón's followers to permit him to succeed himself, though this required adoption of a new constitution, since the old specifically forbade it. The constitutional change was accomplished in 1949, and in July of that year Perón was renominated.

A feature of his régime in 1951 was the stifling of the independent newspaper, *La Prensa*, and its seizure by the government in February. The U.S. assistant secretary of state, Edward G. Miller, Jr., told Perón, on March 4, that his policies had so antagonized the U.S. public that it was difficult for the U.S. to co-operate with Argentina. On Aug. 22 Perón agreed to run for re-election as president. A brief and abortive revolt on Sept. 28 was attributed by Perón to disgruntled generals, backed by foreign money. On Nov. 13 Perón was re-elected by a 2-to-1 majority.

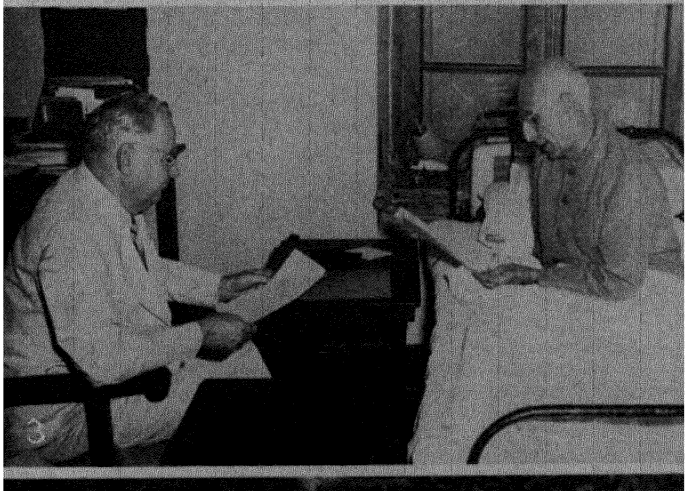
PERSIA. Independent kingdom of western Asia, bounded E. by Pakistan and Afghanistan, N. by the U.S.S.R., W. by Turkey and Iraq and S. by the Persian gulf and Arabian sea. Area: *c.* 634,413 sq.mi. Pop. (no census ever taken, 1950 est.): 18,772,000. Language: mainly Persian, but Turki and Armenian in the N.W., Kurd in the W., Arabic in the S. and Pashtu in the E. Religion: Moslem, mainly Shia but the Kurds (750,000) are Sunni; Christian (there are *c.* 50,000 Gregorian Armenians, a few thousand Catholic Armenians and 40,000 Nestorians); Jewish 80,000; and *c.* 10,000 Zoroastrian Parsees. Chief towns (1948 est.): Tehran (cap., 850,000); Meshed (250,000); Tabriz (214,000); Isfahan (205,000); Abadan (150,000); Shiraz (129,000); Resht (122,000); Hamadan (104,000). Ruler, Shahanshah Mohammad Riza Shah Pahlavi; prime ministers in 1951, Ali Razmara (*see* OBITUARIES), Hosain Ala and (from April 29) Mohammad Mossadegh (*q.v.*).

History. In 1951 Persia moved suddenly forward from the background of world affairs into the fullest prominence. The occasion of this startling event was the dispute between the Persian and British governments over the position of the Anglo-Iranian Oil company (A.I.O.C.), which occupied the centre of the stage in Persia to the exclusion of practically every other matter throughout 1951.

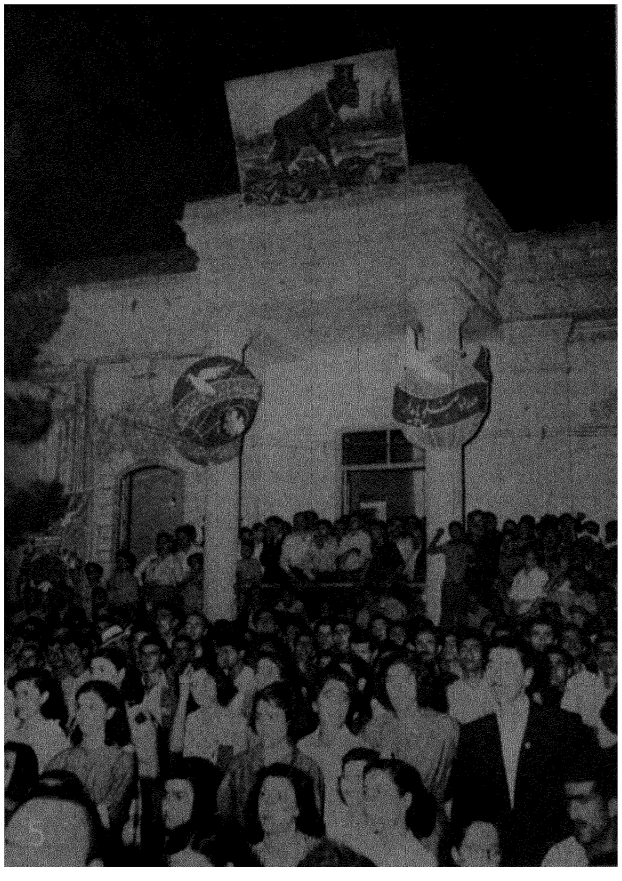
The dispute was already in progress, though little noticed in the world outside, when the year began. At the instigation of the National front (whose aged and fanatical leader, Mohammad Mossadegh, was one of the deputies for Tehran in the Majlis), the special parliamentary commission set up to consider the new supplementary oil agreement, which had been signed by a previous government with the A.I.O.C.,











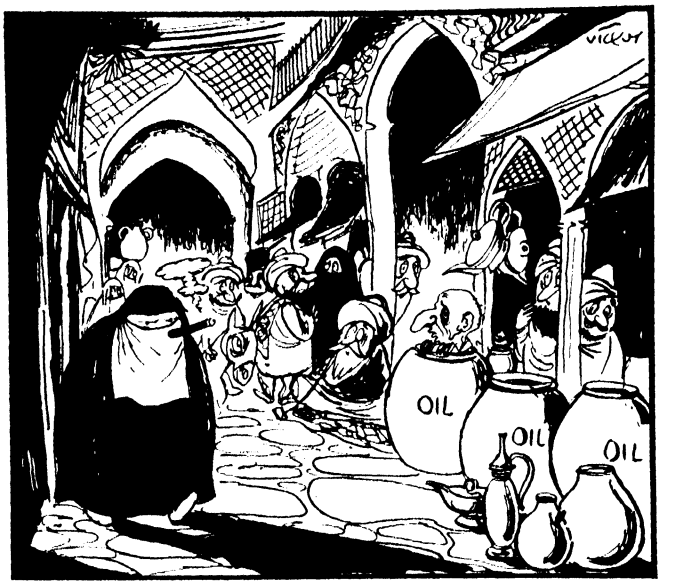
Persia in 1951. (1) On Feb. 12, 1951, the Shah was married to Suraya Isfandiari. (2) General Ali Razmara, prime minister from June 1950, who was assassinated on March 7, 1951, lying in state. (3) Mohammad Mossadegh, who became prime minister on April 29, receives H. F. Grady, the United States ambassador, during the Persian-British oil dispute. (4) Kenneth Ross, general manager of the Abadan oil refinery, watching the last British staff depart. (5) An anti-British demonstration in Tehran in July, organized by the Tudeh party; the British bulldog on the building was entitled "He's the warmonger behind the new deaths."

had already decided to reject it before the end of 1950. Mossadegh continued his campaign relentlessly against the A.I.O.C. in 1951. Having first shaken the government of General Razmara in January by successfully agitating against the press law of March 1949, which was duly repealed, the National front next attacked the finance minister, Hosain Furuhar, for having spoken in support of the supplementary oil agreement, and forced his resignation. In Feb. 1951 the government reached an arrangement with the A.I.O.C. by which advances were provisionally to be made to Persia at approximately the same rate as if the supplementary oil agreement were in force; and Mossadegh retaliated on Feb. 19 by demanding outright the nationalization of oil throughout Persia. The shah had so far taken little part in the dispute, being preoccupied first with the philanthropic task of transferring his father's estates to the peasants who worked on them; and later by his marriage, on Feb. 12, to his second wife, Suraya Isfandiari, a connection of the tribal family of the Bakhtiari.

The dangers arising from the oil dispute grew severer when General Razmara, the prime minister, was assassinated on March 7 by Abdollah Rastigar, a member of the fanatical Fadayian Islam (Devotees of Islam). Both the National front and the Communist Tudeh party were accused of having instigated the assassination; but both were probably innocent, though both benefited from it. After a brief interval during which Hosain Ala reluctantly became prime minister, the shah appointed Mossadegh prime minister on April 29, after the latter had successfully forced through the parliamentary oil commission, against Ala's opposition, a motion providing for the immediate taking over of the A.I.O.C.'s assets by a new National Iranian Oil company (N.I.O.C.). Since Mossadegh had become the personal symbol of the agitation for nationalization, in which he was backed by the expert demagogy of the religious leader Ayatollah Kashani and the clandestine intervention of the Tudeh party, it was perhaps inevitable that he should be nominated once Razmara was removed. The disastrous climax equally inevitably followed: the whole economic life of the country was abandoned to chance by the new National front government, while it concentrated at all costs on the so-called nationalization of the oil industry.

The Nationalization law was promulgated on May 2. Its validity was disputed by the British government in a series of notes, which had no effect. A request by the A.I.O.C. for arbitration was also rejected. Disturbances and anti-British demonstrations took place both in the capital and in the oil area of southern Persia. A generally anti-western character was added to the nationalistic emotion when other European countries and the United States appeared inclined to support the British case. When the British government referred the case to the Hague International Court of Justice in May, and obtained an injunction on July 5 to restrain both governments from further action to alter the *status quo*, the court's competence was denied and its members abused by the Persians. A delegation sent out from Great Britain in June by the A.I.O.C. to negotiate was unceremoniously invited to accept the nationalization law or to leave; and a temporary board of the new N.I.O.C. was established on Abadan island to take charge of the oil industry. Gradually the work of the A.I.O.C. began to close down and its staff to withdraw.

On July 15 new hope of a settlement sprang up with the arrival in Tehran of W. Averell Harriman, sent specially by President Harry S. Truman as a neutral mediator to bring the parties together. Thanks to his efforts, the atmosphere improved sufficiently to enable the British government to send out a new negotiating mission, headed by the lord privy seal, Richard Stokes, who reached Tehran on Aug. 4.



Vicky's cartoon in the "News Chronicle" (London), Oct. 4, 1951, entitled "Ahmed, are you sure ALL the British have gone?"

Although warmly received at first, he was unable to achieve any real progress in the tangled negotiations, and returned to Britain on Aug. 23; Harriman also left on the following day. Relations steadily deteriorated thereafter, until in September the Persian government finally announced the impending cancellation of the residence permits of all the A.I.O.C.'s British staff remaining in Abadan. The British government appealed to the Security council of the United Nations to support its rights but, rather than precipitate violence, agreed to the withdrawal of the British staff from Abadan on Oct. 3. Thereafter the Persians were in sole control of the oil industry, but production was negligible.

Mossadegh flew personally to New York to conduct Persia's case before the Security council. He succeeded in persuading the council to adjourn all discussion of the dispute, instead of accepting a British motion condemning Persia's action against the A.I.O.C.; but despite a prolonged stay in the United States he failed to persuade the U.S. government either to grant Persia the considerable economic help needed in place of the revenues formerly received from the A.I.O.C., or to coerce the British government into renewing negotiation on Persia's terms. He returned to Tehran on Nov. 23, flying by way of Cairo in order to demonstrate solidarity with the Egyptian government (which was similarly involved in a violent dispute with the British government), and was welcomed with a nationalistic fervour of emotion which served temporarily to conceal the desperate condition of Persia's economy and internal security. Administration by the cabinet was almost in abeyance; the cost of living was rapidly rising; the oil industry was barely functioning; the seven-year plan of economic reconstruction was largely neglected; the Tudeh party, outlawed since 1949, was nevertheless openly active; the shah was undecided what initiative, if any, he should take.

Shortly after Mossadegh's return to Tehran, he was accorded an unexpected vote of confidence in the Majlis, in spite of the growing vigour of the opposition, and he took advantage of the opportunity to announce the long-awaited elections to the 17th Majlis. The electoral period, always protracted, began in the capital and northern provinces on Dec. 18 and was still in progress when the year ended. (X.)

Education. Schools (1942-43): elementary 2,401, pupils 244,315, teachers 9,748. There were two universities (Tehran and Tabriz) and three university colleges (1949), students 5 919.

Agriculture and Fisheries. Main crops ('000 metric tons, 1949; 1950 in brackets): wheat 2,000 (2,150); barley 850 (800); cotton, ginned 21 (24); jute 4 (4); sesame seed 10·0; cottonseed 42 (35); rice 480; sugar, raw value 31 (62); tea 7·6; tobacco 17·0; oranges and tangerines 40 (45); olives 14 (12); olive oil 1 (1). Livestock ('000 head, 1948-49): cattle 2,500; sheep 13,000; horses 365; mules 42; buffaloes 10; camels 600; goats 7,000; chickens 13,000. Livestock products ('000 metric tons, 1949; 1950 in brackets): wool, greasy basis 15 (16); butter 40. Fisheries (production of Société Mahie): approximate catch of sturgeon 5,000 tons, from which 30 tons of caviar are extracted.

Industry. Fuel and power: coal ('000 metric tons, 1948) 150; crude petroleum, production of the Anglo-Iranian Oil company, ('000 metric tons, 1950; 1951, six months, in brackets) 32,256 (15,920); electricity (million kwh., 1948) 200. Raw materials (metric tons, 1950 est.): copper ore 1,000; sulphur 600; red oxide 10,000; arsenic ore 500. Manufactures: cotton yarn ('000 metric tons, 1949) 12·0; cotton piece goods (million m., 1949) 30·0; cigarettes (millions, 1948) 4,350; tobacco ('000 metric tons, 1947) 8·7; cement ('000 metric tons, 1948) 58.

Foreign Trade. (Million rials, 1950; 1951, six months, in brackets): imports 8,403 (4,013), including imports of concession holders* 2,190 (550); exports 22,562 (14,564), including exports of concession holders 19,600 (11,500). Main sources of imports, excluding imports of concession holders (1950): U.S. 33·7%; U.K. 27·0%; India 8·6%; U.S.S.R. 5·1%. Main destinations of total exports: U.K. 16·4%; India 9·7%; France 4·0%; Australia 3·7%. Principal imports, excluding imports of concession holders (1949-50): cotton piece goods 18·7%; cereals 9·8%; sugar 9·4%; tea 7·5%. Principal exports, excluding exports of concession holders: carpets 26·1%; dried fruits 15·5%; gums 10·2%; skins and furs 7·9%.

Transport and Communications. Roads (1949): 17,000 mi., of which 8,000 mi. are suitable for vehicles. Licensed motor vehicles (Dec. 1950): cars 12,000, commercial 12,000. Railways: (1948) 1,750 mi.; passengers carried (1947) *c.* 1·6 million; freight carried (1948) *c.* 1 million metric tons. Iranian Airways: unduplicated route miles (1950) 5,077. Wireless licences (1949): 60,000.

Finance and Banking. Budget (million rials): (1950-51 est.) revenue 8,950, expenditure 11,470; (1951-52 est.) revenue 9,553, expenditure 9,550. Internal national debt (Dec. 1949): 5,668. Currency circulation (March 1949; March 1950 in brackets): 6,290 (6,030). Bank deposits (March 1949; March 1950 in brackets): 6,130 (6,200). Gold and foreign exchange (million U.S. dollars, Aug. 1950; Aug. 1951 in brackets): 238 (220). Monetary unit: *rial*, with an exchange rate of 91 rials to the pound sterling and 32·50 rials to the U.S. dollar.

PERU. South American republic, bounded N. by Ecuador and Colombia, E. by Brazil and Bolivia, S. by Chile and W. by Pacific. Area: 482,258 sq.mi., incl. islands. Pop.: (mid-1950 est.) 8,405,000; *c.* 52% whites and *mestizos;* 46% Indians; some Asiatic and Negro elements. Religion: mainly Roman Catholic. Language: Spanish; Indians speak only Quichua or Aymará. Chief towns (pop., 1945 est.): Lima (cap., 657,824); Callao (93,313); Arequipa (87,260); Cuzco (49,760). President, General Manuel A. Odría.

History. The administration continued its reform programme during 1951 and made progress toward economic and fiscal restoration and development. At the end of 1950, and for the first time since 1946, Peru achieved an active balance of international trade. The 1951 budget provided for 2·5% of the $5,800,000 owing to U.S. exporters. The budget was in balance. Exchange stability was maintained and the net exchange position of the Central Reserve bank improved. Peru became a contracting party to the General Agreement on Tariffs and Trade in Oct. 1951.

In November a joint statement by the U.S. Foreign Bondholders Protective council and the Peruvian government announced approval by the council of a debt readjustment plan offered by Peru. The Peruvian government was negotiating with the Council of Foreign Bondholders, London, with a view to reaching a similar settlement.

The Government announced a big new road-building plan and an equally important irrigation plan. The first included a low-altitude highway (7,000 ft.) across the Andes which would open the fertile eastern slopes to development.

(S.·D. L. R.)

* The Anglo-Iranian Oil company, the Soviet-controlled Société Mahie and the diplomatic corps.

Education. Schools (1951): 9,705 public primary, 20,429 teachers, 872,669 pupils; 628 private, 2,650 teachers, 85,429 pupils; 98 public secondary, 2,056 teachers, 41,209 pupils; 148 private secondary, 1,736 teachers, 21,023 pupils. There were four public universities—Lima, Arequipa, Trujillo and Cuzco—and the Roman Catholic university of Lima.

Agriculture. Production (1950): cotton (ginned) 81,500 short tons; centrifugal sugar 462,000 tons; rice (milled) 130,000 tons. Livestock estimates (1949-50): 18,518,000 sheep, 960,000 pigs, 1,092,000 goats, 2,883,000 cattle; (1948) 2,449,746 alpacas and llamas.

Mineral Production. Production (1950): copper (smelter) 22,409 short tons; gold 125,388 fine oz.; silver 13,469,886 fine oz.; lead (ore) 67,251 tons; zinc (ore) 81,364 tons. Crude petroleum production: 15,017,320 bbl.

Foreign Trade. (Million soles, 1950) exports 2,886; imports 2,877. Principal exports: cotton (35%); sugar (15%); petroleum and products (13%); lead (7%); zinc (5%). Chief customers: the U.S. (26%); the United Kingdom (17%); Chile (15%); Belgium (8%); Argentina (4%). Leading suppliers: the U.S. (53%); the United Kingdom (17%); Argentina (6%); Australia (3%); Germany (3%).

Transport and Communications. Railways (1947): 2,612 mi. Roads (Dec. 31, 1949): 19,468 mi., incl. 7,903 mi. hard-surfaced. Motor vehicles (1949): 25,148 cars; 17,687 lorries; 2,511 buses. Merchant marine had 41 steamers and motor ships (100 tons and over) aggregating 86,667 gross tons on June 30, 1950.

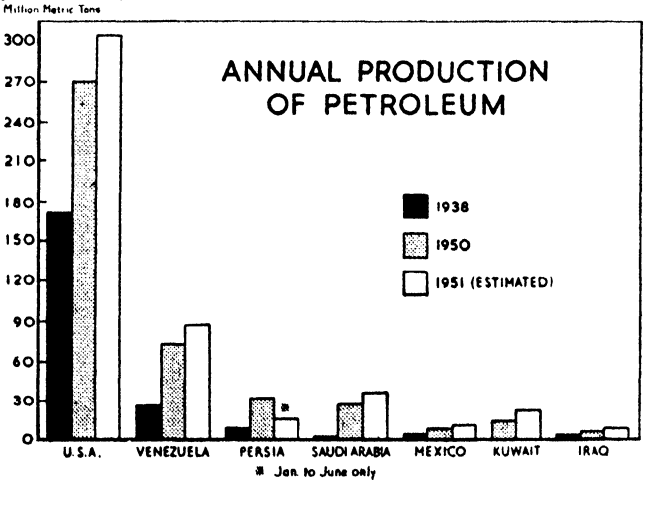
Finance. (Million soles). Budget: (1951 est. of expenditure) ordinary 1,641, extraordinary 298; (1950 actual) revenue 1,728, expenditure 1,682. National debt (Dec. 31, 1950): external 403; internal 1,249·5. Note circulation (Sept. 30, 1951): 1,727. Monetary unit: *sol*, with an exchange rate on Nov. 17, 1951, of 43·4 to the pound sterling and 15·5 to the U.S. $.

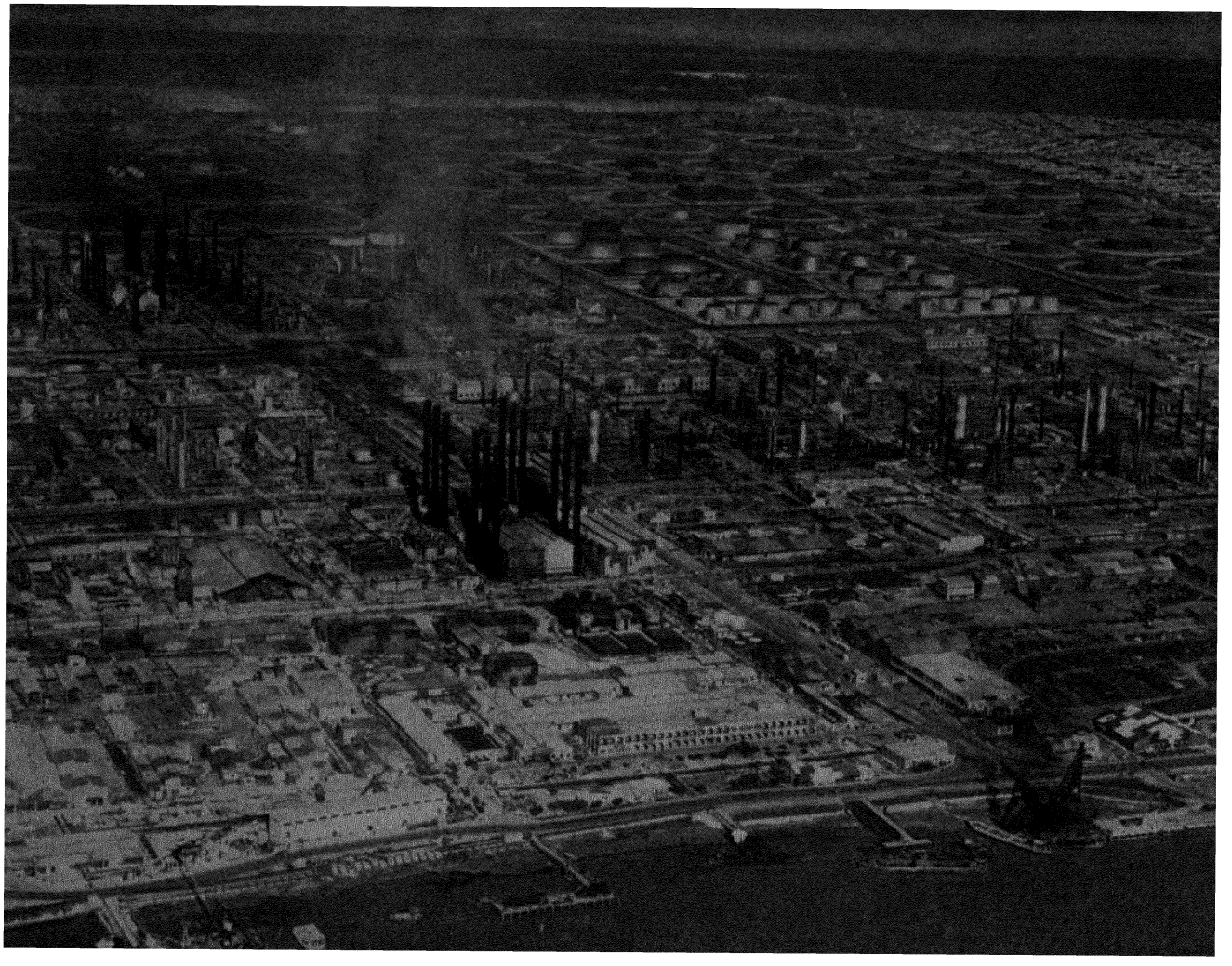
(J. W. Mw.)

PETROLEUM. The world demand for petroleum in 1951 continued unabated, owing partly to the continuance of the Korean war and partly to the increased desire for petroleum products, especially for transport, industrial and agricultural needs. There was every prospect that, despite the cessation of Persian oil production from the summer onwards, the world record figure for 1950 of 543 million metric tons would be exceeded—possibly by as much as 60 million metric tons. In the first half of 1951, at any rate, 300 million metric tons were produced.

That the oil industry was essentially flexible and resourceful was proved by the way in which it met developments in Persia, where, by July 1951, oil had almost ceased to flow to the great refinery at Abadan. The problem set before the oil industry was one of refining rather than of crude production; but it was not insuperable, though certain countries, particularly to the east of Persia, felt keenly the loss of aviation spirit previously refined at Abadan. The loss of crude oil previously deriving from the Persian fields was largely made up by sharp increases in production in Kuwait and Saudi Arabia.

Kuwait, whose production in 1950 totalled 17,291,000 metric tons, began, in April 1951, to exceed an average of over two million tons monthly, and towards the end of the year was producing at an average of considerably over





An aerial view of the Anglo-Iranian Oil company's refinery at Abadan, Persia—the largest in the world—which in 1951 was taken over by a board appointed by the Persian government.

30 million tons annually; the production of this small Arab sheikhdom, indeed, seemed likely to be comparable with that of the whole of the U.S.S.R.

Development in Saudi Arabia was on an equally large scale. In 1950, Saudi Arabia produced 26,900,000 metric tons, but before the end of May 1951 was producing at a monthly average rate of over 3 million tons, and appeared certain by the end of the year to exceed the production of the U.S.S.R.

So promptly, in fact, did the oil industry react to the closing down of the Persian oilfields, that oil production in the middle east for the third quarter of 1951 exceeded the average for the area in 1950, when Persian oilfields supplied 37% of the total. Thus began a development which seemed likely to be even more marked during the next year or two, when, for example, the 30-in. diameter pipeline from Kirkuk, in Iraq, to Banias, in Syria, was completed—it was scheduled to carry some 13 million tons annually—and when the pipeline from Zubair, in southern Iraq, to Fao, on the Persian gulf, was opened (inauguration was expected on Jan. 10, 1952); the latter line was expected, in a few years, to carry some 8 million tons annually, though its initial throughput would be between 1 million and 2 million tons. It is of interest to note that, while the Persian fields were in production, the British interest in middle east oil reserves surpassed the United States interest; if the British did not regain their interest in Persian oil, United States interest in middle east oil reserves seemed likely to predominate.

But it was not only in the middle east that oil output rose in 1951. All the main producing countries, indeed, except Persia, increased their production. The United States, for example, still producing over 50% of world supplies, was responsible for 161 million metric tons in the first half of 1951, as compared with 290 million metric tons in the whole of 1950. Output in the U.S. in November was running at an annual rate of 310 million metric tons, about 20 million tons a year higher than a year earlier. Venezuela, which, in the second half of 1950, produced 41,804,000 tons, produced, in the first half of 1951, 43,341,000 tons, and the Venezuelan minister of finance predicted that by the next spring a production equivalent to 100 million tons would be reached annually. Of all the countries in the Caribbean area, only Trinidad showed a small decline.

For the U.S.S.R., no authentic figures were available, but her production for the first half of 1951 was estimated at 20,500,000 tons; it was known, however, that the goal of oil production in the U.S.S.R. was 60 million tons by 1960—which would involve an annual increase of 6%. Persia, which in 1950 was fourth in the world list of producers, began 1951 at an average annual rate of nearly 35 million tons, but, as already said, her production had almost ceased by midsummer.

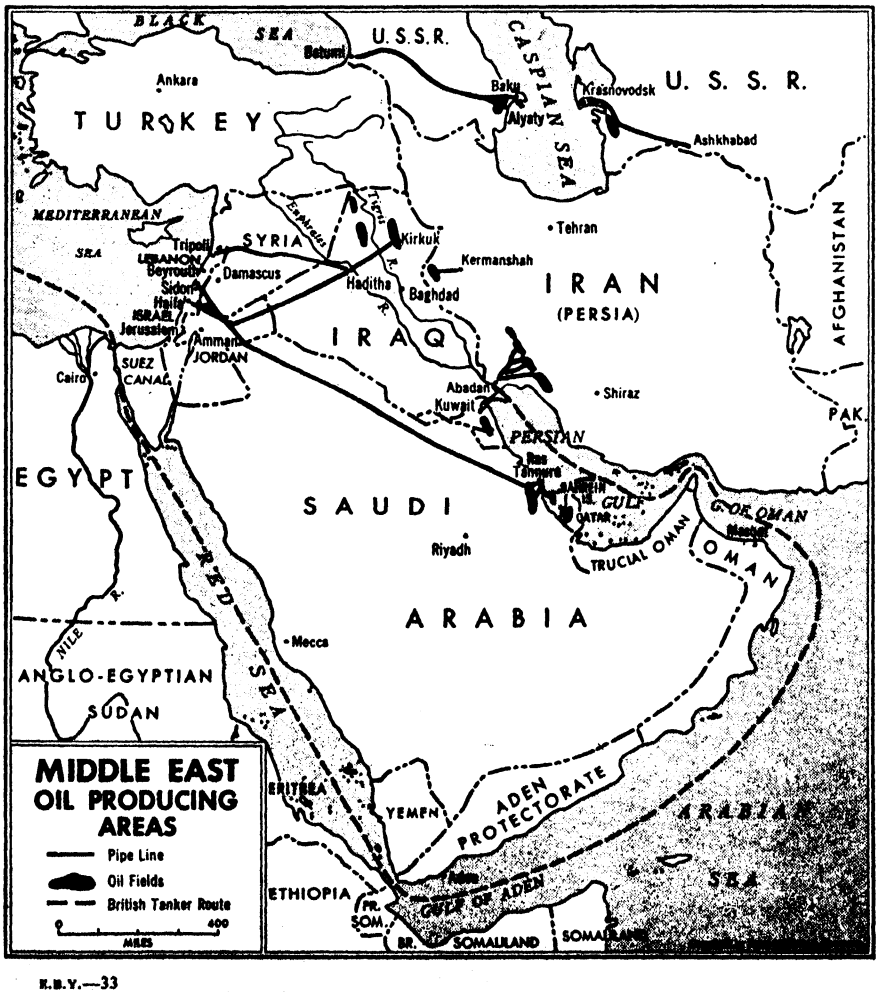
Mexico, seventh in the world list (the fifth and sixth being Saudi Arabia and Kuwait respectively) slightly increased her production—from 10,500,000 tons in the whole of 1950 to 5,600,000 tons in the first half of 1951; and Iraq, producing in 1951 about 8 million tons, was, as indicated above, set fair for a considerable increase.

Colombia and Argentina also showed slight increases over 1950. In the far east, also, Indonesia and Borneo went steadily, if unspectacularly, ahead in 1951. More interest, perhaps, was shown in the Canadian oil industry, where, particularly in the development of Albertan resources, production, running at 8 million tons annually, had been raised eightfold in the previous four years. Further development of Canadian resources appeared to depend mainly on additional transport and refining capacity.

There was every sign at the end of 1951 that production could keep pace with a demand which, with the more rapid establishment of refineries in Europe than was originally contemplated, would certainly be very heavy. Because of speeding-up of the building of refineries in Europe, even the loss of the Abadan refinery was being decreasingly felt, and crude oil from the middle east was being used by completed refineries operating at above their normal rate.

Although the year 1951 was one of anxiety to the oil industry, that industry responded without hesitation to the needs of the situation. The main contributions to increase in oil production came from north America, Venezuela, Kuwait and Saudi Arabia; but all oil-producing or oil-refining countries played their part. Nor were activities confined to overcoming immediate problems, for exploration of possible new fields continued all the time, not only in major oil regions such as the U.S., the Caribbean, and the middle east, but also in Canada, New Guinea, Trinidad, India and Pakistan, where oil output was comparatively small, and even in lands such as Kenya, Tanganyika, Sicily, and Australia, where oil was not even known to exist. Production of oil from shale, moreover, received constant attention. The general conclusion at the end of 1951 was that, if financial and economic factors did not interpose themselves between the demand for oil and the satisfaction of that demand, record figures for production were assured.

(K. W.)



PHARMACY. The first volume of the first edition of the *Pharmacopoeia Internationalis* (Ph.I.) was published in Geneva by the World Health organization in Oct. 1951. The new pharmacopoeia contained descriptions of and standards for 199 drugs, pharmaceutical chemicals, and medicinal preparations in the form adopted by most modern pharmacopoeias, with Latin titles, and chemical nomenclature based on the system of the International Union of Chemistry. It was not proposed that the International Pharmacopoeia should take the place of national pharmacopoeias but W.H.O. hoped that its provisions would eventually be adopted by national pharmacopoeia commissions, and that, where a country had no national pharmacopoeia, the standards of the Ph.I. would be accepted. By 1951 there was evidence that some countries with no pharmacopoeia of their own were arranging to adopt the Ph.I. for national purposes. A second volume was to be published in 1952.

Various aspects of the international control of proprietary medicines were discussed at a special conference convened by the Belgian Pharmaceutical society in Brussels, by the committee on proprietary medicines of W.H.O. in Geneva, by the International Pharmaceutical federation at their 14th General assembly, held in Rome, in September, and by representatives of the Brussels treaty powers who met at The Hague in December. The objectives of these organizations were roughly the same, namely, prevention of the multiplicity of names for the same substance, identical methods of control over composition and labelling and, when proprietary medicines were advertised to the public, the avoidance of misleading or exaggerated claims.

Arrangements for the exchange of students and reciprocal pharmaceutical qualifications were discussed by the newly formed Franco-British Pharmaceutical commission, members of which held their first congress at Brighton. The congress was to meet annually, alternating between the two countries. The 13th International Congress of Military Medicine and Pharmacy, held in Paris, in June, was attended by representatives of 43 countries.

After an investigation which had extended over five years a royal commission reported on the state of pharmacy in Sweden. The commission recommended that all retail pharmacies should be nationalized, that they should be owned by a government joint stock company and should be conducted as a multiple concern.

For the year ending June 30, 1951, 227 million national health service prescriptions were dispensed in England and Wales at an average cost of 3*s.* 5·5*d.* each, representing an increase of 16 million prescriptions and a rise in cost of 2·1*d.* each over the previous 12 months. In June a Scottish tribunal ruled that the average dispensing fee should be 1*s.* 6*d.* per

prescription with 25% added to the cost of drugs, to be retrospective to July 1948; for England and Wales, the Ministry of Health made an offer of an extra 1*d.* on the dispensing fee with an increase in " on-cost " to 25%, both retrospective to May 1950. The ministry considered that about 40% of the cost of prescriptions was accounted for by proprietary preparations.

New high level prices were reached for acacia and tragacanth, bismuth compounds and ipecacuanha, the last-mentioned drug costing about nine times its 1939 price and supplies being almost unobtainable on the European market. The publication of an *addendum* to *The British Pharmacopoeia* rendered official, as from Sept. 1, 1951, benzylpenicillin, chloramphenicol and streptomycin, as well as such relatively new drugs as cetrimide, dimercaprol and tubocurarine chloride. (W. K. F.)

PHILATELY. The most important philatelic exhibition of 1951 was held at Toronto to celebrate the centenary of the first Canadian stamps. King George VI exhibited and a Canadian, Gerald E. Wellburn, gained the Grand Prix. Conventions of the American Philatelic society, the American Air Mail society and other organizations were also held at Toronto. Other exhibitions commemorating stamp centenaries were held in Honolulu and Turin, and one in honour of the 65th anniversary of the Oslo Philatelic club, in Oslo.



New Commonwealth stamps issued in 1951. (1-2) Festival of Britain, 2½d. designed by Edmund Dulac, and 4d. by Abram Games; (3) 2s. 6d. by Mary Adshead; (4-5) 10s. and £1 by Percy Metcalfe; (6-7) Jubilee of Commonwealth of Australia; (8) Grenada; (9) St. Vincent, new constitution; (10) Royal visit to Canada; (11) New Zealand health issue.

The British Philatelic association celebrated its silver jubilee and the Royal Belgian Philatelic federation its diamond jubilee. In connection with the Festival of Britain, Thomas De La Rue and Co., Ltd., held an exhibition of their products, at which many historic examples of their work as stamp printers were shown.



One of the first U.N. stamps.

Among philatelic honours of the year were awards of the Royal Philatelic society, London, to L. E. Dawson, Sir John Wilson and H. Hurlock, and the names of Abraham Odfjell (Norway), R. F. A. Riesco and Brigadier M. A. Studd (Great Britain) and Gerald E. Wellburn (Canada) were added to the *Roll of Distinguished Philatelists.*

The deaths of J. Hall Barron (past-president, Royal Philatelic society), R. Paganini, Swiss authority on air mails, G. Brunel, French philatelic writer, and Achillito Chiesa, a leading Italian collector, occurred during the year.

Important collections dispersed included those of J. B. Seymour (British stamps) and Lewis L. Reford (British North American issues).

An interesting press discussion regarding the genuineness of the famous one-cent British Guiana stamp of 1856 was conducted between Sir John Wilson, leading British expert and Maurice Burrus, a famous French collector, the latter maintaining that the stamp was faked.

The congress of the Fédération Internationale de Philatélie, at Copenhagen, decided to take further steps to impress on the postal administrations of the world the philatelic objections to unnecessary issues of stamps. Rowland Hill's MS. journal for 1839-69 was presented to the General Post Office. It was announced that London sales of the Royal Silver Wedding stamps for British colonies and territories exceeded £900,000. *Mekeel's Weekly Stamp News*, a well-known U.S. periodical, celebrated its 60th anniversary.

The United Nations organization issued its first postage stamps, valid for use only from U.N. headquarters. Philatelists expressed strong doubt as to the need for such stamps. New stamps of the Commonwealth included complete sets for Grenada, Dominica, Montserrat and the Sudan. Special series commemorated the golden jubilee of the Commonwealth of Australia, the diamond jubilee of Nyasaland and the reconstruction of Castries (St. Lucia) after a fire.

The Festival of Britain stamps met with a mixed reception, as did new British stamps of the higher denominations. The most interesting of the special stamps issued by the United States commemorated the final reunion of Confederate veterans. Issues from eastern Europe were much concerned with peace propaganda, and friendship between the Soviet satellite states. Events celebrated on stamps of other countries included the Persian royal wedding, the 2,000th anniversary of Paris, the recapture of Seoul, Korea, by U.N. forces, a Boy Scout jamboree in Austria and the 175th anniversary of the Russian State theatre. Napoleon Bonaparte was shown for the first time on a stamp of France and Greece issued special stamps commemorating the journeys of St. Paul.

The most beautiful stamps of the year were from the Portuguese colonies of Angola and Mozambique, which showed birds and fishes respectively. The most unusual design—that of the Indian " geological survey " issue—depicted *Stegodon Ganesa*, a monster of the pleistocene age.

(S. Ps.)

BIBLIOGRAPHY. Outstanding publications during 1951 included: J. Schmidt-Andersen, *Postage Stamps of Denmark* (Copenhagen); J. L. Grumbridge, *Introduction to Stamps* (London); Jal Cooper, *Stamps of India* (Bombay); R. J. Sutton, *Stamp Collector's Encyclopaedia*

(London); Carroll Chase and E. H. de Beaufond, *Catalogue des Cachets des Bureaux Ambulants de France de l'Origine à 1900* (Paris); Philatelic Congress of Great Britain, *Glossary of Philatelic Terms* (London); Robson Lowe, *The Codrington Correspondence, 1743-1851.* (London).

PHILIPPINES. Island republic lying about 500 mi. off the southeast coast of Asia; an archipelago of 7,107 islands, the largest being Luzon (40,814 sq.mi.) and Mindanao (36,906 sq.mi.). Total area: 115,600 sq.mi. Pop.: (1948 census) 19,234,182; (1951 est.) 21,120,000, incl. 140,000 Chinese, *c.* 10,000 U.S. citizens and 12,000 Europeans. Languages: English (spoken by *c.* 5 million), Spanish (*c.* 500,000) and 87 dialects; Takalog, spoken by *c.* 3·5 million, was declared the national language. Religion: Roman Catholic (*c.* 80%); *c.* 2 million followers of the Independent Filipino (Christian) Church; 425,000 Protestants; 800,000 Moslems, 700,000 pagans. Chief towns (pop., 1948): Manila (cap., 1,300,000); Cebu 167,000; Zamboanga (1939 census, 131,455); Iloilo (110,000). President, Elpidio Quirino.

History. Changes in financial policy during 1950 improved the position of the government and the general economy and the crisis conditions of 1949 and 1950 receded slightly. Reorganization of executive branches of the government reduced their number and cost. The reforms were not sufficient, in themselves, permanently to stabilize conditions but were the beginning of a long-range programme suggested by the Bell Economic Survey mission of 1950. Careful trade controls, the improved status of export agriculture and continuing reform in government operation all combined during 1951 to promote general economic improvement.

Domestic political problems continued to harass the islands. The Communist Hukbalahap carried out almost continuous raids on towns and cities in many parts of the main island of Luzon, looting, burning and killing. Continued reorganization of the Philippine army, under a new secretary of defence, Ramón Magsaysay, placed all military forces upon field status. The adoption of aggressive guerrilla tactics and a positive programme promising land to dissident elements finally began to reduce the strength and striking power of the Hukbalahap, but by the end of the year only a start had been made in the elimination of the organized rebellious elements. Total Communist forces numbered about 16,000 toward the end of the year.

The year witnessed an off-year election in which nine senators, all the provincial governors and almost all municipal mayors were elected. In early violent electioneering numerous deaths and personal injuries resulted from fights between opposition groups and the private militant gangs of strong political bosses who attempted to intimidate the populace in an effort to maintain the power of the Liberal party. Prior to the election, President Quirino ordered the Philippine army to maintain the peace and ensure an honest election. The efficient carrying out of this order by Defence Secretary Magsaysay almost split up the Liberal party, but the election was peaceful and relatively honest. The honesty was indicated by the result that all nine senatorial seats, a majority of the governorships and most of the mayoralties were won by Nacionalista party candidates. The election constituted a severe defeat for the Liberal party, and endangered the support of President Quirino in congress.

Mount Hibok-Hibok, a 5,620-ft. volcano dominating the 96-sq.mi. island of Camiguin off the north coast of Mindanao, without warning erupted repeatedly for several days in early December, killing an estimated 2,000 people and destroying several towns and many farms.

One of the recommendations of the Bell mission was that the Philippine government receive financial aid from the United States during a five-year period. This aid was to be conditional upon the passage of a minimum wage law, and upon the reorganization of the tax system to provide a stipulated total revenue. Congress reluctantly provided final tax legislation during March which would approximately double revenues in the following fiscal year. It also passed a minimum wage law which legally guaranteed agricultural labour 87 cents a day and industrial labour $2 a day. The law contained clauses progressively increasing minimum wages during 1952 and 1953.

With the legislative requirements provided, E.C.A. aid began to be made available to the Philippines during the latter half of the year. An Export-Import Bank of Washington technical advisory group began to work with the Philippine government. The programme was to extend over five years, with total aid amounting to $150 million.

With continued strong emphasis upon agricultural rehabilitation the over-all acreage of food crops was a little greater and the yield a good deal higher than in any previous postwar year. High world market prices for coconut and manila hemp products, and the larger sugar export, were instrumental in promoting an increase in the national income.

The increased volume of agricultural export during the early part of the year gave the Philippines a significantly favourable balance of trade and built up the dollar reserve balance and the tight import controls established in 1949 were loosened during 1951 and in the latter months of the year an increased inflow of many types of goods took place. (J. E. Sp.)

Education. Schools (primary, secondary and technical, 1949): state 18,810, pupils 3,850,217, teachers 72,736; private 1,684, pupils 361,879. University of the Philippines (1948): students 5,417.

Agriculture. Main crops ('000 metric tons, 1934-38 average; 1950 in brackets): rice, paddy 2,179 (2,795); maize 427 (570); sweet potatoes 202 (572); cassava 75 (279); copra (1948) 1,042·3; manila hemp (abaca) 180 (96·8); tobacco 34·7 (32·0); sugar, production, raw value 960 (890). Livestock ('000 head, 1939; 1950 in brackets): cattle 1,349 (735); sheep 38 (31); buffaloes 2,919 (2,151); pigs 3,348 (4,673); chickens 25,365 (31,225).

Foreign Trade. (Million pesos, 1949; 1950 in brackets.) Imports 1,137·6 (717·6); exports 507·6 (661·2). During the first six months of 1951 imports totalled 409·9 (279·3 from the U.S.) and exports 484·5 (324·0 to the U.S.).

Finance. (Million pesos). Budget (1948-49, actual; 1949-50 est. in brackets): revenue 270 (304); expenditure 349 (302·7). Money supply (Sept. 1950; Sept. 1951 in brackets): currency 613 (642), deposit money 593 (509). Monetary unit: *peso* equivalent to 50 U.S. cents.

PHILOSOPHY. In 1951 there were no striking novelties in philosophical doctrines and interests. The outstanding discussions were on familiar lines, and the notable personalities were much the same, although the latest works of Karl Jaspers, Bertrand Russell and George Santayana added little to their reputations. The most conspicuous fact about philosophical study remained the wide difference in interests and methods between continental and British philosophers, the United States showing, less uniformly, a dominant trend similar to the British. This difference, consisting in a concentration of the interest of European philosophers on the examination of the human predicament, and of English-speaking philosophers on the theory of knowledge and the analysis of concepts, was associated with a difference in social circumstances. Scandinavia, more akin to Great Britain in its social conditions, also shared something of its philosophical outlook.

But in Europe generally, where social stabilities had been shaken and there was fierce and uncompromising strife between political parties, each proclaiming its own variety of philosophy, the professional philosophers addressed themselves largely to the advocacy and criticism of faiths by which to live. Although much work was done on the history of philosophy and the philosophy of the sciences, the centre of the stage was given to problems of the interpretation of history and the individual adjustment to crisis. The Catholic, the Marxist and the existentialist standpoints provided a large part of the philosophical bill of fare (this last school united not so much by specific theories as by a common concern with the problem of how not to despair in an

apparently pointless world). The involvement of philosophy with social policy led a French commentator to speak of "a kind of mobilization of metaphysics itself." These preoccupations linked philosophical study with history and psychology rather more than with the natural sciences. Thus, the philosophers of France propounded, as the topic for their next general conference, history, the philosophy of history, historical method and " the historicity of man."

No such stresses drove English-speaking philosophers (little concerned with the milder debates of their political parties) into the business of providing faiths for living. Indeed, although the scientists had become increasingly sensitive to their social responsibilities, and there was, in the United States, a good deal of discussion of scientific influences and responsibilities in matters of ethics and social policy, academic philosophers tended to disclaim any professional competence to give guidance or inspiration for the conduct of life. More existentialist writings became available in English, including Gabriel Marcel's rather indefinite Gifford lectures, " The Mystery of Being " (London, 1950-51), but they hardly stirred attempts at refutation. Marxist philosophers remained few and far between. There was, however, especially in the U.S., some tendency for philosophers, as they became more numerous, to segregate themselves into groups studying different problems, reading different journals and avoiding one another's company. International contacts were perhaps closest in limited fields such as symbolic logic. In 1951, there appeared the first numbers in an international series of " Studies in Logic " and the " Foundations of Mathematics " (Amsterdam, 1951).

In 1951, G. E. Moore (*q.v.*) received the Order of Merit, and Ludwig Wittgenstein died (*see* OBITUARIES). The most conspicuous movement in British and U.S. philosophy in 1951, the school of logical analysis, received from these two men, more than from any others, its conception of what philosophers should do. Moore's eminence in philosophy was not due primarily to any particular doctrines he defended (many of his works are as indecisive as Plato's), but to the example he set to his contemporaries of a particular philosophical method; namely, the thorough and minute analysis of the precise meanings of statements made and considered important by philosophers, and of those statements, made by ordinary people in ordinary circumstances, which seem to have implied philosophical consequences. Moore's presumption was that " common-sense " statements, which adequately served their turn in ordinary life, were pretty certain to be true if only they were properly interpreted (it is the philosopher's business to supply the interpretation), while those statements of philosophers which belonged only to abstract theory were, if they conflicted with common sense, very likely to be based on confusion.

Wittgenstein, though he published only one work (which few have claimed to understand) and though very few people even heard him talk about philosophy, yet, through personal contacts with individual philosophers and through the application of his technique by John Wisdom and others, exercised a great influence on contemporary philosophy. This influence also was chiefly in the field of method. Wittgenstein, too, held that the business of philosophy was to clarify and not to question the statements of the sciences and of common sense; its especial task was the elimination of nonsensical statements and unanswerable questions. When he published the *Tractatus Logico-philosophicus* he maintained that, apart from the tautologies of mathematics and logic, only those statements had meaning and could be true or false which pictured some actual or possible arrangement of atomic facts; the statements of metaphysics, ethics, theology and even of the analytical philosophy of which the *Tractatus* itself was an example, were meaningless. His later views (expressed in a book which was almost complete at his death) departed substantially from these views. But there was no departure from the main aim he had earlier set forth, namely, the clarification of thought, which he attempted first by the use of the techniques of mathematical logic, later by a much more informal consideration of how philosophical questions come to be asked. It is especially to Wittgenstein that philosophers owed the notion that the characteristic problems of philosophy are not real problems but muddles arising out of unclearnesses in the use of language, and that they are not to be solved by conclusive definitions of concepts but are to be dissipated by an examination of the contexts in which they arise and of the related usages which tempt us into nonsense, until, in the end, the perplexity is no longer felt.

A large proportion of British and U.S. philosophy in 1951 was performed by men trained in the technique of which Moore and Wittgenstein were masters, and sharing their aim of clarifying thought. Indeed, the analytical school came near to being an orthodoxy. Attention was focused especially on the analysis of psychological concepts (*e.g.*, John Holloway's *Language and Intelligence*, London, 1951, which followed Gilbert Ryle's line of approach). There was argument about the special characteristics of intelligent mind, and the crucial differences between minds and " thinking "-machines, in which some scientists participated.

At the same time, along with a general acknowledgement of the usefulness of the analytical techniques, and an admission that they had helped to clarify thinking, there was a widespread rejection of the more extreme dogmas of the school and a dissatisfaction with the narrowness of its interests. Phenomenalism, for instance, seemed to be a declining creed, and the name of Logical Positivist was rarely accepted. A number of books (the most effective being W. H. F. Barnes' *The Philosophical Predicament*, London, 1950) attacked the main positivist theses directly or argued for the reinstatement of metaphysics. Yet philosophers proved much readier to defend the practice of metaphysics than to take part in it.

As for ethics, one might say that the positivists' ban on the rational discussion of moral problems had been lifted in 1951. All the same, the systematic discussion of how men ought to live was handled more thoroughly by the psychoanalysts and the anthropologists than by the philosophers. Philosophy yet lacked a stimulus to become constructive, speculative or hortatory comparable to the stimulus of social stress it had received in Europe. Such a stimulus usually comes from outside philosophy—the development of positivism was prompted largely by developments in mathematics and physics. A possible source of such an outside stimulus in 1951 was psychical research.

By 1951, it had become usual for philosophers in Great Britain and in some neighbouring countries to take seriously the findings of psychical research and try to assess their philosophical importance. Some recent books (*e.g.*, G. N. M. Tyrrell's *Homo Faber*, London, 1951) considered epistemological problems in the light of these findings. Results were not very impressive, but the evidence looked as though it required an extensive revision of familiar cosmological and epistemological notions. The subject was still in the stage at which the speculations of philosophers might help in the formulation of those scientific hypotheses which were still lacking. The topic, therefore, attracted attention and may have been important to the future development of philosophy.

The place of Edmund Husserl as one of the dominating philosophical figures of the period had been strengthened by the publication of the first three volumes of what should be a definitive edition of his works. His influence in Germany was pronounced, and there was also a good deal of discussion of his ideas in France. His pupil Edith Stein's posthumous

Endliches und Ewiges Sein (Freiburg, 1951) attempted a fusion of Husserlian and Thomistic ideas. The centenary of Descartes in 1950 stimulated Cartesian study in France. Karl Mannheim's posthumous *Freedom, Power and Democratic Planning* (London, 1951) was a succinct and compendious expression by a well-known thinker of a social philosophy widespread in western Europe. It was, however, framed in too abstract terms to present an entirely clear picture of the democratically planned society. N. O. Lossky's *History of Russian Philosophy* (New York, 1951) filled a notable gap in the history of philosophy.

New periodicals launched in 1951 included the existentialist *Aut Aut* (Turin), *Philosophischer Literaturanzeiger* (Schlehdorf-am-Kochelsee, Germany), giving critical reports of new publications, and *Philosophy East and West: a journal of oriental and comparative thought* (University of Hawaii press). (*See* also THEOLOGY.) (C. H. WY.)

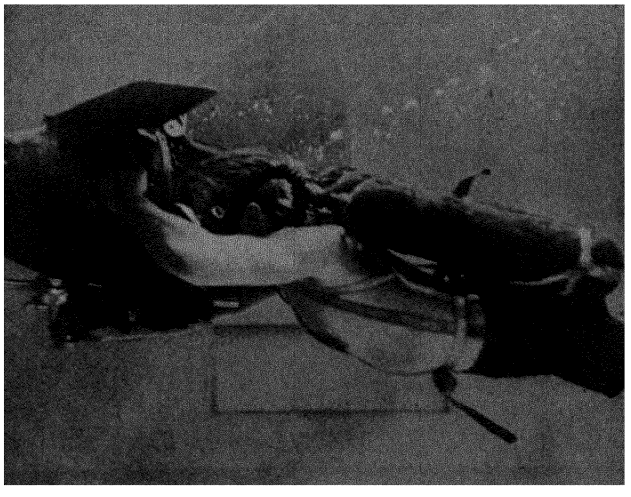
PHOTOGRAPHY. Photographic progress in 1951 was steady but unsensational. In Great Britain shortage of materials, partly caused by the rearmament drive and the necessity of exporting a high percentage of photographic manufactures, considerably restricted the home market. Despite this, several important new cameras and accessories were produced. In the spring demonstrations were given of a new British precision miniature camera known as the "Witness," incorporating all the features discriminating photographers demand in such apparatus, such as interchangeable lenses, coupled rangefinder combined with the viewfinder, detachable back, and built-in synchronization for flash. It was noticed that the new camera, with its "streamlined" design, was not a copy of any other makers' product. Two other British 35-mm. cameras—the Reid and the Wrayflex (the former based on the Leica design and the latter an eye-level reflex)—began distribution. In larger-size British cameras a $2\frac{1}{4}$-sq.in. twin-lens reflex of the Rollei type, known as the Microcord, was shown to the trade, together with a 4×5-in. press camera of the American type with interchangeable lenses, focal plane shutter, coupled rangefinder and other accessories required by the modern press photographer. Another camera in the 4×5in. size known as the P.I.M. (Photographic Instrument Manufacturers) and primarily designed for industrial work, with a mono-rail base, was shown and went into production.

In Europe considerably more progress was made, particularly in Germany. At the second Photo Kina fair, held in April, at Cologne, a large number of new models were shown, a notable feature being the number of new and relatively inexpensive 35-mm. cameras, the popularity of which continued to grow. This was mainly because only in this size was natural colour photography possible at a reasonable cost. In the highest-priced miniature class, the Contax IIIa—similar to the previously produced IIa but with built-in photoelectric exposure meter—attracted attention, and the new Voigtlander "Prominent" combined a sector type of shutter, placed immediately behind the lens, with lens interchangeability, a feature generally found only with focal-plane shutters. This feature was of greater importance than might at first be imagined, for, with the introduction of electronic flash, which gives an exposure of about 1/5000 sec., a focal-plane shutter could only be used at the slow speeds when the whole of the film surface was exposed at the same time. If a narrow travelling slit was used—which was always the case with the higher shutter speeds—only one strip of the film would be exposed in so brief an interval, but with the Sector type of shutter, which could be set for speeds as high as 1/500 sec., the whole area of the film surface was exposed simultaneously even at the highest speeds. With fast lenses and the relatively slow speeds of 1/25 or 1/30 sec. (which are essential with focal-plane shutters) normal room lighting might give a second and possibly blurred image, thus spoiling the effect of the electronic flash.

The great and growing popularity of 35-mm. stereo work in the United States had led the European manufacturers to realize the possibilities of this field. Two new models of 35-mm. stereo cameras were shown at Cologne, and others were promised.

Another type of 35-mm. camera growing in popularity was the eye-level reflex. Normally a reflex camera is held at waist level, the user looking down upon the focusing screen, generally through a magnifier. This position of the camera is often awkward, particularly in a crowd. One of the first 35-mm. reflex cameras, the Exakta, was supplied with a fitting which enabled the camera to be used at eye-level through a reflecting prism which not only showed the magnified image the right way up but also corrected from left to right, which was not the case with the normal method of viewing. This model, known as the "Varex," attracted considerable attention at Cologne. The same idea was used in the Italian "Rectaflex," the Swiss "Alpa," the German Contax S and one or two others. One other advantage of single lens reflex construction was that separate viewfinders were not required for different focal lengths of lens.

In larger cameras there were no special novelties shown, although much interest was taken in the new $2\frac{1}{2}\times3\frac{1}{2}$-in. Linhof camera, a neat instrument of the press type combining all the special features of the well-known larger model.



A diver testing in 1951 a new underwater camera, the Eclair-Aquaflex 35-mm. cine-camera.

In the U.S. the Eastman Kodak company introduced two new low-priced 35-mm. cameras known as the Pony 828 and the Pony 135 respectively, the former taking Bantam-size film and the latter the normal 35-mm. cassettes. A little later they introduced, at a higher price, the "Signet," an improved version of the previous Kodak 35, including a coupled rangefinder. The majority of these three models would probably be used for colour films. The Polaroid-Land camera, which had been on the market for two or three years and which had the distinguishing feature of enabling a completely processed picture to be taken out of the back of the camera a minute after exposure, was applied to a number of scientific uses where the rapid production of the finished photograph was important. With the rearmament drive this camera was finding increasing use for identification photographs in munition plants.

Flash photography continued to increase in popularity on both sides of the Atlantic with no noticeable progress in the development of the consumable flashbulb, but, so far as

Europe was concerned, a good deal in electronic equipment. More and more cameras were fitted with " synchronizing " sockets into which the flashgun could be plugged. In the cheapest lines of camera, designed for use with the small bulbs known as " Speed Midget " or " Speed Flash," an electrical contact was made as soon as the blades of the shutter were wide open. Because, with the consumable type of bulb, there was a small delay after the current was switched on and before the bulb actually reached its maximum illumination, simple synchronizers of this type could not be used for high speeds: the shutter blades had opened and closed again before the flash was fully ignited. For correct synchronization over a wide range of shutter speeds a built-in delay mechanism was needed so that the shutter blades could not open until the flash had reached the desired intensity. This made the mechanism more complicated and expensive, so that full synchronization was found only on the better cameras. The highest quality synchronized shutters in 1951 provided three adjustments for flash, known respectively as X, F and M. X was for use with electronic flash which required no delay; F for the brief delay required by the Midget bulbs; and M for the longer delay required by the larger and most powerful bulbs.

A number of improved electronic flash equipments were produced in Europe during the year, and at the Cologne fair several new German varieties were shown. Bulk and weight were cut down by the introduction of a new type of flash tube which operated at about 1,000 v. instead of at about 2,500 v. in the tubes previously used. The reduced voltage necessary enabled the condensers to be made smaller and lighter. Also the illuminating efficiency of the new bulbs was higher than that of the old, so that, for the same light output, a further reduction of weight was possible. One novel and ingenious electronic flash outfit shown at the Cologne Photo Kina fair used a replaceable 1,200-v. dry battery to provide the necessary high voltage, thus eliminating the need for an accumulator, vibrator, transformer and other parts usually needed. With some German sets the usual sulphating trouble with the normal lead accumulator was overcome by the use of a new type silver-zinc accumulator for which many advantages were claimed, particularly that they could be left for long periods in a discharged or partially discharged condition without suffering any deterioration. Although such accumulators were obtainable in England their cost was so much higher than that of the lead-type cells that manufacturers of electronic equipments considered their cost prohibitive for standard equipment.

With the introduction of the lower voltage tubes it was possible to produce sets powerful enough for normal home use by the amateur in very light and compact form. One British set, weighing 5½ lb. and with a small power pack, sold for under £40. Prices of all electronic flash outfits were tending to fall, and a lightweight set using the older form of high voltage tube, and torch batteries as a source of power, could be bought for less than £30.

There was no sensational development in colour photography. During 1951 the new Agfa negative colour film was introduced on the British market and several service stations for processing put into operation. With this material, which was obtainable in all the popular sizes including 35-mm. roll and sheet film, the material after exposure was sent to one of the processing stations for development and from the colour negatives so produced paper prints supplied. Although in quality they were not up to the best produced by Trichrome Carbo or Dye Relief, the pictures were pleasing and would no doubt be improved. At the end of the year Agfacolor negative was the only subtractive colour process available for amateur use in sizes larger than 35-mm. In the U.S., however, the roll-film user could obtain Kodacolor (for the production of paper prints and colour negatives), Ektachrome and Anscocolor (both of which could be used for the production either of transparencies for projection or positive prints on a white plastic base). In Europe, Agfacolor, Gevacolor and Ferraniacolor were available.

The necessity for exposing colour film to light of the correct colour temperature led to the production of several new photoelectric colour temperature meters in both Europe and the United States. The general principle followed by the designers was to measure the ratio of the red to the blue components of the light being tested, the higher the proportion of blue the higher the colour temperature. In one group of designs the red component was first measured through a red filter, a zero adjustment made, and then a blue filter substituted to measure the blue component. The scale of the meter was so calibrated that if the zero was set for the red component, the blue scale could be calibrated directly in degrees Kelvin. In another group of designs both red and blue components were measured simultaneously on two different photoelectric cells, so arranged that the relative opening of the red and blue filters could be progressively altered. The cells were corrected in opposition through a bridge circuit so that, at zero reading of the galvanometer needle, the colour temperature could be read off on a separate scale connected to the shutter, varying the filter openings. This method had the advantage that, within wide limits, the intensity of the light did not matter. In the former method care had to be taken that the cell was not moved when the change from red to blue filter was made. The German " Kelvilux " and the Swiss " Rebikoff " used the latter method and the British " E.E.L." (Evans Electroselenium, Ltd.) the former.

A notable feature of 1951 was the rapid development of the Japanese photographic industry, particularly in the manufacture of high precision cameras, the performance of which compared with the best produced in Germany. A number of these cameras marked " Made in Occupied Japan " were placed on the U.S. market but they had not yet been introduced into Europe. None of these cameras showed any particular originality, the aim being to copy the general features of the best German miniatures. One of the models produced, known as the " Nicca," was so close a copy of the Leica that, but for the name, it was difficult to distinguish the two apart; the Contax was also copied in the " Nikon " but not so closely. Other cameras endeavoured to combine features of both Leica and Contax. In both appearance and performance these postwar cameras made a good impression and, so far as the lenses were concerned, a number of U.S. army and press photographers claimed they were superior to the German cameras and had their German cameras fitted with them. It should be pointed out, however, that the lenses were still largely hand finished and it was doubtful if the Japanese factories could maintain the consistently high standard of the German products. In the larger sizes copies of the European twin-lens types of reflex were made, and natural colour film of the subtractive type was also produced. (P. W. H.)

PHYSICS. During 1951 the study of fundamental particles was vigorously pursued, both cosmic rays and high energy accelerators being used as sources. Important results and some clarification were obtained, but on the whole the picture became more complicated and the number of open questions larger. On the theoretical side, some consolidation was achieved, but at the cost of a very complex formalism which, it was widely felt, did not get to the root of the trouble.

In nuclear physics, the independent-particle model (shell model) was found to be a guide, reliable and powerful beyond expectation. In the study of beta decay, experiment and

theory came into closer agreement, and more direct evidence was obtained for that most elusive particle, the neutrino. In the investigation of the structure of solids, nuclear techniques such as neutron diffraction were employed to find the location of hydrogen atoms in crystal lattices and to study the orientation of electron spins in neighbouring atoms.

Cosmic Radiation. Several teams investigated the so-called V-particles, discovered by G. D. Rochester and C. C. Butler in 1947. They were found in cloud chamber photographs on which a number of penetrating tracks were seen, diverging from a point (usually outside the chamber) where a fast cosmic-ray particle had caused a violent explosion of a nucleus. Very occasionally a V-shaped track was found, with the angle pointing to the centre of the explosion. It appeared as if a neutral particle (which leaves no track) had travelled from the exploding nucleus and then spontaneously broken up into two oppositely charged particles, forming the two sides of the " V." No known particle would behave in this way. Even more rarely, a charged particle coming from the exploding nucleus was seen to alter its direction sharply inside the cloud chamber, as if it had collided with a nucleus; but as no track due to the recoiling nucleus could be seen it was thought that here a charged V-particle had spontaneously broken up into two particles, one charged, the other neutral.

These events are very rare; the two (one of each kind) found in 1947 remained the only ones known until C. Anderson *et al.* found several more in 1950. Since big nuclear explosions are much more frequent at high altitudes, cloud chambers were set up on White Mountain (California), Pic du Midi (France) and at other mountain laboratories. By the end of 1951, V-particles were being photographed at a rate of about one a day. Well over a hundred pictures had been taken, among them a few lucky shots when one or even both particles had suffered collisions in metal plates inserted in the chamber; such collisions give valuable information on the nature and mass of the particle concerned. From the scanty data it was concluded that the V-particles (both charged and neutral) were probably of two kinds, one somewhat heavier than a proton, the other about half as heavy.

Evidence for other new particles came from the microscopic scrutiny of special photographic plates, after exposure (in light-tight boxes) on high mountains, in aeroplanes, or at the even higher altitudes (up to 100,000 ft.) accessible to balloons. More tracks attributed to τ-mesons (which break up into three particles, probably π-mesons) were found, together with other events which could not yet be interpreted with any certainty. Special photographic emulsions for the study of nuclear particles were made from 1946 onward and were responsible for the discovery of the π-meson in 1947. By 1948 the sensitivity had been so far improved that even a fast electron with its weak ionizing power would form a recognizable track; every detail of a nuclear event could thus be revealed (except the emission of neutral particles, which cannot form tracks). The simplicity of this technique and its capacity for accumulating rare nuclear events over long periods of exposure caused an increasing number of researchers to adopt it, and numerous refinements were invented which added to its usefulness. Indeed the photographic emulsion may be said to have overtaken the cloud chamber (C. T. R. Wilson, 1912), formerly the only instrument for making atomic events visible.

Theoretical Physics. Some serious weaknesses in the foundations of theoretical physics were repaired, but much anxiety still remained. Those weaknesses had been long known, but received serious attention only after 1947 when W. E. Lamb and R. C. Retherford showed that certain energy levels in the hydrogen atom were not exactly where the quantum theory said they ought to be. Attempts to refine the calculations led to trouble. The crucial quantity in this field is the fine-structure constant $\alpha = 2\pi e^2/hc$ (e = the charge of an electron, h = Planck's constant, c = the velocity of light). This quantity is quite small (about 1/137) and theoreticians had therefore thought it justified to neglect its higher powers in their calculations, in particular since attempts to include those higher powers tended to give infinite, and hence meaningless, results.

When the Lamb-Retherford experiment (and some others which quickly followed) forced the theoreticians to take the higher powers of α into account they had to evolve methods for removing the infinite terms from their calculations. Those methods (sarcastically dubbed " subtraction physics ") were at first very arbitrary and inspired little confidence; confidence grew when the calculations were gradually put on a firmer conceptual basis and when their results were found to be in agreement with the experimental figures. However this formalism required very complex calculations to include terms up to α^2, and serious doubts remained of its yielding a finite result if extended to higher powers of α, quite apart from the forbidding complexity of such a task. A theory which did not introduce the powers of α one by one was still wanted.

It might be thought that this was an academic problem since higher powers of α are likely to change the results by minute amounts, far too small to be measured. However the same difficulty arises in much more serious degree in the theory of nuclear forces. These can be regarded as caused by the interaction of special charges (sometimes called " mesonic charges " because nuclear forces are thought to be connected with mesons), just as electric forces arise from the interaction of electric charges. It was clear from what was known of nuclear forces that the mesonic charge g of a nucleon was much larger than the electric charge e of an electron, so that the quantity $2\pi g^2/hc$ (which is the mesonic analogue to α) was not small compared to 1, perhaps even larger. Thus its higher powers could certainly not be neglected, and it was clear that an entirely different sort of formalism would have to be developed before phenomena involving nuclear forces could be computed with confidence.

Atomic Nuclei. Whereas some of the properties of the very lightest nuclei can be predicted, at least approximately, by theory, the study of the heavier nuclei had been until recently almost entirely descriptive. Now at last a model was discovered which allowed some order to be brought into the jungle of " nuclear botany." Some simplified model of the nucleus was clearly needed because the task of calculating the interplay of forces between all the particles (a hundred or more in a typical nucleus) was utterly beyond the resources of current mathematics even if it were known exactly what force was acting between two particles. The current model was suggested independently by J. H. D. Jensen, O. Haxel and H. E. Suess (Germany) and Maria G. Mayer (United States). It was successful far beyond the expectation of its creators; the spins, magnetic moments and electric quadrupole moments of nuclei, their binding energies, the occurrence of low-lying excited states and various other phenomena could be correlated and sometimes predicted by the model (variously called shell model, independent-particle model, j-j coupling model). (See *Britannica Book of the Year 1951:* PHYSICS, *Nuclear Shell Model.*)

Beta Decay Theory: the Neutrino. In 1932 E. Fermi produced the first theory capable of explaining why in beta decay the electrons are emitted with a continuous distribution of energies. His theory was based on the assumption (first suggested by Wolfgang Pauli) that in each beta disintegration a very light neutral particle was emitted together with the electron, the available energy being divided at random between the electron and this " neutrino." Many attempts were made to observe neutrinos, but all were unsuccessful,

even those using atomic piles, from which a very large number of neutrinos ought to emerge.

However, as time went on, more and more predictions from the Fermi theory were verified, and confidence in the neutrino grew. The choice of parameters which the theory contains was gradually narrowed down, and by the end of 1951 the theory had assumed a fairly well-defined form and shown itself capable of making detailed and correct predictions concerning, for instance, the energy distribution of the electrons emitted in connection with the half-life of a beta-active nucleus, its spin and other relevant parameters.

One of those predictions was that the angle between the lines along which the electron and the neutrino are emitted should not vary quite at random but that certain angles should be favoured. Although the neutrino itself could not be observed, this prediction could be tested by observing the direction and speed of recoil of the nucleus undergoing beta decay. If there were no neutrino the nucleus would recoil in a direction opposite to, and at a speed determined by, that of the electron emitted. Evidence that this was not so had previously been found, supporting the neutrino hypothesis. Now it was found by C. W. Sherwin that the recoil was quantitatively explained by the emission of a neutrino, and furthermore that the distribution of recoils was in good agreement with the angular distribution of neutrinos as predicted by the theory. Thus there appeared to be good reason for the belief that the neutrino, elusive though it was, did exist.

Crystal Structure. A great many common materials (metals, rocks, gem stones—but not glasses) possess crystalline structure; their atoms form a regular pattern which repeats itself over and over again. The study of this pattern was first made possible by the discovery (by M. von Laue in 1912) of the diffraction of X-rays passing through a crystal. Diffraction of electrons, though limited by their low penetrating power, had proved a valuable supplement; but both X-rays and electrons had the drawback that they are affected chiefly by the heavier atoms in the crystal lattice. Hydrogen atoms, present in all organic and many inorganic compounds, have so little effect that the diffraction pattern does not tell us anything about their location in the lattice.

Neutrons of thermal energies have wavelengths similar to those of soft X-rays, but are strongly affected by hydrogen nuclei. Neutron diffraction indeed proved a suitable tool for finding the location of hydrogen atoms in the crystal lattices of ice, ammonium chloride and other substances. This kind of research first became possible when atomic piles provided intense neutron sources, and was only now emerging from the tentative stage.

Neutron diffraction also gave interesting information on ferromagnetic phenomena. Many substances can be magnetized by very strong magnetic fields, but in ferromagnetic substances (such as iron or nickel) electrons are organized in " domains " containing many millions of electrons of uniform spin orientation; these domains can all be given the same orientation, and the substance thereby strongly magnetized, by quite feeble magnetic fields. The quantum-mechanical theory (W. Heisenberg, 1929) was based on the " exchange interaction " between electrons belonging to neighbouring atoms and implied—as was soon realized—in some materials the existence of " anti-ferromagnetic " domains in which neighbouring electrons have opposite spin orientation. Clear-cut proof for this behaviour—suspected in some cases from the magnetic and thermal properties—came from the use of neutron diffraction. Oppositely oriented electrons have the opposite effect on the neutron wave, and hence an anti-ferromagnetic domain produces a diffraction pattern rather like a lattice with twice the normal spacing. Such a pattern was indeed found with some substances, at low temperatures; if the substance was warmed up, the pattern disappeared as the anti-ferromagnetic domains became disorganized by the increasing heat motion.

Magnetite proved particularly interesting in showing both ferromagnetism and anti-ferromagnetism: of the electrons responsible for its magnetic properties, one-third was found to be oriented opposite to the other two-thirds. This leaves an excess of electrons pointing in one direction, causing strong magnetism. The detailed arrangement of the electron spins was determined from the neutron diffraction spectrum. (*See* also ASTRONOMY; ATOMIC ENERGY; ELECTRONICS; RADIO, SCIENTIFIC DEVELOPMENTS IN.) (O. R. F.)

See Physical society, *Reports of Progress in Physics* (London, 1951).

PHYSIOLOGY. The output of publications of physiological interest continued to expand both in fundamental and applied fields. A. E. Mirsky and H. Ris described the preparation of isolated chromosomes from mammalian liver, kidney and pancreas. When stained with Orcein and counter-stained with Fast Green these preparations were uncontaminated with cytoplasmic protein and identical chromosomes were found in different tissues of the same organism. The chromosomes consisted mainly of a histone protein, which was removed without affecting their microscopic appearance, a histone-free or residual protein and deoxyribose nucleic acid. The quantity of residual protein correlated with that of the cytoplasm of the cell from which the chromosomes were obtained. I. B. Zbarsky and K. A. Perevoshchekova found that addition of adenosine triphosphate to the histone fraction obtained from the nuclei of cells of various tissues caused a contraction of the protein threads to half their original length and suggested that this might be responsible for the mechanical changes in mitosis.

Medullated Nerve Fibre. A direct determination of the membrane resting potential and the action potential in a single myelinated nerve fibre of the frog's sciatic nerve was made, using external electrodes but without recourse to an exact determination of the short-circuiting factor. The resting membrane potential in frog Ringer solution at 17°C. was 71 mv., the action potential 116 mv.

Using radioactive sodium and potassium ions, R. D. Keynes measured the inward and outward movements of these ions in isolated 200μ Sepia axons at rest and during stimulation. Stimulation at 100 impulses per second increased the inward potassium flux 3·3 times and the outward flux 9·1 times; the corresponding values for sodium were 18 and 22 respectively. These results provided additional evidence of the increased ionic permeability of the membrane during activity, but in spite of its high sensitivity the tracer technique could only show the integrated results of a number of stimuli. With this technique it was not possible to ascertain whether an increased sodium permeability occurred in the rising phase of the action potential, whilst that of the potassium occurred in the falling phase, as had been inferred from electrical measurements.

Protein Synthesis in Animal Tissues in Vitro. A novel attack on this problem was reported. Since enzymes are protein in nature, an increase in enzymic activity following *in vitro* incubation was used to measure protein synthesis. Slices of pigeon's pancreas 0·5 mm. thick were suspended for two hours in a bicarbonate-saline medium. Such preparations absorbed oxygen and showed an increase in total amylolytic activity. The increase in total amylase activity was greatest in the bicarbonate-saline medium, to which had been added casein hydrolysate. Potassium cyanide or 2:4 dinitrophenol inhibited protein (amylase) synthesis. In the presence of oxygen, amylase was discharged from pancreatic cells into the saline by carbamylcholine, pilocarpine or acetyl choline and eserine. This response was inhibited by cyanide.

Amino Acid Requirements of Man. Employing known mixtures of amino acids, as the sole source of nitrogen with an otherwise adequate diet, W. C. Rose and his colleagues extended their feeding experiments to man. Whereas histidine and threonine are indispensable components in the diet of the rat, histidine is not necessary for the maintenance of nitrogenous equilibrium in a healthy adult male. Absence of threonine induced in man a pronounced negative nitrogenous balance within four days, which was only relieved by the restoration of threonine to the diet.

Circulation. Man's erect posture must necessarily impose certain adaptations in the circulatory system if the head is to be adequately supplied with blood when he assumes a standing posture. The blood supply to the rest of the body must be curtailed. The blood flow to the liver can be estimated by determining the rate at which the liver extracts a dye, bromsulphalein. In eight males passive tilting into the upright position caused a reduction (average 30%) in the estimated hepatic blood flow and only negligible changes in the mean arterial blood pressure.

S. Landgren and E. Neil recorded increased spike potential discharges in the aortic and carotid chemoreceptor nerves following haemorrhage in cats artificially ventilated with room air. Such chemoreceptor activity was reduced when pure oxygen was used instead of air, or when the prehaemorrhagic circulatory state was restored. It was not clear if this activity was due to a decreased blood flow to the chemoreceptors resulting in a fall in their oxygen tension and/or a diminished rate of removal of metabolites.

Artificial Respiration. A comparison of the efficiency of existing procedures and a new method—the Hip Roll-Prone Pressure Method—was reported. The victim is grasped at the distant hip and " rolled " on to the rescuer's knee. This pull-method is followed by the normal push method of Schafer. The roll reduces the fatigue incident to lifting the hips, as in the Schafer-Emerson-Ivy hip lift-prone pressure method, and gives a tidal air which is twice as large as that of the Schafer method.

Pancreatic Secretion. C. C. Wang and M. I. Grossman made a successful subcutaneous auto-transplantation of the uncinate process of the pancreas in six bitches. Such transplants secreted 5-15 cc. of pancreatic juice per hour following a maximal dose of secretin. A cannulated duodenal fistula enabled solutions to be instilled into the duodenum. The dogs were trained to stand in a wooden stock and the effects of various duodenal injections were observed against a background of pancreatic secretion provoked by a constant intravenous infusion of a solution of secretin. An increase in the volume of pancreatic juice was held to indicate the liberation of secretin, and an increase in the amylase content of the juice was ascribed to the secretion of pancreozymin. Hydrochloric acid (5%) caused a marked output of secretin and was a moderate stimulus for the release of pancreozymin. A 5% solution of Bacto-Protone, or of amino-acids, was the strongest stimulus for enzymic secretion by the pancreas (pancreozymin effect) and had a secretin effect second only to that of hydrochloric acid. Sodium oleate (5%) solution, at pH 7·0, and corn oil showed a pancreozymin effect; the former was the more powerful stimulant for secretin and pancreozymin whilst corn oil had the most lasting action. Solutions of starch, maltose or dextrose did not stimulate the liberation of either of the pancreatic hormones. Atropinization of the animal did not inhibit the action of peptones on pancreatic secretion. These experiments suggested that hormones play a dominant role in the regulation of pancreatic secretion.

Bedpan and Bedside Commode. The physiological cost, measured in terms of excess oxygen consumption, was determined in 40 trials on 13 non-cardiac patients and in 30 occasions in 15 ambulant compensated cardiac patients who performed Valsalva movements on the bedpan and on the bedside commode under standardized conditions. In both groups a consistently greater oxygen consumption was observed on the bedpan, averaging 50·7% for the cardiac group and 48·4% for the non-cardiac group. (C. C. N. V.)

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PIGS: *see* LIVESTOCK.

PIUS XII, the 262nd successor of St. Peter in the see of Rome (b. Rome, March 2, 1876, as Eugenio Pacelli), was elected by the cardinals in conclave on March 2, 1939, and was crowned pope ten days later. (For his early life see *Encyclopædia Britannica.*)

On Oct. 27, 1939, Pius XII issued his first encyclical, *Summi Pontificatus*, dealing with the unity of human society, and during 1940 he made 28 appeals, on major occasions, on behalf of a just peace. On June 5, 1940, he sent a personal letter to Mussolini urging that Italy be kept out of the war. On May 12, 1942, the pope broadcast to the world a plea to the warring nations. Two encyclicals were published in 1943: *Mystica Corporis*, on the Mystical Body of Christ; and *Divino Afflante Spiritu*, on the study of Holy Scripture. The relief of war victims was a matter of great concern to the pope during 1945; from his relief fund he contributed 5 million lire for the people of Sicily and 200,000 francs for Lithuanian refugees. The most important papal document of 1947 was the encyclical on the liturgy, *Mediatur Dei*, which stressed the importance of social worship and warned against abuses and unauthorized innovations. On Nov. 17, 1949, the pope advocated rearmament, making a very careful distinction between force as an instrument for the enslavement of peoples and force as a means to resist aggression. In 1950 Pope Pius welcomed about 3 million visitors who went to Rome to do penance and gain the special indulgences extended to pilgrims during the Holy Year, and on Nov. 1, 1950, he proclaimed the dogma of the corporeal assumption of the Blessed Virgin Mary to heaven.

On April 13, 1951, the pope received Princess Elizabeth (*q.v.*) and the Duke of Edinburgh (*q.v.*) in private audience and also, on May 3, Field Marshal Viscount Montgomery (*q.v.*). On June 3 Pius XII venerated the newly beatified Pope Pius X at a ceremony in St. Peter's. On Sept. 12 the pope commemorated the 15th centenary of the Council of Chalcedon in the encyclical *Sempiternus Rex*. On Oct. 29 the pope aroused some controversy among non-Catholics, especially in Great Britain, when he stated, in an address to the delegates to the Congress of the Italian Catholic Union of Midwives, that it was under no circumstances lawful directly and deliberately to take the life of an unborn child,

even in an attempt to save the mother. (*See* also ROMAN CATHOLIC CHURCH; VATICAN CITY STATE.)

PLAGUE: *see* EPIDEMICS.

PLASTICS INDUSTRY. Although there was a considerable "shortage" of many organic materials during 1951 the plastics industry continued to expand, partly as a result of the scarcity of metals and many other traditional materials of construction, partly because of the growing improvements in plastics and the realization that they could replace metals and wood and partly because of the growing desire of many countries to become self-sufficient in the organic field. In the main the growth was being obtained by the creation of petroleum chemical industries rather than by expansion of the coal-tar industries. The petroleum chemical industry, which began and was strongest in the U.S., was already highly developed in the U.S.S.R., and was forging ahead in Great Britain, where at least four plants were partly completed, in France and in other European countries.

Various assessments gave the world production of all plastics for 1950 as over 1,300,000 tons, which obviously did not include the U.S.S.R. production, since the U.S. alone produced 850,000 tons and Germany, which was increasing her production steadily, manufactured 100,000 tons. The figures for Great Britain for 1950 were not published by 1951 and it was known that shortage of raw material resulted in under-employment of the capacity of 190,000 tons and that production was unable to supply the demand.

An example of the growing desire to expand in the plastic field was the announcement in 1951 by Hungary of a four-year plan to develop the production of phenolic and urea resins, of polystyrene, polyvinyl chloride and silicone resins. The same report included a comparison of consumption of plastics per head of population: U.S.S.R., 3 kg.; the U.S., 2·5 kg.; and Hungary 0·1 kg. This comparison was mainly interesting because of the almost certain predominence in this field of the United States. It was highly probable that the Soviet figures included both synthetic rubber and synthetic textiles, while the U.S. figures did not.

Great Britain. Shortage continued to disappoint the plastics industry and potential users, the main difficulties being that the industry still drew its raw materials from coal and coal tar which were subject to low production and increasing demands from abroad. This affected not only manufacture of phenolic, cresylic and urea resins but also that of "acrylics," polythene, polyvinyl chloride and co-polymers generally and polystyrene. Similarly, shortage of coal-tar meant shortage of naphthalene and the phthalic anhydride from which it is made and thus the curtailment of phthalates used as plasticizers of polyvinyl chloride.

Despite this, actual production of polyvinyl chloride was increasing steadily; British Geon, Ltd., of Barry, Glamorgan, produced at the rate of 9,000 tons a year and hoped to increase this to 12,000 tons. Its associated company, British Resin Products, Ltd., at the same factory completed its plant for the manufacture of phenolic and urea resin.

The polystyrene situation eased somewhat in 1951 with increased imports from the U.S., and, more especially, from Canada, with small quantities arriving also from France and Germany. R. H. Cole, Ltd., importing from Canada, placed on the market a polystyrene co-polymer most welcome to the moulding industry because of its markedly superior properties over normal polystyrene in its higher heat resistance and impact-strength characteristics.

Most encouraging was the news of current and future home production of polystyrene. Monsanto Chemicals, Ltd., British Geon, Ltd., and Erinoid, Ltd., were producing the polymer from imported monomer, but home-made monomer was within sight. The first-named company gave a progress report regarding Forth Chemicals, Ltd. (formed by Monsanto and British Petroleum Chemicals, Ltd.). The new large and complicated fractionation column was in course of erection and it had been proposed to increase considerably the entire productive capacity of the plant.

Another noteworthy expansion was that of Aero Research, Ltd., a company that concerned itself almost solely with synthetic glues. A new and extremely efficient plant for the production of urea-resins was completed in 1951 and a smaller plant for making the new valuable ethoxyline resins (from epichlorhydrin) was in production. Productive capacity in Great Britain was probably between 200,000 and 250,000 tons a year and would probably reach the proposed figure of 340,000 tons by the end of 1952.

The year was noteworthy for two plastics exhibitions, one at the British Industries fair in May and the other (the first purely plastics exhibition) in June. At the same time as the latter and in the same building (Olympia), a Plastics congress was held, covering all fields of scientific and technological advances.

Considerable advances were made in the use of casting resins of the acrylic, polyester and epoxy types. Some of these had been employed for some time for the purpose of permanent embedding of specimens of small animals and animal parts for medical and other study, of vegetation for similar purposes in the agricultural field and for permanence in museums. The more recent progress referred to technical employment such as the permanent embedding of small electrical parts for total strength and protection from humidity and other attack. The polyesters were finding considerable use for bonding glass fabrics to produce aircraft radomes of considerable size and great strength. An experimental roof for long-distance coaches was also produced in this material.

"Durestos," a phenolic resin-impregnated asbestos felt, flexible in the working stage, was found to be of considerable promise in the constructional field. It was employed to produce an experimental door for the Ford "Prefect" and, at the 1951 Royal Aircraft establishment exhibition, a complete aircraft wing made from it was on view.

In the field of phenolic moulding, the outstanding production was the complete cabinet for the Sobell television set. Moulded by British Moulded Plastics, Ltd., it weighed 32 lb.

In a lighter field, the well-known spraying of polyvinyl compounds (typified by the "Cocoon" process) to protect aircraft naval units and technical plant in storage, was applied to the production of beautiful lamps of novel form. Some of these were on view at the South Bank exhibition.

The production of machines for the industry continued strongly, especially in the field of injection moulding, to keep pace with the growing use of theromo-plastics. The largest injection machine in the country was a 48-oz. Watson-Stillman injection machine at the works of E. K. Cole, Ltd., Southend. A new compression machine with completely automatic control—the 50-ton Lancastrian—was put on the market by Foster, Yates and Thom, Ltd.

United States. The rearmament programme in the United States had gone forward earlier and at a much greater rate and in much larger quantity than it had in Great Britain; shortages were therefore rapidly felt in the U.S., especially in the lighter industries. The immediate effect was reflected in the polystyrene consuming industry because it had been decided to rework the synthetic rubber plants, the GR-S rubber consuming some 25% styrene monomer by weight. The total quantities of styrene thus required were enormous since the absorption capacity for styrene monomer by the GR-S plants was about 200,000 tons a year.

At the current rate of manufacture U.S. plastics production might reach 900,000 tons by the end of 1951. The most

interesting development was the rapid growth of the thermoplastic materials, the total production of which exceeded the output of the older thermosetting resins.

Great stress was laid by the Society of Plastics industry on the use of polyesters in the structural field, a noteworthy point being that a section devoted entirely to them and known as " Reinforced Plastics Section " was formed; its terms of reference apparently contained no mention of phenolic reinforcement. The field of application for the rearmament programme was very impressive and production was already under way. They included radomes, heating ducts, tank liners, aircraft blades, ammunition boxes, rocket tubes, pontoon bridges, gun-stocks, life-floats, and sledges. Some £20 million worth of radomes alone were manufactured in 1950-51.

The machine producing side of the U.S. industry was in a very healthy condition and nearly 6,000 injection moulding machines were in existence. The larger types, of 200-oz. and 300-oz. capacity, were generally occupied in producing objects of large area especially for the huge refrigerator-making industry. On the other hand large injection machines were installed to take advantage of the high pressure available rather than the large area, and many deep and thick mouldings in thermoplastics were produced. (*See* MACHINERY AND MACHINE TOOLS; PAINTS AND VARNISHES; RAYON AND SYNTHETIC FIBRES; RUBBER.) (M. D. CN.)

PLAZA LASSO, GALO, Ecuadorian statesman (b. New York, Feb. 17, 1906), the son of General Leonidas Plaza, twice president of the republic. He attended the universities of California and of Maryland, and on his father's death in 1933 took over the management of the neglected family estate and was financially successful. In 1940 he founded the American school of Quito and from 1944 to 1946 served as ambassador to the United States. Elected president on June 6, 1948, with the support of the Movimiento Civico Democratico Nacional, comprising elements drawn from various traditional political parties, he succeeded in restoring political stability (there had been four presidents in 1947) and in maintaining a democratic administration. In 1951 he paid an official visit to Washington where on June 22 he addressed a joint session of the Senate and the House of Representatives: he said that Latin America had compelling reasons to look to the U.S. for leadership in these critical times—" in opposing aggression, there is no sense in a position of neutrality or indecision."

POLAND. People's republic of eastern Europe bounded E. by the U.S.S.R., S. by Czechoslovakia, W. by Germany and N. by the Baltic sea. Area: (before Sept. 1, 1939) 150,052 sq.mi., (after Aug. 2, 1945) 120,359 sq.mi. Pop.: (Sept. 1, 1939, est.) 35,339,000; (Dec. 3, 1950, census) 24,976,926. Language: Polish. Religion: Roman Catholic. Chief towns (pop., first figure, Sept. 1, 1939, est.; second figure, 1950 census): Warsaw (cap., 1,289,000; 650,064); Łódź (672,000; 619,914); Cracow (259,000; 330,046); Poznań (272,000; 320,294); Wrocław (625,000; 289,734); Gdańsk (235,000; 193,530); Szczecin (272,000; 178,210); Katowice (134,000; 141,277). President of the republic, Bolesław Bierut; prime minister, Józef Cyrankiewicz.

History. During 1951 the Communist leaders sought to arouse the nation to alarm, by inculcating the idea of the growing danger of an aggressive war threatened by the United States, the rearmament of Germany being the inevitable preliminary to such a war, of which Poland would be the first victim. This was the gist of an important speech by Bierut at the sixth plenary session of the central committee of the Polish United Workers (Communist) party in Warsaw on Feb. 17. Nevertheless, there was a possibility of preserving peace, Poland's independence and its territorial integrity by maintaining close friendship with the Soviet Union and people's democracies and by forming a large national front and working hard to fulfil the six-year plan. At the same time, never since 1947 had there been discovered more plots to overthrow the people's democracy, more spies in the pay of warmongers arrested or more saboteurs sentenced to death or long terms of imprisonment. Besides dismissal from the government of the last prominent non-Communists of the Lublin era the year saw also many of the Communist " old guard " awaiting trial for nationalist deviation.

Foreign Affairs. On Feb. 15 an agreement was signed in Moscow by Aleksander Zawadzki, one of the Polish deputy premiers, and Andrey Vyshinsky, the Soviet foreign minister, concerning an exchange of territories. The Soviet Union obtained an area of 185 sq.mi. south of Hrubieszów and east of Tomaszów Lubelski through which passes the main Kowel-Lwów railway and a local Krystynopol-Bełz-Rawa Ruska line. Poland was given in exchange an area of similar size some 20 mi. south of Przemyśl: it included the town of Ustrzyki Dolne and was described as a valuable addition to the national economy because it would add 20% to natural crude oil production. The agreement was announced on May 22 and the exchange of instruments of ratification took place in Warsaw on June 5. When the populations were resettled, the 14,000 inhabitants of the ceded area were moved to the interior, while some 25,000 people from other parts of Poland were ordered to settle in the area received from the Soviet Union.

On April 22-24 the president of the Polish republic paid a return visit to Eastern Germany at the invitation of Wilhelm Pieck, president of the German Democratic republic, who had visited Warsaw in Dec. 1950. On Jan. 27, 1951, at Frankfurt-on-Oder, Stanisław Skrzeszewski and Georg Dertinger, the foreign ministers of Poland and Eastern Germany respectively, signed the act of demarcation of the state frontier between Germany and Poland.

The Polish Peace Defenders' committee organized a " peace plebiscite " and from May 17 to 27 collected 18,053,315 signatures throughout the country to a resolution demanding that a peace pact be concluded by the five great world powers.

On July 22, at the celebration of the seventh anniversary of the " rebirth of Poland," a military parade took place in Warsaw in the presence of Vyacheslav Molotov and Marshal Gheorghy Zhukov. On the previous day Molotov had addressed a meeting on the historic importance of the " inviolable " Polish-Soviet friendship and alliance, and pointed the lesson of Yugoslavia which in the hands of a mercenary group had been sold to Anglo-American imperialists. The obvious conclusion to be drawn from this speech was that no such tragedy could happen to Poland so long as it remained a loyal friend of the Soviet Union.

Armed Forces. Coincident with the reappearance of Marshal Zhukov in Warsaw after five years' oblivion was the report that in the spring the supreme headquarters of the Soviet and satellite armies had been established at Jabłonna, north of the capital. During the year four divisions were added to the army and by the winter it was believed to comprise 12 infantry divisions, 4 motorized divisions, 2 mechanized and 2 armoured. Three Russian superior officers joined those serving under Marshal Konstanty Rokossowski, commander in chief of the Polish forces: General J. Sukhov replaced General B. Mierzycan as inspector general of armoured troops; General Ivan Turkiel succeeded General A. Romeyko as commander of the air force and Rear Admiral K. V. Cherokov assumed command of the navy.

In August four generals and five other officers of the prewar army, who in 1945 had joined the new army, were tried on charges of espionage and plotting the overthrow of the people's democracy, among them being Major General Stefan Mossor, who until 1950 had been in command of the Cracow military area. On Aug. 13 four generals were sentenced to life imprisonment and five other officers received sentences of from 10 to 15 years' imprisonment. The trial also aimed at compromising more important personalities. One of the accused charged General Marian Spychalski, former deputy minister of national defence and chief of the political department of the ministry, with bringing prewar Polish officers into the army in order to counteract Russian influence in the forces, and the name of Władysław Gomółka, former deputy premier and secretary general of the Communist party, was also mentioned.

On Oct. 31 the Sejm ordered Gomółka and Spychalski to be deprived of their seats and directed that judicial proceedings should be started against them for their activities against the people's Poland. In November there were persistent reports that Edward Osóbka-Morawski, first prime minister of the Soviet-controlled Poland, and Marshal Michał Żymierski, former minister of national defence and commander in chief, were under arrest.

The Six-Year Plan. During 1950, its first year, the industrialization plan was overfulfilled by 7·4%, and according to Hilary Minc, deputy premier and chief economic planner, production was 124% higher than in 1938, although he was, in fact, comparing the industrial output of two vastly different territories. During the first half of 1951 the plan was just fulfilled, but the third quarter brought a general deficit of 2·6% and in heavy industry a deficit of 54%. Production of coal, steel, zinc, lead, oil, machine tools, railway engines, goods wagons, lorries and synthetic fertilizers was lagging behind the plan. The harvest of the four basic grains was at the 1950 level, but the potato crop was bad. On Oct. 9 Minc informed a national conference of party activists that, although the industrialization drive involved hardship, aggressiveness on the part of the U.S. and neo-Nazi imperialists precluded its being slowed down. At such a time the people's Poland must show concern for its army by supplying adequate modern arms and equipment.

Consumer goods, especially woollen fabrics, shoes, furniture and kitchen utensils, were scarce in postwar Poland; but from 1947 food was abundant, thanks to a customary agricultural surplus. Since the summer of 1951, however, the country was experiencing an acute food shortage. Minc explained this by the fact that while in 1931 the agricultural population constituted 61·4% of the nation, in 1950 the proportion was only 45·7%. At the same time the number of wage earners outside agriculture had risen from 2·7 million to 5·2 million. The failure of agriculture to keep pace with the development of industry was another reason for food shortage. If the plan for 1951 were fulfilled the industrial output would be 168% higher than in 1938, but the agricultural plan provided for only a 6% increase over the prewar figure. The reason for this weakness, according to Minc, was that Polish agriculture was still based on individual holdings. The remedy was collectivization, but the government and party were not prepared to force the pace because artificial intensification of the tempo of changeover to a collective economy would be erroneous and harmful. His conclusion was that disproportion between the rate of industrial and agricultural progress was unavoidable and would accompany economic development for a long time.

Home Affairs. On May 26 the Sejm appointed a commission including the representatives of the Polish Communist party, Polish United Peasant party and Democratic party, as well as of the Catholic Social parliamentary group, to prepare a draft constitution. At its first meeting on Sept. 19 under the chairmanship of Bierut the commission set up ten sub-committees with responsibilities for different sections of the draft, which was to be submitted to a nation-wide discussion.

It was announced on March 17 that Stanisław Skrzeszewski had superseded Zygmunt Modzelewski, foreign minister since Feb. 1947. Falling into disfavour in Moscow, Modzelewski had for some time been kept in the background under the pretext of poor health, and the management of foreign affairs was in the hands of Stefan Weidmann-Wierbłowski, from Feb. 1948 secretary general of the ministry, who in May 1951 was appointed deputy foreign minister.

The Church. Pressure continued on the Roman Catholic hierarchy to assume responsibility for the appointment of bishops in the recovered territories, and by this means the Warsaw government hoped to create a schism. On Jan. 26 it was announced that the Apostolic administrators of Gdańsk, Olsztyn, Wrocław, Opole and Gorzów (Landsberg), appointed in 1945, had been relieved of their office. Three days later were published the names of five vicars capitular to succeed them. On Feb 3 Bierut discussed the stabilization of ecclesiastical authority in the recovered territories with the primate of Poland, Mgr. Stefan Wyszyński. On Feb. 18 the Polish hierarchy notified the clergy that the primate had vested canonical jurisdiction in the priests elected by diocesan councils, who thenceforward were to exercise ecclesiastical authority in the five western provinces in accordance with canon law. By this action the primate saved the unity of the church. During a visit to Rome from April 5 to May 1, Mgr. Wyszyński saw the Pope, but failed to secure endorsement of the situation by the appointment of bishops to administer the five new provinces. In July he was accused by *Pravda* of undermining the vital foundations of the people's Poland. Many Catholic priests were tried for allegedly anti-state activities, and it was estimated by the Vatican that about 900 members of the clergy were in prison. The death occurred on July 23 of Cardinal Adam Stefan Sapieha (*see* OBITUARIES), archbishop of Cracow.

Science and Russification. The first congress of Polish science held in Warsaw from June 29 to July 2 formulated a statute for a Polish Academy of Sciences to be instituted in the capital which was approved by the Sejm on Oct. 30. At the same time the old-established Polish Academy of Learning in Cracow and the Warsaw Scientific society undertook to dissolve themselves and transfer their possessions to the new academy.

On Oct. 14 the annual " month of Polish-Soviet friendship," organized by the Polish-Soviet Friendship society, was started throughout the country. Compulsory instruction in the Russian language, and obligatory purchase of Russian books and subscription to Russian newspapers and periodicals were the main forms of this goodwill observance. During 1951 state publishing houses put on the market 117 million copies of 5,900 books: of these, more than half were translations from Russian, including nearly 100 books on Marxism-Leninism, among which were 11 volumes of Lenin's collected works (2·2 million copies) and 10 volumes of the collected works of Stalin (2·5 million copies).

In November it was announced from Moscow that the Slavonic institute of the Soviet Academy of Sciences had completed the preparation of the first volume of a *History of Poland.*

Miscellaneous. The King John Sobieski monument was " resettled " from Lwów to Wilanów, near Warsaw. A bronze cast of the Marshal Joseph Poniatowski equestrian statue by Thorvaldsen, the original of which had stood on the main square in Warsaw until destroyed by the Germans in 1944, was offered to the Polish capital by the city of

Copenhagen but, embarrassed by the gift, the government decided in October to relegate the statue to a corner of the Łazienki garden. In compensation the capital received from Moscow another monument, which was unveiled on July 22 by Molotov—that of Feliks Dzierżyński, founder of the *Cheka*, who was of Polish origin. (*See* also EASTERN EUROPEAN ECONOMIC PLANNING; PEASANT MOVEMENT.)

Education. Schools: (1950-51) kindergartens 7,685, pupils 341,610; (1949-50) primary 22,417, pupils 3,242,000, teachers 76,560; (1948-49) secondary, lower grade 335, pupils 197,110, higher grade 486, pupils 140,893; secondary vocational 1,131, pupils 183,440; (1950-51) teachers' colleges 149, students 32,570; institutions of higher education (1951-52) 83, including 8 universities, students 123,500.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): wheat 1,781 (1,990); rye 6,759 (5,880); barley 1,028; oats 2,333 (1,930); sugar, raw value (1950, 1951 in brackets) 830 (950); potatoes 30,900. Livestock ('000 head, Feb. 1946; Dec. 1950 in brackets): cattle 3,910 (7,164); horses 1,730 (2,797); pigs 2,674 (9,928); sheep 727 (2,194).

Industry. Fuel and power: coal ('000 metric tons, 1949; 1950 in brackets) 74,076 (78,000); lignite 4,620 (4,836); electricity (million kwh., 1949; 1950 in brackets) 8,148 (9,408); crude petroleum (1948) 132,000 m. tons; natural gas (1948) 160 million cu. m.; manufactured gas (1948) 289 million cu. m. Raw materials ('000 m. tons, 1949; 1950 in brackets): steel ingots and castings 2,304 (2,520); zinc (1948) 120; lead (1948) 18·5. Manufactured goods ('000 m. tons, 1949; 1950 in brackets): cotton yarn 91·2 (92·2); woven cotton fabrics 67·4 (69·0); wool yarn 38·5 (41·9); rayon filament yarn 9·0 (10·1); cement 2,330 (2,508).

Foreign Trade. Value (million U.S.$, 1947; 1948 in brackets): imports 320 (509), exports 250 (528·7). Figures for 1949 were issued in roubles: imports 2,530 million, exports 2,476 million.

Transport and Communications. Railways (Jan. 1949): 21,415 km.; goods traffic (million ton-km., 1949; 1950 in brackets): 32,550 (35,060); passenger traffic (million pass.-km., 1949; 1950 in brackets): 20,851 (26,309). Roads (April 1947): 96,605 km.; licensed motor vehicles (April 1948): cars 24,240, buses and lorries 28,957, motor cycles 24,561. Shipping (May 1949): merchant vessels 46, total tonnage 164,989 BRT. Goods traffic in Polish ports ('000 m. tons, 1949; 1950 in brackets): loaded 14,052 (12,456), unloaded 2,856 (3,216). Sea-borne shipping, ships entered (all ports, '000 NRT): 1949, 8,016; 1950, 7,248. Air transport (million passenger-km., 1949; 1950 in brackets): 21·7 (39·6). Telephones (Jan. 1950): subscribers 225,000. Wireless licences (Jan. 1951): 1,475,000.

Finance and Banking. Budget (million new złoty, 1951 est): revenue 55,972, expenditure 51,891. Official exchange rates: £1 = Zł. 11·15; U.S. $1 = Zł. 4·00. (K. SM.)

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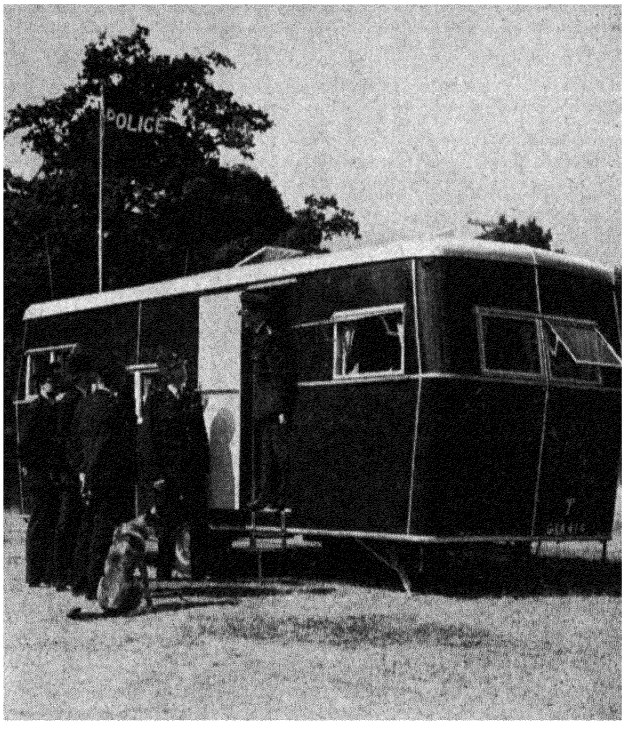
POLICE. As in 1950, the chief preoccupation of those concerned with British police administration continued in 1951 to be the problem of building up the manpower of the police forces.

England and Wales. The improved recruiting position noted in 1949 continued for most of 1950 but there was a marked turn for the worse towards the end of the year and from the beginning of 1951 onwards male recruitment was not sufficient even to balance wastage. In Jan. 1951 the authorized establishments of the police forces in England and Wales amounted in the aggregate to 70,938 men and 1,668 women. The actual strength of the service at the beginning of the year was 61,088 men and 1,345 women and by the end of July the figure for men had fallen to 60,133 while that for women had increased to 1,412.

In the early part of the year claims for pay increases were tabled by all ranks of the police service. The claims of the federated ranks were dealt with at a special meeting of the Police council presided over by Sir Malcolm Trustram Eve, who had been nominated by the prime minister and appointed by the home secretary to act in this capacity and, with the assistance of two assessors (Lord Crook and Sir Alexander Gray), to make recommendations in the event of a disagreement. Agreement was not reached and Sir Malcolm Trustram Eve and his colleagues recommended pay increases ranging from £70 to £130 a year, with corresponding increases for women police officers. These improved rates of pay were



A mobile police station for the Hertfordshire constabulary being demonstrated at Hatfield park, Aug. 1951.

brought into effect on Aug. 3, 1951. The scale of pay of the basic rank of constable would now start at £400 a year and rise to £505 a year. The strength of the service at the end of 1951 was 61,482 men and 1,506 women.

In May 1951 a committee of the Police council submitted a report providing for the centralization of the qualifying examinations for promotion to sergeant and inspector, as recommended by the Oaksey committee. The scheme provided for a central examination board working through the agency of the Civil Service commission.

The Miscellaneous Financial Provisions act, 1950, empowered the secretary of state with the approval of the Treasury to make orders regulating the payment of the exchequer grant in aid of police expenditure. On April 24, 1951, the secretary of state made the Police (Grant) order, 1951, placing the exchequer grant on a statutory basis; the general provisions embodied in the order did not involve any departure of substance from the conditions under which the non-statutory grant was paid.

During 1951 the Police college maintained and indeed enhanced its position and reputation in the police service at home and in the Commonwealth. It continued to provide regular training courses for police officers from the forces in England and Wales and from the colonial police service. (S. J. BKR.)

Scotland. At the beginning of 1951 there were 7,181 policemen in the 33 Scottish police forces, but from March onwards wastage began to exceed recruitment until by July the strength declined to 7,095. Rates of pay were increased in August and this had the effect of attracting more recruits and turning the balance; numbers rose to 7,193 at the end of October and the number of policewomen then was 151 compared with 139 at the beginning of the year. These strengths, although larger than prewar, were less by 434 men and 20 women than the current authorized establishment, which had increased by 84 men and 2 women since the beginning of the year. At the end of October the special constabulary numbered 9,457 (including 40 women) and was about 3,500 under its revised establishment.

Training of recruits continued at Whitburn and Glasgow, 338 men and women receiving a 12 weeks' initial course and 444 a second-year course, the length of which reverted temporarily to four weeks. Higher training was begun in temporary premises at South Queensferry where three courses for senior officers and one for potential inspectors were held.

There were three meetings of the Scottish Police council, and committees of the council were engaged on the consideration of matters relating to discipline, representative organizations and negotiating machinery, pensions and duties.

About 2,400 policemen were living in houses provided by police authorities. About 450 police houses had been built since the war and some 400 more were in course of erection at the end of October. The majority of forces were equipped with the new style of uniform with open-neck jackets and peaked caps instead of the old closed-neck jackets and helmets.

The police paid particular attention, as part of the road safety campaign, to the education of children in road safety, by the giving of periodic talks by uniformed officers in schools and by assistance and guidance with the inspection of children's bicycles.

Steady progress was made in training the police in civil defence and in the training and organization of the warden section of the Civil Defence corps. (C. C. C.)

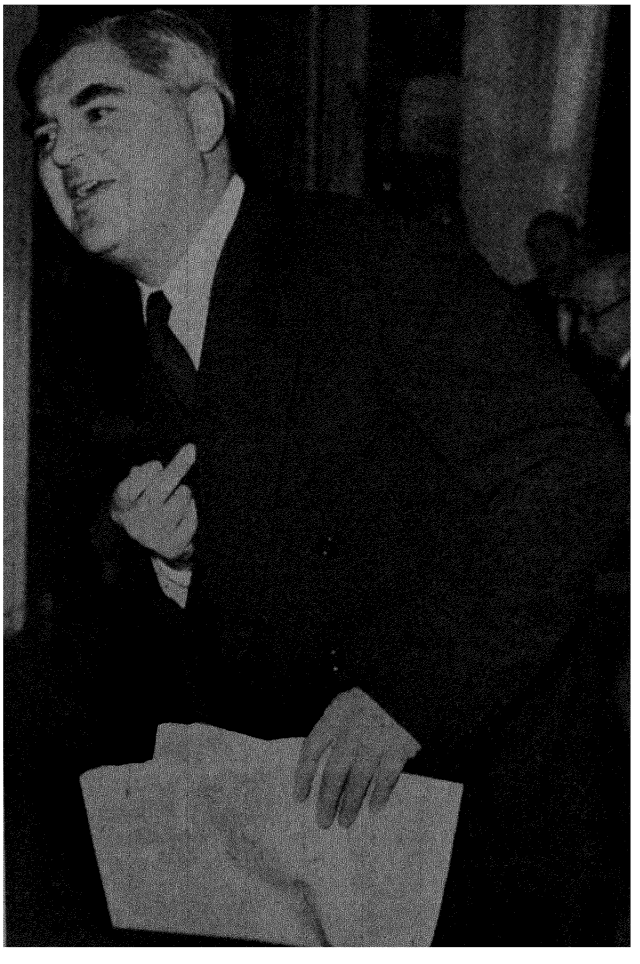
United States. District Attorney Myles MacDonald of Kings county (borough of Brooklyn, New York city) pressed his criminal charges against many police officers in connection with the increasing evidence of criminal alliances between police and gamblers. The testimony of Harry Gross, who had been convicted on gambling charges, was regarded as vital to the successful prosecution of indicted policemen, some of whom were of high rank. The mass trial of the defendants before County Judge Samuel Leibowitz was brought to an abrupt end by the refusal of Gross to testify. Police Commissioner George P. Monaghan thereupon ordered the defendant police to stand administrative trial before a trial (deputy) commissioner and, upon receiving that official's report, promptly dismissed some for their proved complicity in gambling arrangements, reduced an assistant chief inspector to the rank of captain and ordered drastic changes in the assignments of those whom the trial commissioner either exonerated or discharged because of inadequate evidence to establish guilty association.

A stimulus to recruiting was the steady extension of pension systems to more and more forces. The adoption of the 40-hr. week by U.S. police forces also proceeded at an accelerating pace. Statistics showed that 1950 had witnessed an almost universal improvement in the clearing of crimes by arrest, though the level of such achievement was still substantially below pre-World War II levels for the relatively numerous burglaries and larcenies, and also inferior to the achievement of British forces. (BR. S.)

POLIOMYELITIS: *see* INFANTILE PARALYSIS.

POLITICAL PARTIES, BRITISH. The year 1951 saw the end, after a protracted death agony, of what by common consent was one of the most unsatisfactory parliaments in the history of Britain. The Labour government entered the new year with a majority of six in the House of Commons confronted by an opposition believing in its strength in the country and impatient of delay in what it regarded as its inevitable return to office. The need for constant attendance at the house combined with the increasingly arduous duties of administration to impose an almost intolerable strain on ministers. In the spring a group of backbench Conservatives attempted to force the issue by moving a series of prayers against indirect legislation which would normally have been spared the scrutiny of debate. These resolutions, moved when the business of the day was over, kept the house up till the early hours of the morning. They served the incidental purpose of demonstrating that the commons' right to debate indirect legislation with anything approaching thoroughness was a fiction, since it could only be exercised at the cost of efforts physically impossible to sustain. But the opposition's real purpose was to exhaust the government front bench. The government was eventually obliged to propose that the house should sit in the morning and the opposition abandoned the campaign. It renewed its efforts, however, when the finance bill came up for discussion in May. Although the budget had contained no particularly objectionable features from the opposition point of view Winston Churchill, the opposition leader, decided that it should be subjected to an unusually searching examination which, while it failed to accomplish the government's defeat, greatly increased its fatigue.

The Labour majority was obviously not large enough to enable the government to discharge the normal duties of administration, but it had also to face disasters which might have proved too much for a far more powerfully supported cabinet. Ever since Labour came to power Ernest Bevin had occupied a key position both in the government and in the party. As foreign secretary he had secured the almost consistent support of the opposition and, even more remarkable, had converted the rank and file of his own party to a realistic view of the dangers implicit in Russian expansion. Successive attempts to challenge his ascendancy had met with



Aneurin Bevan addressing the 1951 Labour party conference at Scarborough, Yorkshire. In the election of constituency representatives to the national executive of the party he again topped the poll.

humiliating failure, and this was largely due to the unqualified confidence which he had won from the trade union movement. His presence in the government was a guarantee of the fidelity of the unions and a powerful factor making for the unity of the party. For some time, however, his health had been giving cause for anxiety and in March he left the Foreign Office and became lord privy seal; within a month he was dead.

At the outset of his tenure of office Clement Attlee had been able to rely on four ministers of experience comparable to that of Bevin. Sir Stafford Cripps and Arthur Greenwood had fallen by the wayside. Hugh Dalton had suffered a reverse which necessitated his withdrawal to an inferior post and Herbert Morrison alone remained among the first flight. Morrison succeeded Bevin at the Foreign Office. Most of his energies had previously been spent on party management and he approached the very different duties of a foreign secretary with a divided mind.

Meanwhile Hugh Gaitskell, the young Socialist economist who had risen in six years from a civil service post to the office of chancellor of the exchequer, was wrestling with the problem of producing a budget that would provide for both the increased expenditure on armaments necessitated by the Korean war and the deterioration of Anglo-Soviet relations and the maintenance of the social services. He approached his task along conventional lines but was compelled to impose a charge for false teeth and spectacles provided under the national health service, thereby infringing a principle that Aneurin Bevan, minister of health, had pronounced sacred. It soon became apparent that the cabinet was deeply divided and that the health service was not the only ground for dispute. In April Bevan and Harold Wilson, president of the Board of Trade, both resigned. The burden of their complaint was that it was physically impossible to rearm at the rate contemplated, that the attempt to do so would increase inflation by rapidly intensifying the demand for raw materials and that in trying to put the brake on inflation the government would be driven to make still further inroads on the social services. It was soon clear that the departure of Bevan and Wilson had exposed a division long latent in the Labour party. Two pamphlets published by them and their supporters called for heavier taxation on the rich and an extension of controls to check rising prices. Labour party discipline, however, proved adequate to the immediate strain, for Bevan and his supporters, while continuing to express dissent, announced their determination to stand by the party. The gaps in the cabinet were filled somehow and the government remained obstinately in existence.

The summer brought fresh calamities. Morrison had inherited the dispute arising from the Persian government's decision to nationalize the oil industry in disregard of its obligations under agreements with the Anglo-Iranian Oil company. Hampered by the uncertainties of the domestic situation and by doubts as to the conditions on which United States support would be forthcoming, he failed either to reach a compromise with Persia or to enforce Great Britain's rights. It was widely held that Great Britain had oscillated between bravado and weakness in a manner reminiscent of Lord Palmerston and, whether justly or not, the blame fell on Morrison's inexperience and his alleged preoccupation with the dissenters in his party.

During the summer recess the government's position became plainly untenable and on Sept. 21 Attlee announced his decision to advise the king to dissolve parliament and to issue writs for a general election on Oct. 25. The Trades Union congress, which met at Blackpool on Sept. 3, revealed that the government had the solid support of the trade unions on all issues except the immediately practical one of resisting wage increases; but the Labour party conference at Scarborough on Oct. 1-2 produced an unpleasant surprise for the government in the shape of the election of four Bevanites to the executive, Bevan himself heading the list of candidates elected by the constituency organizations. Thanks to trade union orthodoxy the Bevan group were still in a minority, but the strength of their following in the country was strikingly demonstrated. They held their fire, however, and the conference gave a cordial reception to the executive's party manifesto.

This document fully demonstrated the government's dilemma. Nationalization had exhausted its possibilities as a policy. The party shrank from attacking inflation either by drastic economies or by the extension of controls. It maintained formal unity at the cost of deviating neither to the right nor the left; of taking refuge in modesty and uncontroversial proposals some of which, such as more decentralization in nationalized industries, did not even distinguish it from its opponents; and of trying to transfer attention to the alleged vices of the opposition. The manifesto set the tone of Labour's election campaign by contending that the government stood for peace and implying that the return of the Conservatives would increase the risk of war, an implication which, in the heat of the contest, rapidly developed into a positive assertion. Such was the state of precarious balance between alternative policies in which Labour faced the country.

In all this the Conservative party found enough cause for rejoicing to compensate for the need to forgo their annual conference in the interests of preparing the campaign in the constituencies. Their manifesto put all the emphasis on the need for businesslike administration, particularly in public finance; but it also pledged the party to maintain the welfare state and made clear that nothing in the nature of a sudden and general relaxation of controls was envisaged. The burden of the party's election campaign was that the government had failed to produce results, particularly in housing, and that what was needed was national unity, not class warfare and party doctrine. When it came to details the party had few proposals for public economy to make. Even the modest device, purloined from the Liberals in 1950, of suggesting a reduction in food subsidies in return for an increase in pensions was dropped. The charge that the Conservatives were a party of the rich was anticipated by the promise of a heavy excess profits tax during the period of rearmament; and although the party undertook to denationalize steel and some sections of transport it confined itself to recommending decentralization of control in other nationalized industries.

The interest aroused in 1950 by the appearance of 475 Liberal candidates was diminished by the fate that befell most of them at the election and later by the highly unpredictable behaviour of those few who were returned. On important issues they often voted in opposite lobbies. In 1951, therefore, speculation concentrated largely on the effect likely to be produced on the two other parties by the fact that the Liberals proposed to contest only 109 seats. The party's programme was largely similar to that of the Conservatives, being distinguished only by the inclusion of a few traditional measures, such as free trade and proportional representation, which seemed unlikely to arouse much enthusiasm from the electorate.

On Oct. 25 82·6% of the electorate went to the polls against 84% in the 1950 election. The Conservatives and allies polled 13,718,119 votes, Labour 13,948,985, the Liberals 730,551, the Communists 21,640 and others 177,329. The resulting state of parties in the House of Commons was Conservatives and allies 321, Labour 295, Liberals 6, others 3. W. S. Morrison and Colonel Sir Charles MacAndrew, both Conservatives, became speaker and deputy speaker respectively, and R. Hopkin Morris, a Liberal, became deputy

chairman of committees. Allowing for these appointments, there was a Conservative and allied majority of 24 over Labour, and of 15 over all other parties. There was a combined Conservative and Liberal majority of 29, a figure which was relevant since the Liberals voted with the Conservatives up to the end of the year. It was clear from the election results that the success of the Conservatives was due mainly to the disappearance of Liberal candidates. The Labour party remained entrenched in its industrial strongholds. The new government had a far more comfortable majority than its opponents in the commons but not comfortable enough to allow of any relaxation in party discipline. Most important of all, it had to rule over a country still almost equally divided between right and left.

Churchill's mandate, in so far as that alien expression may accurately be applied to the result of a British general election, was to provide efficient administration. His cabinet consisted of 16 members, including 3 ministers with powers of co-ordination over departments not directly represented: Churchill as minister of defence covering the service departments, Lord Woolton as lord president of the council supervising agriculture and food, and Lord Leathers as secretary of state for the co-ordination of transport, fuel and power. Strong central direction was the governing principle of the cabinet structure. Its composition showed clearly Churchill's intention to do everything possible to avoid a conflict with labour. R. A. Butler's appointment as chancellor of the exchequer was a guarantee that the government would pursue that broad social policy, based on a strong framework of government planning, with which his name had become associated. Lord Simonds, who had been president of the Arbitration tribunal during the war, brought to the lord chancellor's office a wide measure of experience in the handling of labour relations, and Sir Walter Monckton, one of the party's best intellects, was reserved for the Ministry of Labour.

In the debate on the address, Butler revealed that the country was faced by a balance of payments crisis scarcely less acute than that of 1949, and the government's first month of office removed all hope of sudden improvement in the nation's standard of life. Substantial import cuts were announced, and it was decided that extra food supplies would not be released for Christmas. All the emphasis was on the more efficient administration of controls rather than the wholesale discarding of them but there was one clear indication of the future course of policy: the bank rate was raised by a half per cent. to discourage borrowing. One of the characteristics of Labour government had been the easy availability of credit. The new rate, and measures taken at the same time, would sharply cut down borrowing and discourage lavish industrial investment. This was the first blow in the battle against inflation; it was modest but it produced an immediate reaction on the stock exchange in the shape of a minor slump. (T. E. U.)

POLITICAL PARTIES, U.S. The year 1951 was disturbing for the Democrats as a result of congressional investigations of several executive agencies, more than 100,000 casualties in the Korean war, and high prices and taxes accompanying the costly rearmament programme. As the year ended, the administration of President Harry S. Truman was clearly on the defensive.

Democratic Party. Election results reflected an anti-administration swing. In ten special elections to fill vacancies in the House of Representatives, the Democrats suffered a net loss of two seats, their membership being reduced to 232, as against 201 Republicans, 1 independent and 1 vacancy. They gained a Senate seat with the death of Senator Arthur H. Vandenberg of Michigan. Governor G. Mennen Williams named Blair Moody, a fellow-Democrat, to the vacancy. This made the Senate alignment 50 Democrats and 46 Republicans. The G.O.P. contingent dropped to 45 with the death in November of Senator Kenneth S. Wherry of Nebraska, minority floor leader, but Governor Val Peterson named another Republican, Fred A. Seaton, to fill Wherry's place.

Mayoralty elections on Nov. 6 were also adverse for the party in power, as the Republicans carried a majority of the cities in such industrial sections as New England, New York, New Jersey, Pennsylvania, Ohio and Indiana. The upsets in New York, Boston and Philadelphia obviously disturbed Democratic leaders, since the principal issue in the three cities was government corruption at local and national levels.

In New York the voters elected Rudolph Halley, an independent, as president of the city council over Democratic and Republican opposition. Halley's principal asset was his role as counsel for the Kefauver crime committee, a Senate group which exposed at televised hearings an alliance between some Democratic politicians and the underworld in New York and elsewhere.

In Philadelphia, however, a Republican machine was driven from power after more than 65 years of control when City Controller Joseph S. Clark, Jr., a Democrat, defeated Daniel A. Poling, a Baptist minister, who had been nominated by the Republicans in an effort to placate the electorate.

The president continued to have difficulties with southern Democrats of the states rights school, headed by Senator Harry F. Byrd of Virginia and Governor James F. Byrnes of South Carolina. In combination with Republicans, the southern bloc prevented legislative action on the domestic "fair deal," as they had done since Truman took office in 1945.

Republican Party. The Republicans utilized 1951 as a year for framing issues and strengthening their party in preparation for the 1952 presidential election. In co-operation with southern conservatives in congress, they rejected or sidetracked almost all of Truman's domestic "fair deal" programme. Meanwhile, they sought to resolve disagreements among themselves, especially on foreign policy, and to minimize the growing threat of an intra-party squabble over the 1952 presidential ticket.

The congressional coalition of Republicans and southern Democrats continued blocking bills on civil rights, compulsory health insurance, the Brannan farm plan, federal aid to education, etc. The combination granted only $5,691 million in new taxes, as against an original White House request for $16,000 million, subsequently reduced to $10,000 million.

On foreign affairs and national defence, the minority generally accepted administration proposals, although with strings attached. In appropriating for overseas military and economic aid, they fixed a specific allocation of the funds. They also stipulated that no more than six divisions might be shipped to Europe without prior consent from congress.

Although the Republicans were fortunate in that Democratic congressmen assumed responsibility for initiating numerous investigations of alleged corruption, maladministration and laxity in several executive agencies, the minority made capital of disclosures of political favouritism and collusion in the Reconstruction Finance corporation, the Department of Justice and the Internal Revenue Bureau.

Senator Joseph R. McCarthy's resumption of his 1950 attacks on alleged Communists in the State Department, and especially his floor denunciation of General George C. Marshall before the latter's retirement as secretary of defence, caused misgivings among several colleagues. Headed by Senator Margaret Chase Smith of Maine, several Republican senators issued a statement indirectly condemning the McCarthy technique as "un-American." Senator William

Benton, Connecticut Democrat, introduced a resolution for McCarthy's expulsion, on which hearings were begun late in the year.

A split developed on foreign policy, with a possible bearing on 1952 candidates and platforms. One group, consisting largely of congressmen from eastern states, favoured all-out aid to Europe. Another faction, headed by Senator Robert A. Taft of Ohio, while favouring limited aid to Europe, insisted that the administration devote more thought and resources to " containing " the U.S.S.R. in the far east.

The division between the " internationalists " and " isolationists," although both factions repudiated those characterizations, developed into a squaring-off over 1952 candidates. It resulted in a skirmish between the forces of Senator Taft, who announced his candidacy in early autumn, and backers of General Dwight D. Eisenhower, supreme allied commander, Europe.

Although Eisenhower's military assignment seemed to prevent him from entering the race, or even disclosing his political affiliations, distinguished Republicans set up an organization on his behalf. The chief promoters were Governor Thomas E. Dewey of New York, Senator James H. Duff of Pennsylvania, Senator Henry Cabot Lodge of Massachusetts and National Committeeman Harry Darby of Kansas.

Another hat was thrown into the ring when Governor Earl Warren, the 1948 vice-presidential nominee, announced that he was in the running, and shortly afterward Harold E. Stassen, former Minnesota governor and president of the University of Pennsylvania, also indicated that he would seek the nomination. Others mentioned were Senator Lodge, Senator Everett McKinley Dirksen of Illinois and Governor Alfred E. Driscoll of New Jersey.

Senator Karl E. Mundt of South Dakota proposed a formal alliance of Republicans and conservative southern Democrats that would project their Capitol hill tie-up into the political realm, but he made small progress. However, in the summer the Republican national committee held its first meeting below the Mason-Dixon line, at Tulsa, Oklahoma, at which time it chose Chicago as the 1952 convention site.

Other Parties. Independent political parties were reduced almost to vanishing point in 1951, even though there were no elections to measure their national strength.

In 1950 the Progressive party had lost Henry Wallace, its founder and 1948 nominee, because he thought it adhered too closely to the Moscow line. His resignation had a tempering effect and at the 1951 national convention in Minneapolis, the platform condemned both the U.S. and U.S.S.R. as " brutish " nations. It warned that the United States' " containment " policy, vis-à-vis Russia, might provoke war. As the year closed, Paul Robeson, Negro singer, was mentioned as a 1952 presidential candidate.

The Socialist party sought vainly for a new national figure, in view of the refusal of Norman Thomas, their perennial presidential offering, to run again. The highest office held by the Socialists in 1951 was the mayoralty of Bridgeport, Connecticut, to which Jasper McLevy, a hard-working roofer and carpenter, was elected for a sixth term.

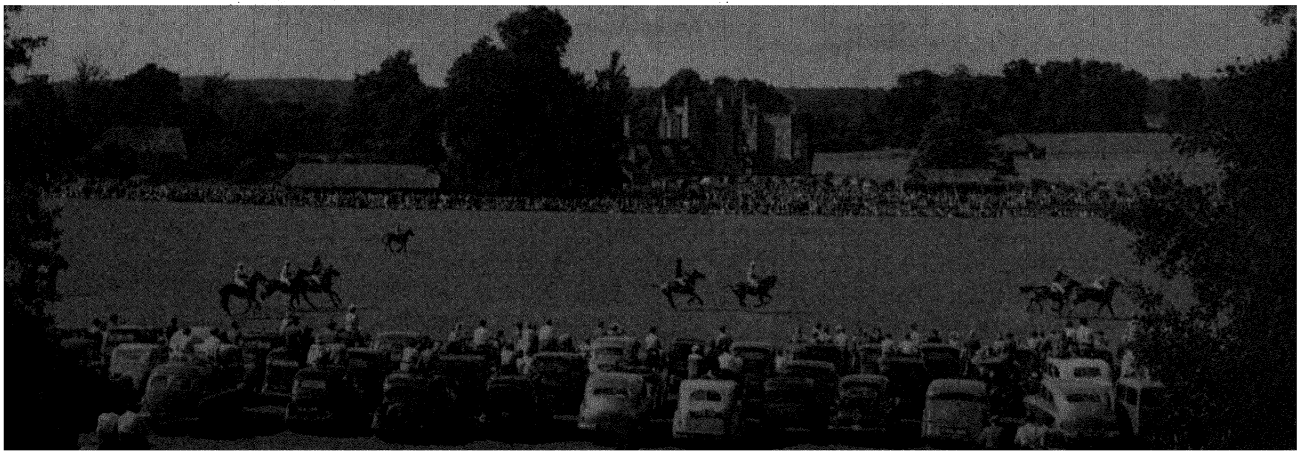
The Communist party, virtually outlawed by the Supreme court's decision, went into hiding. J. Edgar Hoover, director of the Federal Bureau of Investigation, estimated its membership at 43,217. Its principal mouthpiece, the New York *Daily Worker*, suffered very severe circulation and advertising loss.

The Prohibition party, holding its national convention in a Baptist church at Indianapolis in November, named Stuart Hamblen as its 1952 presidential candidate. Hamblen had played small parts in western films, and is known as the " Hollywood cowboy." Gerald Overholt was elected national chairman, and approved a $200,000 budget for the 1952 campaign.

Walter P. Reuther, president of the United Automobile Workers (Congress of Industrial Organizations), urged that all labour organizations hold a 1952 conference to declare independence of both major political parties. Philip Murray, C.I.O. president, endorsed the proposal. John L. Lewis, president of the United Mine Workers, rejected Reuther's idea, urging a coalition of the C.I.O. and the American Federation of Labour. These suggestions were significant chiefly because they reflected labour's growing dissatisfaction with the Truman administration. (R. Tu.)

POLO. The fixture of the season was the visit of the Argentine polo team La Espadaña, J. Reynal, no. 1, L. Garrahan, no. 2, J. Ross, no. 3, and C. B. Buchanan, back. Hurlingham, Lieut. A. Harper, no. 1, G. Balding, no. 2, Lieut. Col. H. Guinness, no. 3, and J. Lakin, back, played them in three test matches for the Festival cup. This was won by Hurlingham, by 4 goals to 1 in the first match, and 6 to 3 the second. La Espadaña won the Roehampton cup but were beaten in the final for the Cowdray Park senior challenge cup by the Cowdray Park team.

The mid-Cheshire club was revived and the Oxford *v.* Cambridge match, first played in 1878, was played again for the first time since World War II; Oxford (received ½-goal start) won by 6½ goals to none. In spite of wet weather at the beginning and end of the season very few matches were abandoned and there were large public attendances at many matches. (J. C. G.)



Cowdray Park, Midhurst, Sussex, on July 7, 1951, when the Hurlingham club played La Espadaña (Argentina) in the Festival cup. The ruins of the old Cowdray house can be seen in the background.

POPULATIONS: *see* AREAS AND POPULATIONS OF THE COUNTRIES OF THE WORLD.

PORTUGAL. Republic of southwestern Europe, forming part of the Iberian peninsula and bounded E. and N. by Spain. Area: 35,415 sq.mi., including Azores (888 sq.mi.) and Madeira (302 sq.mi.). Pop.: (1940 census) 7,722,152; (1950 census, prel. fig.) 8,490,000, including Azores (1940 census, 286,885) and Madeira (250,124). Language: Portuguese. Religion: predominantly Roman Catholic. Chief towns (pop., 1940 census): Lisbon (cap., 709,179); Oporto (262,309); Funchal, Madeira (54,856); Coimbra (35,437). Presidents of the republic in 1951, Marshal António Oscar de Fragosa Carmona (*see* OBITUARIES) and, from July 22, General Francisco Higino Craveiro Lopes (*q.v.*); prime minister, António de Oliveira Salazar.

History. The death on April 18 of Marshal Carmona brought the first break in continuity in the supreme direction of the New State since its inception in 1926. One candidate for the succession, Ruy Luis Gomes, was vetoed by the Supreme court on refusing to repudiate Communism. Another, the 70-year-old Admiral Manuel Carlos de Quintão Meireles, foreign minister under Salazar in 1928-29, withdrew three days before the election on July 22 on the ground that he had been refused "essential conditions." The government nominee, General Lopes, was duly elected on July 22 with 896,397 votes out of a total electoral roll of 1,158,000. The new president stated his belief that no change in the policy of the New State was necessary. Several hundred civil servants, including professors and doctors, benefited from a political amnesty in September.

General D. D. Eisenhower visited Lisbon for defence discussions in January. On Sept. 6 Portugal signed with the United States an agreement giving the latter "certain new rights" in the Azores; eventually, it was expected, this would enable the North Atlantic Treaty powers to use bases there for common defence purposes. Twenty-six U.S. warships with 16,000 officers and men, the greatest naval concentration ever to visit the Tagus, arrived there on Sept. 22. The occasion was the change-over between the Mediterranean sixth squadron and the relieving fleet. War material received from the United States under the mutual defence assistance programme included aircraft, projectile-launching platforms, heavy anti-aircraft guns, and aeronautic tools and instruments. A bill proposing a three-year military expenditure programme of £18,750,000 was announced on Nov. 8. Two destroyers and a frigate, under the commander in chief, home fleet, again joined the British home fleet in November for Atlantic manoeuvres. One thousand additional conscripts, representing some 20% of previous strength, were called up for the navy in January; and 24,000 army reservists for 20 days' instruction in October. The defence minister, Lieut. Colonel Fernando dos Santos Costa, visited Spain in May and inspected military establishments. A Portuguese representative was accredited to the Allied High commission in Germany in January.

The 1950 financial year ended with a credit balance of Es. 28 million. A one-year trade agreement with Denmark was signed in Lisbon in June, and in September a supplementary trade and navigation agreement with Western Germany. The 10th International Congress on Industrial Medicine and the 9th International Road congress both met in Lisbon in September. Fifty cardinals and bishops and one million pilgrims were present at the Fatima shrine at Cova da Iria on Oct. 14 when Cardinal Federico Tedeschini closed the Holy Year ceremonies. Ex-queen Amelia, widow of Carlos I who was assassinated in Lisbon in 1908, died near Versailles on Oct. 25 (*see* OBITUARIES). Her remains were taken to Portugal for a state funeral and interment. (W. C. AN.)



General Lopes entering the National Assembly on Aug. 9, 1951, to take the oath as president of Portugal. On the right is the prime minister, Dr. Salazar.

Education. Schools (1948-49): primary 10,646, pupils 598,190, teachers 14,445; private elementary, pupils 60,158; secondary 42, pupils 19,997, teachers, 1,096; private secondary, pupils 25,316; technical 67, pupils 36,533, teachers 1,591; commercial 8, pupils 3,095, teachers 217; colonial high school, students 113, professors 15; universities 3, students 8,883, professors and lecturers 475; institutions of higher education 4, students 5,576, professors and lecturers 278. Illiteracy (1940): 49%.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): wheat 415 (606); barley 94 (142); oats 104 (133); maize 240 (447); rye 149 (208); rice, paddy 78 (135); potatoes 729 (971); dry beans 28 (47); grapes, total 1,360. Production of wine (1950) 7,250,000 hl. Production of olive oil (1950 est.) 38,000 metric tons. Livestock ('000 head, Dec. 1948): cattle 1,000; sheep 4,000; pigs 1,200. Meat production (1950) 73,200 metric tons. Fisheries, total catch (1949): weight 203,243 metric tons; value Es. 882 million.

Industry. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 426 (202); lignite 94·8 (44·8); manufactured gas (million cu.m.) 39 (23); electricity (million kwh.) 937 (500). Raw materials (metric tons): lead (1950) 2,040; tin ores (1949) 2,654; wolframite (1950) 2,199; pyrites (1950) 613,521; cork (1949) 103,108; kaolin (1949) 21,941. Manufactured goods ('000 metric tons, 1950; 1951, six months, in brackets): cement 572 (250); cotton piece-goods 28 (12); cotton yarn 36 (15).

Foreign Trade. (Million escudos, 1950; 1951, six months, in brackets): imports 7,884 (4,359); exports 5,328 (3,462). Main sources of imports (1950): U.K. 17·2%; Portuguese colonies 16·4%; U.S. 15·7%. Main destination of exports (1950): Portuguese colonies 25·5%; U.K. 17·4%; U.S. 12·7%. Main imports (1950): wheat grain and flour 8·5%; industrial machinery 7·5%; petroleum and products 6·4%; raw cotton 5·8%. Main exports (1950): textiles 18·7%; cork and manufactures 16·8%; sardines and other tinned fish 9·6%; port and other wines 8·6%.

Transport and Communications. Roads (1949): 16,697 mi. Licensed motor vehicles (Dec. 1950): cars 65,000, commercial 24,000. Railways: (1949) 2,246 mi.; passenger-mi. (1949) 917 million; goods carried ('000 metric tons, 1950) 3,324. Shipping (merchant vessels of 100 gross tons and over, July 1950): 329; total tonnage 546,544. Telephones (1949): 134,426. Wireless licences (1949): 187,385.

Finance and Banking. Budget (million escudos): (1950 revised est.) revenue 5,009·2, expenditure 5,117·7; (1951 est.) revenue 5,318·2, expenditure 5,315·2. National debt (1949 est.): 12,092. Currency circulation (July 1950; July 1951 in brackets): 7,470 (7,930). Bank deposits (June 1950; June 1951 in brackets): 17,140 (19,100). Monetary unit: *escudo* with an exchange rate (Nov. 1951) of Es. 80·50 to the pound and Es. 28·75 to the U.S. dollar.

See W. J. Barnes, *Portugal, Gateway to Greatness* (London, 1950); G. M. H. L. Hamilton, *In the Wake of da Gama* (London, 1950).

PORTUGUESE OVERSEAS TERRITORIES.

Under this heading are grouped the Portuguese possessions in Africa and Asia. Their total area is approximately 803,835 sq.mi. and the total population (mid-1950 est.) 11,995,100. Areas, populations, capital towns and governors of the territories are given in the accompanying table.

History. Violent earthquake shocks in the Azores in January were followed in June and July by others in the Cape Verde Islands where the Ilha do Fogo volcano, inactive since 1857, erupted and the first lava streams for 200 years compelled the evacuation of several villages. Developments in Angola and Mozambique were chiefly in communications. A new bridge over the river Kwanza was among the largest in Angola; over Es. 23·5 million were spent on two others spanning the Giraul and the Baro. In Mozambique 14 bridges were completed, the quays at Lourenço Marques were lengthened by more than 300 m., and progress was made with the airfield at Nampula. A new shipping agreement of the Southeast African Outward Freight conference, designed to combat cargo congestion and delays at Beira, came into effect on Jan. 1. Sir Godfrey Huggins, prime minister of Southern Rhodesia, visited Lisbon in January for discussions, "satisfactory considering the diversity of outlook," on the proposed oil pipeline from Mozambique to Umtali. Admiral Ortins Bettencourt, general secretary for defence and former navy minister, headed a Portuguese delegation to the conference on African defence held in Nairobi in August.

Among constitutional changes voted by the National Assembly in Lisbon, and approved by António de Oliveira Salazar as acting president on Marshal António de Fragoso Carmona's death, was the integration of the Colonial act of 1930, with minor revision, into the constitution. By the revised act the colonies were renamed overseas provinces and the Ministry of Colonies became Ministry of Overseas Territories (Ministério do Ultramar). Commenting on the proposed changes in Delhi on March 12, and parodying the wording of the Colonial act, Pandit Nehru said: "It is of the organic essence of the Indian nation and of the historic process that brought independence to India to free those parts of India which are still under colonial rule. The government of India will adhere to the policy which has been so frequently reiterated." Eight schools for mixed teaching in Portuguese and Urdu were established in the various territories of Portuguese India.

Macao was included in the U.S. ban imposed in Dec. 1950 on shipment from U.S. ports of all goods destined for Communist China and Hong Kong; the ban was later modified to allow the despatch of minimum essential civilian requirements. Macao continued wholly dependent on the mainland for its fresh food supply. Apart from garrison movements—three-fourths of the 4,000 troops were Portuguese—there was very little direct traffic with Portugal. A reconstruction grant of Es. 15 million to repair war damage in Timor dating from the Japanese occupation was voted by the home government in January. (W. C. An.)

Angola. Principal products (exports, 1950, '000 metric tons): maize 189·5, sugar, raw 43·1, coffee 37·6, beans 27·9, sisal 21·3, palm oil 13·8, diamonds (carats) 672,985. Foreign trade (million escudos, 1950): imports 1,665·5, exports 2,169·0. Roads (1949): 21,772 mi. Railways (1949): 1,771 mi. Shipping (1949): vessels entered 3,748, net tonnage 3,638,530. Budget (1950 est.): balanced at Ang. 845,246,000. Monetary unit: *angolar* at par with escudo.

Cape Verde Islands. Principal products (exports, 1950, '000 metric tons): mineral oil 356·3, coal 36·1, fish 0·49. Foreign trade (million escudos, 1950): imports 245·7, exports 227·6. Shipping (1949): vessels entered 4,126, net tonnage 2,807,822. Budget (1950 est.): Balanced at Es. 33,550,000.

Guinea. Principal products (exports, 1949, '000 metric tons): groundnuts 44·3, coconuts 17·3, palm oil 1·19. Foreign trade (million escudos, 1949): imports 142·2, exports 160·8. Shipping (1948): vessels entered 83, net tonnage 103,502. Budget (1950 est.): balanced at Es. 74,650,000.

São Tomé and Principe Islands. Principal products (exports, 1950, '000 metric tons): cocoa 8·0, coconuts 7·2, copra 5·1, palm oil 2·8. Foreign trade (million escudos, 1950): imports 109·1, exports 209·5. Shipping (1948): vessels entered 118, net tonnage 451,862. Budget (1950 est.): balanced at Es. 41,996,000.

Mozambique. Principal products (exports, 1950, '000 metric tons): sugar, raw 65·0, copra 42·9, cotton 24·4, sisal 17·3. Foreign trade (million escudos, 1950): imports 1,653·9, exports 1,063·8. Roads (1949): 18,078 mi. Railways (1949): 1,652 mi. Shipping (1949): vessels entered 1,988, net tonnage 6,905,468. Budget (1951 est.): balanced at Es. 1,535,650,462.

India. Foreign trade (million escudos, 1947): imports 338·9, exports 50·5. Budget (1950 est.): balanced at Es. 86,098,000.

Macao. Foreign trade (million patacas, 1948): imports 82·4, exports 16·6. Shipping (1948): vessels entered 12,265, net tonnage 1,897,125. Budget (1950 est.): balanced at Es. 87,301,000. Monetary unit: *pataca* = 16·07 escudos.

Timor. Foreign trade (million escudos, 1949): imports 37·6, exports 13·4. Shipping (1949): vessels entered 115, net tonnage 29,096. Budget (1949 actual): revenue Es. 62,047,000, expenditure Es. 48,353,000. Monetary unit: *pataca* = 16·07 escudos.

POST OFFICE.

The total value of post office transactions with the public in Great Britain during the year ended March 31, 1951, was £3,178,914,000, an increase of over £118 million on the figure for the preceding 12 months.

Postal. The number of letters and letter packets, etc., posted during 1950-51 was estimated to have been 8,500 million, an increase over the traffic for 1949-50. The number

PORTUGUESE OVERSEAS TERRITORIES

Country	*Area* (sq.mi.)	*Population* (1950 census)	*Capital*	*Governor*
AFRICA				
ANGOLA	481,351	4,111,796 Eur. (1950) 78,903	Luanda (pop., 1950, 137,139)	†Capt. José Agapito da Silva Carvalho
CAPE VERDE IS.	1,557	147,097 Eur. (1940) 5,580	Praia (pop., 1940, 6,000)	Maj. Carlos Alves Roçadas
GUINEA	13,948	508,970 Eur. (1940) 1,419	Bissau (pop., 1950, 5,700)	Raimundo António Rodrigues Serrão
SÃO TOMÉ AND PRINCIPE IS.	372	62,159 Eur. (1950) 1,152	São Tomé (pop., 1950, 2,605)	Lieut. Col. Carlos de Sousa Gorgulho
MOZAMBIQUE	297,731	5,730,930 Eur. (1950) 48,910	Lourenço Marques (pop., 1940, 48,000)	†Cmdr. Gabriel Mauricio Teixeira
ASIA				
INDIA	1,538	667,000*	Nova Gôa	†Cmdr. Fernando Quintanilha de Mendonça Dias
MACAO	6·2	347,000* Port. (1949) 4,626	Macao	Cmdr. Joaquim Marques Esparteiro
TIMOR	7,332	420,000*	Dili (pop., 1940, 7,000)	Capt. Cesar Maria de Serpa Rosa

* 1950 estimate. † His title is governor general.

of parcels handled during the year dropped from 243,381,000 to 232,630,000.

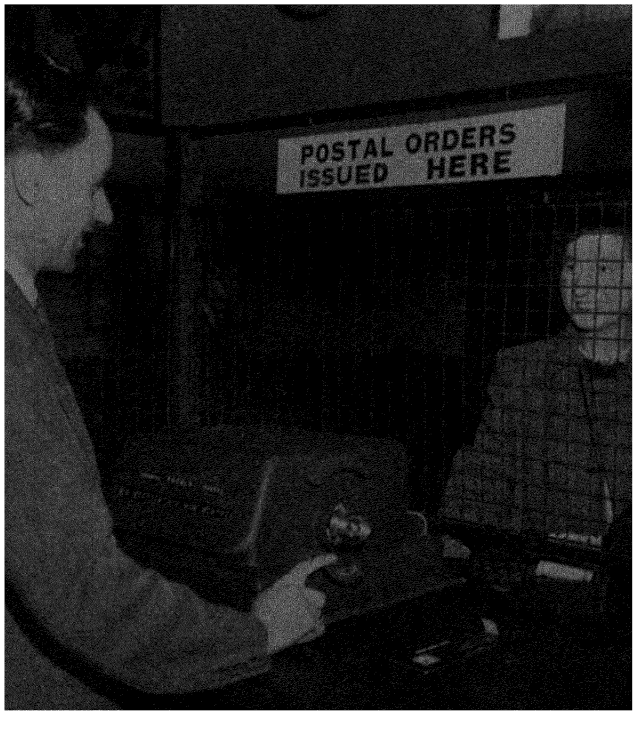
On June 1, 1951, the minimum rate of postage for an inland printed paper packet was raised from 1*d.* for the first 2 oz. to 1½*d.* for the first 4 oz.; the rates for overseas parcels by surface routes was also increased. On July 2, the inland cash on delivery trade charge fees were raised by 4*d.* with a minimum of 10*d.* On July 30, the inland parcel post rates were increased by 1*d.* at each of the first three steps of the scale and by 2*d.* at each subsequent step; *i.e.*, the minimum charge became 11*d.* for a parcel not over 3 lb. and the maximum became 1*s.* 8*d.* for a parcel between 8 lb. and 15 lb.

Night air mail services between Manchester and Belfast and between Manchester and Dublin were introduced on March 12, 1951. Nearly six tons of British mail was carried each week-night on these services. Further extensions of the air parcel services were carried out and by Sept. 1951 these services were available to the majority of overseas destinations.

Telecommunications. On March 31, 1951, the telephone system of Great Britain and Northern Ireland comprised 4,201 automatic and 1,666 manual local exchanges serving 5,426,150 telephones. The figure of 5,426,150 telephones represented a net increase during the year of 254,659 telephones achieved by the actual installation of over 54,500 telephones a month and the cessation of over 33,500 a month. Telephone service continued to be provided in order of priority; although about 300,000 applications for telephone service were received during the year, the number of outstanding applications was reduced from 551,600 to 532,000.

Development of the long-distance network was maintained by the addition of 680 telephone circuits of over 25 mi. radial length; this brought the total of speech circuits in use to 17,020. The total number of inland telephone calls handled during the year was 3,326 million, an increase of 4·8% on the previous year.

The number of telegrams handled during the year ended March 31, 1951, was 65,741,000, including 24,127,000 overseas or radio telegrams (52,442,000 including 10,406,000 overseas telegrams in the previous year). The increase in the overseas total was largely due to the inclusion of Cable and Wireless traffic. The inland greetings telegram service had been reintroduced in Nov. 1950 and by March 31, 1951, nearly 1,750,000 greetings telegrams had been sent.



An experimental machine able to print postal orders of any value from 6d. to 21s. 11d., which was tried out at the Romford head post office in Oct. 1951.

The manual switching system used for inland telegrams (whereby re-transmissions at intermediate offices are avoided by providing for through transmissions) was further extended and was in use at 274 offices. The first stage of automatic switching which would ultimately replace manual switching had also been introduced in Oct. 1950. This scheme provided direct connection between offices by dialling through automatic equipment. The average time to pass a telegram over the network was brought to within almost 5 min. of the prewar standard. The delivery of telegrams was also speeded up and over 25% of those delivered by messenger were now conveyed by motor cycle.

The international telex service provided direct teleprinter service between subscribers, enabling them to exchange typed messages. It had become available by 1951 to Austria, Belgium, Czechoslovakia, Denmark, Finland (Helsinki only), France, Germany, the Netherlands, Norway, Sweden and Switzerland. Traffic increased by about 70% between 1950 and 1951.

The range of the phototelegraph services was extended. Many pictures of the Festival of Britain were sent abroad by phototelegraphy.

The wartime E.F.M. telegram service, by which three phrases from a standard list can be sent for 2*s.* 6*d.*, was reintroduced for the forces in Korea and Japan in Jan. 1951 and extended to the Far East fleet on May 28.

A total of 11,899,194 words were exchanged with ships at sea during the year ended March 31, 1951; 23,229 radiotelephone calls were made between ships and telephone subscribers ashore. The post office owned and operated 12 coast stations in the United Kingdom for communication with ships; a new permanent station had been established at Oban to give improved communication with ships operating in West Highland waters.

Savings Bank. Deposits for the year ended March 31, 1951, amounted to £335,401,000 a decrease of £14,043,000 on the previous year; the number of separate accounts was 23,223,000.

On Dec. 31, 1950, the amount due to depositors was £1,934,332,000. For the year ended March 31, 1951, 19,987,000 saving certificate documents were issued.

Staff. In March 1951 post office staff numbered 331,668 (part-time staff counted as half) with a salary and wage bill of £124,376,602 for the year. (G.P.O.)

United States. Revenues of the post office department for the fiscal year 1950-51 amounted to $1,776,816,354. Additional postage that would have been collected if the service had been on a regular pay basis in the case of penalty and franked mail, free-in-county mail, differentials in second-class mail matter and free matter for the blind and the cost of aircraft service over the postage revenue derived from air mail was estimated at $104·9 million.

The expenditure of the department for the fiscal year amounted to $2,341,399,065, of which amount $115,603,222 was on account of prior years. There was $232,131,726 unpaid on account of the 1951 fiscal year. This left a total expense of $2,457,927,570, resulting in a gross operating deficit on accrual of $681,111,216. This amount included pending retroactive payments to railroads, and also a 25% interim increase granted to participating railroads by the Interstate Commerce commission. It also included the estimated increased cost for pending establishment of permanent rates on air mail routes by the Civil Aeronautics board. During the fiscal year ended June 30, 1951, 1,239·5

million free pieces weighing 91 million lb. were mailed for other government departments, an increase of 9 million pieces and 3·5 million lb. over 1950.

On June 30, 1951, war savings stamps were on sale at 41,193 offices. Sales from July 1, 1950, to June 30, 1951, amounted to $14,518,796. During the fiscal year savings bonds with a sale value of $267,191,418 were sold. At the close of the fiscal year 1951, bonds were on sale at 26,477 post offices.

Through the 41,193 post offices and 4,002 stations being conducted under contract agreement, as well as 2,386 stations and branches, there were received, transported and delivered 46,908 million pieces of mail matter during the fiscal year having a weight of 11,909 million lb., an increase of 1,844 million pieces and 388 million lb. from the previous year.

Delivery service was established in 51 additional cities during the fiscal year, thereby increasing to 4,683 the number of cities in which this service was operated.

During 1951 it was impossible to deliver 22,935,365 letters, an increase of 21·21% from the previous year. A total of 3,663,036 letters were returned to the senders. Letters containing valuable enclosures numbered 453,128, of which 107,131 contained money amounting to $236,131·62. There were also 851,890 unclaimed parcels and articles found loose in the mails. A total of 132,733 were returned to the senders. The remaining 719,157 parcels were sold at public auction and $288,069 was realized.

On June 30, 1951, there were 163,000 mi. of domestic air mail routes in the United States—an increase of 4,023 mi. over the previous year. Four new domestic air mail routes were established.

The rural delivery routes in operation on June 30, 1951, required a total daily travel of 1,479,509 mi. by rural carriers in providing service to approximately 33,316,544 patrons. Operation of the service resulted in an expenditure of $168,762,382 for the fiscal year, compared with $162,787,400 for the previous year.

Postal savings depositors numbered 3,529,527 for 1951, a decrease of 6·62% from the preceding year. The balance due to depositors by outstanding certificates of deposits was $2,787,918,244, a decrease of $309,143,613 or 9·98%. In addition there was held in trust for depositors accrued interest of $109,127,794 and unclaimed deposits of $280,766, making a total of $2,897,326,804. (*See* also PHILATELY; TELEGRAPHY; TELEPHONE.) (I. GG.)

POTATOES: *see* ROOT CROPS.

POULTRY. So numerous were the setbacks that 1951 was likely to go down as one of the most difficult years through which the industry had passed. Official prices to be paid for eggs were set at a wholly uneconomic level and many thousands of in-lay pullets were diverted to the table poultry market so that an expected glut of eggs in the spring failed to materialize. Then followed material increases in the cost of feedingstuffs and agricultural wages, and the industry's demand for a special price review was granted. As a result, it was agreed to pay an extra penny a dozen for the eggs to be passed through packing stations between Dec. 6, 1951, and March 31, 1952. Announcing this award, Sir Thomas Dugdale, minister of agriculture, told poultrymen that they were to suffer a 25% cut in the egg-bonus rations for the months of Sept.-Dec. 1951. A request by the National Farmers' union that the Feb. 1952 price review be brought forward in an effort to counteract the rising spiral of production costs was refused.

The fowl pest situation showed no sign of improvement. The earlier months of the year held out hopes that the animal health division of the ministry of agriculture had "topped" the disease. But just at that point when removal of some of the restrictive measures was expected the pest returned, striking at the very heart of the industry in Lancashire. It was in its mildest form but the stock on hundreds of farms in Lancashire came under the order which compelled their destruction and the position remained serious at the end of the year.

Despite these set-backs the overall figure in the June agricultural returns for England and Wales showed an increase in the poultry population as compared with the figures of the previous year. Against the 1950 figure of 65,312,000 was 66,524,000, the increase being attributed entirely to fowls. Ducks (1,787,000), geese (609,000), and turkeys (728,000) all showed decreases. Scotland returned a fall in the poultry population from 10,073,107 in 1950 to 10,019,000 in 1951. In Northern Ireland the fall was even greater, the 1950 figure of more than 20 million falling to 17,807,500.

As in previous years Australia, South Africa, Ireland, and certain of the near European countries, Denmark in particular, exported poultry produce to Great Britain but the ban on table poultry imports from those countries where fowl pest was endemic remained in force, and to those countries already on the list were added Canada and the Netherlands.

The second of the postwar World Poultry congresses was held in Paris, Aug. 2-9. After the host country, the strongest representation came from Great Britain and the British national livestock exhibit received universal praise. It was sold *en bloc* and was dispersed among leading French breeders. (*See* also VETERINARY MEDICINE.) (C. G. MY.)

PRESBYTERIAN CHURCH. **Europe.** The eastern section of the World Presbyterian alliance now consisted of Reformed and Presbyterian Churches in England, Scotland, Wales, Ireland, France, Belgium, the Netherlands, Switzerland, Hungary, Germany, Spain, Italy, Czechoslovakia, Poland, Lithuania, Yugoslavia, South Africa, Australia and New Zealand. In Aug. 1951 19 members and alternates from ten countries and five continents attended a meeting of the executive committee of the alliance at Basle, Switzerland. At this meeting it was announced that the Presbyterian Church of the Gold Coast, the United Church of Christ in the Philippines, and the Presbyterian Church of Formosa had become members of the alliance.

North America. In 1951 reformed churches in the United States holding the Presbyterian system and united in the western section of the World Presbyterian alliance numbered about 18,700, with a ministry of about 18,600 and a communicant membership of 4,675,000; the Presbyterian Church in Canada and the United Church of Canada were also members of the western section. The Orthodox Presbyterian Church and the Bible Presbyterian Church, originating in the 1930s, were not members of the alliance.

In the home mission field, the Evangelical and Reformed Church planned to raise $1 million to finance churches in new or growing industrial areas. In the field of foreign missions, appeals for clothing, supplies and financial support provided extensive aid to the distressed of Korea. To meet Communist propaganda the Presbyterian Church, U.S.A., adopted a Christian evangelistic approach and used the youth and young churches to spread the Christian message. It called the churches to a greater reliance on prayer and to a new dedication of their youth to missionary service.

The Department of Radio and Television, in presenting its report to the general assembly of the Presbyterian Church, U.S.A., in 1951 emphasized the extensive use of television and radio. Presbyterian and Reformed Churches were also active participants in the Protestant Broadcasting and Film commission of the National Council of Churches. Preaching

services were conducted in the "Columbia Church of the Air" and in the coast-to-coast "National Vespers" programme of the American National Broadcasting service. Television used films and puppets to bring to children the Christian message through the "Lamp Unto My Feet" and "The Good Samaritan" programmes. The audio-visual *Vanguard* was issued to acquaint Presbyterians with what the various boards of the Presbyterian Church were doing with the religious programmes on radio and television. (*See* also CHURCH OF SCOTLAND.) (G. S. K.)

PRESIDENTS: *see* SOVEREIGNS, PRESIDENTS AND RULERS.

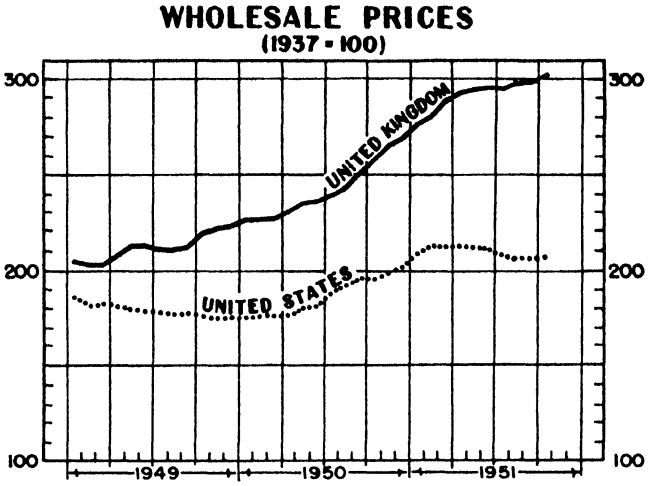
PRICES. The movement of European prices in 1951 continued to reflect to some extent—and to a considerable degree in retail prices—the effects of the currency devaluations of Sept. 1949. The forces set in train by the war in Korea in June 1950 were even more influential, since a mild recovery in world prices and trade in the early part of 1950 then grew into an inflationary boom. Subsequent price movements represented a reaction to the defence and stockpiling expenditure of the Atlantic powers, as well as the influence of the Korean war. At the end of 1950 the prices of many commodities soared to new heights and reached their peaks about March 1951. Some commodity prices then fell sharply. There was a fairly steady rise in the general level of wholesale and retail prices throughout 1950 and 1951.

Great Britain. *Commodity Prices.* Changes in commodity prices in sterling could be shown conveniently in three periods of nine months each, as in Table I. The total period of 27 months from devaluation (Sept. 1949) to Dec. 1951 is split at two important dates, the outbreak of war in Korea (June 1950) and the point at which many prices reached a peak (March 1951).

TABLE I. BRITISH COMMODITY PRICES

	Percentage increase Sept. 13, 1949, to June 13, 1950	June 13, March 20, 1950, to 1951, to March 20, Dec. 11, 1951	Percentage increase to Dec. 11, 1951 From Sept. 13, 1949	From June 13, 1950
Copper, electro	73	9	12	211	122
Lead, soft	10	42	29	201	182
Zinc, g.o.b.	101	18	26	299	149
Tin, cash (buyers)	6	115	—28	165	156
Cotton, Giza	25	76	—19	176	142
Mid-American	37	49	— 3	198	145
Wool, tops, 64's	61	113	—56	151	—6
Sisal, African, No. 1	35	87	—12	222	164
Jute, Daisee	36	61	—14	188	138
Rubber, R.S.S. (spot)	108	170	—33	377	181
Copra, S.D. Straits	22	66	—31	140	15
Coffee, Brazil	—	64	27	207	207

Sterling prices of textile materials followed a common pattern. A rise between devaluation and the outbreak of war in Korea was followed by a larger rise in the nine months after June 1950 and then by a general decline, though with many fluctuations, in the last three quarters of 1951. The levels of prices at the end of 1951 were generally well above those before the Korean war. Wool prices showed particularly large fluctuations, with a peak in March 1951 more than double the pre-Korean level followed by an even more abrupt decline. In the later months of 1951, however, wool prices tended to fluctuate less violently and around the June 1950 level. Prices of other textile materials were firmer by the end of the year. Much the same general movements were found in prices of rubber and tin. For non-ferrous metals (other than tin) prices showed what was generally the most sustained increase from the time of devaluation right through to the end of 1951. These stood in Dec. 1951



at two or three times the level before devaluation and generally 50% or more above those ruling before the Korean war. In general, the prices of sterling commodities such as wool, rubber, tin and cocoa improved relative to the prices of dollar commodities (non-ferrous metals, cotton, tobacco, etc.) in the early part of 1951. This change was reversed by a much greater deterioration during the remainder of the year. Some of the difficulties of the sterling area in 1951 could be attributed to this fact.

Import and Export Prices. Though world commodity prices (and British wholesale prices of materials) declined after March 1951 the prices of United Kingdom imports showed no fall until after the middle of the year, the lag being accounted for by the interval between purchases at lower prices and the actual import of materials. On the average, import prices were 65-70% above the predevaluation level in June 1951 and 60% above at the end of the year. Prices of imported materials for industry showed a greater rise and fall. Imported foodstuffs also became dearer after devaluation and did not participate to any extent in the price falls after June 1951.

TABLE II. IMPORT, EXPORT, WHOLESALE AND RETAIL PRICES, UNITED KINGDOM
(Sept., 1949 = 100)

	1950	1951			
	June	March	June	Sept.	Dec.
*Imports and Exports**					
Imports:					
Food, drink and tobacco	115	119	131	129	132
Materials	120½	200	226	206	194
Total	115½	151	167½	163	159
Exports	104½	118	126½	132	134
Terms of trade†	110½	128	132½	123½	119
Wholesale Prices‡					
Materials, non-food manufacturing	125	217	190	174	178
Output of Industry:					
General chemicals	110	115	125	127	130
Cutlery	101	110	111	112	112
Hosiery, etc.	107	133	149	146	133½
Carpets	129	181	185	172	154
Retail Prices, all consumers§					
Food	108	108	118	118	...
All items	103	105	110	111	...
Retail Prices, working-class‖					
Food	105	110	116	120	124
Clothing	100	110	116	121	124
Household durables	103	116½	124	127	126
All items	102	107	111½	114½	116½

* Average values computed from annual data extrapolated into 1951 by use of index numbers of import and export prices (Board of Trade). † Ratio of average value of imports to average value of exports (index numbers). ‡ New series Board of Trade with June 1949 as base. § From quarterly data (Central Statistical Office) on personal expenditure on consumers' goods and services at current and at 1948 prices; figures shown relate to quarters ending in month shown. ‖ Interim index, Ministry of Labour, with June 1947 as base.

The rise in British export prices was less rapid but more steady and prolonged than movements of import prices. The terms of trade, relatively favourable in the middle of 1949, became progressively worse following devaluation and the outbreak of war in Korea: the deterioration amounted to 33% by mid-1951. After June the fall in import prices and the continued rise in export prices both served to produce an improvement by some 10% at the end of 1951. The effect of the worsened terms of trade, particularly from mid-1950 to mid-1951, was to reduce the real national expenditure below the level of real national product; production increased but was in part diverted to exports, to pay for dearer imports.



"Mr. Rising Price," a cartoon figure by Cummings used during the election campaign in the "Daily Express" (London). Hugh Gaitskell is explaining "But I assure you, Lord Beaverbrook, he's officially only 5ft. 8in. high."

Wholesale Prices. Changes in prices of basic commodities in 1950-51 spread through the domestic price system, quickly for prices of materials, much more slowly for the prices of the output of industry. Materials prices fell by 18% in the last nine months of 1951, while the prices of industry's products remained firm. These are average movements: iron, steel and non-ferrous metal prices and the prices of metal goods rose generally throughout 1951 while the declines were for such materials as those used in the textile trades. The prices of some semi-finished and finished products had been marked down by the end of 1951; *e.g.*, the controlled price of carpets, but the price rise in most manufactured goods had not worked itself out by then.

Retail Prices. The reaction of prices of consumer goods at retail was not only greatly delayed but also considerably influenced by such factors as seasonal variations, subsidies, indirect taxes and price control. The "all-items" index of retail prices moved very little from devaluation until Sept. 1950; it then began to show a steady and sustained rise of about one point a month and this continued throughout 1951. The influences operating varied from one group of prices to another. Food prices rose about as fast as the others since subsidies were not increased. Prices of clothing and household textiles rose sharply at first, since these reflected movements in the prices of raw materials to a greater extent than did some others. The later declines in prices of textile materials had still to show up significantly in retail prices by the end of the year. Household goods, particularly of metal, became much dearer from mid-1950 and many of these prices were still rising late in 1951.

TABLE III. COST-OF-LIVING INDICES, 1938-51

	1938 average	1947 average	1950 average	1951 mid-year*
All consumers	100	169	191	206
Working-class families	100	161	185½	203
Middle-class families	100	179	198	210

* Second and third quarters averaged.

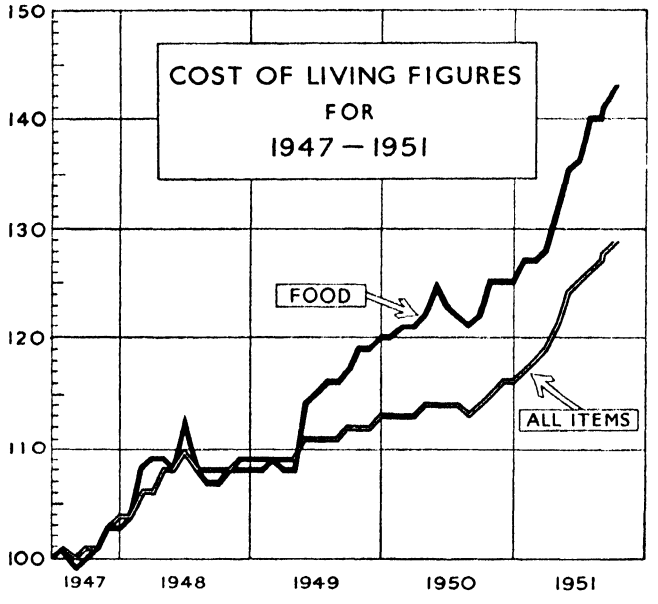
A calculation of retail price-changes since 1938 was possible, on a relatively firmer basis, from data issued in a report of the Cost-of-Living Advisory committee. The link between 1938 and June 1947, the date taken as 100 in the interim index of retail prices could be computed on the basis of working-class expenditure in 1937-38 and alternatively with the 1950 pattern of expenditure as weights; in each case, the figure was about 161 in June 1947 (1938 = 100). Further, the course of the index from June 1947 onwards, calculated on the same two bases, was found to be broadly consistent. Finally, the index of working-class families with 1950 expenditure weights could be compared with the "all consumers" index of the Central Statistical office (also with postwar weights), with an adjustment of beer prices in the former to make them comparable with those used in the latter. An index for middle-class families could then be derived by difference as shown in Table III. The price rise from 1938 had been greater for the middle-class families but the differential was reduced during 1950-51.

NOTE. The above analysis for Great Britain makes use of an extension of data presented in the London and Cambridge Economic Service's *Bulletin*, Nov. 1951.

Europe. Wholesale prices moved similarly in many European countries, a slow rise from mid-1949 to mid-1950 followed by a more rapid increase to a peak about the middle of 1951. The total rise from just before devaluation (Sept. 1949) to mid-1951 was generally 40%, as in the United Kingdom, or more. Countries such as Belgium, Italy and Switzerland which were less affected by devaluation and had prices more closely related to U.S. dollar prices showed wholesale prices rising less rapidly and over a shorter period.

Retail prices at mid-1951, as measured by the cost-of-living index numbers of Table IV, were about double the 1938 level in the United Kingdom and about 80% above 1938 in the United States. Germany, Sweden and Switzerland showed retail price rises of the same order, or less, as in the United States; Denmark, Norway and Ireland followed the United Kingdom pattern, with Netherlands prices having a greater rise. Postwar prices in Belgium were some four times as high as in 1938, while no valid comparisons were possible for France and Italy because of currency instability.

Comparisons within the postwar period, however, showed more varied changes; *e.g.*, from Sept. 1949 to mid-1951 retail prices in Switzerland changed little; Denmark, Norway and the Netherlands had larger price rises than the United Kingdom; while in Sweden the jump in prices occurred only in the year from mid-1950. As an example of the factors at work, Norway's index of retail prices began to move upwards in March 1950; subsequently, food subsidies were reduced and the price level mounted rapidly. Wage-rates being tied by agreement to the cost-of-living index,



SOURCE. Compiled from data given in the "Ministry of Labour Gazette" (H.M.S.O., London).

though with a time lag, the problem of breaking the price-wage spiral became acute in 1951.

Commonwealth. The major self-governing members of the Commonwealth had fewer points in common than might be expected, as far as the postwar course of prices was concerned. This was illustrated, for retail prices, by the figures of Table IV: Canadian prices immediately after the war showed a smaller increase (from 1938) than those in the United States; subsequently they caught up and followed United States prices rather closely. The increase from 1938

TABLE IV. COST-OF-LIVING INDEX NUMBERS, CERTAIN EUROPEAN AND COMMONWEALTH COUNTRIES
(1937=100)

	1947 (June)	1949 (Sept.)	1950 (June)	1951 (June)
Belgium	330	376	365	412
Denmark*	166	170	179	203
Western Germany†	—	155	151	167
Ireland‡	179	188	191	205
Netherlands	203	216	237	265
Norway	167	165	171	203
Sweden	149	161	161	187
Switzerland	159	162	159	167
United Kingdom§	161	180	183	201
Australia‖	134	164	176	210
Canada	133	160	163	182
India	262	289	294	318
New Zealand‖	126	145	151	172
South Africa	146	159	167	178
United States	153	166	166	180

* July instead of June, October instead of September. † 1938=100. ‡ May instead of June, August instead of September. § London and Cambridge Economic Service index, 1938=100, with 1937-38 weights. ‖ Quarters ending with month shown.

SOURCE. United Nations. *Monthly Bulletin of Statistics.*

was greater in India than elsewhere, with a rise by 1951 of over 200% for retail and over 300% for wholesale prices. During 1949-51, however, Indian price levels varied much as in the United States. The most steady and sustained price rise was in Australia, from a relatively low level in 1947 to as high a point (compared with 1938) as in the United Kingdom in 1951. The price changes in New Zealand and South Africa were more moderate. (R. G. D. A.)

United States. The inflationary trend that had moved both wholesale and retail price indexes to record peaks in Dec. 1950 continued into March 1951 for wholesale prices and throughout the year for retail prices. Wholesale prices fluctuated narrowly and in Dec. 1951 were only 1·4% higher than at the end of 1950. Retail prices, on the other hand, rose slowly

TABLE V. PERCENTAGE CHANGE IN UNITED STATES WHOLESALE PRICES BY MAJOR COMMODITY GROUPS, SELECTED PERIODS, 1939-1951
Percentage change (increases unless otherwise shown), Dec. 1951 from:

Commodity	Post-war max.	Dec. 1950	June 1950	June 1946	Dec. 1941	Aug. 1939
Farm products	— 5·0	3·3	16·7	38·2	113·9	217·4
Foods	— 1·2	4·6	15·5	65·9	107·0	178·7
Textile products	—12·4	—6·4	17·3	47·0	74·8	136·7
Fuel and lighting	0·0	2·6	4·9	58·5	77·6	91·7
Metals; metal products	0·0	3·7	11·5	70·9	85·6	105·7
Building materials	—2·0	1·2	10·8	72·4	107·8	150·0
Hides; leather products	—19·3	—12·1	5·3	57·1	67·5	107·4
Chemicals and allied products	—6·8	—1·2	20·4	42·9	52·5	85·8
House furnishings	—4·5	1·1	17·1	55·8	70·1	100·9
Miscellaneous	—0·8	0·8	23·5	43·8	61·6	93·2
All commodities	—3·4	1·4	13·0	57·5	90·0	137·1

but steadily until May, levelled off during the summer and then advanced each month from September to the end of the year, when they were at a record level (5·8% higher than in Dec. 1950). The increase in prices which had begun several months before the Korean war and which had accelerated after its outbreak led to the adoption of an anti-inflationary programme in January. This helped to prevent a greater increase in prices which would probably have occurred as a result of a very high level of personal, business and government expenditure. Nevertheless, by December the wholesale price index was 137% and the consumers' price index 92% greater than in Aug. 1939.

Wholesale prices for each major group of commodities except foods reached their highest levels since World War II in various months during the year, and foods virtually reached the Aug. 1948 level in October. Wholesale prices had increased nearly as much as after World War I, but there had been substantial changes in the commodity groups in which price increases were greatest in the two periods. All retail prices, as reflected by the cost-of-living index of the Bureau of Labour Statistics, attained a postwar peak in December; the only exceptions were clothing and house furnishings. When compared with the post-World War I increase in the cost of living, the price rise for all items following World War II was not so severe—92%, as compared with 101%. Only in food (which, however, is a sizable item in the budget of a moderate-income family) and fuels were the price increases in the later period relatively greater. Rents, clothing and miscellaneous items did not increase nearly so much.

Wholesale prices were, at the end of 1951, 137% greater than in Aug. 1939, 90% greater than at the start of U.S. participation in World War II in Dec. 1941, 58% greater than at the ending of price controls in June 1946 and 13% above the level at the outbreak of the Korean war in June 1950. The wholesale price index rose to a record level in March, declined gradually each month until September and remained relatively stable for the remainder of the year. Prices in all commodity groups increased at the beginning of the year, and most groups were relatively stable for the rest of the year. The notable exceptions were substantial decreases in the prices of hides and textile products, and decreases in the prices of chemicals, farm products and house furnishings from their peaks early in the year.

TABLE VI. PERCENTAGE CHANGE IN U.S. CONSUMER PRICES (COST OF LIVING) MAJOR COMMODITY GROUPS, SELECTED PERIODS, 1939-1951
Percentage change (increases unless otherwise shown), Dec. 1951 from:

Commodity	Post-war max.	Dec. 1950	June 1950	June 1946	Dec. 1941	Aug. 1939
Food	0·0	7·4	14·3	59·5	105·3	148·3
Clothing	—1·1	5·8	12·0	31·6	80·1	106·2
Rent	0·0	4·7	6·3	28·3	28·7	33·5
Fuel, electricity and ice	0·0	1·5	4·2	31·1	39·2	49·3
House furnishings	—1·1	3·4	13·7	34·7	80·0	108·9
Miscellaneous	0·0	5·3	10·9	32·2	57·0	68·4
All items	0·0	5·8	11·1	41·9	71·1	91·8

The steady increase in consumer prices during the year reflected the greater relative increase in wholesale prices which had occurred after war broke out in Korea and limited increases in wages and other costs. Food prices, the most important item in the consumers' cost-of-living index, and clothing led the index upward throughout the year, although clothing prices fell towards the end of the year.

The rapid increase in prices following the outbreak of the Korean war demonstrated the inadequacy of voluntary controls, and the government inaugurated a comprehensive system of anti-inflationary controls during the year. Price controls were instituted on Jan. 25 with the issue of a general ceiling price regulation by the Office of Price Stabilization. This regulation froze profit margins of wholesalers and retailers and provided for discretionary imposition of ceiling prices for farm products only if prices were above parity levels. An amendment to the Defence Production act of 1950, which had authorized the president to impose controls, permitted producers to raise prices to cover increases in costs from June 27, 1950, until July 26, 1951. Adjustments in wages and prices were made throughout the year to eliminate inequalities resulting from the original freeze orders.

Indirectly, price inflation was combated by raising reserve requirements of banks, increasing taxation and restricting the extension of credit for housing and purchase of consumer durable goods. In addition, the specific priorities system of allocating strategic metals was replaced in July by the Controlled Materials plan administered by the National Production authority in order to assure defence production and to ease the competitive upward pressure on prices of metals in short supply. Voluntary credit restraints were imposed by the banks and other lending institutions. (*See* also BUSINESS REVIEW; NATIONAL INCOME; WAGES AND HOURS; WEALTH AND INCOME, DISTRIBUTION OF.)

(W. V. WT.)

PRINTING. During 1951 European printers had many problems in common, of which the most serious was the paper shortage. Moreover, the needs of national defence services reduced available manpower, metals and chemicals for the industry. In spite of this, the manufacturing and sale of printing machinery was developed. Trade fairs and exhibitions were held in almost all European countries and much publicity was obtained by exhibitions of books, posters and printed matter sent from one country to another. Scientific research was extended, revived or intensified; because of the restricted supplies of normal raw materials for papermaking, straw was much used and other materials underwent long but inconclusive trials. Teams of experts from a number of countries were sent, under the European Recovery programme, to investigate production methods used in the United States. Craft representatives, master printers and research workers met their counterparts in other countries for the exchange of information.

Great Britain. At the Festival of Britain South Bank exhibition, London, a lithographic offset machine in constant production was a source of interest to visitors. The only notable typographic event of the year was the use of "Festival," a face designed in 1950 for Festival of Britain publicity (see *Britannica Book of the Year 1951*, article FESTIVAL OF BRITAIN 1951). The success of the new type face was doubtful and it was not used in all official publicity towards the end of the Festival period. That part of the Festival theme which stressed productivity was taken seriously by the industry, first, because of the report, issued early in the year, of a team of letterpress printers who had visited the United States in 1950 under the European Recovery programme and, secondly, by the report of a team of lithographic printers who had gone to the U.S. earlier in the year. Towards the end of the year an increase in industrial production for defence coincided with a decrease in the demands on the production side of the printing industry. A five-year agreement on wages and the intake of apprentices resulted in more tranquil conditions in the industry. At the headquarters of the Printing and Allied Trades Research association, London, a successful conference was held of directors and representatives of a number of European printing research organizations. Similar conferences were to be held in other European centres for continued discussion of certain scientific problems. An international congress of master printers was also held in London. Revision of the British Standard on paper sizes was completed and the British Standard on process inks was extended to several European countries.

Austria. Difficulties due to the serious economic situation were partly overcome by the installation of printing machinery under E.R.P., but much more was urgently required. A new venture was the manufacture of an automatic stop cylinder press intended for export.

France. A team of experts visited the United States under E.R.P. to study production methods. The manufacture of printing machinery for the home market and for export was much increased. Research activities were reorganized with government support by the formation of an organization known as "Centre Technique des Industries Graphiques."

Germany. The Leipzig and Hanover fairs were eclipsed in size and importance by the first Drupa (Internationale Messe Druck und Papier) International exhibition held in Düsseldorf. At the Drupa exhibition there was ample demonstration that the production of machinery for the graphic industry had reached prewar levels. A new printing research station was founded in Hanover. The type-founding industry, for which Germany was noted, again achieved considerable production.

Italy. A new association was established to promote publicity in the graphic arts. Trade fairs, exhibitions and competitions were organized to stimulate the high quality of graphic production and exhibitions of Italian books were held in several foreign countries.

Netherlands. Two productivity teams, covering letterpress and lithography, visited the United States under E.R.P. Not only were comprehensive reports issued but members of the teams contributed extensively to technical journals during the year. Compulsory medical examination of apprentices and their regular attendance at technical schools for one day each week during training were new departures. Research and precision production methods were extended and the first Netherlands-designed offset machine was manufactured. A new weekly journal *Intergraphia* was founded. Centenary celebrations of Amsterdam Type Foundry were held.

Sweden. To deal with the shortage of materials for papermaking, arrangements were made to manufacture paper and to export printed matter in preference to exporting wood pulp.

Switzerland. A letterpress printing team visited the United States during the year. A high standard was maintained in graphic design and production and in the design and manufacture of equipment for the printing industry. (A. KK.)

United States. The *Milwaukee Journal* announced the development of a method for printing three-colour process work in newspapers. By this process a set of three-colour plates could be produced in one-third of the time required for the production of a comparable set of four-colour plates. The 20-in. by 24-in. Curtis Color Analyst, made by Curtis laboratories, Los Angeles, was said to be the largest beam-splitting optical instrument of its kind. Its copyholders accepted a full newspaper page and permitted simultaneous viewing of black-and-white photographic separation prints,

or black-and-white ink proofs of process half tones, in full colour. The controls of the instrument permitted optical variations in colour balance to be made to suit the observer. Thus pellicle mirrors, front-surfaced mirrors, lights and colour filters balanced to the primary colours of the printing inks, transformed the black-and-white prints into a full-colour image by superimposing the three images into one colour image. A meter for each print indicated the amount of variation from a balanced condition in terms of percentages of exposure time and dot sizes. With this variation as a guide, new prints could be made by the photographer to bring the separations into balance. If the prints were in balance, the Color Analyst image might indicate a need for some local correction. The artist could then retouch any one or all of the separations to obtain the desired result and check the result in the Analyst before sending the prints to the engraver.

A flying printing press was developed for the U.S. armed forces by the Harris-Seybold company, Cleveland, Ohio. The press printed by the offset process and had a capacity of up to a 22½-in. by 30-in. sheet at a maximum speed of 6,500 sheets an hour. It could be unloaded from the aeroplane, set up and made ready to deliver printed material within two hours. The packaged press weighed five tons.

Among important developments in publication printing announced by the Bishop-Stansell company, West Carrollton, Ohio, was an automatic electrotype plate-finishing machine which was said to eliminate 95% of the hand-work formerly necessary to correct the printing level and imperfections in the face of the plate. The machine carried a travelling bed upon which the plate to be finished was placed face down. As the motor-driven bed motion commenced, a series of two-inch knurled-face rollers in staggered formation were lowered onto the back of the plate. Each roller bore down under the force of weights, the pressure being applied through a cantilever-like action. A plate could be finished in 15 sec., more or less, according to the size of the page. After passing through the finishing machine, the plates were shaved for uniform thickness and then shaped to proper curvature for the press cylinders. (M. SI.)

PRISONERS OF WAR. Repeated appeals throughout 1951 by the International Committee of the Red Cross to the North Korean government to permit committee delegates to visit prisoner of war camps in North Korea, under the Geneva Prisoner of War convention, received no response. The South Korean government and the United Nations command observed all provisions of the convention.

On Aug. 1 the North Korean government had reported the names of only 110 United Nations prisoners while the names of 148,792 North Koreans and 14,347 Chinese prisoners had been registered with the International Committee of the Red Cross by the South Korean government and United Nations command. Relief dispatched by the I.C.R.C. to civilian victims and prisoners of war in North Korea was turned back at the frontier.

Through the efforts of the French Red Cross, a certain number of prisoners of war and civilian internees were exchanged between the opposing forces in Vietnam. Later, on July 26, a meeting was held in a neutralized zone between a representative of the International Committee of the Red Cross and the president of the Vietnam Democratic Red Cross in an attempt to enlarge the scope of these exchanges.

The *ad hoc* Prisoner of War commission created by the United Nations general assembly in 1950 addressed a note to all governments calling for the names of World War II prisoners still held by them and the reasons for their detention. Burma, Canada, Norway, the Philippines, the United Kingdom and Yugoslavia transmitted such lists. The Soviet *bloc* declined to reply on the ground that the resolution creating the commission was contrary to article 107 of the United Nations charter. All other countries reported that they held no prisoners of war.

Article 16 of the Japanese peace treaty signed in San Francisco provided that the International Committee of the Red Cross take the necessary measures to have Japanese assets available abroad utilized to assist former prisoners of war of the Japanese and to aid the relatives of those who died in captivity or who suffer from the effects of such captivity. (H. W. DG.)

Korea. The U.N. command and the Communists were negotiating at the end of 1951 on arrangements for prisoner release on the signing of an armistice. Lists of prisoners held were exchanged on Dec. 18. That of the U.N. showed that they held 132,474 (20,740 Chinese and the rest North Koreans): the names of 37,500 South Koreans captured by the U.N. after they had been impressed into the Communist armies were excluded. The Communists reported holding 11,559 (3,198 United States soldiers, 7,142 South Korean, 919 British, 234 Turkish, 40 Filipino, 10 French, 6 Australian, 4 South African, 3 "Japanese," 1 Canadian, 1 Greek and 1 Dutch); later they accounted for another 726 of whom 571, they said, had died, 153 had escaped and 3 had been released. The U.N. protested that many more from the 100,000 missing in action on their side must have been taken prisoner, and inquired specifically about 1,083 Americans and 20 Britons who had been named in broadcasts and otherwise by the Communists as being prisoners but whose names did not appear on the list handed over. The Communists, in their turn, objected that 50,000 prisoners were missing from the U.N. list—presumably the impressed South Koreans—and that the U.N. list was useless to them because it contained only roman transliterations of the prisoners' names. Copies in Chinese and North Korean characters were handed over on Dec. 23. On Dec. 21, General Matthew P. Ridgway, U.N. commander in chief, broadcast an appeal direct to the Chinese and North Korean commanders in chief asking that Red Cross delegates be allowed to visit prisoner camps in North Korea, but this request had not been granted by the end of the year. (X.)

PRISONS. In England and Wales the postwar rise in the daily average population of prisons and Borstals continued to cause anxiety. In 1950 it had exceeded 21,000 and in Oct. 1951 it passed 22,500.

Increased delinquency during the year, together with the large numbers of persistent offenders serving long sentences of corrective training or preventive detention, suggested that the peak was not yet reached. One more open prison was opened at Falfield, Gloucestershire, making nine open prisons and camps in all, and no further expansion into open conditions appeared possible. Overcrowding in local prisons therefore continued, over 2,000 men sleeping three in a cell.

The staff situation improved, all prisons and Borstals being fully manned on the single-shift system. To obtain a full 7- to 8-hr. workshop day, the introduction of the three-shift system was completed in regional training prisons and started in corrective training prisons.

The new methods of corrective training and preventive detention for persistent offenders were developed. The corrective training population became stabilized at about 2,200 men and under 100 women. No further accommodation was required for this category. Although a number of men were released, it was too soon to begin to assess results. The number of men sentenced to preventive detention steadily increased towards 700, exceeding the accommodation of the central prison at Parkhurst set aside for those in the second stage of the sentence: there was no prospect of other

suitable accommodation becoming available. Arrangements were started for the third stage of this sentence, including a special block with relaxed supervision inside the prison; courses of lectures by outside experts to assist re-adaptation to normal life; and plans for hostel accommodation in two local prisons from which selected men would go out to work in the town in normal industrial conditions.

Plans for opening two " pilot " detention centres for young offenders, to serve the Greater London area, were further developed. Premises for one were secured, and for a second were in negotiation. It was expected that the first would open early in 1952. No progress was possible with remand centres for young offenders.

There were no significant developments in the prison and Borstal training systems. There was however a marked improvement in the amount of work made available for prisoners: this was due in part to the rearmament programme, in part to revised arrangements with government contracting departments. In spite of the increased population, prisoners in general were fully employed.

Interest during the year tended to centre on the improvement of arrangements for social assistance to prisoners and after-care on release. During the year the secretary of state appointed a committee to review the functions and finance of Discharged Prisoners' Aid societies.

A report was received from the Departmental Committee on Punishments and Offences in Prisons and Borstals. Except for certain matters affecting the procedure of visiting committees when adjudicating on prison offences, no significant changes affecting prison discipline were suggested. The report on Borstal was more critical, and *inter alia* recommended the restoration of bread and water diet as a punishment, and sterner measures with absconders. The statistical results of the prison and Borstal systems continued satisfactory, with a marked improvement in the success rate of Borstal girls to over 80%.

In Scotland, the population increased during the year from about 17% to 22% above the 1938 level. Additional vocational training schemes were introduced, rates of payment to prisoners under the earnings scheme raised, and facilities for meals in association extended to cover all Borstal inmates and most adult prisoners other than those serving short sentences. (L. W. F.)

United States. At the close of 1951 there were in the United States 152 state correctional institutions for adults which included 68 prisons or penitentiaries, 26 reformatories for men, 25 reformatories for women, 22 farm institutions, 11 special institutions including 3 hospitals for the criminal insane and 4 institutions for defective delinquents. The federal prison system comprised 6 penitentiaries, 3 reformatories for men and 1 for women, a medical centre, a detention facility, 8 correctional institutions, 3 camps, a training school and a forestry camp for boys.

The pattern of the state organization of correctional systems varied widely, ranging from the highly integrated system of institutions in California to the loosely organized system in North Carolina, which had one central prison but where 80% of the prisoners were distributed among 88 road camps under the control of the state highway department. In contrast, the system of Virginia, which had one walled industrial penitentiary, one farm for women, three farm institutions for men and a number of small road camps which took care of about 2,000 men, was administered entirely by a director of corrections.

The prison population at the end of 1950, according to the information available at the close of 1951, numbered 167,173 in state and federal prisons and reformatories. This represented an increase of 2,046 or 1·2% over the number confined in these institutions at the end of 1949. The number of prisoners convicted by the courts during 1950 totalled 71,978 which was an increase of less than 0·5% as compared with the total number of 71,703 committed during 1949.

Oklahoma made corporal punishment of any inmate of a mental, penal or correctional institution unlawful and Alabama abolished the use of the lash in its institutions. (J. V. Bt.)

PSYCHIATRY. Surgical treatment of mental disorders continued to be the subject of intensive research. Although the " blind " operation, aiming at severing parts of the frontal lobes from the rest of the brain by introducing a blunt instrument through burrholes, was still the most widely used method, open techniques were increasingly employed. The most precise of them was " topectomy," that is, the ablation of circumscribed areas of the cortex of the frontal lobes. Attempts were made to compare the effects of excision of different areas. An example of such a study was the work of J. Le Beau of Paris (1951) who compared the effects of ablation of areas of the frontal poles with those of ablation of the medium parts of the frontal lobe. He found the latter operation beneficial in agitated epileptics, while the former gave the best results in anxiety, depression and intractable pain.

The effects of prefrontal leucotomy and kindred operations on the intellectual functions had been a subject of controversy for several years before 1951. In a review of recent works, S. Crown (1951) stated that a certain loss of intellectual function following the operation could be regarded as established. The scores on verbal intelligence tests were shown to decrease. In addition, measurable post-operative changes in non-intellectual functions were demonstrated with the help of objective tests of " deliberation " and " temperament." In neurotic patients changes were found in two dimensions of personality after leucotomy: there was a decrease in general " neuroticism " and an increase in extraversion. " Neuroticism " is a general factor extracted in the analysis of the intercorrelations between a specified set of personality tests carried out in a neurotic population. The item which was most characteristic of that factor was badly organized personality.

Hemispherectomy, that is, the removal of a partly degenerated hemisphere, was employed in the treatment of infantile paralysis with remarkable success, especially in patients who suffered from epileptic fits. H. Cairns and M. A. Davidson (1951) confirmed R. A. Krynauw's (1950) claim that hemispherectomy worked a remarkable transformation in these patients. It not only stopped their epileptic fits but greatly improved their mental state. Patients who had been subject to severe temper tantrums became happy and contented; they also showed a remarkable intellectual improvement. These changes could not be explained satisfactorily. Possibly they were due chiefly to the cessation of fits, which was, in fact, the aim of the operation. The removal of badly functioning brain may also have played a part in the general improvement.

The strong experimental bias of modern psychiatry showed itself in the great interest taken in lysergic acid which had been found to produce mental symptoms similar to those caused by mescalin intoxication. Lysergic acid is a synthetic ergot derivative which produces toxic effects even if taken in minute doses. Experimental subjects experienced visual and auditory hallucinations of the most varied kind, illusionary misidentifications of the environment and changes in the awareness of the body. Anxiety and paranoid attitudes were also observed. It was noted that the symptoms had much in common with those produced by atropin and cocaine, but also with phenomena observed in schizophrenia. G. Fischer, F. Georgi and R. Weber (1951) expressed the

view that the psychopathological phenomena following lysergic acid intoxication resembled those observed in the hebephrenic form of schizophrenia, while in their opinion mescalin poisoning produced symptoms reminiscent of catatonia. These investigators found that in both intoxications certain tests for impaired liver functions were positive. They had found the same tests to be positive in schizophrenics. In the past, " artificial " psychoses had contributed interesting observations to the phenomenology of abnormal mental states, but they did not advance the knowledge of the etiology of mental disorders. There was no unanimity among psychiatrists about the crucial problem of whether or not the psychopathological phenomena observed in the artificial psychoses were really identical with those occurring in schizophrenics.

Observations of mental changes in the course of treatment of rheumatoid arthritis by pituitary adreno-corticotrophic hormone (ACTH) or cortisone stimulated therapeutic experiments in psychiatry which were reviewed by F. G. Ebaugh (1951). There appeared to be no satisfactory evidence that these hormones were effective in the treatment of mental disorders, but their administration to psychotic patients yielded some interesting observations. Some chronic schizophrenics showed a lessened adrenal response to the injected hormone. In psychoneurotics the mental reactions to ACTH and cortisone were the same as in normal subjects; *i.e.*, mood changes, especially euphoria, and sometimes delirious states. The incidence of these changes was illustrated by Ebaugh's report on a series of 22 patients suffering from rheumatoid arthritis and treated with ACTH. Ten of these patients became temporarily hypomanic and three developed frankly psychotic delirious reactions.

A considerable number of psychiatrists, especially in the United States, concentrated on the study and treatment of psychosomatic disorders, that is, of somatic illnesses in whose causation emotional factors appeared to play an important part. Bronchial asthma is an example of such a condition. H. Abramson (1951) stated the psychiatric point of view on the nature of that condition. The basically allergic etiology of bronchial asthma was not in doubt, but the intensity and persistence of the illness was maintained in many patients by the presence of unresolved, unconscious conflicts. Psychoanalytical treatment of asthmatic patients revealed that the outstanding psychodynamic process in these cases was an unconscious fear of losing the mother or of a person representing the mother. That fear had developed early in the patient's life and had been modified and diverted in the course of the individual's development, but the fundamental pattern of anxiety had persisted. In all those cases a repressed need for maternal protection was found. In addition to drug therapy, psychotherapy was found to be of great value in asthmatics. In some cases a thorough course of psychoanalysis was required, but in many patients shorter methods proved beneficial. The psychotherapeutic approach was particularly important in the treatment of asthmatic children, where appropriate handling of family situations based on an understanding of the emotional conflicts had often resulted in dramatic recoveries. (*See* also MENTAL DISEASES; PSYCHOLOGY.) (E. SL.)

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PSYCHOLOGY. During 1951, the fields of work in which the most numerous and important contributions appeared were those of applied psychology, particularly educational, clinical, and what may be called personal psychology. On the older and traditional problems of general psychology the amount of research carried out continued to be surprisingly small.

Although, during the years immediately before 1951, the quantity of material published on psychological subjects greatly increased, its average quality unquestionably declined. Younger investigators manifested an impatient eagerness to reach new answers to new problems without waiting to establish an adequate theoretical foundation, on which all practical applications had to rest; and, in sharp contrast to research work in other sciences, there was a curious reluctance to repeat experiments of previous investigators in order to build up a securely verified basis of empirical knowledge. The chief exceptions were to be found in United States investigations on animal psychology, the field in which, during the postwar period, the best experimental work was carried out.

In educational psychology, the main subjects of discussion continued to be those of allocating children to the appropriate types of school at the age of 11 and of diagnosing and treating subnormal children. In social psychology, the most important studies were concerned with problems of maladjustment. In both these fields, the enthusiasm shown by recent writers for psychiatric interpretations began to wane; less emphasis was placed on alleged psychoanalytic mechanisms, and more on factors arising out of the human environment.

In individual psychology, interest centred principally on personality. A vast amount of research was published on so-called " projective " techniques, such as the Rorschach ink-blot and thematic apperception tests. Here there was a welcome increase in more systematically planned experiments intended to assess the reliability and validity of such tests; and there was a general agreement that these were lower than had formerly been assumed. In assessing the psychological significance of replies, the study of their content was, according to many investigators, more revealing than the study of their formal nature, on which diagnostic procedures had previously been chiefly based.

A growing field of study was the psychology of old age. The most definite results were obtained with regard to deterioration in readily measurable characteristics—perception, speed of reaction, mental tests and ability to learn. An appreciable decrease also appeared to be established in capacity for spontaneous personal adjustment; but the conclusion of earlier writers, that neuroticism increased after the fifth decade, was not confirmed. Much of this work, particularly in the U.S., dealt with age-differences rather than with age-changes, and there was an urgent need for longitudinal investigations of the same individuals, using techniques similar to those developed in studying age-changes among children.

The work of N. Wiener, C. E. Shannon, W. Weaver and others on the nature of communication continued to arouse interest, especially among statistical writers. Wiener's " cybernetic " theories led to numerous attempts to interpret the working of the central nervous system by analogies drawn from electronic calculating machines. In his Reith lectures, published in 1951, J. Z. Young developed these points of view; and the inferences drawn revived in a new shape the old controversies about the mechanistic interpretation of mental processes. Considerable work was done on the electrical characteristics of neural action. In electroencephalography the item of greatest interest to psychologists was the newly discovered kappa rhythm, which, it was claimed, was closely related to such activities as thinking and problem-solving, especially by verbal means. (C. L. B.)

United States. In 1951 E. Lowell Kelly and Donald W. Fiske published the results of a five-year research programme on the prediction of performance in clinical psychology. The research was specifically designed to find efficient and accurate procedures for predicting whether a student would succeed as a clinical psychologist; but it had many implications for the selection of personnel in other professions. A large group of subjects was used and many psychologists with different backgrounds and theoretical orientations served as examiners, interviewers and observers. The study employed an extensive battery of psychological tests, intelligence tests, interest measures and so-called objective personality tests, as well as situation tests and projective tests, like the Rorschach ink-blot test. Various credentials often used in the selection of professional personnel, such as application blanks, were included. Because selection is often based on the impressions a candidate makes on an interviewer, this study also investigated how well an interviewer could predict later success in a professional position.

The construction of elaborate and complicated computing machines during World War II and after began to have an impact on psychological theory and research, as shown in the Hixon Symposium on Cerebral Mechanisms in Behaviour. Although not devoted solely to this topic, the symposium discussed the use of computing machines as theoretical models of the nervous system. In other words, if a machine could be built which seemed to act like a nervous system, or at least, seemed to have many characteristics of a nervous system, a study of its functioning, its properties and the logic behind it might provide clues and hypotheses about the operation of the nervous system and about human and animal behaviour.

The use of a theoretical or formal model also led to a new approach to the study of language and communication. Beginning with an analysis of a communication system first made by telephone engineers, George A. Miller described the process in the following way. Communication is thought of as a system in which information is passed from one person or place to another. The first component in the system is the source of information; *i.e.*, the person who is doing the talking or writing or other kind of communication. The next part is the transmitter, by which a message is encoded or put into a form in which it can be communicated. Speech, sign language, writing, etc., are all codes for sending a message. Next is the channel along which the message is sent in time or space. In speech the channel is the air which carries the sound waves to a listener's ear; in writing it may be a printed page. When the message is received, it must be decoded or put into its original form at its destination, and then the communication process is complete. In this system any errors that may arise are called noise. A perfect communication system would have no noise and the message would travel from its source to its destination without distortion. (*See* also PSYCHIATRY.) (L. BT.)

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PUBLISHING: *see* BOOK PUBLISHING.

PUERTO RICO. United States island dependency in the West Indies. Area: 3,435 sq.mi. Pop. (1950 census) 2,210,703. Language: Spanish and English. Religion: predominantly Roman Catholic. Chief towns (pop., 1950 census): San Juan (cap., pop., incl. Río Piedras, 356,318); Ponce (99,190); Mayaguez (58,744); Caguas (33,733); Arecibo (28,500). Governor: Luis Muñoz Marín.

History. In the carrying out of the objectives of public act 600 of the U.S. congress, which recognized the right of the people of Puerto Rico to organize a government pursuant to a constitution of their own choice, a referendum was held on June 4, 1951. By a large majority the offer was accepted and on Aug. 27 elections were held for delegates to a Constituent Assembly. On Sept. 17 the inaugural session of the Constituent Assembly was held. Antonio Fernós Isern, resident commissioner of Puerto Rico in Washington, was elected president.

On June 4 the municipality of Río Piedras was annexed to the municipality of San Juan after a referendum.

Education. Pupils in schools (1951): state elementary 340,047, secondary 99,640, vocational 6,522, evening 12,584; private 23,526. Higher education: universities 2, colleges 2, polytechnic 1.

Agriculture. Crops (1951): sugar cane 10,501,396 short tons, coffee 172,000 cwt.

Manufacture. Main products: (1951 crop year) raw sugar 1,201,310 short tons, refined sugar 207,055 tons; (year to June 30, 1951) spirits 4,598,911 proof gal., beer 3,495,397 gal., blackstrap molasses 60,407,525 gal.

Foreign Trade (million U.S. dollars, year to June 30, 1951). Imports 437·5; exports 271·4. Over 90% of trade was with the U.S.

Transport and Communications. Railways (1951) 614 km. Roads (1951): 3,693 km. Motor vehicles registered (1951): 70,755. Telephones (June 30, 1951): 37,066. Radio stations (Aug. 1951): 24.

Finance. Budget (1950-51 actual): revenue $229,031,436; expenditure $226,927,333. (J. L.-EE.)

PULP: *see* PAPER AND PULP INDUSTRY.

QATAR: *see* ARABIA.

RACKETS. J. P. Dear remained world's champion when at Queen's club he beat J. H. Pawle, the challenger, by 8 games to 2. D. S. Milford, who became world champion in 1937, continued to hold the amateur singles championship when he beat G. W. T. Atkins, the Cambridge university first string, by 3 games to 2. The amateur doubles championship was retained by D. S. Milford and J. R. Thompson who beat R. A. A. Holt and Major A. R. Taylor by 4 games to 3.

Cambridge again won the university match. In the doubles, G. W. T. Atkins and A. M. Swift (Cambridge) beat W. J. Collins and E. N. C. Oliver (Oxford) by 4 matches to 2; in the singles Atkins beat Collins and Oliver beat Swift.

In the public schools championship, Winchester college (M. R. Coulman and A. D. Myrtle) won for the third year in succession, beating Tonbridge school (M. C. Cowdrey and J. F. Campbell) by 4 games to 2. In the Noel-Bruce cup the holders, the Old Rugbeians (D. S. Milford and P. Kershaw) beat the Old Harrovians (J. H. Pawle and C. S. Crawley) in the finals by 4 matches to 3.

In the army singles championship Capt. W. R. H. Brooks won, Major A. R. Taylor being unfit to contest the final game. The army inter-regimental doubles was won by the Royal Artillery, who defeated the holders, the Grenadier Guards. (AE.)

RADIO, SCIENTIFIC DEVELOPMENTS IN. The year 1951 marked the 50th anniversary of the successful transmission of electromagnetic waves across the Atlantic ocean. For it was on Dec. 12, 1901, that Guglielmo Marconi and his assistants in Newfoundland received the first signals from the spark transmitting station at Poldhu in Cornwall, over a distance of about 2,200 mi., using a wavelength in the region of 1,800 m. Twenty years later almost to the day (Dec. 9, 1921), signals were successfully received in Great Britain from some 27 amateur transmitting stations in the United States operating on wavelengths between 200 m. and 375 m., some using spark and some continuous wave transmitters. With the continuous development of the valve for

transmitting as well as for receiving purposes, the decade 1920-30 saw the rapid development of the short wave band (10 m. to 100 m.) until it was extensively used for the bulk of the world's long-distance radio communication and broadcasting services. By 1951, wavelengths below 10 m. had been developed for much more local purposes, notably for television and broadcasting, as well as for radio links in the public telephone service.

The Broadcasting committee established in 1949 under the chairmanship of Lord Beveridge, published its report (*see* BROADCASTING) in 1951; after referring to the Lucerne and Copenhagen plans for the distribution of wavelengths within the medium and long-wave broadcasting bands, the committee recommended that the British Broadcasting corporation should give increased and urgent attention to the development of a scheme for higher-frequency broadcasting using frequencies above 30 Mc/s., corresponding to wavelengths below 10 m.

A marked technical advance in the distribution of the Third programme materialized in April, when a new high-power transmitter was brought into operation at Daventry. With this installation designed for unattended working, the power radiated on a wavelength of 464 m. was increased almost threefold to 150 kw., the maximum permitted under the Copenhagen plan. A single-mast radiator, 725 ft. high, was erected on a site 460 ft. above sea level, at a distance of a mile and a quarter from the transmitter building. The combined features of high-power and more efficient aerial resulted in good reception over an area of a radius of at least 100 mi.

The Beveridge report also contained details of the B.B.C's five-year plan for a nation-wide service of television (*q.v.*), which was approved by the government and announced by the postmaster general in Nov. 1949. In pursuance of this scheme, the second of the five high-power television transmitting stations was opened at Holme Moss, Yorkshire, on Oct. 12, 1951. This station was installed at an altitude of 1,700 ft.; and this, with the mast which was similar to that at the Birmingham station, resulted in the height of the aerial being some 2,450 ft. above sea level. The carrier frequencies of the vision and sound transmitters were 51·75 and 48·25 Mc/s., and the corresponding powers were 45 kw. and 12 kw. respectively. The resulting range for good and reliable television reception was between 50 mi. and 60 mi., depending upon local conditions and the nature of the intervening terrain.

Very-High-Frequency Broadcasting. Investigations into the possibilities of V.H.F. broadcasting had been in progress for some years with the object of, among other things, examining the relative merits of the two main systems of modulation, amplitude and frequency. A suitable transmitting station was installed at Wrotham, 20 mi. southeast of London, and equipped with both systems of modulation of carrier waves in the region of 90 Mc/s. (wavelength 3·3 m.). The aerial (some 1,200 ft. above sea level) was of the slotted type which had been found so convenient for broadcasting and television radiation on metre wavelengths.

The effective service area of a broadcasting station operating at these wavelengths is dependent to a very large extent on the manner in which the radio waves travel over the ground and through the lower atmosphere and investigations were made in this field. Using transmissions from the Wrotham station, signal strength measurements were made at distances up to about 60 mi. It was found that in a built-up area or along a tree-lined road, the signal strength varied markedly with small changes in position; but that, on the whole, buildings of normal height in London reduced the field by some 10 db. over that for a corresponding distance in open country. In hilly country, the minimum field occurred in the shadow on the nearside slope of a valley and not at the lowest point. This investigation showed that, when the Wrotham station was brought into full operation, it was likely to give a satisfactory broadcasting service, defined by a field-strength of 2 mv/m. or more, to greater London and most of southeast England.

Other investigations conducted in Great Britain were concerned with the effect of transmission of the waves through the lower atmosphere to distances of 100 mi. or 200 mi. from the transmitter. Under such conditions, the field strength received is very dependent on the weather over the path of transmission and a large variation in signal is recorded. The results of such investigations were, however, of considerable importance in planning radio communication services for operation over distances well in excess of the normal optical range, and also enabling an assessment to be made of the extent of any mutual interference likely to be experienced between broadcasting and other services operating on the same frequency.

Radio and Cable Links for Television Stations. The development of radio links as integral parts of trunk networks had been one of the major features of postwar work in the field of communication both in Great Britain and abroad. The intensive research into radar carried out during the years 1939-45 provided a range of basic techniques at decimetre and centimetre wavelengths, which were applied and extended in the course of this peacetime development. As it was part of the policy in developing television in the United Kingdom that, in the first instance, one programme should be made available for the whole country, it was necessary to develop means for distributing the sound and vision signals carrying this programme. When the Birmingham station was opened, provision was made for this to be connected to London both by radio link and a coaxial cable, and descriptions of the technical features of these were published during 1951. Both systems were designed to carry the video-frequency signals over a band-width of 3 Mc/s., although provision was made for the possibility of having to extend this later. The radio link operated over four stages, two-way transmission being available on separate frequencies in the region of 900 Mc/s. The special cable was provided with two separate coaxial lines for the television signals, and a number of other conductors for telephony, monitoring and signalling purposes. Provision was made for repeaters at every three miles along the cable, but only one in three of these had been equipped. The characteristics of both the cable and radio links were found to be very satisfactory for the transmission of television with no perceptible delay or distortion of detail.

Developments in Radar. Steady progress continued in the application of radar technique to marine navigation. In addition to the improvement of ship-borne radar, shore installations were increasingly applied to the negotiation of harbour entrances. In Sunderland, an installation was provided for the use of pilots assisting a large volume of general shipping and particularly those engaged in bringing in vessels under conditions of bad visibility. A special local radio telephone service was provided to enable communication to be maintained between the pilots and the shore station.

It had been known for some time that radar stations operating on centimetre wavelengths detected echoes from such meteorological phenomena as rainstorms, and estimates had been made to determine the loss of range of a ship-borne radar installation due to scattering and absorption by such storms. More recent investigations conducted in Great Britain had established the quantitative relationship between the echo intensity and the rate of precipitation of rain and snowflakes. Furthermore, with the radar set arranged to radiate vertically upwards, it was observed that, in the presence of rain, the intensity of the echo decreased with height, as would be expected; but at a certain height the echo intensity

increased considerably and then decreased again at still greater heights. This strong echo was referred to as the " bright band " and further observations showed that the height corresponding to this bright band was located a little below the freezing level. The effect was considered to be due to formation of an aggregate of snowflakes or ice crystals, which on melting gave a much stronger reflected echo than did the ice or snow itself.

This example of the manner in which the meteorologist and radio scientist were becoming of increasing assistance to one another, was supported by another—the development of the " radar sonde." This was a balloon-borne instrument which transmitted information on the temperature, pressure and humidity of the air through which it was rising, and at the same time provided radio signals in reply to those sent up from the radar set on the ground, to enable the latter to determine its position instantaneously. From the successive changes in this position information was obtained on the strength and direction of the wind in the atmosphere where the balloon was floating. This new technique provided at one ground station the same information that formerly required the use of three direction-finding stations arranged some 20 mi. or 30 mi. apart, and linked together by telephone, for the recording of simultaneous observations.

(R. L. S.-R.)

RADIOLOGY: *see* X-RAY AND RADIOLOGY.

RAILWAYS. British Isles. *Great Britain.* Economic difficulties facing the British railways in 1951 overshadowed technical progress. Shortage of operating staff, restrictions on capital expenditure, deficiency of key materials such as steel, and the limitation of coal supplies and the poor quality of the fuel available hindered much of the endeavour of the Railway executive to regain prewar standards of speed, punctuality and service to the public.

The shortage of coal resulted in the withdrawal of many passenger services and a shortening of the period during which extra summer holiday services were operated. Some relief was obtained by closing certain uneconomical branch lines to passenger traffic; some lines were closed to both passenger and freight traffic. Congestion of freight traffic, particularly in south Wales, was mainly due to the shortage of train crews; but the source of the problem was the change in direction of traffic and the longer average haul per ton of freight loaded. This had two main causes. First, there was the diversion of coal traffic from export to home consumption; thus, south Wales coal, instead of being shipped at Cardiff, might be consigned to Birmingham, Leeds, London or Cambridge, a situation for which the railway network was not designed. Secondly, government bulk-buying seemed to have resulted in the development of much cross-haulage which would not have come about under normal trading conditions. Many scheduled freight trains had to be cancelled owing to shortage of train crews, and at times goods which would ordinarily have been carried by rail had to be taken by road—even such bulk freights as coal.

Wage increases were granted to meet the rise in the cost of living and to keep staff in the industry, and the exceptional policy was adopted of recruiting Italians for railway work in Great Britain. Railway traffic receipts, thanks to an increased level of charges for freight, rose by some £27 million, largely accounted for by revenue from the carriage of coal; however, expenditure appeared to have risen more than proportionately and the financial situation gave cause for concern. The British Transport commission asked for a scale of increased passenger fares; this request resulted in a long hearing before the Transport tribunal, and in November the commission asked the minister of transport for an emergency increase in freight charges. The long-awaited freight charges scheme, providing for an integrated structure for rail and road traffic, had not been published by the end of the year. With the change of government in October alterations were expected in the organization of British Railways.

In spite of economic and organizational difficulties steady technical progress was made and several series of standard locomotives came into service; specific mention should be made of the mixed-traffic Pacific (4-6-2) Britannia class, two series of 4-6-0 main-line locomotives and a standard 2-6-4T type for outer suburban and secondary main-line duties. The advent of Britannia-class locomotives permitted a re-casting of the express passenger services between London (Liverpool Street), Ipswich and Norwich. The first British-built gas-turbine locomotive was handed over to British Railways and several main-line diesel locomotives as well as a large number of diesel shunters were placed in service.

There was consistent improvement in the number of wagons available and in the scrapping of obsolete stock; this was mainly the result of the merging into the British Railways



The interior of a 1st class parlour car on the new Golden Arrow train introduced on the Southern Region of British railways, in June 1951.

stock of private fleets taken over on nationalization. About 1 million wagons were now available for Great Britain's internal traffic and the percentage under repair or awaiting repair was materially reduced. That the punctuality of trains was still far below the prewar standard was largely due to speed restrictions caused by extensive permanent-way renewals and the shortage of staff to carry out such renewals. Important works schemes completed during the year included the mechanization of the large marshalling yard at Toton, Nottinghamshire, which was capable of handling 4,000 wagons a day, chiefly coal traffic destined for London, the southwest and the eastern counties. At York one of the largest signalling installations in the world was inaugurated in 1951, one central control cabin replacing eight older boxes with manually operated levers. The first British standard covered wagon entered service and experiments were conducted with special types for such freights as bulk sugar.

The marine services of British Railways were developing new business and handling record traffic. New vessels placed in service in 1951 included the " Shanklin " for the Portsmouth-Isle of Wight route and the " Côte d'Azur "—a French vessel—for the Calais-Dover route. Two new train ferries also began working—the " Norfolk Ferry " for the Parkeston (Harwich)-Zeebrugge route and the " St. Germain " (under the French flag), for the Dover-Dunkirk route. In another ancillary service, cartage, further progress was made in the

replacement of the remaining 3,500 horses by motor vehicles, many of articulated design.

Ireland. Long-drawn-out negotiations led to definite proposals by the governments of the Republic of Ireland and Northern Ireland to take over the Great Northern railway which served both countries. Energetic action was taken to deal with the financial position of Córas Iompair Éireann (the Irish Transport board). New passenger rolling stock was coming into service and diesel traction was being extended. The Ulster Transport authority was pursuing its rail/road co-ordination policy and developing the use of containers in the form of road vehicle trailers.

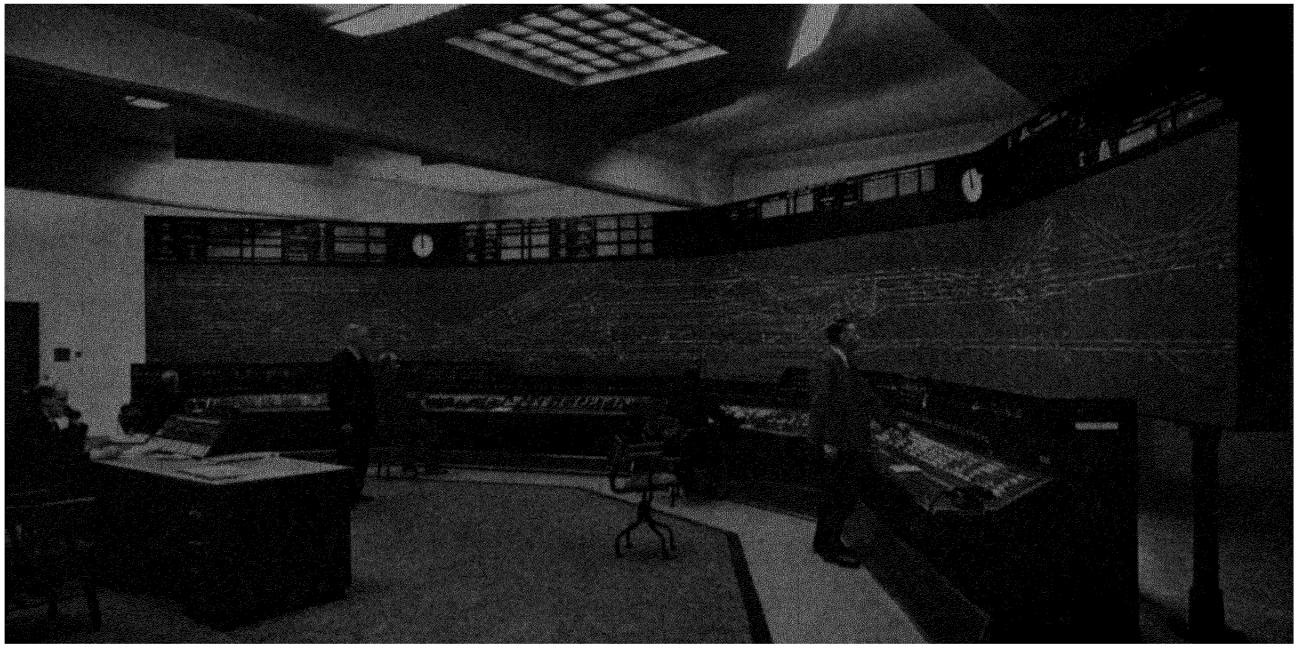
Continental Europe. In France remarkable results were achieved with the experimental section, electrified on the 50-cycle A.C. system, in the La Roche-sur-Foron area. These results might lead to the reconsideration of electrification proposals in many other countries; British Railways announced their intention of testing the same system of traction in the Lancaster area. French National railways (Société Nationale des Chemins de Fer—S.N.C.F.) planned to adopt this 50-cycle system (which could be co-ordinated with the industrial supply system) for the Valenciennes-Thionville lateral line, which carried heavy coal and mineral traffic. Electrification of this stretch might take precedence over further main-line electrification southwards from Lyons; this, the major works programme of the S.N.C.F., was scheduled to reach Châlons-sur-Saône by Jan. 1952. Postwar reconstruction of railway facilities in France and Belgium was almost complete but, for financial reasons, many large projects had been slowed up, for example, electrification by the Belgian National railways. Nevertheless steady progress continued on the junction line linking the Nord and the Midi terminal stations in Brussels.

The Netherlands railways had attained front rank in technical progress and efficient operation, and the administration of the new Technical Research and Tests office for all the European railways was entrusted to them. Electric traction was extended to additional main-line sections in eastern and southern Holland when the summer timetables were introduced. Railway developments in Western Germany included the replacement of the double track, removed in 1945, on a 33-mi. section of the Mannheim-Basle main line and further electrification in the Stuttgart area. Extensive trials were being made with double-deck coaches.

Italian State railways continued to electrify lines in Sicily and elsewhere, but financial considerations delayed electrification between Milan and Venice. In Austria the Linz-Amstetten section was converted to electric traction and further progress made with electrification onward towards Vienna, and construction work continued on the new Semmering tunnel. Swiss Federal railways made tests with rubber-tyred passenger coaches, similar to those working between Paris and Strasbourg. Avalanches caused great damage to the Gotthard and Simplon railway routes, and sections of the railway in the Po valley, Italy, were inundated. In Spain the United States-built "Talgo" articulated train, of revolutionary design, operated with success the express service between Irun (on the French frontier) and Madrid, covering the 396 mi. in 8 hr. 55 min. Other continental European railways were considering the adoption of this type of train. Consistent progress was being made in the reconstruction of the Spanish National railways (Red Nacional de los Ferrocarriles Españoles—R.E.N.F.E.), thanks to U.S. financial assistance.

The Swedish, Norwegian and Danish State railways took a leading part in the work of the International Union of Railways. This body, with headquarters in Paris, had become the mouthpiece, as regards policy, of the European railways as a whole. Electrification continued in Norway, and Sweden continued its policy of absorbing private local lines and amalgamating them with the state system. A new ferry service was inaugurated between Gedser (Denmark) and Grossenbrode (Western Germany) to avoid the delay caused by passage through Eastern Germany. New railway construction in Europe was mainly in the Balkan countries where new lines were opened in Yugoslavia and small sections in Albania and Greece.

Much progress was made in western Europe in the technical sphere and in international co-operation. Individual railway systems, however—practically all state-owned (a notable exception being the Bern-Loetschberg-Simplon)—were in almost every case incurring deficits after payment of fixed



The signalling installation at York which was first used in May 1951. This was the largest route relay interlocking system in the world, controlling 33¼ mi. of track and 16 platforms at York station.



A two-coach electric train which was completed in Italy in 1951 for delivery to King Farouk of Egypt for his personal use.

charges. These charges were, in effect, the interest on capital expended on their construction and equipment. Many even incurred operating losses; the Netherlands, Swedish State and Swiss Federal systems almost alone earned reasonable profits.

Africa. In contrast with the various north African railways, on which conversion to diesel working was taking place rapidly, the South African system continued to rely on steam and electric traction to handle increasingly heavy traffic; over 60 million tons of freight was now being moved annually. Electrification continued on the Cape Western system and on the Rand, the existing conversions costing over £2 million, which was only one-quarter of the entire programme. Orders for 345 new steam locomotives and 120 electric units were in hand. Rhodesian railways were equally hard-pressed by expanding traffic requirements, and large numbers of Beyer-Garratt articulated locomotives were on order. Centralized traffic control (C.T.C.) was adopted near Bulawayo, and several key marshalling yards (at Salisbury, for example) were remodelled and extended. East African railways, serving Kenya, Uganda and Tanganyika, also recorded record traffic; further Beyer-Garratt locomotives were ordered for the main Mombasa-Nairobi line.

Nigerian railways celebrated their 50th anniversary; additional heavy 2-8-2 locomotives helped to move the groundnut crop; but congestion was expected to continue at Apapa until the port extensions there had been completed. Traffic on the Gold Coast railways had increased annually. Widening was in hand between Takoradi and Tarkwa; this improvement was complementary to the harbour improvements at Takoradi. Although the standardization of a mixed-traffic 4-6-0 steam locomotive was taking place in Egypt, the railway organization of that country was also experimenting with diesel electric units of 1,600 h.p.

Asia. The rehabilitation of the Japanese State railways was shown by their re-entry into the International Union of Railways (U.I.C.) and by the important programmes they prepared for further electrification and reconstruction. The Japanese railways had now electrified about 1,000 mi. of their 3 ft. 6 in.-gauge line, a 1,500-volt D.C. system with overhead feed being adopted. There were about 370 electric locomotives, but multiple-unit electric vehicles were being used on many routes. Reconstruction in Burma continued steadily; major works included the completion of the Gokteik viaduct on the Lashio line. The new Rangoon station was to be finished in 1952. Important developments in India included the re-grouping of the railways. The southern system—consisting of the erstwhile Madras and Southern Mahratta and South Indian railways—was formed in April 1951; the central system—founded on the Great Indian Peninsular railway—and the western system—based on the Bombay, Baroda and Central India railway—were being formed. Indian railway traffic increased considerably; thus, the East Indian railway recorded a 200% passenger traffic increase since 1938-39. However, additional rolling stock was now arriving, both for steam and electric lines, which was expected to lessen over-crowding in trains. Key sections were being widened as between Mathura and Delhi (G.I.P.), and the Arand-Baregadi stretch (B.B.C.I.) was completed. Station platforms were being raised and special attention was being paid to the improvement of passenger facilities on trains and at stations. Iraqi State railways were among the few railways also operating an airways system, other examples being the South African railways and the two large Canadian systems. Like the neighbouring Iranian State railways, they were making profits and improving their services—thanks to the arrival of new rolling stock. A new rail and road bridge across the Tigris at Baghdad had been opened in 1950 and a further six-span bridge was opened across the Euphrates on the Kerbala branch. The new station at Baghdad West, which would cater for both standard and metre-gauge trains of the Iraqi system, was not yet completed.

Australasia. Australian railway problems were akin to, but more acute than, British ones; they arose from the shortage of labour, fuel and steel, rising prices and the inability to increase the level of charges. Little progress could be recorded in the co-ordination of rail and road transport during 1951. In New South Wales new locomotives included Beyer-Garratts for the first time; heavy Australian-built 4-8-2 steam units, oil-burning steam locomotives and electric as well as diesel-electric locomotives were also included. The Sydney-Wallerawang section was being electrified on the 1,500-volt D.C. system. More diesel rail-cars and air-conditioned trains were being used.

The Victorian Government railways achieved considerable success with brown coal (lignite) as a locomotive fuel; tests were also being made of the use of lignite for gas-turbine locomotives. Electrification of the Gippsland line was in hand and plans had been made for the conversion of the Melbourne-Geelong section. Plans had also been made for the electrification of the Brisbane suburban services. The Western Australia, South Australia and Commonwealth railways were introducing main-line diesel units. New Zealand

Government railways made an operating profit in the financial year 1950-51—the first for five years—but labour difficulties delayed electrification progress.

North America. *Canada.* The report of the Royal Commission on Transportation in Canada was published in 1951. It made recommendations for major changes in the system of freight rates, thereby aiming at the equalization of rates in the different regions of the dominion. It admitted that cumulative percentage increases had materially upset the relative advantages of producers in the different provinces. New railway construction continued in connection with the development of mineral resources in eastern Quebec and Labrador, the new line starting from Sept Isles on the St. Lawrence. In British Columbia the Pacific Great Eastern railway, owned by the province, was being extended northwards to join the Canadian National railways line to Prince Rupert; further extensions to the north were envisaged. In northern Manitoba the C.N.R. was constructing important new lines in the Sherridon Lake area, again in connection with the development of mineral resources. The same railway acquired a 26-mi. section of line between Quebec City and St. Joachim, thus giving it direct access to Murray bay; construction towards Labrador might also be started.

In November a new signalling system, controlling 40 track-mi., was inaugurated at Hornepayne, Ontario, on the transcontinental main line. Automatic block signals were installed between Jackman and Red Pass junction in British Columbia. The Canadian Pacific railway's new mechanized hump marshalling yard at St. Luc near Montreal was the first of its kind in Canada. Main-line diesel traction began on the C.N.R. in 1928; diesel traction would apparently be standard for all the Canadian railways (the Canadian National, Canadian Pacific, Ontario Northland, Algoma Central, Pacific Great Eastern and the Quebec North Shore and Labrador railways). Canada could now not only meet its own requirements of diesel locomotives but was also in a position to export them. The first big diesel unit of Fairbanks Morse design from the Canadian locomotive works at Kingston entered service in the summer; there were also important diesel-building shops in Montreal and London, Ontario. Much rehabilitation of the Newfoundland lines was carried out by the C.N.R. and improvements, aiming at better connections with the mainland, were being made; a radio link was already established between Cape North, Nova Scotia, and Port-aux-Basques, Newfoundland. Connections between Canada's newest province and the mainland were the subject of examination by the royal commission.

(C. E. R. S.)

United States. For the U.S. railways 1951 was a critical year as they enlarged and improved their capacity to meet the demands of industrial and military mobilization. The railways continued during the year to be under the token supervision of the U.S. army following the take-over on Aug. 27, 1950, by President Harry S. Truman to avert the threatened nation-wide strike called by the Brotherhood of Railroad Trainmen and Order of Railroad Conductors.

Freight traffic in 1951 was 643,000 million ton-mi., and gross freight operating revenues exceeded $10,000 million, a record. Operating and other expenses and taxes, however, also increased to record levels, so that net operating income fell to $903 million, a reduction of $70 million from 1950.

The expenditure of class I railways for improvements and extensions aggregated $1,412 million in 1951, including $1,061 million for rolling stock and $351 million for permanent-way and other structural improvements. During the year the railways put into service about 3,500 new locomotives, nearly all of them diesel-electric, and about 84,000 new goods waggons. A small number of new passenger coaches was added.

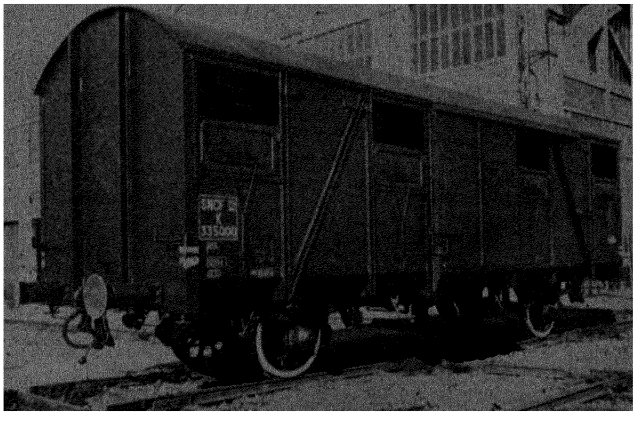
At the end of 1951 the railways had on order about 120,000 goods waggons and about 1,700 locomotives which would cost more than $1,000 million. In many cases, deliveries of goods waggons and locomotives were scheduled for 1951 but were delayed because of shortages or diverted allocations of materials. Deliveries of goods waggons were being made at the rate of about 10,000 a month. In October 10,082 waggons were put into service; in November, 9,824; and in December about 10,000. The average number of new waggons put into service during the year was 7,100 a month. About 4,500 waggons were withdrawn from service in each month; approximately 53,000 were withdrawn in 1951 as unfit for further service. The net addition to the goods waggon fleet during the year was about 32,000. The waggon supply situation was frequently tight, however, and at times there were shortages, particularly of rolling stock required by heavy industry and for grain.

Reports of the Interstate Commerce commission for the first ten months of 1951 showed that 100 passengers were killed and 1,164 injured in train accidents, as compared with 73 killed and 1,022 injured in the same period of 1950. In train service accidents (including those suffered by people not on the trains) 16 were killed and 1,481 injured in the first 10 months of 1951, as compared with 22 persons killed and 1,601 injured in the comparable period of 1950. In the first ten months of 1951, 9,044 train accidents were reported to the I.C.C., as compared with 8,190 in 1950. The number of accidents resulting in casualties was 452 in the first ten months of 1951 and 419 in the same period of 1950.

On Jan. 16, 1951, and by an amendment filed on Jan. 24, 1951, the railways petitioned the I.C.C. for authority to increase freight rates and charges generally by 6% with maximum increases in specific sums less than 6% on certain commodities such as agricultural and forest products. A motion was filed to permit these increases to become effective on one day's notice as interim increases. On March 12, the I.C.C. authorized interim increases generally of 4% in eastern territory, and 2% in southern and western territories.

No increases were authorized on the line-haul rates on iron ore to upper Great Lakes ports, on handling charges on iron ore at upper or lower Great Lakes ports, on perishable protective services or on wharfage, handling or loading charges at South Atlantic or Gulf of Mexico ports. Increases were authorized according to the percentage increases in the respective territories on all other special service or accessorial charges.

After hearings in half a dozen cities the I.C.C. issued an order on Aug. 8, 1951, authorizing surcharges on bills for transportation charges, generally, of 9% in eastern territory and of 6% in southern and western territories



The prototype of the first European standard waggon for continental Europe which was made in 1951 by the French railways.

and inter-territorially. No increase was authorized on charges for perishable protective services, loading or unloading livestock or unloading fresh fruit and vegetables at New York and Philadelphia. The increases came into effect generally on Aug. 28, except those on grain and grain products which became effective on Sept. 12, 1951. They were to expire on Feb. 28, 1953, unless previously modified or terminated by the I.C.C.



The first of the British Railways standard 4-6-2 Pacific locomotives, "Britannia" (no. 70,000), which was introduced into service in 1951.

On Oct. 19, 1951, the railways petitioned the I.C.C. to permit an increase in all freight rates and charges to the full amount of 15% sought in the original petition. At the end of the year this petition was before the commission.

One of the most important railway developments of 1951 was the increase in defence and military traffic as a result of the Korean war. Late in 1950 the secretary of defence had announced his policy for the co-ordination of the traffic management affairs of the army, navy and air force. These were now co-ordinated by the military traffic service of the Department of Defence. On May 7, 1951, the traffic management division of the General Services administration was given responsibility for the policy and traffic management activities of the executive agencies of the federal government other than the Department of Defence, the U.S. Coast Guard, the Atomic Energy commission and the Department of Agriculture.

The Defence Transport administration continued its efforts to stimulate increased ownership and building of goods waggons and to secure materials essential for waggon construction and maintenance. It set a target of 10,000 new waggons a month, including 850 tank waggons. It directed its efforts towards obtaining 1,200 diesel and 15 steam locomotives a quarter.

The I.C.C., on April 13, 1951, authorized the Railway Express agency to increase rates on deliveries of up to 99 lb. by 30 cents a delivery, with proportionate increases in multiples of first class rates and charges. These rates became effective on Nov. 15, 1951. A further petition was filed by the Railway Express agency on Dec. 22, 1951, for an immediate increase in first class rates of 57 cents a lb. with proportionate increases in other first and second class rates. (G. L. WN.)

Mexico. With United States aid progress was being achieved in the re-equipment of the Mexican railways; pending the arrival of new rolling stock, large numbers of freight cars were borrowed from the United States.

South America. Since nationalization the financial position of the Argentine Railways had deteriorated grievously and the latest official statement placed the operating loss by the beginning of 1951 at 543 million pesos. Large contracts for new rolling stock, mainly diesel-electric locomotives and rail-cars, were placed in the Netherlands; many of the new passenger cars were to be air-conditioned. Other diesel-electric units were on order from the United States. Labour troubles and the re-casting of the charge system were outstanding features of the Argentine railway situation; little progress was made in rail-road co-ordination.

In Brazil, government purchase of the British-owned Leopoldina railway was reported to be complete in November: a large-scale national plan of rehabilitation, involving expenditure of over £320 million, was prepared by the Ministry of Public Works. Local production of rolling stock and rails was progressing, but large orders for traction units—steam, electric and diesel-electric—had to be placed in the United States and Europe; some were likely to be financed by the Export-Import Bank of Washington (*q.v.*). Construction continued of a rail link between Chile and Brazil via Bolivia. Electrification of the Santos-Jundiahy railway (the former British São Paulo railway), completed in 1951, was being followed by further conversion schemes. (*See* ELECTRIC TRANSPORT.) (C. E. R. S.)

RATIONING. During 1951 no appreciable changes were made in the rationing of food in Great Britain. At the end of the year the foods still rationed were meat, bacon, sugar, tea, butter, margarine and cooking fats, cheese, eggs and sweets and chocolates.

The new minister of food, G. Lloyd George, announced on Nov. 14 that there would not be any bonus distribution of rations at Christmas 1951. An opposition motion challenging this policy was defeated, on Nov. 29, by 301 votes to 264. As compared with Christmas 1950 the basic rations of sugar, bacon and sweets and chocolates were more in Dec. 1951; the tea, margarine and cooking fats rations were the same; and the rations of meat, butter and cheese were less.

The meat ration fluctuated considerably, mainly because of the suspension of supplies from Argentina. Early in July the weekly ration for an adult was as low as 10*d.*, but from July 22 it started to rise until Sept. 16 when it was 2*s.* 2*d.* In October the Ministry of Food announced that it was reasonably confident that it would be able to maintain the ration during the winter and spring at not less than 1*s.* 5*d.* At the end of December the ration was 1*s.* 5*d.*

In May restrictions on the manufacture of clotted cream, high fat cream and coffee cream were lifted. Two months later, because of a decline in milk production, the manufacture of fresh and sterilized cream was again prohibited.

In eastern Europe the hoped-for time when rationing could be finally ended did not arrive in 1951. Czechoslovakia abolished rationing of bread and flour in Oct. 1949 but in Feb. 1951 these items were again rationed in order to secure "an even distribution of bread and flour." In September potatoes were again rationed. Hungary, the first country in Europe to end rationing, reimposed controls on sugar, flour and starch on Jan. 1. In February butter, fats, bacon and soap were again rationed, and in the following month rationing was reimposed on milk and cream. Fats and some other foods were again rationed in Poland in December. In Eastern Germany prices were reduced for several foods and consumer goods and rationing was abolished, except for fat, meat and sugar in October. In Bulgaria, in March, the system of rationing of manufactured goods was abolished. The system of food rationing by cards was abolished in Yugoslavia as from Oct. 1. In their place money vouchers were issued for the purchase of bread, flour, lard, sugar, rice and soap. Coupons were retained for meat, cigarettes, textiles and footwear.

Norway ended clothes rationing in December; cocoa was also derationed in December leaving only sugar, coffee and cheese rationed. Butter rationing was reintroduced in Finland at the end of September.

RAYON AND SYNTHETIC FIBRES. The gravest problem facing the rayon industries of Great Britain and several other countries in 1951 was the shortage of sulphur and pulp. Sulphur in the form of carbon bisulphide and sulphuric acid was used extensively in the manufacture of viscose rayon, which was still by far the most important of these fibres. There was, despite this shortage, a further increase in output; indeed it touched new records in some months of the year. There were several reasons for this. One was that after the international materials conference and its sulphur committee were set up in Washington, supplies of sulphur became more stable and certain. Chemical merchants, too, were able to obtain, though at high prices, useful quantities of free sulphur and sulphuric acid in countries which had not imposed restrictions. A third factor was that rayon producers were able to bring into action methods of recovering sulphur compounds or of making do with smaller quantities without harm to the quality or quantity of production. The shortage of pulp made itself felt mainly in the considerable increase in price.

These difficulties and other additions to the cost of production brought about in Great Britain a revision of prices, a comparatively rare event in the rayon industry, which had good reason to pride itself on the stability of its prices. The Rayon and Synthetic Fibres Producers' committee announced increases in the prices of viscose, acetate and cuprammonium continuous-filament textile yarns and staple. The increases for continuous-filament varied from 4½*d.* to 10½*d.* a lb., according to denier, and the increase for viscose and acetate staples was 4*d.* a lb.

Fears were expressed in European countries that Japan, rapidly coming back as a manufacturer of rayon goods, might again become the trading menace that it was before the war. A certain amount of Japanese grey rayon cloth was admitted into Great Britain for processing and re-export to certain markets.

Great Britain went ahead with plans for the production of new fibres. It was expected that large-scale production of Ardil, a wool-like fibre from groundnuts, would have started by the beginning of 1952. Small experimental quantities of Terylene, the new entirely synthetic fibre invented in Great Britain, and known in the United States as Dacron, were put on the market and further progress was made with the building of works for its production. Output of nylon continued to rise but the demands of export and of the services meant smaller quantities than ever for the women of Britain.

In France, plans for expansion were launched by the Rhovyl company, a firm capitalized at Fr. 400 million and associated with the Rhodiaceta group, which was manufacturing a number of polyvinyl chloride fibres. In Germany much was being done with the perlon fibres, allied to nylon.

British Celanese, Ltd., obtained building licences authorizing the expenditure of £1,926,000 on the construction of the first section of the vast rayon expansion scheme on the trading estate at Wrexham. A new factory and other new buildings were to be built alongside the existing factory on the building estate and it was expected that they would be completed and ready for production by 1953. The scheme was intended to give a production of 7 million lb. of acetate yarn in the first year of operation and a further plant, capable of bringing production up to 15,250,000 lb. would be added later. Further progress was made by the company in plant installation at Wigan, Jarrow and Blyth.

The existence of the rayon and synthetic fibres had not been forgotten by the authorities in charge of the supply of textiles to the British armed forces. During the year, the Ministry of Supply Inspectorate of Clothing, working in close co-operation with the industry, embarked on a series of projects to discover whether nylon, Ardil and other fibres could be used to supplement or replace natural fibres for forces' clothing.

Australia continued to make progress with rayon manufacture. It was stated in the early part of the year that production, then 1,500,000 yd. of rayon fabric a year, would increase to 4 million yd. by December and to 5 million yd. by the end of 1952. Domestic requirements were estimated at 30 million yd. a year. Courtaulds (Australia) Ltd. announced that it was making progress with its factory at Tomago, New South Wales, and that it was hoped to complete erection by the end of 1953. It was expected that a small section of the factory would commence production of rayon tyre fabric, from rayon supplied by the parent company in Britain, early in 1952.

Australia had long been one of the most important markets for British rayon fabrics and the action of the Australian government in imposing tariffs continued to arouse protest. The president of the Manchester chamber of commerce described them as "excessively high" and believed that, if not appreciably reduced, they could only result in the loss of the bulk, if not the whole, of British trade in those goods. A special meeting called by the British Rayon and Synthetic Fibres federation was held to consider the situation and the Australian government was urged to make further concessions. The existing concessions were not, however, enlarged but were to end on Dec. 31 and the Board of Trade was asked to lodge an immediate protest with the Australian government and to suggest that the matter be re-submitted to the Australian Tariff board.

In South Africa the government announced that local interests had applied for a 20% *ad valorem* duty on certain types of rayon goods and the British trade lodged a protest with the South African authorities. (*See* also TEXTILE INDUSTRY.) (L. E. Ms.)

RED CROSS. In South Korea the Italian, Norwegian and Swedish Red Cross societies each provided fully staffed and equipped 100-bed field hospitals, the Danish Red Cross a hospital ship and the Siamese Red Cross a medical team for sick and wounded members of the United Nations forces. The Red Cross societies of Australia, Belgium, Canada, Great Britain, the Philippines and the United States assigned more than 100 welfare officers for service with their respective troops and in hospitals. At the request of the United Nations, the League of Red Cross societies recruited five medical welfare teams for service to the civilian population of South Korea, and member societies of the league contributed civilian relief supplies valued at about $1 million.

In North Korea, the Chinese Red Cross provided 72 epidemic control experts, the Hungarian and Rumanian Red Cross societies each contributed a field hospital and the Bulgarian Red Cross sent almost 100 tons of food, clothing and medical supplies. The International Committee of the Red Cross inspected prisoner of war camps in South Korea but was refused entry into North Korea.

Red Cross societies contributed more than $2 million for assistance to victims of earthquakes on Colombia and El Salvador, cyclones in the West Indies, famine in India and floods in Italy. In September a disaster relief seminar for Latin American Red Cross societies was organized by the League of Red Cross societies in Mexico City.

In May representatives of 17 national Red Cross societies met in Hanover, Germany, to study the refugee situation in Germany and Austria. Red Cross assistance to these and other refugees in Turkey, Lebanon, Syria, Jordan, that part of Palestine held by Egypt, Pakistan and India totalled approximately $750,000.

In October representatives of 20 of the 22 Red Cross

societies of the Americas held their sixth Inter-American Red Cross conference in Mexico City.

Yugoslavia released an additional 364 Greek children to the International Red Cross for repatriation under resolutions voted by the United Nations general assembly in 1948, 1949 and 1950. Efforts of the International Red Cross to obtain repatriation of Greek children living in Bulgaria, Czechoslovakia, Hungary, Poland and Rumania failed and in November the United Nations general assembly in Paris called upon government representatives of those countries to meet in Paris during the assembly for discussions on this subject. (*See* also PRISONERS OF WAR.) (H. W. DG.)

REFUGEES. The International Refugee organization terminated its activities on Jan. 31, 1952, after four and a half years of service to refugees and displaced persons in Europe and the far east resulting from World War II. In that time 72,834 refugees had been repatriated to their countries of origin and 1,038,750 resettled in other countries. Eighteen governments had contributed a total of $406,867,295 to accomplish these results. More than a million persons were being cared for in camps for varying periods of time while awaiting repatriation or resettlement. The total expenditure of the organization was estimated at $429,775,450. In the final period of the organization's activities from July 1, 1950, to Jan. 31, 1952, 257,335 refugees were moved to new homes in Argentina, Australia, Brazil, Canada, Chile, New Zealand, the United States and other countries.

The I.R.O. continued its efforts during 1951 to make arrangements for the permanent care and hospitalization of refugees who, because of age or infirmities, were unable to provide their own support. About $20 million of the organization's funds was spent having 32,000 such persons and their dependent relatives looked after. Many were placed in existing homes for the aged and in religious institutions in western European countries. Sweden, for instance, accepted 335 tuberculous patients and their dependants. Norway accepted blind refugees for training and tuberculous refugees for hospital care. By Dec. 31, 1951, only 362 families remained for whom no such arrangements had been completed, 333 in Shanghai and 29 in the Philippines. The former were transferred to the custody of the U.N. high commissioner for refugees with funds for their care for six months and the latter to the World Council of Churches with an appropriate financial grant. Similar arrangements were under negotiation with Italy for the transfer of 100 tuberculous cases from Trieste.

Shipping operations of the organization continued into Jan. 1952 but, when finally terminated, 12,205 refugees remained awaiting transport to overseas countries of reception. Funds for the movement of this final group were turned over to the Provisional Intergovernmental Committee for the Movement of Migrants from Europe. This committee had been organized at a conference on migration convened by the Belgian government in Brussels in Nov. 1951. A budget of $36,954,000 was adopted at the first session of the committee, which planned to move 116,000 persons during one year of operations. These were to include refugees and ordinary migrants from Western Germany, Austria, the Netherlands and Greece who would not otherwise be moved. It was estimated that 40,000 would be moved to Canada in the period, 25,000 to the United States, 25,000 to Australia, 18,000 to Brazil, 4,000 to Chile, 3,000 to Bolivia and 1,000 to other countries. The governments that indicated their intention to participate as members of the committee were Austria, Australia, Belgium, Brazil, Canada, Chile, the German Federal Republic, France, Italy, Luxembourg, the Netherlands, New Zealand, Sweden, Switzerland, Norway, Venezuela and the United States.

The general assembly of the United Nations established the Office of the High Commissioner for Refugees at Geneva on Dec. 14, 1950, and elected G. J. van Heuven Goedhart of the Netherlands as high commissioner for a three-year period beginning Jan. 1, 1951. This office was set up to provide legal protection for refugees until they acquired nationality in their new countries of residence.

At its sixth session in Paris in Dec. 1951, the general assembly of the United Nations approved a budget of $718,000 submitted by the high commissioner to cover the administrative expenses of his office and 11 branch offices in the important countries of residence of refugees. These offices were to ensure that the governments of the countries in which they were located gave refugees at least the minimum rights and privileges essential to the achievement of self-dependence. The high commissioner reported that such offices had already been established in Bonn, Germany, Vienna and Washington.

The U.N. general assembly, in Dec. 1950, decided to convene at Geneva in 1951 a diplomatic conference to complete and sign the convention relating to the status of refugees recommended to it by the Economic and Social council. This conference was held in July 1951. Twenty-two governments were represented. The draft convention presented to the conference was amended to give the signatory governments more discretion in applying the provisions of the convention in situations in which the security of the governments might be affected. The convention was signed by 15 governments and provided that signatory governments might exercise a choice to apply the provisions of the convention to refugees arising from events in Europe before Jan. 1951 or to refugees whatever their origins might be.

The 9·5 million prewar members of the German minorities in Poland, Czechoslovakia, Hungary and Yugoslavia who were in Western Germany did not fall under the competence of the high commissioner. Their situation improved slightly during 1951 because of rising economic levels in Western Germany. However, the problem of securing their integration in the economy of that area continued to challenge the resources of the federal government and the occupying powers—France, the United Kingdom and the United States. Though unemployment among these refugees was reduced during the year, the provision of sufficient housing remained a serious problem. The flow of refugees from Eastern Germany continued at a monthly rate of more than 20,000 during the year.

Certain provisions of the United States Displaced Persons act of 1948 which, as amended, were to expire on June 30, 1951, were extended to Dec. 31, 1951, through the action of the U.S. congress. More than 300,000 refugees and displaced persons, the maximum permissible under these provisions, received U.S. visas before the closing date. The U.S. Displaced Persons commission continued its work of selecting migrants of German ethnic origin who could be granted visas up to June 30, 1952, under section 12 of the act. About 28,000 of these, eligible for admission to the U.S., remained without visas on Dec. 31, 1951.

United Nations efforts to resolve the problem of 875,000 Arab refugees in Lebanon, Jordan, Syria, Gaza and Israel, resulting from the conflict in Palestine in 1948, continued during 1951. The United Nations Relief and Works Agency for Palestine Refugees took over responsibility for this task from its predecessor, the United Nations Relief for Palestine Refugees, on May 1, 1950. (G. L. W.)

REPRESENTATIVES, HOUSE OF: *see* CONGRESS, U.S.

REPUBLICAN PARTY, U.S.: *see* POLITICAL PARTIES, U.S.

RESPIRATORY DISEASES. The development of drug-resisting strains of bacteria was one of the consequences of the introduction of new antibacterial drugs. Whether these drug-resisting strains of bacteria caused more lethal forms of disease than the older susceptible strains was not certain; they were more dangerous because they had again gone beyond the range of antibacterial drugs. Streptomycin when used in tuberculosis produced this effect and there was a danger of producing a variety of pulmonary tuberculosis completely resistant to the drug. It was found that drug-resisting strains of the tubercle bacilli did not appear nearly so frequently when another drug, paraminosalicylic acid, was administered in conjunction with streptomycin.

The search for more potent and less toxic drugs for use against the tubercle bacillus went on and though many new drugs were discovered none proved itself superior to streptomycin.

Before the advent of penicillin lobar pneumonia was one of the most serious diseases of the young adult population; subsequently it was hardly ever seen and, what is of as great importance, its complications, acute and chronic empyema, became rare and when they did occur were easily treated. Similarly, acute lung abscess had become a rarity and its treatment a comparatively simple matter.

Asthma. With the introduction of cortisone into the medical armament, great hopes were raised that this new drug might be of benefit in the treatment of asthma. As in its use in rheumatoid arthritis, it proved of temporary benefit, but other hopes were disappointed. Cortisone did help to control a very severe attack of asthma and would alleviate *status asthmaticus*, but as soon as the drug was withdrawn a relapse occurred. The antihistaminic group of drugs also proved disappointing in the treatment of asthma.

Carcinoma of the Bronchus. Great interest was aroused by an article which showed that a large group of sufferers from carcinoma of the bronchus contained a greater number of smokers than a comparable group suffering from carcinomas affecting other parts of the body. Interest in carcinoma of the bronchus had been stimulated by a tremendous rise in the death rate due to this cause. In 1922 there were 612 deaths, whereas in 1947 there were 9,287 deaths. (*See* CANCER.)

As in all varieties of carcinoma, early diagnosis was essential if treatment was to be successful. In this field mass radiography had brought a great advance but had also raised new problems. One of these was the identification of small radiological shadows. A partial solution was advanced by Richard Overholt. (F. P. L. L.)

See R. Doll and A. Bradford Hill, "Smoking and Carcinoma of the Lung," *British Medical Journal*, Sept. 30, 1950; R. H. Overholt, "The Value of Exploration in Silent Lung Disease," *Diseases of the Chest*, p.111, Aug. 1951.

RESTAURANTS: *see* HOTELS, RESTAURANTS AND INNS.

RÉUNION. Former French island colony in the Indian ocean (about 420 mi. E. of Madagascar) the status of which was changed in 1946 to that of an overseas *département*. Area: 970 sq.mi. Pop.: (1936 census) 209,113; (1946 census) 242,067 of whom 97% were French subjects but only 6,698 of French origin. The inhabitants are mainly coloured (Negroes, creoles, mulattoes, Indians and Chinese), speak a creole *patois* and are mainly Roman Catholic. Chief towns (pop., 1946 census): Saint-Denis (cap., 36,096); Saint-Louis (23,936); Saint-Paul (25,959); Saint-Pierre (22,379). Prefect, Roland Bechoff.

History. The elections of June 17, 1951, sent two Republican and one Communist deputies to the National Assembly in Paris. Nine Independents, four Gaullists, two Communists and two Christian Democrats were elected to the general council of the island. Sugar-cane planters protested against the island's being made a *département*, because this incurred social obligations which increased cost prices. There was a proposal to restrict the area devoted to sugar cane and to concentrate sugar factories. The quota of sugar to be admitted to France was limited to 150,000 metric tons, that of rum to 30,000 hectolitres for a production of 68,000. The slackening of demand in France was leading to a bottleneck in production. The S.A.P.M.E.R. company, founded on Réunion to exploit the fisheries in the vicinity of the Saint-Paul and Amsterdam islands, in 1950 landed 147 metric tons of false cod and 70 metric tons of crayfish tails.

Education. Provision is made for children of school age. There are two *lycées*.

Transport and Communications. (1950) Railways 227 km.; roads 2,000; motor vehicles 5,900.

Foreign Trade. (1950, million Fr. C.F.A.): imports 4,578; exports 3,320. Principal exports: sugar 2,327; rum 317; vegetable oils 266. Trade almost entirely with the French Union.

Finance. Currency: Fr. C.F.A. (Colonies Françaises d'Afrique) = Fr. 2 metropolitan. (HU. DE.)

RHEUMATIC DISEASES. Efforts were extended during 1951 to learn how the hormones cortisone (the adrenal cortical hormone) and corticotropin (ACTH—the adrenal stimulating secretion of the pituitary gland) produce their effects, but with little success. The usefulness of these hormones in practical management of patients with different forms of arthritis was explored extensively. The biggest problems in this field are met in patients with rheumatoid arthritis because this is a chronic disease. These hormones do not obliterate the underlying disease mechanism; they only suppress it. Hence, to benefit this chronic disease one is faced with the need for prolonged use of the hormone, and with the problems of avoiding troubles during hormone administration. Trials of various schedules of treatment were critically evaluated with the result that most investigators agreed that to give smaller doses than were used in the early trials but sufficient to produce partial though not complete suppression of the disease, and continued over many months, was usually the best plan. Many persons were significantly helped and fewer difficulties were encountered when this plan was followed. The duration of treatment must be determined separately in each case according to the comparison of the degree of benefit, that is, how well the patient gets on when trials to discontinue treatment are made, as against the amount of undesired effects of the hormone. Many patients got on well without cortisone or corticotropine; some could not tolerate the use of the amounts required to produce good anti-rheumatic effect; many could be helped greatly by the hormones.

Eminent clinical specialists emphasized that cortisone extends rather than curtails the use of physical measures in the treatment of rheumatoid arthritis. Physical therapy is particularly helpful when the limitation of movement can be reversed. Cortisone acts on fibrous tissue to diminish stiffness and to lessen joint swelling and tenderness. As the range of motion increases the physical therapist helps to restore strength and re-educate muscle action. The sense of well-being associated with the use of cortisone gives the depressed patient a new outlook on life and encourages him to try to do more for himself. Restoration of bedridden patients to ambulation is one of the most dramatic results of the new era in rheumatoid arthritis.

In addition to the use of cortisone and corticotropin in severe, progressive cases of rheumatoid arthritis, the drugs were found to have significant value in the rehabilitation of patients who had been incapacitated from long-standing disease.

Philip S. Hench noted that jaundice and pregnancy bring about remissions in rheumatoid arthritis, whereas they do not influence favourably the course of proved bacterial or virus infections. This led him to believe that the substance responsible for relief must be a hormone common to both men and women. The earliest observations revealed striking and rapid improvement in rheumatoid arthritis with subsequent demonstrations of similar benefit in acute rheumatic fever, rheumatic spondylitis, disseminated lupus erythematosus, periarteritis nodosa, arthritis associated with psoriasis, gout and dermatomyositis.

Perfection of a much better and more reliable delayed-absorbing corticotropin made the use of this hormone more practical and more popular. Even so, it was far less adaptable than cortisone (which could be used in tablet form) in the management of ambulatory (non-hospitalized) patients. Production of both hormones increased during the year so that the needs were usually met.

Patients with severe osteoarthritis, especially of the hip joints, were made comfortable and rehabilitated by prolonged use of cortisone, with little or no trouble even in elderly patients. Cortisone used in this disease can be only ameliorating, for the underlying pathologic changes are irreversible.

A " sister-steroid " to cortisone, hydrocortisone (compound F), was found to possess essentially the same pharmacologic characteristics as cortisone. It has no advantages over cortisone for usual oral or intramuscular use, but early studies indicated that it has greater effects when injected directly into the joint cavity of an inflamed or painful joint. Injections had to be repeated at intervals of from 7 to 50 days. The much smaller amount of steroid required, together with the avoidance of troubles which sometimes accompany systemic use of such steroids, made further study of this method of local use of hydro-cortisone attractive.

Enough research had been done on the treatment of rheumatic fever with cortisone or ACTH or both in 1951 to establish the conviction that these substances can suppress the manifestations of the disease that used to make it almost invariably fatal or permanently crippling. No routine of treatment with cortisone or ACTH, however, could be established for rheumatic fever. The dosage seemed to be related more to the severity of the conditions than to the age or weight of the patient. Neither cortisone nor ACTH cures rheumatic fever, nor do they shorten the duration of the state of rheumatic activity. They prevent intensive exudative and inflammatory reactions in the body and therefore prevent the fibroblast proliferation and subsequent scarring of such vulnerable tissues as the cardiac valves, which ordinarily follows.

Numerous investigators showed that a new drug, benemid, in proper doses, increases the urinary excretion of uric acid, and thereby reduces the content of uric acid in the blood. This effect was expected to be of great value to patients with gout—a disease with alteration of uric acid metabolism. Indeed in many patients with gout, lowering of the blood uric acid was consistently effected.

Investigations in arthritis and related fields were expected to continue and increase. Developments in this direction were being made possible through the support of the newly formed Arthritis and Rheumatism foundation. Also the U.S. Public Health service had provided increasing stimulus and aid to arthritis research, especially through its newly organized Institute for Arthritis and Metabolic Diseases.

(R. H. FRG.; M. FI.)

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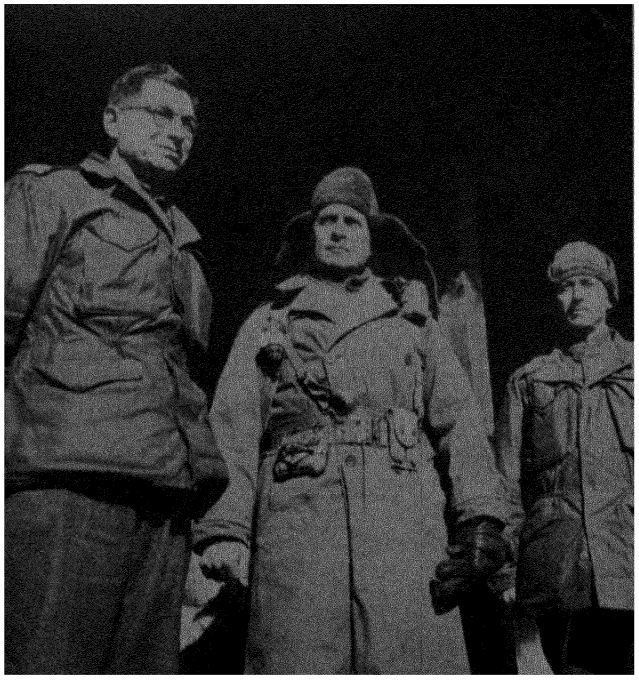
RHODESIA, NORTHERN: *see* NORTHERN RHODESIA.

RHODESIA, SOUTHERN: *see* SOUTHERN RHODESIA.

RICE: *see* GRAIN CROPS.

RICHARDS, GORDON, British jockey (b. Oakengates, Shropshire, May 5, 1904), started his working life as a clerk but was apprenticed at the age of 15 to Martin Hartigan at Foxhill, Wiltshire, where Steve Donoghue was stable jockey. In March 1921 he rode his first race and had his first winner on Gay Lord at Lincoln. In 1925 he became champion jockey with 118 winners. He was champion in all but three years between 1925 and 1951. He missed the 1926 season through illness and most of 1941 through a broken leg. The only full season in which he has failed to head the jockey's table was 1930, when F. Fox beat him by a single winner. In 1932 he was engaged as first jockey to Fred Darling at Beckhampton, with which training establishment he had continued up to the end of 1951. He had retainers to ride for many leading owners including the Aga Khan, Lord Astor, Sir Victor Sassoon and the Duke of Norfolk, and rode the classic winners Big Game and Sun Chariot for King George VI. Although he had not won the Derby, he had by 1951 ridden 13 other classic winners. He had broken innumerable records; he passed Fred Archer's total of 2,749 winners in 1943, and by the end of 1951 was well beyond the 4,000 mark and had the longest sequence of winners (12), the greatest number of occasions of being champion jockey (24) and the largest total of winners in a season (269 in 1947). His riding methods are unorthodox. When riding a close finish he employs a slack rein, which would be considered a grave fault in a lesser jockey. But any ill-effects are more than counteracted by his perfect balance, the driving force of his powerful legs and his determination to win. These attributes, allied to intelligence, opportunism and speed of reaction, make him the greatest jockey in the history of racing. His integrity and other gifts of character have won to a unique degree the respect of fellow jockeys, officials and the racing public. (P. S. W.)

RIDGWAY, MATTHEW BUNKER, U.S. general (b. Fort Munroe, Virginia, March 3, 1895), graduated from the U.S. Military academy at West Point, Florida, in 1917, where he was an instructor during World War I. He later served in China, Nicaragua and the Philippines, and at the outbreak of World War II was in the war plans division of the War Department in Washington. He was given command of the 82nd Infantry division (later converted into an airborne division) which he led in invasions of Sicily in 1943 and Normandy in 1944. When World War II ended he was in the Philippines, participating in the arrangements for the invasion of Japan. He was General Dwight D. Eisenhower's representative on the United Nations Military Staff committee in 1946, U.S. Caribbean commander in 1948 and was serving as deputy chief of staff for administration when he was called by General Douglas MacArthur (*q.v.*) to replace Lieut. General Walton H. Walker when the latter was killed in Korea, Dec. 1950. As commander of the U.S. 8th army, he directed the U.N. forces' counter-offensive against the North Koreans. When President Harry S. Truman dismissed General MacArthur, April 11, 1951, he named General Ridgway to succeed to the four commands: supreme commander, allied powers, and, as such, chief of the Japanese occupation; commander in chief, U.N. command in Korea; commander in chief, far east (U.S.) and commanding general U.S. army, far east. It was under General Ridgway that the prolonged truce talks began in July. He repeatedly asserted thereafter that while he steadily worked for peace, his forces



General Matthew B. Ridgway (centre) with French officers in Korea. On April 11, 1951, General Ridgway succeeded General MacArthur as supreme allied commander in Japan and commander in chief of the U.N. command.

were ever alert to repel any further attacks by Communists in Korea.

RIFLE SHOOTING. United States (7,953), Great Britain (7,937) and Canada (7,925) were the leading teams in the Dewar trophy small-bore rifle match in 1951. The National Small-bore Rifle association celebrated its golden jubilee and King George VI presented a signed portrait for the champion at Bisley, who was John Hall, City of Birmingham Rifle club. The jubilee Bisley meeting attracted a record entry of 1,130 competitors and for its Jubilee/Festival postal competition there were 8,626 entries for rifle and 237 for pistol.

In the Imperial meeting of the National Rifle association, for which 1,943 entered, the standard of shooting was higher than in previous years and there were many close matches. The schools' competition for the Ashburton trophy was won by All Hallows (Devon), whilst the King's prize was won by a Canadian, Gilmour Boa, from an entry of 1,273. For the first time since 1896 Ireland won the Mackinnon trophy. The King's medal for the army was won by R.Q.M.S. G. Armstrong, 3rd Grenadier Guards, the King's medal for the territorial army was won by Capt. J. Hamill, 470 Heavy anti-aircraft regiment, Royal Artillery. At the Royal Air Force central meeting, for which there was a record entry of 1,600, the main rifle event was won by Flight Lieut. C. W. Smith, Thorney island. (A. J. P.)

ROADS. Eastern Hemisphere. *International Road Congress.* The ninth International Road congress, the first since World War II, was held in Lisbon from Sept. 24 to Oct. 3, 1951. The eighth congress was held at The Hague in 1938. About 1,200 delegates attended the Lisbon congress, and official representatives were sent by Algeria, Argentina, Belgium, Brazil, Chile, Denmark, Ireland, Finland, France, French Equatorial and French West Africa, Germany, Iceland, India, Indochina, Indonesia, Israel, Italy, Luxembourg, Madagascar, Morocco, the Netherlands, Nigeria, Norway, Pakistan, Peru, Portugal, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Over 70 papers were submitted by the participating countries in reply to the six questions which the congress met to discuss. The first two questions referred to progress made since 1938 in the use of materials and in the study of soils; the others dealt with highway design in relation to traffic, with road economics and with construction and maintenance of roads in urban districts and in under-developed territories. The papers on materials showed that progress had been confined almost entirely to the improvement of the properties of known materials and the constructional methods used. There had been marked development in the mechanization of methods for the preparation of materials and for the laying of concrete and bituminous surfacings. No new materials had been developed, nor were there any new types of surfacing about which conclusions could yet be drawn; it was recommended that research should be continued into the design of roads of pre-stressed concrete and into possible improvements produced by the addition of rubber to asphalt.

The general improvement in knowledge since the previous congress was most marked in the field of soil mechanics. Methods which had been developed for site exploration, identification of soils, mechanical analysis and compaction and stability testing were reviewed, and recommendations were made for improvement and further development. It was recognized that, because the principal variables governing the strength of the subsoil depended on its moisture content, it was most important that the designer should be able to predict the equilibrium moisture content that would be attained in the subsoil after the road had been constructed.

Improvements in concrete mixing and vibrating machinery had led to a noticeable reduction in the proportion of cement used in concrete roads and to the establishment of single-layer concrete as the normal form of construction. The design of joints in concrete roads, and ways of reducing the number of joints, were matters which still required a satisfactory solution. The quality of tars, and the methods of manufacturing and using them, had been much improved by scientific research. Failures had been observed in some countries in the application of bitumen derived from petroleum, although the material had complied with the standard specifications, and it was recommended that this problem should be investigated by a commission under the Permanent International Association of Road Congresses in collaboration with the manufacturers and refineries. The problem of adhesion between bituminous binders and aggregates and the use of agents to ensure adhesion in the presence of water had been extensively studied, but no general conclusions could be drawn. Some reports claimed, however, that the problem of surface dressing in wet weather had been solved by the use of adhesion agents.

The congress recommended that the various types of machine that had been developed for measuring the skid resistance of road surfacings should be studied with a view to establishing the characteristics required of such machines and the specification of minimum values for the coefficient of friction of road surfacings.

Practical Application of the Results of Research. The importance of scientific research in road engineering was clearly brought out at the Lisbon congress. A good example of the adoption by industry of the recommendations of the research laboratory was provided in Great Britain. It was shown that, in order to obtain a satisfactory surface dressing with a long life, it was important that the layer of binder spread on the road should be of the correct uniform thickness. This called for further research into the design of spraying machinery. A draft British standard for bulk binder distributors was prepared, and new machines produced by British manufacturers incorporated the required improvements. Further, the Association of Road Surface Dressing Contractors

standardized a test for checking the lateral distribution of binder and established 19 testing stations, covering Great Britain, where contractors could test their machines for conformity with the standard.

Road Construction. In France progress was made in the construction of the Nantes-Marseilles motorway; the savings expected from the easier running conditions that would result were £340,000 a year on a total expenditure of about £2·8 million (*see* the *Motor*, London, Nov. 28, 1951). Work continued on underpasses at busy intersections around Paris and elsewhere.

In the Netherlands work on the construction of the motorway between Amsterdam and Utrecht, a stretch of 20 mi., began in 1951; this would link up in the north with one of Amsterdam's arterial roads and in the south with the system west of Utrecht. Belgium planned to construct 580 mi. of motorways at a cost of £136 million in the next 15 years. First priorities were routes to relieve the Brussels-Ghent and Brussels-Antwerp roads—the two most heavily congested routes in Belgium. A stretch of over 30 mi. of the former—from Ghent to Jabbeke (near Ostend)—was completed.

In Italy during the autumn of 1951 the first 24-km. stretch of the circular road around Rome was opened. A government-financed motorway from Genoa to Savona was under construction. In Portugal a new road bridge over the Tagus at Vila-Franca, over 4,000 ft. in length and the largest in Portugal, was completed at a cost of £1,125,000. A tunnel through granite, 180 m. long and 13 m. wide, was being built to ease traffic in Oporto.

City Traffic. With the rapid increase in the volume of motor traffic after World War II, traffic congestion became an urgent problem in many cities all over the world. In the United Kingdom the number of licensed road vehicles was nearly 4·5 million in 1951, compared with little more than 3 million in 1939, the rate of increase in 1951 being estimated at about 250,000 a year. With about one-sixth of the United Kingdom's population concentrated in Greater London, the traffic problem in central London became acute and, as restrictions on the sale of petrol for private motoring were lifted, average journey speeds fell, according to one series of surveys, from 11·8 m.p.h. in 1947 to 11·4 in 1948 and 10·9 in 1950. It was fairly clear that substantial relief could only be achieved by reducing the number of vehicles or by re-organization of the street layout and by reconstruction on a large scale. Several surveys and plans for improvement had been made, among them the Highway Development Survey (Greater London), 1937, by Sir Charles Bressey and Sir Edwin Lutyens, the County of London plan, 1943, by J. H. Forshaw and Sir Patrick Abercrombie, and the City of London plan, 1947, by C. H. Holden and W. G. Holford.

Some measures were possible, however, that did not involve major alterations. "No-waiting" regulations were introduced in central London in 1947 and were shown to increase journey speeds. Introduction of one-way working in certain streets was shown to increase journey speeds, though in some cases journey times were made longer because greater distances had to be travelled. Some improvements were carried out (the enlargement of Parliament square and the freeing of the southern approaches to Waterloo and Westminster bridges), primarily for the Festival of Britain in 1951.

In 1950 the London and Home Counties Traffic Advisory committee considered that road traffic in London might "be brought to a standstill within two or three years unless adequate steps were taken to relieve the position," and appointed a special sub-committee "to consider traffic congestion in Inner London, with particular reference to parking problems." The report of the sub-committee was published by His Majesty's Stationery Office, under the title *London Traffic Congestion*, in 1951. The report referred to the financial loss to the community due to traffic delays, and estimated that the cost of delays at one major intersection alone (St. Giles' circus) would amount to some £200,000 a year. It found that the main causes of congestion were inadequate road space, the multiplicity of intersections, obstruction caused by vehicles waiting in the streets and the inadequacy of off-street parking facilities, and listed a number of other contributory causes. It made 56 recommendations concerning road works, traffic and traffic restrictions, parking, traffic signs and signals and pedestrian traffic, and considered that, even in view of the need for strict economy in capital investment, certain major road improvements, estimated at nearly £101 million, were essential and should be started within the next five years. (W. H. G.)

Africa. Some 11 trans-African routes were classified and submitted for approval to the fourth Highways congress held in Johannesburg in 1951. The union of South Africa, having obtained a loan of $20 million from the International Bank for Reconstruction and Development, embarked on a comprehensive programme of highways to be completed in 1955. Priority was given to five roads to serve rich agricultural, dairy, livestock and ranching areas.

Asia. Road construction throughout the far east, except in the Philippines, progressed rather slowly during 1951 because of international tensions or internal disturbances. In India and Pakistan and throughout the middle east road work continued at no great pace, with demand for roads exceeding the production of new roads and the extension of road services.

Western Hemisphere. *United States.* Highway improvement in 1951 went forward at about the same rate as in the two preceding years when the spending of funds exceeded all previous levels. Increased costs, however, more than offset the saving in dollars spent. In 1950, expenditure for construction of all streets and highways amounted to $2,400 million and maintenance of the great network of roads cost $1,400 million. The 1951 construction expenditure was estimated at $2,700 million and it was certain that the maintenance expenditure would exceed that of 1950.

Large cities such as New York city, Chicago, Detroit, Atlanta, Denver, Los Angeles and San Francisco made good progress in constructing express-ways to solve urgent traffic problems. Many miles of main highways were rebuilt. A significant trend was the wide acceptance of the idea that development along heavily travelled main highways and access to them must be regulated to preserve a free flow of traffic. A notable project of this character was the 28-mi. divided highway round Boston about 12 mi. from the centre of the city.

Progress in building roads, when measured by previous standards of performance, was excellent; but there was little progress toward correction of the many faults of the existing road system. The accumulated deficiency in restoring worn and obsolete roads was 74,000 mi. in 1951 and was increasing at the rate of 5,000 mi. or more a year.

Canada. In eight out of ten provinces work on the 5,000-mi., $300 million Trans-Canada highway proceeded towards a scheduled completion date in 1956. The Alaska highway was kept open throughout the year, and some improvements were accomplished in Canada through relocations to improve alignment and replacement of temporary bridges with permanent steel and concrete structures. Sections of the highway in Alaska were further improved with asphalt surfacing, all of the section within Alaska being scheduled for a surfacing of this type by 1953. Several lorry and bus lines operated regular scheduled services over portions or all of the route between Dawson Creek, British Columbia, in Canada, and Fairbanks in Alaska. Canada built low-standard roads

extending from the Alaska highway at a point about 40 mi. south of Whitehorse in the Yukon territory to and somewhat beyond the village of Atlin and an access road to mining developments south and west of Watson lake. Another lateral feeder road was built northward from a connection about 30 mi. west of Whitehorse.

Mexico. With the completion of the major north and south routes leading to the United States border, Mexico initiated a large programme of lateral road construction which brought better transport to large agricultural areas. A notable piece of highway work was the construction of a modern high-speed road across the Isthmus of Tehuantepec below Mexico City to connect ports on the Pacific ocean and the Gulf of Mexico. Mexico also completed, without outside assistance, the last gap of the Inter-American highway within Mexico to connect with the Guatemalan frontier. An uncompleted and impassable 25-mi. gap on the Guatemalan side of the frontier alone prevented continuous all-weather travel from the United States to a point below Managua at the southern Nicaraguan frontier with Costa Rica. Although the route immediately north and south of San José, Costa Rica, was open for all-weather travel there was still an impassable gap of 65 mi. in northern Costa Rica and 150 mi. in southern Costa Rica and northern Panama. Work was resumed during 1951 on the Inter-American highway in El Salvador, northern Panama and northern Costa Rica.

South America. In Brazil and Argentina, road construction continued at a steady pace throughout 1951, including several large new projects of modern design adjacent to the larger cities. The most outstanding project in Venezuela was the complete relocation and construction of a modern high-speed four-lane divided highway, including several tunnels, on the approach to Caracas. In Bolivia work continued on a section of new highway from Cochabamba to Santa Cruz with funds obtained by loan from the Export-Import Bank of Washington.

The Peruvian section of the Pan American highway was opened for all-weather traffic from Ecuador to Bolivia and Chile. The main route from La Tina to Concordia has a length of 1,632 mi., and the alternate routes to Aguas Verdes in the north and Desaguardero in the south add 489 mi., making a total of 2,121 mi. for the system. A new section of highway immediately south of Lima was opened to traffic in September. Work was begun on reconstruction of the Central highway penetrating the Andean range behind Lima toward the Cerro de Pasco mines. The largest project under way in Ecuador during the year was the reconstruction of a section of highway from Manta to Quevedo financed by a loan from the Export-Import Bank of Washington.

(T. H. MacD.)

ROMAN CATHOLIC CHURCH. The Holy Year was kept in Rome in 1950; in 1951 it was extended to the rest of the world, and those who had been unable to make the pilgrimage to Rome were able to gain the Jubilee indulgence by fulfilling the prescribed conditions in their dioceses at home. The formal closure of the extended Holy Year took place at Fatima, in Portugal, on Oct. 13; although the indulgence could be gained until Dec. 31. The date chosen for the ceremonies was that of the 34th anniversary of the final apparition of Our Lady at Fatima. Cardinal Federico Tedeschini was the legate of Pope Pius XII; the cardinal patriarch of Lisbon and the cardinal archbishops of Toledo, Lyons, São Paulo and Lourenço Marques were also present; the president of the Portuguese republic and members of the government participated, and the ceremonies were attended by more than a million pilgrims. Pope Pius XII, in a special broadcast, said that he would continue to work with all the means in his power for the true good of the great human family and that, above all, he placed his hopes in the powerful intercession of our Lady. Cardinal Tedeschini created something of a sensation by saying that the Pope had himself, in the Vatican gardens a year previously, witnessed the same celestial phenomena that accompanied the apparition of our Lady at Fatima in 1917; but the cardinal made it clear that he said this on his own personal responsibility alone, and no further statement came from any source to confirm or explain his assertion.

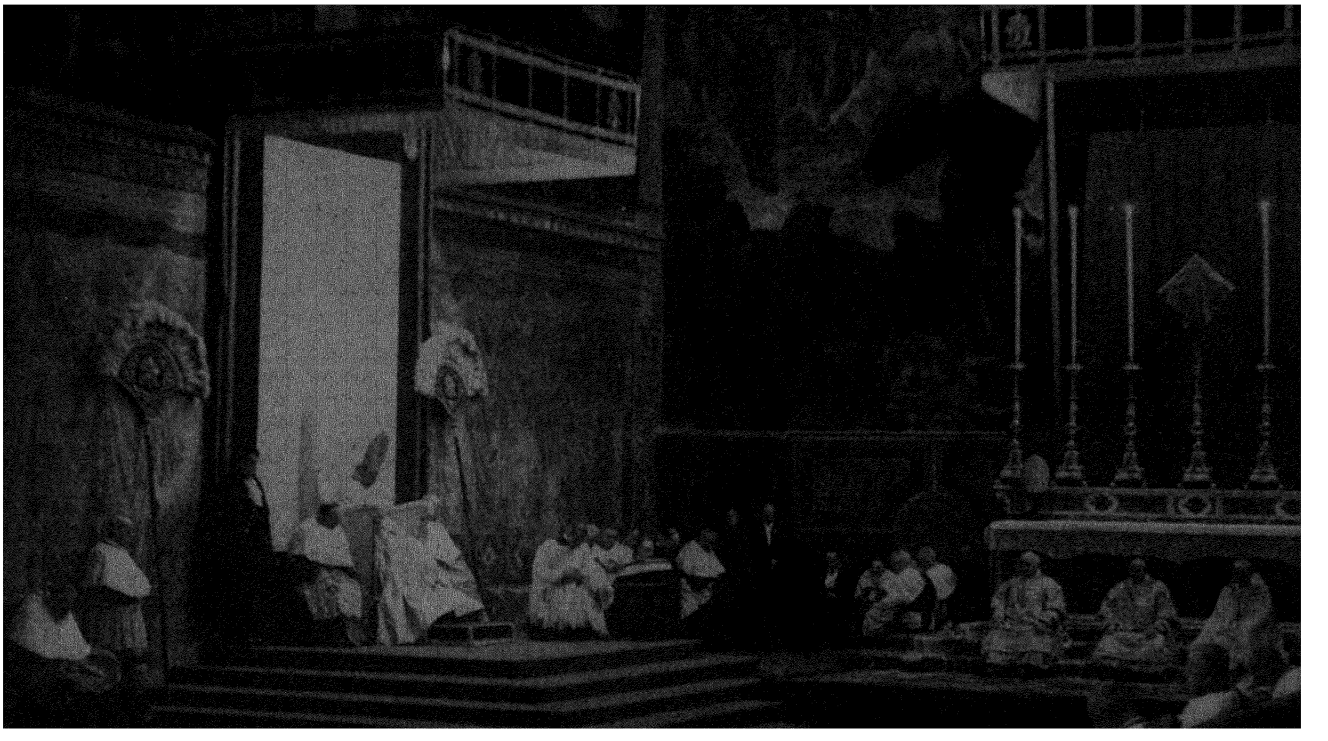
Special prayers were asked at Fatima for the persecuted Catholics of the Communist-dominated countries, for whom the year was again a very hard one. Particularly tragic was the fate of the church in China. The internuncio, Archbishop Antonio Riberi, was expelled on Sept. 8, having been under house arrest for two months; many archbishops and bishops of the hierarchy erected only five years before were interned, imprisoned or expelled; 700 priests, brothers and nuns were forced to leave China in the first six months of the year; the rate of expulsion subsequently increased; many seminaries and schools were closed. The main concern of the government, however, was not so much with direct persecution as with the encouragement of a schismatic movement. The same was true in eastern and central Europe.

The archbishop of Prague, Mgr. Josef Beran, was expelled from his see in March; interned at first in a castle in Moravia, he was later several times moved, and his whereabouts at the end of the year were unknown. Mgr. Michal Buzalka, auxiliary to the apostolic administrator of Trnava (that is, in effect, to the bishop of the Slovak capital of Bratislava) and Mgr. Pavel Gojdič, eastern rite bishop of Prešov, were sentenced to life imprisonment, and Mgr. Jan Vojtašak, bishop of Spiš, was sentenced at the age of 73 to 24 years' imprisonment, in Bratislava on Jan. 15. The remaining members of the hierarchy were effectively silenced throughout the year, suffering the ordeals described by the Pope in the Apostolic Letter *Impensiore Caritate* of Oct. 28.

In Hungary, Mgr. József Groesz, archbishop of Kálocsa and acting chairman of the bench of bishops in the absence of the imprisoned primate, Cardinal József Mindszenty, was sentenced on June 28 to 15 years' imprisonment; several priests were sentenced with him. At the same time the Hungarian government promulgated a decree declaring that state approval must thenceforth be given to all appointments of archbishops, bishops and superiors of religious houses, and that this law was retrospective in its application, to cover the previous five years. In other words, the government claimed the right to depose any bishop or religious superior appointed since 1946 whose conduct might be unacceptable. The bench of bishops met under the chairmanship of the archbishop of Eger, the only archbishop retaining his freedom in Hungary, on July 3, afterwards publishing a statement in which they declared their loyalty to the régime and condemned all action against it, in particular condemning "those clerical leaders upon whose sinful activity light was thrown recently." The bishops, including four recently consecrated, then took public oaths of loyalty and relapsed into obscurity for the rest of the year.

In both Czechoslovakia and Hungary, meanwhile, the year was marked by the increasing efforts of the government to organize everywhere committees of priests who would support the régimes and who would, in particular, praise the foreign policy of the Soviet Union. These priests were infiltrated by the governments of Czechoslovakia and Hungary into the administration of the church, being uncanonically appointed in every diocese as vicars general or vicars capitular. A Bucharest military court sentenced Mgr. Augustin Pacha, the 81-year-old Latin bishop of Timişoara, to 18 years' solitary confinement, thus leaving Rumania entirely without a Catholic bishop.

In Poland the pressure on the church took a less dramatic



The Pope enthroned in the Sistine chapel on March 12, 1951, the 12th anniversary of his accession as Pope.

form, with many trials of priests but none of bishops. The Pope addressed an apostolic letter of encouragement to the bishops on Sept. 17. On Jan. 26 the government announced that the apostolic administrations in the recovered territories had been " liquidated," without, of course, reference to the Holy See. The primate, Mgr. Stefan Wyszyński, archbishop of Gniezno and Warsaw, saw President Bolesław Bierut in this connection on Feb. 3, and on April 3 he left for Rome, with the hope of regularizing the situation. He remained in Rome for a month, but the Holy See did not grant the recognition of a *fait accompli* which the Polish government desired.

The relations of Yugoslavia with the Vatican improved somewhat during the year, and Mgr. Aloysius Stepinac, archbishop of Zagreb, who had been sentenced in 1946 to 16 years' imprisonment was conditionally released on Dec. 5.

The Italian bishops called earnestly on their people to vote for Catholic candidates in the local elections in May and June. The 13th Italian National Eucharistic congress was held at Assisi in the week beginning on Sept. 2, and there were French and Swiss National Eucharistic congresses in the last week of the same month, held respectively at Nîmes and Einsiedeln.

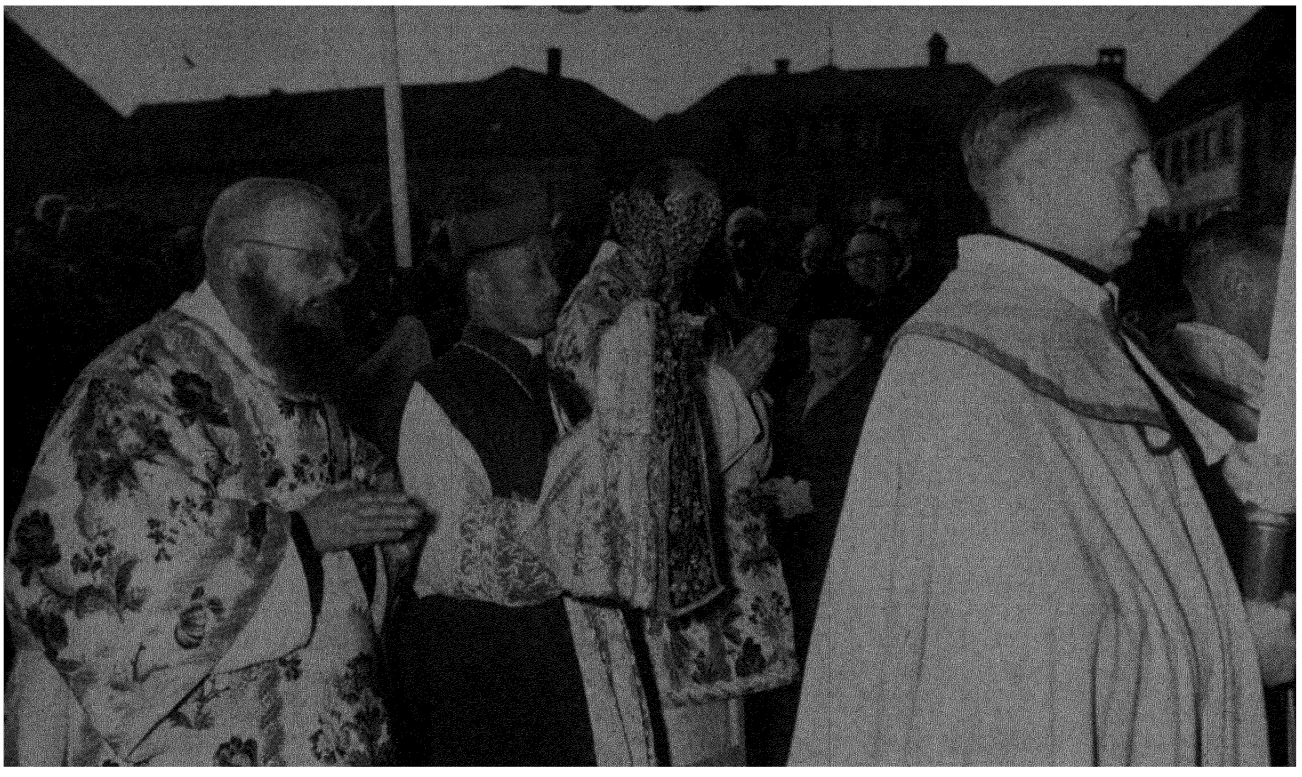
The archbishops and bishops of France met in plenary council in Paris on April 3-4, for the first time since the beginning of the century, and established 15 episcopal commissions, to create a more effective link between the hierarchy and the various forms of religious and apostolic activity in France. The cardinals and archbishops issued a statement on the housing problem after their meeting in October. The year was significant in France for the great debate over the Catholic *écoles libres*, which became a major political issue during the summer. Almost all the bishops adjured their people to vote for sympathetic candidates in the election of June 17, and more than a third of the new deputies signed before their election a pledge to support the Catholic claims. Legislation giving some relief to the Catholic educational system was passed by the new National Assembly.

In Belgium the first half of the year was dominated by the question of the monarchy. The primate, Cardinal Joseph van Roey, marked the accession of King Baudouin with a pastoral letter on July 18. " The abdication of King Leopold III," he wrote, " has been contrived by an unbridled campaign of calumny and insult, with no regard for truth, for justice or for charity; and, what is extremely grave, it has been forced by rioting and violence in the streets." The primate went on to express the loyalty of the Catholic body to the new king. Cardinal Jan De Jong, archbishop of Utrecht and primate of Holland, announced in a pastoral letter his intention of relinquishing the administration of his diocese as a result of ill health, and in June the appointment of Mgr. Bernard Alfrink was announced, to be his coadjutor with right of succession.

Pope Pius XII appointed Archbishop Aloysius Muench on March 6 to be the first postwar nuncio in Germany; he presented his credentials to the president of the German Federal republic on April 4. Mgr. Wilhelm Weskamm was consecrated bishop of Berlin in succession to the late Cardinal Konrad von Preysing in time to participate in the annual conference of the German bishops at Fulda, when those attending came from both Eastern and Western Germany; the Fulda pastoral then drawn up dealt with the hope of peace, both social and international.

Catholics in Sweden benefited from a law passed on May 19, giving formal freedom of religion for the first time since the 18th century; this law came into force on Jan. 1, 1952. The Norwegian government announced the intention of repealing the provision of the second paragraph of the Norwegian constitution which excluded the Jesuits from the country.

The hierarchy was established in the mission territories of south Africa—that is, in the Union of South Africa, South-West Africa, Basutoland, Northern and Southern Rhodesias and Swaziland—by a decree of the Congregation of Propaganda dated Jan. 11. A highly successful Eucharistic congress was held at Kumasi, on the Gold Coast, in the week



Bishop Ogihera of Hiroshima, Japan, attending Mass at Altötting, Bavaria, Germany, in Oct. 1951.

beginning on Feb. 19, with some 50,000 pilgrims attending from many parts of Africa.

The *Osservatore Romano* on January 12 published a ruling of the Holy Office declaring that Catholics ought not to participate in the Rotarian movement; but the same newspaper printed a commentary on Jan. 27 making it clear that this ruling was by no means an absolute prohibition. On Feb. 4 the *Osservatore Romano* printed a notable article by Mgr. Alfredo Ottaviani, assessor of the Holy Office, warning Catholics against undue credulousness. On Oct. 29 the Pope received in audience at Castel Gandolfo the delegates to the Congress of the Italian Catholic Union of Midwives, to whom he delivered a long allocution on moral problems related to marriage and childbirth, stating in particular that it was under no circumstances lawful directly and deliberately to take the life of an unborn child, even in an attempt to save the life of the mother. This was no more than a recapitulation of the traditional teaching of the church, but, greatly to the surprise of the Vatican, it aroused a good deal of controversy among non-Catholics, especially in Britain.

(M. Dk.)

United States. The bishops of the United States, in a statement on Nov. 17, 1951, declared that men in public life were bound by the same laws of justice and charity as those which bind individuals, and that dishonesty, slander, detraction and defamation of character are as truly transgressions of God's commandments when resorted to by men in political life as they are for all other men.

The 48th annual convention of the National Catholic Educational association was held in Cleveland, Ohio, and the National Catholic Conference on Family Life met for its 19th convention in St. Louis, Missouri, in March. The 37th annual convention of the National Conference of Catholic Charities was held in Detroit, Michigan; the 29th convention of the National Catholic Rural Life conference in Boston, Massachusetts, and the 69th annual meeting of the Knights of Columbus in Pittsburgh, Pennsylvania.

War Relief Services of the National Catholic Welfare conference assisted directly in the immigration of 30,202 persons to the United States during the year. Food, clothing and medicines weighing 76,757,786 lb. and valued at $21,892,800 were sent for distribution in the areas of greatest need throughout the world; 3,811,407 lb. of relief material valued at almost $5 million was sent to Korea.

In 1951 the Roman Catholic population of the United States, Alaska and the Hawaiian Islands was 28,634,878. There were 23 arch-dioceses, 102 dioceses and the vicariate apostolic of Alaska. There were 4 cardinals, 24 archbishops, 156 bishops, 40 abbots, 43,899 priests, 7,620 brothers and 152,178 nuns.

During the year the death occurred of Cardinal Dennis Dougherty (*see* Obituaries), archbishop of Philadelphia and dean of the Roman Catholic hierarchy in the United States. (*See* also Pius XII; Vatican City State.)

(J. LaF.)

ROOT CROPS. Many root crops were planted late in Great Britain because the land was sodden after the wet winter of 1950-51.

Root Crops in the United Kingdom

	Acreage ('000 ac.)			Production ('000 tons)		
	1939	1950	1951	1939	1950	1951
Potatoes	704	1,235	1,056	5,218	9,507	7,532
Sugar beet	345	429	425	3,529	5,216	4,424
Carrots	17	32	25	—	—	—
Onions	2	7	5	—	—	—

Source. *Monthly Digest of Statistics* (H.M.S.O., Sept. 1951).

Since the potato acreage reached its very high wartime level farmers had found great difficulty in engaging enough workers to harvest the crop. Schoolchildren had given useful help but by 1950 the education authorities had become reluctant to release them. Anxiety about labour and the bad weather early in the season resulted in a potato acreage in 1951 14% below that of 1950. The estimated decrease in production in 1951 of nearly 21% probably underestimated the

decrease in effective supplies. Atmospheric conditions in September favoured the spread of blight and large areas of the country were affected. Losses of blighted tubers during storage were therefore to be expected. The average price paid to growers for potatoes of the 1951 crop was about 231*s.* a ton compared with 216*s.* for the 1950 crop and about 102*s.* prewar.

The total production of sugar beet was estimated at some 15% below 1950. Good weather in September and October and the almost complete absence of the disease of "virus yellows" (which leads to low sugar content) gave promise that the end of the processing programme in early 1952 would show a fairly high average sugar content for the year. The average price paid to growers for sugar beet of the 1951 harvest was 110*s.* a ton as compared with 112*s.* 6*d.* for the 1950 crop and 42*s.* prewar.

Processing had usually been complete by about Christmas but with their 1950-51 capacity the factories could handle the yield from 420,000-430,000 ac. only with the greatest strain. In Sept. 1950 the British Sugar corporation announced a programme of factory modernization costing £9 million-£10 million over four years. About £2 million was spent by the end of 1951 on improvements. (K. E. H.)

ROTARY INTERNATIONAL. During 1951 the number of Rotary clubs in Great Britain and Ireland increased from 685 to 707 and the membership from 30,700 to 31,700. From January to June the president of Rotary International in Great Britain and Ireland was Canon T. H. Cashmore of the Wakefield club. He was succeeded on July 1 by Stamp W. Wortley of Chelmsford who was nominated at the annual conference at Blackpool in April and elected at the annual convention at Detroit in June.

Clubs in Great Britain continued their co-operation with the Ministries of Education and Labour and National Service on vocational guidance for school-leavers. The clubs also sponsored hobbies and careers exhibitions in many towns and were able to co-operate more closely with statutory authorities, notably on the hospital services.

Services to refugees and displaced persons included the "adoption" of families languishing in the European camps and the sending of necessities to Greek villages and German towns.

On the invitation of Rotary districts in England 150 young men and women, mainly children of Rotarians, representing 16 countries, spent a summer holiday in youth camps near Bolton, Gloucester, Sheffield and Swanage. Children of Rotarians in Great Britain and Ireland visited similar Rotary camps on the continent of Europe.

The Festival of Britain gave clubs an opportunity to offer hospitality to many fellow-members from overseas and special Rotary centres were set up in London, Edinburgh, Liverpool, Norwich, Winchester, Stratford-on-Avon, York and elsewhere. In addition clubs were closely associated with the local festival celebrations in every part of the United Kingdom.

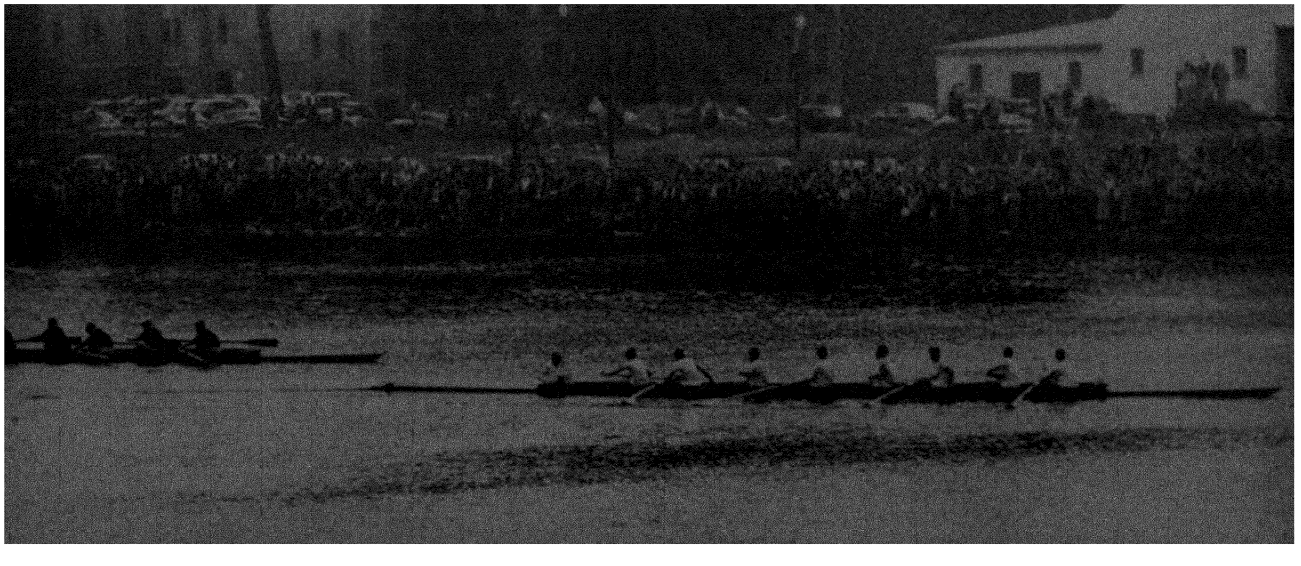
Rotarians in the United States in 1951 numbered 229,067 and the number of clubs there was 4,213. The world membership, comprising membership in more than 80 countries, was about 350,000, in 7,396 clubs. (F. C. H.)

See C. R. Hewitt, *Towards My Neighbour: The Social Influence of the Rotary Club Movement in Great Britain and Ireland* (London, 1950).

ROWING. Probably there was never a more successful season for British rowing than 1951. Above all it was an *annus mirabilis* for Cambridge, who, besides winning the university boat race, beat both Yale and Harvard universities in the United States and, representing Great Britain, won the eights in the European championships at Mâcon.

The Universities. The Oxford and Cambridge boat race proved a fiasco, for Oxford, having sunk soon after the start of the first race, were beaten in the re-row (12 lengths; 20 min. 50 sec.). The crews were :—Oxford, J. F. E. Smith (bow), A. J. Smith, H. J. Renton, L. A. F. Stokes, M. J. Hawkes, C. G. Turner, D. N. Callender, C. G. V. Davidge (stroke), G. Carver (cox); Cambridge, H. H. Almond (bow), D. D. Macklin, J. G. P. Crowden, R. F. A. Sharpley, E. J. Worlidge, C. B. M. Lloyd, W. A. D. Windham, D. M. Jennens (stroke), J. F. K. Hinde (cox). A fortnight later Cambridge, who, as the winners, had accepted an invitation to race against Yale and Harvard, left for the United States. Although little favoured in the early stages of boat race practice they had by then developed into an outstanding crew. On the Housatonic river, Derby, Connecticut, they beat Yale over 1¾ mi. (4 lengths; 8 min. 22·5 sec.). A week later, on the Charles river at Boston, they beat Harvard over the same distance (1½ lengths; 9 min. 38 sec.), with Boston university third and the Massachusetts Institute of Technology fourth.

At Cambridge, Lady Margaret (St. John's) easily retained their position at the head of the river, but at Oxford New



***The unchanged** Cambridge crew that had beaten Oxford in the boat race on the Thames, March 26, easing after they ha... ...ard university by 1½ lengths on April 19 on the Charles river at Boston, Massachusetts. Cambridge completed the course of 1¾ mi. in 9 min. 38 sec.*

college were displaced by Magdalen who in turn succumbed to Merton. Merton thus made 3 bumps to gain and hold the headship for the first time in their history. In the six seasons since World War II they had made 21 bumps.

Henley Royal Regatta. A formidable overseas challenge was most successfully resisted, and there were fresh triumphs for Cambridge oarsmen. The Diamond sculls were retained for Great Britain by T. A. Fox of Pembroke college, Cambridge, and the Grand, Stewards', Goblets and Double sculls were all regained. Five members of the victorious boat race (Cambridge) crew were rowing for Lady Margaret in the Grand Challenge cup, and one other and the cox were in the Pembroke crew in the Ladies' plate.

Grand Challenge cup: Lady Margaret B.C., Cambridge, beat Delftsche Studenten Roeivereeniging "Laga" (Holland), 1 length, 7 min. 15 sec.
Ladies' plate: Pembroke college, Cambridge, beat Jesus college, Cambridge, ¾ length, 7 min. 25 sec.
Stewards' Challenge cup: Thames R.C. beat Leander, 1½ lengths, 7 min. 53 sec.
Thames Challenge cup: University of Pennsylvania (U.S.) (150 lb. crew) beat Renngemeinschaft Florsheim-Russelsheim and Mindener Ruderverein (Germany), 1 length, 7 min. 19 sec.
Princess Elizabeth cup: Bedford school beat Radley college, 1¼ lengths, 7 min. 27 sec.
Visitors' Challenge cup: Trinity Hall B.C., Cambridge, beat First and Third Trinity B.C., Cambridge, 1¾ lengths, 8 min. 9 sec.
Wyfold Challenge cup: Caius college, Cambridge, beat Clare college, Cambridge, ¼ length, 7 min. 55 sec.
Silver goblets and Nickalls' Challenge cup: J. G. P. Crowden (Pembroke college, Cambridge) and C. B. M. Lloyd (Lady Margaret B.C., Cambridge) beat J. Rosa and C. van Antwerpen (Société Royale Nautique Anversoise, Belgium) easily, 8 min. 52 sec.
Double sculls: P. Bradley and R. D. Burnell (Leander) beat B. G. Davies and A. P. P. Kemp (Reading R.C.), 2 lengths, 8 min. 41 sec.
Diamond sculls: T. A. Fox (Pembroke college, Cambridge) beat E. Larsen (Koge Roklub, Denmark), 4½ lengths, 8 min. 59 sec.

The Wingfield sculls (amateur sculling championship of the Thames and of England) were won by T. A. Fox (Pembroke college, Cambridge, and London R.C.) in 22 min. 14 sec. J. H. Pinches (London R.C.) was second in 22 min. 27 sec., and R. M. Martin (Marlow R.C.) third. Great interest was aroused in August by a regatta in honour of the Festival of Britain, which was sponsored by the *Evening News*, on the Serpentine in Hyde park. It was the first regatta ever held on the Serpentine and attracted an entry of nearly 200 crews. In addition to some excellent racing there were processions by holders of Doggett's Coat and Badge and by swan uppers of the Dyers' and Vintners' companies.

European Championships. These were held at Mâcon, France, and for the first time the eights title was won by Great Britain, represented by the Goldie B.C., Cambridge, with five of the Cambridge boat race crew and three from the Lady Margaret Grand Challenge cup crew. Over the 2,000-m. course they beat Denmark by about 6 ft. (6 min. 0·44 sec.). The coxed fours (7 min. 5·14 sec.) and coxed pairs (7 min. 39·84 sec.) were won by Italy; Belgium won the coxswainless fours (6 min. 27·82 sec.) and coxswainless pairs (7 min. 33·19 sec.). The double sculls (6 min. 44·04 sec.) went to Switzerland, and in the single sculls (7 min. 32·05 sec.) E. Larsen (Denmark) reversed the Diamond sculls decision over T. A. Fox (Great Britain). (R. D. B.)

See Ian Fairbairn, ed., *Steve Fairbairn on Rowing* (London, 1951); R. D. Burnell, ed., *British Rowing Almanack* (London, 1951).

ROYAL AIR FORCE. The 1951-52 air estimates, amounting to £328,750,000, showed an increase of nearly £106 million over those for the previous financial year. They provided for a total strength of 270,000 officers, airmen and airwomen. The increases in expenditure and numbers of personnel represented the first stages in the substantial strengthening of the services proposed to take place during the next two years.

In Fighter command, the total of day-fighter squadrons was greatly increased and their equipment improved with the introduction of the Venom fighter. The night-fighter squadrons were also re-equipped with a new jet aircraft, the Meteor NF 11. The Canberra twin-engined jet bomber began to come into service in the tactical bomber force, the Washington and Lincoln continuing as the medium-heavy bomber equipment pending the arrival of long-range jet bomber aircraft. The first British four-engined jet bomber, the Vickers 660, with four Avon engines, made its maiden flight on May 18 and was ordered in quantity for the R.A.F. Its speed was expected to exceed that of the Canberra.

On May 26, Princess Elizabeth presented the king's colour to the Royal Air Force in Hyde park.

Air Chief Marshal Sir Hugh Saunders was appointed General D. D. Eisenhower's air deputy at Supreme Headquarters, Allied Powers in Europe, while Air Chief Marshal Sir William Elliot replaced Lord Tedder as chairman of the British Joint Services mission in Washington.

On Feb. 1, a partial reorganization of the Air council took place, the departments of supply and organization and of technical service being combined under a single member of the Air council, Air Chief Marshal Sir W. Dickson, who continued to be known as air member for supply and organization.

Meanwhile, an inspectorate general of air training, Western Union, was formed under a British officer, with a French officer as deputy.

New rates of pay for airmen and officers up to and including the rank of air commodore became effective late in 1950 and improved rates of retired pay, coupled with the payment of a terminal grant upon retirement, were introduced in the summer of 1951.

Fighter squadrons in the far east were re-equipped with Vampire jet aircraft, delivered by air from England to Singapore by aircrew of Transport command—the average flying time en route being about 27 hr. This was the longest delivery flight undertaken by jet aircraft.

In the course of the year, fighter and reconnaissance aircraft, including flying boats, operated against concentrations of bandits in Malaya. The far east casualty evacuation-flight, employing helicopters, evacuated a number of casualties from jungle clearings to hospital.

In the course of the year 20 Royal Auxiliary Air Force fighter squadrons, all equipped with jet aircraft, underwent three months' training with Fighter command, while the formation of auxiliary transport squadrons from the resources of charter air transport companies was decided upon.

Arrangements were completed for aircrew training for the R.A.F. in Canada and a number of national service airmen proceeded there for training as pilots and navigators. A flying branch of the Women's R.A.F. Volunteer reserve was also created to provide ferry and communications pilots in emergency. About 10,000 R.A.F. reservists of the "G" class reserve were called up during the summer months to undergo 15 days' training in their trades. In February, the Air Training corps, the R.A.F. cadet organization, celebrated its tenth birthday. It comprised over 670 squadrons, of which 74 belonged to London.

A number of important flights took place during the year, one of the most striking of which was the crossing of the Atlantic by a Canberra in August between Northern Ireland and Newfoundland, a distance of 2,072 mi., in 4 hr. 18½ min., the first crossing of the Atlantic by a jet aircraft without refuelling. (*See* also AIR FORCES OF THE WORLD.) (D. CR.)

ROYAL NAVY. Important appointments during 1951 included Admiral Sir Patrick Brind to be commander in chief of all the forces in northern Europe, Sir Rhoderick



H.M.S. " Eagle " (36,800 tons), the largest British aircraft carrier afloat, which was commissioned on Oct. 31, 1951. She was laid down as H.M.S. " Audacious " on Oct. 24, 1942, but on Jan. 21, 1946, was renamed " Eagle "—the 24th ship of the Royal Navy to bear that name. She was built by Harland and Wolff at Belfast and was launched by Princess Elizabeth on March 19, 1946.

McGrigor to be first sea lord, Sir George Creasy to be commander in chief, Home fleet, and Earl Mountbatten to be commander in chief, Mediterranean. The Duke of Edinburgh relinquished command of the frigate " Magpie."

The naval estimates for 1951-52 amounted to £278 million, an increase of £85 million on the original estimates of the previous year. The increase was principally due to measures taken to improve the preparedness of the navy and the improvement in service emoluments.

The age for entry into Dartmouth college was increased by four months to enable cadets to sit for examination a second time. This affected the executive, engineering, and supply and secretarial branches.

The first class of artificer apprentices training under the new scheme completed their course in December. Under this scheme apprentices do a four-year course of which part 1 is basic training in H.M.S. " Fishguard " at Devonport and part 2 is advanced training in (a) H.M.S. " Caledonia " at Rosyth for engine room, ordnance and shipwright apprentices, (b) H.M.S. " Collingwood " at Fareham for electrical apprentices and (c) H.M.S. " Condor " at Arbroath for air apprentices.

Defence courses for merchant navy masters were restarted. Former naval pilots were invited to re-enter on short service commissions, and a four-year entry scheme for naval aviation for national service ratings was announced in July. In January 600 officers from the emergency lists of the Royal Navy, R.N. Voluntary Reserve and R.N. Reserve were called for 18 months' service, and in February notices of recall were sent out to 6,000 fleet reservists. An improved scale of pensions for officers and men retiring after Sept. 1, 1951, was introduced.

The estimates provided for 2 fleet carriers, 7 light fleet carriers, 3 cruisers, 8 destroyers and 45 small craft under construction, of which the " Eagle," the largest British carrier, was completed. The " Ark Royal " and 3 " Daring " class destroyers were launched. Wartime submarines were being converted to higher speeds. During the next three years 232 ships of various descriptions were to be laid down; 60 ships from reserve were brought forward for service. Bermuda dockyard was closed down.

Fleet training and sea-air exercises in conjunction with the North Atlantic Treaty powers went on continuously throughout the year. During June and July British, Danish, French, Dutch and Norwegian forces acted under a French commander in chief, and mine-sweeping exercises were carried out under a Dutch commander in chief. Naval units of India and Pakistan exercised with the British East India fleet.

The helicopter was adopted for air-sea rescue work and for intercommunication between ships of the fleet. Trials for operating helicopters from merchant ships also took place.

British naval units, especially the aircraft carriers, played an important part under the United Nations in Korea. Cruisers and destroyers were employed in the Persian gulf, and the naval forces in the Suez canal and Red sea were strengthened.

The tragic loss of the submarine " Affray " when doing an instructional dive in the English channel on April 16 resulted in the loss of 74 officers and men. After careful search the wreck was discovered by means of television camera apparatus on June 14, but owing to the depth of water and the strength of the tidal streams any attempt to raise her was abandoned.

On April 27 the ammunition ship " Bedenham " blew up at Gibraltar. While the crew escaped practically unscathed extensive damage was done in the town, attended with loss of life and many casualties. (*See* also NAVIES OF THE WORLD.)

(R. N. BA.)

RUANDA AND URUNDI: *see* BELGIAN COLONIAL EMPIRE; TRUST TERRITORIES.

RUBBER. The International Rubber Study group met in Rome, April 16-20, 1951. Delegations from 19 countries attended, Vietnam, Cambodia and the German Federal republic being represented for the first time. The group estimated the world production of natural rubber, the product of *Hevea brasiliensis*, to Dec. 31, 1951, at 1·88 million tons, of which the Federation of Malaya produced 605,000 tons. The Malayan figures showed a short-fall of 90,000 tons from the estimated figure, due in the main to trees not being tapped and to low standards of tapping in the intimidated areas. Similar deterrents operated in Vietnam and Cambodia with a consequent reduction in output. Some 85,000 tons, included in the totals above, were shipped in liquid (latex) form, either containing ± 38% rubber, and known as normal latex, or ± 60% rubber, known as concentrated latex. Latex consumption fell considerably during the year.

Only negligible additions were made to existing planted

areas, which remained of the order of 10 million ac., of which Malaya and Indonesia each accounted for about 40%. No new development in agricultural or forestry research likely to alter prevailing culture and husbandry was reported. The search for still higher yielding stock continued at the various production research institutes in the east, particularly the Rubber Research Institute of Malaya at Kuala Lumpur, and by large groups of estates.

A modest amount of old and effete rubber was replanted by estates, labour availability and high costs being the limiting factors. Stocks for new planting and replanting, with a potential production rising above 1,500 lb. an ac., were envisaged. This compared with the current overall average of 400 lb. an ac. The appropriate procedure to underwrite smallholders' planting with higher yielding material received attention, but the problem would take time to solve.

On the importation side, the U.S. and Great Britain respectively took 740,000 and 300,000 tons. With France at 120,000, and the U.S.S.R. at 70,000 tons, only 35% of world production was taken by other countries. Broadly speaking some 60% of consumption went for transportation purposes. Research and development by the large manufacturing interests on new industrial uses for rubber continued. Activities in this sphere continued to be conducted by the British Rubber Producers' Research association and the British Rubber Development board, London; the Rubber foundation at Amsterdam and Delft and its associated unit, the Indonesian Rubber Research institute, Bogor; and by the French Rubber institute in Paris. These organizations, financed by producers in related far eastern territories, continued to work co-operatively to a pattern co-ordinated by the International Rubber Research and Development organization, whose secretariat was in London.

New and well-equipped buildings of the rubber foundation, financed from Indonesia, were opened in Delft in October and offices for the dissemination of information about natural rubber were opened in Scandinavia under its aegis; offices were opened in Japan sponsored by the Indonesian Rubber Research institute and in Australia by the British Rubber Development board.

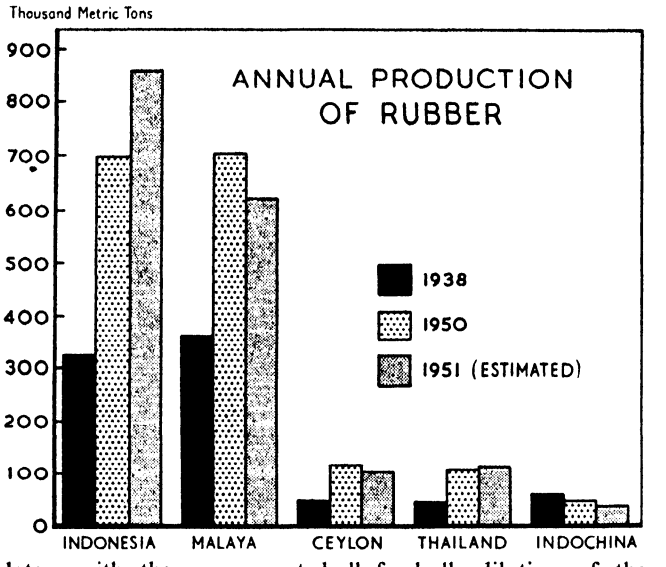
The chief development work in 1951 was concerned with the incorporation of rubber in powder form into asphalt and bitumen to improve road carpets and sprayed surfaces. Experiments continued in various parts of the world, particularly in the U.S. and Canada. The supply of powder for this purpose was insufficient to meet demand. The offtake of latex for use in the foam industry did not proceed at the rate that had been projected when prices were lower.

Encouraging progress was made in introducing technically classified natural rubber to the consumer. By simple procedure in preparations and in sorting at production centres it had been shown to be possible to reduce the variability inherent in this biologically produced product, notably the variability related to hardness and to the rate of vulcanization. An outstanding development in the complementary synthetics field was the incorporation of oil emulsion into synthetic latex, with the consequent bulk-for-bulk dilution of the synthetic component. (G. E. C.)

TABLE I. WORLD CONSUMPTION OF NATURAL RUBBER, 1950-51
(long tons)

	U.S.	U.K.	France	Germany	U.S.S.R.*	China*
July	62,172	17,123	8,577	6,833	7,500	3,000
Aug.	65,036	14,471	5,198	7,169	5,000	6,250
Sept.	60,973	18,898	9,977	8,003	13,250	9,500
Oct.	68,572	23,585	10,347	8,517	13,000	11,750
Nov.	51,447	19,372	9,656	8,290	10,500	19,500
Dec.	44,624	18,071	9,605	6,351	5,750	14,500
Jan.	44,586	22,400	10,156	8,267	2,500	17,000
Feb.	37,572	19,482	9,576	7,418	1,500	10,000
March	35,335	17,519	10,419	8,544	2,000	21,000
April	39,508	23,364	10,344	6,646	9,500	13,750
May	42,445	18,617	9,883	6,096	2,500	6,000
June	39,998	19,713	10,528	7,041	10,500	50

* Estimated.



United States. The price of natural rubber in the U.S. declined from about 81 cents a lb. in February to 48 cents a lb. in mid-December. The sharpest drop was in the April-June period. Several factors contributed to this change: first, the government became the sole purchaser of rubber in the U.S. by an order terminating on March 31 all rubber activities on the New York commodities exchange except those concerned with the liquidation of contracts; secondly, the General Services administration announced that the U.S. stockpile goal had nearly been reached; and thirdly, production of U.S.-made rubber rose sharply.

Natural Rubber. The consumption of natural rubber in the U.S. up to the end of October, reduced, as compared with 1950 figures, by government allocation, was 385,793 long tons (the consumption of synthetic rubber in the same period was 634,561 long tons). The consumption of natural rubber in the same period of 1950 was 624,197 long tons (synthetic, 436,536 long tons). Imports of natural rubber latex into the U.S. up to the end of October were 50,353 long tons dry rubber content. About half of this tonnage went into foamed latex products such as mattresses and cushions.

Synthetic Rubber. The U.S. government-owned general-purpose synthetic rubber (GR-S) plants, reopened in Sept. 1950, showed a steadily rising production: the total output up to the end of 1951 was 698,527 long tons (November and December production estimated). Of this amount about 300,000 long tons were cold rubber (polymerized at 41° F. instead of the 122° F. used for ordinary GR-S). The production of other synthetic rubbers in the U.S. up to the end of December was: Butyl rubber 73,105 long tons; N-type rubbers, 15,879 long tons; Neoprene, 59,500 long tons; total, 847,011 long tons (November and December production estimated).

TABLE II. WORLD CONSUMPTION OF SYNTHETIC RUBBER, 1950-51
(GR-S or Buna S, Neoprene, Butyl and Nitrile rubbers)
(long tons)

	U.S.	U.K.	France	Germany	Canada
July	43,905	211	585	350	1,682
Aug.	50,715	216	366	400	1,947
Sept.	49,322	227	732	336	2,271
Oct.	52,933	281	765	352	2,260
Nov.	48,651	235	754	294	2,114
Dec.	53,102	233	797	229	2,169
Jan.	59,584	285	865	287	2,227
Feb.	53,308	248	721	248	2,225
March	65,587	239	766	283	2,264
April	58,787	347	730	365	2,417
May	65,027	315	655	361	2,140
June	64,718	287	667	392	1,828

The relatively new synthetic material, silicone rubber, appeared in increasing quantities, production for the year being about 2 million lb. The material, when vulcanized, has an unusually low compression set rather than a high tensile strength. Its resistance to change over wide temperature ranges is equalled by no other known rubber. It will withstand continuous service at 400° to 500° F. and will remain flexible at —120° F. Its selling price was about $5 a lb.

The production of oil-extended synthetic rubber up to the end of September amounted to 15,146 long tons. Tyres made from this rubber alone showed excellent performance.

Reclaimed Rubber. The U.S. consumption of reclaimed rubber up to the end of Oct. 1951 was 299,897 long tons, as compared with 243,290 long tons in the same period of 1950. More than half this increased consumption of 56,600 long tons was mainly caused by the shortage of natural rubber resulting from government allocations.

Tyres and Inner Tubes. Deliveries of pneumatic tyre covers in the year ended July 31, 1951, were 96,477,630 (73,444,561 passenger car; 16,320,699 lorry and bus, and 6,712,370 farm, industrial and aeroplane tyres). Total deliveries in the first nine months of 1951 were 66,161,226 (80,923,707 for the same 1950 period) distributed as follows: passenger car 48,418,791 (64,815,922 for the same 1950 period); lorry and bus 12,543,729 (11,232,230); farm, industrial and aeroplane 5,198,706 (4,875,555). (E. B. NN.)

RUGBY FOOTBALL: *see* FOOTBALL.

RULERS: *see* SOVEREIGNS, PRESIDENTS AND RULERS.

RUMANIA. People's republic of southeastern Europe, bounded N. and N.E. by the U.S.S.R., E. by the Black sea, S. by Bulgaria and W. by Yugoslavia and Hungary. Area: (1939) 113,889 sq.mi.; (1947, without Bessarabia, northern Bukovina and southern Dobruja) 91,671 sq.mi. Pop.: (1939 est.) 19,933,800; (Jan. 25, 1948, census) 15,872,624. Language (1948 census): Rumanian 85·7%, Hungarian 9·4%, German 2·2%, Yiddish 0·9%, other 1·8%. Religion (1947 est.): Greek Orthodox 81%, Greek Catholic 9%, Roman Catholic 7%, other 3%. Chief towns (pop., 1945 est.): Bucharest or Bucureşti (cap., 1948 census, 1,401,807); Cluj (110,956); Jassy or Iaşi (108,987); Timişoara (108,296); Ploeşti (105,114); Brăila (97,292); Galaţi (93,229). Chairman of the presidium of the Grand National Assembly, Constantin Parhon; prime minister, Petre Groza.

History. Rumania was the last of the people's democracies to introduce the Soviet type of national plan. In 1949 and 1950 one-year plans were published, and in due course it was declared that they had been fulfilled by an appropriate percentage. In 1951 however came into force a five year plan. This plan was on the scale of the "revised" plan of Rumania's northern and western people's democratic neighbours rather than on that of their original plans. Considering that Rumania had always been economically more backward than Hungary, let alone Czechoslovakia or Poland, it might be argued that its new plan was the most ambitious of all the satellite states. Total investment in the five-year period was to be 1,330,000 million lei. Of this sum 51% was to go to industry, 16% to communications, 10% to agriculture and 13% to miscellaneous building and social service purposes. The last category, as in the other people's democracies, would of course include construction of government and Communist party premises and the cost of propaganda and political agitation. Among specific figures given for output in the last year of the plan period were 8·5 million tons of coal (including lignite); 1,250,000 tons of steel; 4,700 million kwh. of electric power; 10 million tons of crude oil and 5,000 tractors. The coal target was nearly two and a half times the output of 1950. Tractors had not hitherto been produced in Rumania. The oil target was extremely high. Even if, as might be expected, the most rapacious methods were used, to extract for the Soviet masters of Rumania the maximum amount to the irreparable detriment of the industry in future, it was doubtful whether this figure could be achieved. Under the plan the industrial labour force was to increase by 38%. The planners also maintained that the productivity of labour would be increased by 75% and the standard of living by 80%. The plan laid stress on the creation of new industries in regions that had hitherto been almost exclusively agricultural—Moldavia, Dobruja, Oltenia and the northern part of Transylvania.

In collectivization of agriculture Rumania was still far behind the other people's democracies, including even Poland. In September there were 1,083 collective farms in the country, with 73,000 member families, only a very small increase over 1950. In September the Workers' (Communist) party published a statement on the situation. It claimed that collective farms were achieving yields on the average 25% higher than those of individual peasant holdings, but admitted that they were not always faithfully executing official instructions on organization. The party urged further efforts by its members to convince and persuade peasants to join collectives. It announced the creation of a new type of organization, the agricultural association, which it described as a lower form of co-operative farm. The experience of the Soviet Union and the other people's democracies suggested that this was a bait to induce peasants to join by making far-reaching concessions in theory to the principle of private property, concessions which could later be abolished at the convenience of the authorities. It was not a defeat of government policy by Rumanian peasant resistance. Rather it was a small tactical retreat which would make possible a much larger advance. Information on subsequent developments was not available. A statement in the Workers' party daily paper *Scânteia* of Oct. 10 that there were 4,000 associations, with 354,000 peasant members and controlling 428,000 ha., suggested however that "conviction and persuasion" were used to good effect.

Polemics against Yugoslavia continued throughout the year. They reached a climax at the time of the Aug. 23 anniversary celebrations in Bucharest, when Soviet Marshal Klimenty Voroshilov made a menacing speech. From Aug. 9 to 13 was held a trial of persons alleged to have spied on behalf of Great Britain. There were four death sentences. On Sept. 10 ended another spy trial, the accused in this case being allegedly instructed by the Vatican. Four persons were condemned to life imprisonment.

Rumanian official figures claimed that of 1,800,000 children at elementary schools 61% were of working-class or peasant origin. The number of secondary school pupils was 3·8 times larger than in 1938-39. Teaching in languages other than Rumanian was given in 3,339 schools and 17 faculties. The quality of the teaching might be indicated by a report from the Rumanian official news agency of July 5 of a session of the literature and art section of the Rumanian Academy when a paper was read on the "Importance of the works of Stalin in the development of literature in Rumania." The minister of education, Nicolae Popescu-Doreanu, then declared: "No other conception may be taught in all elementary, junior and senior high schools than the Marxist-Leninist one, based on Generalissimo Stalin's teachings. Only thus shall we be able to give value to our national language, created by the people." (*See* also EASTERN EUROPEAN ECONOMIC PLANNING.) (H. S.-W.)

Education. Schools (1950): primary 14,000, pupils 2,079,357; secondary, pupils 365,310; institutions for higher education 7, universities 4. Illiteracy (1948): 23·1%.

Agriculture. Main crops ('000 metric tons, 1947; 1948 in brackets): wheat 1,279 (2,600); maize 5,279; barley 360; oats (1946) 280; rye 66; millet 17 (18); potatoes (1948; 1949 in brackets) 1,225 (1,090); sugar, raw value (1949-50; 1950-51 est. in brackets) 112 (110); hemp fibre 13·5 (27·0); cotton seed 7 (6); tobacco 15·8 (16·8). Livestock ('000 head): sheep (Dec. 1948) 7,300; pigs (1950 est.) 2,300; cattle (1950 est.) 4,950; horses (Dec. 1948) 939.

Industry. Industrial establishments (Oct. 1947): 28,295; persons employed 462,305. Fuel and power (1938; 1947 in brackets): coal ('000 metric tons) 299 (162); lignite and brown coal ('000 metric tons) 2,097 (2,108); natural gas (million cu. m.) 1,860 (2,106); electricity (million kwh.) 568 (712); crude oil ('000 metric tons, 1950; 1951, six months, in brackets) 4,300 (2,150). Raw materials ('000 metric tons, 1938; 1947 in brackets): pig iron 133 (91); steel 277 (183); lead 5·8 (3); zinc 3·6 (2); iron ore 139 (115); gold (kg.) 4,912 (2,231); silver ('000 fine troy oz.) (481). Manufactured goods ('000 metric tons, 1946; 1947 est. in brackets): refined petroleum products 3,850 (3,450); cotton yarn 12·5 (11·3); cotton fabrics 4·5 (3·2); cement 373 (418); sulphuric acid 24·7; sawn timber (1,359,000 cu. m.); paper 39·8 (47·5).

Foreign Trade. (Million U.S. dollars, 1948): imports 96; exports 116. Main sources of imports (1947): U.S.S.R., U.S., Czechoslovakia and Hungary. Main destinations of exports (1947): U.S.S.R., Czechoslovakia, Bulgaria and Hungary.

Transport and Communications. Roads (1945): 43,163 mi. (modernized roads, 1947, 1,150-mi). Licensed motor vehicles (Dec. 1950): cars 14,000, commercial 12,000. Railways (1949): 7,363 mi. Shipping (1948): merchant vessels 15, total tonnage 32,962. Telephones (1949): 135,000. Radio receiving sets (1949): 226,000.

Finance and Banking. Budget (million lei): (1951 est.) revenue 433,900, expenditure 429,900. Currency circulation (July 1948): 32,000. Monetary unit: *leu* (pl. *lei*) with an official exchange rate of L. 430 to the pound and L. 153 to the U.S. dollar.

See H. L. Roberts, *Rumania: Political Problems of an Agrarian State* (New Haven, Conn., U.S., 1951).

RUSSIA: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

RUSSIAN LITERATURE. The writers of the Soviet Union drew their inspiration in 1951 from the same sources as in the years before: the struggle of the "innovators" against routine in industry and agriculture; the transformation of nature by great enterprises; the "great patriotic war"; the history of Russia; the Peace movement. The best-known members of the Union of Writers in fact published nothing of importance, and there was no masterpiece to hail.

The poets E. Dolmatovsky, M. Aligher, N. Gribachev and M. Isakovsky had new poems in the leading periodicals (*Znamia*, *Novy Mir*, *Zvezda*, *Oktiabr*). Serghey Mikhalkov made a volume of his collected "Fables." Novels included *On the Way*, by Hans Leberecht, about the progress of agricultural collectivization in Estonia; *The Height*, by Evgheny Vorobiev, on the builders of a giant metallurgical plant; *The Conquerors*, by Sharaf Rashidov, on the irrigation of desert areas in Uzbekistan; *The Red Flag*, by A. Kalinin, on patriotic resistance in the Don and Volga regions, 1942-43; *Peaceful Town*, by G. Berezko, on the struggle of the Tula patriots against the invader at the end of Oct. 1941; *In a Distant Harbour*, by L. Zaitsev and G. Skulsky, on the naval forces in a Pacific port after the war; *On the Volcanoes of Manchuria*, by P. Daletsky, exalting the heroism of the Russian people during the Russo-Japanese War of 1904-05 and laying the blame for defeat on the tsarist régime; *The Heart*, by the Ukranian writer V. Sobko, on the creation of a democratic Germany after the Soviet victory over Hitlerism; and *Stenka Razin*, by S. Zlobin, a long novel about the 17th-century peasant revolts on the Don and the Volga.

In the sphere of literary criticism new books were: *Nikolay Novikov and Russian Culture in the 18th Century*, by G. Makogonenko; *Lermontov* (2nd ed., enlarged), by I. Andronikov; *A. N. Tolstoy*, by Mme. V. Shcherbina, on the 40 years' literary activity of the novelist Alexey Tolstoy, author of the well-known novel *Peter the Great*.

The phenomenon most typical of Soviet literary life in 1951 was the new edition, in a very much altered form, of *The Young Guard*, a celebrated novel on the exploits of young Communists in the Ukraine during the German occupation, by Aleksandr Fadeyev, president of the Union of Writers. The author had entirely rewritten his book in the light of the criticism of it by the Communist party and by *Pravda*, so as to bring into prominence the party's directing role in the clandestine operations of the heroes of Krasnodon. All critics applauded Fadeyev for setting a good example of obedience to the directives of the party's Central committee.

Rewriting was the fashion, and the novelist V. Katayev imitated Fadeyev in revising his *For the Power of the Soviets*, in which the scene is set in wartime Odessa. As he had promised to *Pravda* (Jan. 24, 1950) after severe censure by his colleague M. Budyennov, Katayev recast the whole book and similarly demonstrated in the new version that all the credit for the people's resistance to the German invaders was due to the Communist party. It was likewise in accordance with Communist instructions that several other writers also took their books back to the workshop: Nikolay Virta (*The Bells of the Evening*), V. Kaverin (*Open Book*) and N. Nikitin (*The Northern Lights*).

The Communist party's control over all intellectual life in the U.S.S.R. was further emphasized by the celebration, on Aug. 14, of the fifth anniversary of the famous decision of the Central committee (Aug. 14, 1946) whereby Andrey Zhdanov had condemned the writings of the poetess Anna Akhmatova and the novelist Mikhail Zoshchenko and defined the new duties of Soviet writers.

The year 1951 was also remarkable for two literary occasions: ten-day congresses were held for writers and artists of the Ukraine (June 15-25) and of Uzbekistan (Nov. 17-27). At the Ukrainian congress in particular several novelists and poets (V. Sosyura, A. Korneychuk, Wanda Wasilewska) were reproached for "nationalist deviations," and a public censure was passed on the Central committee of the Ukrainian Communist party for not having taken adequate measures against "bourgeois, nationalist and cosmopolitan tendencies" in the Ukrainian republic.

The press devoted much space to articles on the second Congress of Young Writers, held in Moscow from March 15 to 20, 1951 (the first had been in 1948). About 300 novices were assembled in the capital and introduced to their seniors. Seminars were organized for the discussion of aesthetic problems.

Finally, Soviet literature lost in 1951 two writers who had been awarded the Stalin prize: Vsevolod Vishnevsky, author of the two successful plays *The Optimist Tragedy* and *The Unforgettable Year 1919*, died on Feb. 28; and Pyotr Pavlenko, author of the well-known novel *Happiness* (1947) and scenarist of the films *Aleksander Nevsky*, *The Oath* and *The Fall of Berlin*, died on June 16. (A. PR.)

RYE: *see* GRAIN CROPS.

SAAR. A German state (*Land*) united with France by monetary (from Nov. 20, 1947) and customs (from April 1, 1948) union. Area: 734 sq.mi. Pop. (1947 est.): 848,052. Language: German. Religion: Roman Catholic 75%, Protestant 24%. Capital: Saarbrücken (pop., 1939 est.) 135,000, (June 1947 est.) 97,752. High commissioner of the French republic, Gilbert Granval; prime minister, Johannes Hoffmann.

History. The two principal events in the internal life of the Saar in 1951 were the break-up of the coalition and the dissolution by the government of the Democratic party. The two Socialist members of the government—Heinz Braun, minister of justice, and Richard Kirn, minister of labour—resigned on April 9, 1951, over issues connected with social and economic policy. Hoffmann, the prime minister, decided

to reduce the size of the government. On April 14 he announced that he himself had taken over the Ministry of Labour, while Erwin Müller, the new minister of cults, also became minister of justice. Franz Ruland of the Employers' association took over the Ministry of Economic Affairs from a member of the Christian Democratic party. The political life of the Saar gained in liveliness, now that for the first time there was a serious opposition in the Landtag.

In May the government took the serious step of dissolving the Democratic party. This party had originally had three deputies who resigned from it as it gradually changed character and became the main expression in Saar political life of the wish to return to Germany. The government claimed that it had come under near-nazi control and at any rate conducted its campaigns on an anti-constitutional basis.

There was disappointment in the Saar that by Dec. 1951 there was still a French high commissioner instead of a French diplomatic representative at Saarbrücken as had been promised. Meanwhile, on April 18, the French government had solved the problem of getting both Germany and the Saar into the European Steel and Coal community, by declaring that the French foreign minister's signature covered both France and the Saar. That France was entitled to sign on behalf of the Saar under the Franco-Saar agreement of March 1950 was undisputed, but it had been expected that the French foreign minister would sign twice, once for France and once for the Saar. Hoffmann hurried to Paris to put the Saar point of view to Robert Schuman but the nature of their conversation was not disclosed. Thus the Saarlanders were not only aware of a growing campaign in Germany for the return of the Saar but saw that in certain circumstances the German government could induce the French government to express its claims in the Saar in at least a very cautious manner. This seemed to have had a discouraging effect on the supporters in the Saar of the French connection. On the other hand this connection continued to provide in the Saar full employment throughout the year in striking contrast to the situation in Germany. Both the Christian Democrats and the Socialists had declared against holding another plebiscite in the Saar. (D. R. GI.)

Economy. Production in thousand metric tons:	1936-38	1948	1949	1950	1951*
Pig iron . .	2,280	1,128	1,584	1,692	2,352
Steel . . .	2,418	1,216	1,756	1,896	2,588
Coal . . .	12,500	12,474	14,236	15,096	16,330
Cement . .	218·4	159·6	206·4	207·6	230·0
Gas (million cu. m.)	—	1,164	1,344	1,320	1,501
Electricity (million kwh.) . .	1,260	1,200	1,524	1,500	1,671

* Annual estimate based on first 10 months.

ST. CHRISTOPHER: *see* LEEWARD ISLANDS.

ST. CROIX: *see* VIRGIN ISLANDS.

SAINT HELENA. British colony in the south Atlantic with dependencies of Ascension (34 sq.mi.; pop. 1949, 159) and Tristan da Cunha (13·5 sq.mi.; pop. 231). *Colony:* area 47·3 sq.mi.; pop. (1949) 4,664. Language: English. Religion: Christian (90% Anglican). Capital: Jamestown (pop. 1,547). Administration: governor; executive council; advisory council. Governor, Sir George Joy.

History. The flax industry prospered during 1951 and two of the three flax undertakings were taken over from their local owners by a British firm. The growing of lily bulbs suffered a setback from disease but a successful remedy appeared to have been found and it was hoped to resuscitate the industry. On Tristan da Cunha a new fish cannery was brought into operation and the arrival of a new and more suitable fishing vessel improved its prospects. In addition to an administrator, employment and a cash economy, the islands were due to acquire a doctor and an agricultural officer.

Education. Schools (1949): 11 primary and 1 secondary school, 1,242 pupils; 1 domestic science centre.

Finance and Trade. Currency: sterling. Budget (1951 est.): revenue £103,393; expenditure £107,256. Foreign trade (1950): imports £120,000 exports £140,000 (mostly flax). Production: hemp 1,200 tons. Livestock: 2,357 sheep, 2,140 goats, 870 cattle. (K. G. B.)

ST. JOHN: *see* VIRGIN ISLANDS.

ST. KITTS-NEVIS: *see* LEEWARD ISLANDS.

ST. LAURENT, LOUIS STEPHEN, Canadian statesman (b. Compton, Quebec, Feb. 1, 1882), succeeded W. L. Mackenzie King as prime minister of Canada on Nov. 15, 1948. (For his early career, see *Britannica Book of the Year 1951.*)

At the beginning of 1951 St. Laurent was in London for the conference of Commonwealth prime ministers (Jan. 4-12), and on Jan. 13 arrived in Paris for discussions with French ministers. He was entertained to lunch by President Vincent Auriol and was the guest of René Pleven, the prime minister, at a dinner attended by most of the ministers. He returned to Ottawa on Jan. 16. Speaking in Ottawa on Feb. 28, he said that the government would propose to parliament that Canadian forces should be sent to Europe under the North Atlantic treaty. He spoke on world affairs at the University of Western Ontario, London, Ontario, on March 7; at Northwestern university, Evanston, Illinois, on June 11, he spoke on " the partnership to uphold freedom." On Sept. 15, he welcomed to Canada the North Atlantic council which met in the House of Commons chamber. He visited Washington on Sept. 28 to discuss with President Truman the St. Lawrence seaway project. During the visit to Canada of Princess Elizabeth and the Duke of Edinburgh (Oct. 8-Nov. 12) he and Mrs. St. Laurent were often hosts to the royal visitors. During 1951 he welcomed to Canada the prime minister of New Zealand, S. G. Holland, who visited the dominion on Jan. 29-31, and President Auriol (April 5-9).

ST. LUCIA: *see* WINDWARD ISLANDS.

SAINT-PIERRE AND MIQUELON. Group of eight small islands off the south coast of Newfoundland; a former French colony the status of which was changed in 1946 to that of overseas territory. Area: 93 sq.mi. Pop.: (1936 census) 4,715; (1945 census) 4,354. Language: French. Religion: Roman Catholic. Chief town, Saint-Pierre (pop., 1945, 3,636). Administrator, Alain Alaniou.

History. A company was set up to take advantage of the cold-storage available on Saint-Pierre and to restore the fishing fleet. The fishing industry had in fact declined in importance: 400 out of the 4,354 inhabitants were fishermen, and there were 200 boats. Silver-fox breeding went on, though the animals' food, which had to be imported from the mainland, was expensive; annual output was 2,000 skins. It was suggested that the more lucrative mink could be acclimatized. A geological map was drawn up. An electric generating station was built at Saint-Pierre. A Socialist was elected deputy on June 17, 1951.

Education. Schools (1951): pupils, primary, 1,123; secondary and technical 70; bursaries in France, 9.

Foreign Trade. (1950, million Fr. C.F.A.): imports 347; exports 142, including cod, mainly for the French Antilles, 113.

Finance. Budget (1951 est.): balanced at Fr. C.F.A. 283 million. Monetary unit Fr. C.F.A.=Fr. metropolitan 2. (HU. DE.)

ST. THOMAS: *see* VIRGIN ISLANDS.

ST. VINCENT: *see* WINDWARD ISLANDS.

SALISBURY, ROBERT ARTHUR JAMES GASCOYNE-CECIL, 5th marquess of, British politician (b. Hatfield house, Hertfordshire, Aug. 27, 1893), was educated at Eton college and Christ Church, Oxford, and served during World War I in the Grenadier guards. As Viscount Cranborne, he sat in the House of Commons for South Dorset from 1929 to 1941 when he was called to the House of Lords (during his father's lifetime) as Baron Cecil of Essendon. He succeeded his father in April 1947. He was elected chancellor of Liverpool university in 1951. His appointments included: parliamentary under secretary of state for foreign affairs, 1935-38 (he resigned in February with Anthony Eden over Neville Chamberlain's policy towards Italy); paymaster-general, 1940; dominions secretary 1940-42 and 1943-45; colonial secretary, 1942; lord privy seal, 1942-43; and leader of the House of Lords, 1942-45. After the Labour party's victory in July 1945, he became leader of the Conservative opposition in the House of Lords, and defended the constitutional powers of the House of Lords against the government's proposals to reduce them. In Winston Churchill's government of 1951 he was made lord privy seal and leader of the House of Lords.

SALVADOR, EL. Republic on the west coast of Central America. Area: 13,176 sq.mi. Pop. (1950 census) 1,858,656. Aboriginal and mixed races, *ladinos* and *mestizos*, constitute the bulk of the population. Language: Spanish. Religion: Roman Catholic. Chief towns (pop., 1948 est.): San Salvador (cap., 124,266); Santa Ana (51,351); Nueva San Salvador, formerly Santa Tecla (25,684). President, Lieut. Col. Oscar Osorio.

History. Continuing its ambitious reform programme, the Osorio administration secured in Jan. 1951 the adoption by the National Legislative Assembly of a fairly comprehensive labour law. The measure, which did not apply to agricultural, domestic, contract or self-employed workers, provided for a 44-hr. week (8-hr. day) for day workers and a 42-hr. week (7-hr. day) for night workers, with rates of pay 25% higher for night than for day work and time and a half paid for overtime. All workers covered by the law were to have one paid day of rest a week. Employment for persons under 16 years of age was limited to a 6-hr. day or a 36-hr. week.

Constitutional government was interrupted on March 9, when President Osorio declared a state of siege, alleging that a Communist plot to overthrow the government had been unearthed. On March 15, 23 Salvadoran opposition leaders deported by Osorio were granted sanctuary by Nicaragua.

The Salvadoran Foreign Office issued invitations in September to the foreign ministers of Costa Rica, Guatemala, Nicaragua and Honduras to meet at San Salvador to consider holding periodic meetings of the Central American foreign ministers, establishing commissions to deal with particular problems and creating an organization of Central American states. The conference opened on Oct. 8 and adjourned several days later after the delegates signed a "Charter of Salvador" setting up the Organization of Central American States "to promote fraternal bonds by group action and to study solutions for common problems." Panama, which was not represented at the conference, was invited to adhere to the charter.

Southeastern El Salvador was rocked by earthquakes on May 6-7. The disaster affected 11 towns, the hardest hit being Jucuapa (pop., 14,000), where every building was rendered uninhabitable; 375 people were killed and 25,000 left homeless. (G. I. B.)

Education. Schools (1949): 1,980 primary, 4,763 teachers, 110,901 pupils; 48 secondary (in 1950), 6,500 pupils. The national university had 1,120 students and 147 professors and lecturers in 1949.

Foreign Trade. Exports in 1950 totalled $69,501,512; imports $47,230,966. Leading exports were coffee (88%), gold, sugar and silver. Principal customers were the U.S. (86%), Italy (3%), Guatemala (2%) and the United Kingdom (2%).

Communications. Railways (1951): 385 mi. narrow gauge. Roads (1950): 1,693 mi. of which 934 mi. were all-weather.

Finance. Budget (1951 est.): balanced at 110 million colones. Monetary unit: *colón*, 2·50 colones to the U.S. dollar, 7·00 to the pound sterling. (J. W. Mw.)

SALVATION ARMY. In most of the 89 countries in which the Salvation Army was working 1951 was a year of encouraging progress. In China, however, a gradual withdrawal of European officers became necessary, and responsibility for carrying on the work was being shouldered by experienced Chinese officers. In Korea, the Salvation Army's forces remained widely scattered. Many of its buildings were destroyed or damaged as a result of the war; temporary headquarters were established at Pusan, and at many centres in the south activities were continued with vigour. Up to late in the year, nothing more had been heard of Lieut. Commissioner H. A. Lord, the Salvation Army's leader in Korea, who had elected to remain in Seoul when the war started and was made a prisoner.

In most countries in which Salvation Army work was suppressed or severely restricted during World War II further progress towards recovery was made. Three such countries, Germany, Japan and Indonesia, were represented at a council held in London in September for leading officers of the army's training colleges. The council, which was the first of its kind to be held for 26 years, was attended by 40 officers from 21 countries.

Throughout the year evidence accumulated of the stimulus given to the army's work among young people in many lands by the first Salvation Army International Youth congress, held in London in 1950. In Great Britain more than 160 new units of the army's various youth organizations were started during the year.

The Army did emergency relief work made necessary by floods, hurricanes and other natural causes in various parts of the world. Such work was undertaken in Australia, northern India, Pakistan, the U.S., the Philippine Islands, and in Jamaica after the hurricane.

In May General Albert Orsborn completed his fifth year as the army's international leader. By that time he had met on his travels nearly all of the army's 27,000 officers. No extensive tour was arranged for 1951, but he conducted the annual congress meetings in Switzerland, Holland, Sweden, Norway, Finland, Denmark and Italy.

In Great Britain the Army's special efforts were to a large extent linked with the Festival of Britain. Besides co-operating in many of the festival services and other events arranged by the British Council of Churches, it had its own programme and in London its own festival centres where special meetings and other events were held.

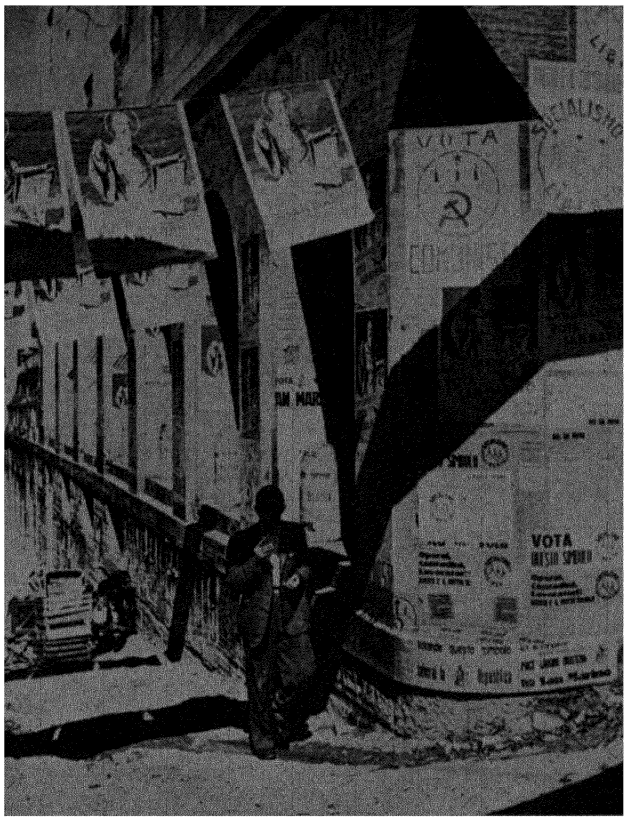
In October the Salvation Army's leading band, the International Staff band, celebrated its 60th anniversary. An important event for which the army was not actually responsible was the broadcast in April by the B.B.C. of the television play *Shout Aloud Salvation.* This dealt with the army's turbulent early days. (W. H. A.)

See Alfred Gilliard, *The Faith of the Salvationist* (1951); Charles Sylvester, *Korea for Christ* (1951).

SAMOA, AMERICAN: *see* PACIFIC ISLANDS, U.S.

SAMOA, WESTERN: *see* NEW ZEALAND; TRUST TERRITORIES.

SAN MARINO. Small republic in central Italy, entirely surrounded by the province of Emilia and situated



Election posters in San Marino where a general election was held on Sept. 16, 1951.

on the slopes of Monte Titano, 14 mi. S.W. of Rimini. Area: 38 sq.mi. Pop. (June 30, 1951, est.): 12,969. Language: Italian. Religion: Roman Catholic. San Marino is governed by two *Capitani Reggenti* appointed every six months by a Grand and General Council of 60 members elected by universal suffrage every four years. Regents: (April-Sept. 1951) Alvaro Casati and Giordano Giacomini; (Oct. 1951-March 1952) Domenico Forcellini and Giovanni Terenzi.

History. The two-year-old quarrel between San Marino and Italy was partly settled during 1951. On Aug. 19 it was announced that San Marino had agreed to close its gaming house, which, incidentally, was a competitor with similar establishments at Venice and San Remo; the Italian government agreed to pay San Marino L. 150 million of which one-third was provided immediately.

Although a new election was not due until 1953, the Consiglio Grande e Generale on June 30 unanimously voted its own dissolution. The voting took place on Sept. 16 and the results were as follows: People's Democrats (Communists and Socialists), 2,297 votes and 31 seats; Christian Democrats 1,922 votes and 26 seats; Neo-Fascists 248 votes and 3 seats. Although the Communist-controlled majority was reduced from 10 to 2, it kept control of the administration.

At the end of the year there were still questions outstanding between Italy and San Marino including the establishment of businesses by Italians in the republic to avoid taxation.

Education. During the scholastic year 1950-51 there were 1,431 pupils in primary schools and 190 in secondary.

Finance. Budget (1951-52 est.): provisionally balanced at L. 570,411,538.

SÃO TOMÉ: *see* PORTUGUESE OVERSEAS TERRITORIES.

SARAWAK: *see* BRITISH BORNEO.

SAUDI ARABIA: *see* ARABIA.

SCANDINAVIAN LITERATURE. The year 1951 was uneventful in Scandinavian literature. There was no sensational best-seller and no meteoric rise of a new author; even many of the well-established writers were silent. As usual, most of the new books were published in the autumn, and the " book flood " culminated in December. The sharp rise in book prices did not seem to affect the Christmas sales, but it did make people reluctant to stake their money on unknown names. There was a decrease both in the abstract, surrealistic literature typical of the 1940s, and in translations; works in the original dominated the market in all the northern countries. In November Pär Fabien Lagerkvist (*q.v.*), the Swedish writer, was honoured by the award to him of the Nobel prize for literature.

Sweden. In the field of the novel, Sivar Arnér, with his deep insight into human nature, wrote his best book to date, *Han, hon—ingen;* Vilgot Sjöman, who made his name with *Lektorn*, justified his earlier success with *Kvinnobild*, and another young author, Arne Sand, also fulfilled the critics' hopes with his second book, *Erövaren*. The young poet Hanserik Hjertén wrote his first novel, *Asfaltvägen*, about secondary school life and the teaching profession, and Per Anders Fogelström, one of the foremost modern writers on Stockholm and the problems of its young people, published *Sommaren med Monika*. In *Damen*, Peder Sjögren dealt with the fear, latent in everyone, of an incomplete death; and Irja Browallius gave a brilliant account of a man wrongly convicted for murder in *Vänd ryggen åt Sivert*. An unjustly neglected writer, Hans Hergin, wrote an excellent psychological novel, *Betala ditt pris*, and Gösta Gustav-Jansson broke silence after 14 years with *Stampen*. Maria Lang's *Inte flera mord!* was on a level with the very best English detective stories.

Two collections of poems were noteworthy: *Om hösten*, by the eminent poet Gunnar Ekelöf, and *Grodnattvard*, by the promising young Staffan Larsson. Nils Ferlin's new poems were called *Kejsarens papegoja*. Olof Lagercrantz published his long-awaited biography of Agnes von Krusenstjerna, one of the most fascinating and puzzling figures in modern Swedish literature; the poet Bo Bergman painted a lifelike portrait of Hjalmar Söderberg; the first volume appeared of the memoirs of the great Finnish statesman, Gustaf Mannerheim; and Prince Wilhelm recalled memories of his early life in *Episoder*. A delightful travel book about a sailing cruise in the Greek archipelago was *I Odysseus kölvatten*, by Göran Schildt.

Denmark. Neither H. C. Branner nor Martin A. Hansen wrote a new novel in 1951, but each writer made a contribution to the philosophical series " Mennesket i Tiden," Branner with *Humanismens Krise* and Hansen with *Eneren og Massen*. Eiler Jørgensen gave full rein to his fantasy and satire in *Manden, der huskede*, and J. Bech Nygaard's *" —— og hvert Sogn sine Trolde "* was a gay but satirical novel about village life. The poet Frank Jaeger published an edition of his poems written between 1948 and 1950, as well as *Hverdagshistorier*, 18 hilarious short stories. The great cattle droves down through Jutland formed the background to Karen Aabye's novel, *Min Søn Janus;* and *Skygger i et Spejl*, by Aase Hansen, had an American setting. *De mange Fold*, by Niels Anesen, told of a man who tried to keep the inner qualities inherited from his parents. *Samtale om natten*, by Hans Jørgen Lembourn, were short stories with a strong erotic background. In *Retur til Barndommen*—a collection of essays, short stories and reminiscences—Jacob Paludan took the reader back to the peaceful turn of the century; Karen Blixen published her ten famous radio talks under the title of *Daguerreotypier*, and Elias Bredsdorff wrote of two famous authors, Hans Andersen and Charles Dickens, in his book *H. C. Andersen*

og Charles Dickens, Et Venskab og dets Opløsning, which included extracts from the former's diary and an exchange of letters between the two men. *Den regntunge Sky*, by Niels Møgelvang Nielsen, was an important contribution to the understanding of the poet Nis Petersen. Hitherto unpublished poems of Petersen's appeared under the title of *For Tromme og Kastagnet*. A new collection of poems by Jørgen Nash was *Vredens Sange*, and Paul la Cour published a selection of his poems from 1928 to 1951.

Norway. Generally speaking, the European currents of thought which reached Sweden in the 1940s passed Norway by, and both critics and public preferred more traditional writing.

Three outstanding novels during 1951 were *Jeg er blitt glad i en annen*, by Sigurd Hoel (his first for four years, dealing with the same characters as in his famous *Syndere i sommersol*); *Hjemover*, by Sigurd Evensmo, a moving story of the Occupation; and a new illustrated edition of *Det store spelet*, by Tarjei Vesaas. The most promising new writer was Finn Bjørnseth, with some striking short stories, *Unge netter*. Hans Geelmuyden also wrote short stories, grave and gay, under the title of *Grønn genser og andre historier*, and a cycle of stories round a central theme, *Arenaen*, by Finn Carling, justified the hopes this young writer aroused in 1949. Carl Keilhau, who made his name in 1947, published some new poems, *Fra nå av teller tiden*, and the other collections of poems worthy of note were also by young poets—*Den hemmelige sommer*, by André Bjerke, *Mitt skip seiler*, by Inger Hagerup, and *Blinde nattergaler*, by Gunvor Hofmo. The first volume of Icelandic sagas from the 13th century appeared in a new translation, edited by Hallvard Lie.

(A. L. BLR.)

SCHUMAN PLAN: *see* EUROPEAN COAL AND STEEL POOL (SCHUMAN PLAN).

SCOTLAND. Part of the United Kingdom of Great Britain and Northern Ireland. Area: 30,400 sq.mi. Pop. (1951 census): 5,095,969. Scotland has its own legal system and the secretary of state for Scotland, a United Kingdom minister, is responsible for the agriculture, education, health and home departments and shares responsibility for certain services organized on a United Kingdom basis. Secretaries of state in 1951: Hector McNeil and (from Oct. 30) James Stuart; minister of state, the Earl of Home.

History. A minister of state was appointed as a senior assistant to the secretary of state for Scotland and legislation was introduced to provide for a third under secretary. Among other duties the minister of state was to concern himself with industry and development in Scotland. Employment continued at a high level and in many areas there was an acute shortage of skilled workers; the number of persons out of work in June 1951—42,300—was the lowest since 1945, but it amounted nevertheless to 2% of all workers as against 0·9%, the comparable figure for the whole of Great Britain. Shipbuilding had a good year and at Sept. 30 945,000 tons of shipping were under construction, as against 777,000 tons a year earlier. The production of both coal and pig-iron was higher than in 1950; there was, however, a drop of 12% in crude steel because of shortage of raw material.

In agriculture, the Hill Lands (North of Scotland) commission, appointed in October under the chairmanship of Lord Balfour of Burleigh, was charged with reviewing in the area north of the highland line the whole field of stock rearing with a view to stimulating development. This was only one indication that emphasis had been laid upon increased agricultural potentialities in the highlands and uplands. The Livestock Rearing act extended the period of operation of the Hill Farming act of 1946 and broadened its scope to include stock-rearing farms in upland areas. Money for rehabilitation was increased. During the year a commission of enquiry into the crofting system was appointed. Almost 50,000 ac., of which more than half were scheduled as plantable, were acquired by the Forestry commission, and the total acreage planted was over 24,000 ac. as compared with 20,000 in the previous year. The number of new houses completed by the commission since the end of World War II was 335, and the labour force exceeded 4,000. Several joint surveys of large tracts of the Scottish countryside were undertaken by the commission and the Department of Agriculture to discover further areas suitable for development.

The North of Scotland Hydro-Electric board in 1951 brought into operation 82,750 kw. of hydro-electric plant and started work on the construction of four schemes with a total capacity of 139,000 kw. Of the 23 schemes promoted, involving the construction of 46 generating stations with an installed capacity of 788,000 kw., 13 were under construction. Six of these were producing power at the end of the year. The board erected a 100 kw. windmill on the Orkney Islands to test power generation by wind. Experiments were also being made with a closed-cycle gas turbine; the use of peat as fuel for gas turbine generators; and the production of an electrical hay drier suited to the needs of the crofting counties. In August the Herring Industry board was given wider powers. The White Fish authority's Scottish committee examined the state of that section of the industry and paid visits to the main ports. Complete reorganization of the fishing industry in Aberdeen, the largest fishing port in Scotland, and the rebuilding of the Aberdeen trawler fleet were recommended.

One of the most noteworthy contributions towards the health of the nation was the combined attack on tuberculosis. Notifications of respiratory tuberculosis—which reached a peak in 1949 with 8,653 cases—fell in 1950 to 8,315 and this downward trend continued in 1951. The death rate dropped from 66 per 100,000 in 1948 to 47 per 100,000 in 1950 compared with 54 per 100,000 in 1939; during the first three-quarters of 1951 the death rate was 38 per 100,000. The number of staffed beds available for the treatment was increased from 4,895 at the end of 1949 to 5,639 at Sept, 30, 1951 and 180 beds were made available in Switzerland for Scottish patients. The waiting list for admission of respiratory tuberculosis patients to hospitals, which was 2,877 at the end of 1949, had dropped to 1,774 by Sept. 1951.

In education a special scheme of teacher recruitment was begun. Buildings were constructed to provide 55,000 school places and about 60,000 places were being planned. The rate of completion of houses fell, largely because of scarcity of such materials as bricks, cement and plasterboard. Local authorities were permitted to issue private building licences for one-fifth of their annual programmes and they were also given permission to sell council houses. Scotland's part in the Festival of Britain was seen principally in two exhibitions, the "Exhibition of Industrial Power" in Glasgow and "Living Traditions" in Edinburgh. The annual Festival of Music and Drama in Edinburgh was joined with festivals of the arts at Inverness, Aberdeen, Perth and Dumfries.

(D. ME.)

National Movement. Ever since 1707 when the parliaments of Scotland and England were united there had existed in Scotland a body of opinion varying in strength from time to time which had resented the terms of the union and had sought to change them. Resentment against the union played a large part in the Jacobite risings of 1715 and of 1745. During the remainder of the 18th century and throughout most of the 19th the Scottish people appeared to resign themselves to their loss of national sovereignty and threw themselves vigorously into the development of the rapidly expanding empire. Scotsmen increasingly began to think of

their country as " North Britain " and concentrated political discussion on the interminable dissentions within the Scottish church. During the 20th century, however, the increasing complexity of government and the tendency to centralize economic control in London brought forth a new manifestation of national spirit in Scotland. In 1927 there was founded in Glasgow university a nationalist association and in 1928 that association became instrumental in bringing together various small patriotic organizations under the name of the National Party of Scotland. The new party contested several parliamentary elections during the years between 1929 and 1940 and, although it was unsuccessful in winning any seat, the number of votes it was able to attract surprised, and to some extent dismayed, the established parties. Since its formation, however, the National party had endeavoured by a series of compromises to hold together two divergent opinions. On the one hand there were those who aimed at a complete severance of Scotland from England and, on the other, those whose aim was a revision of the terms of union which would give Scotland a parliament with authority in Scottish domestic affairs, while maintaining Scottish representation in the United Kingdom parliament.

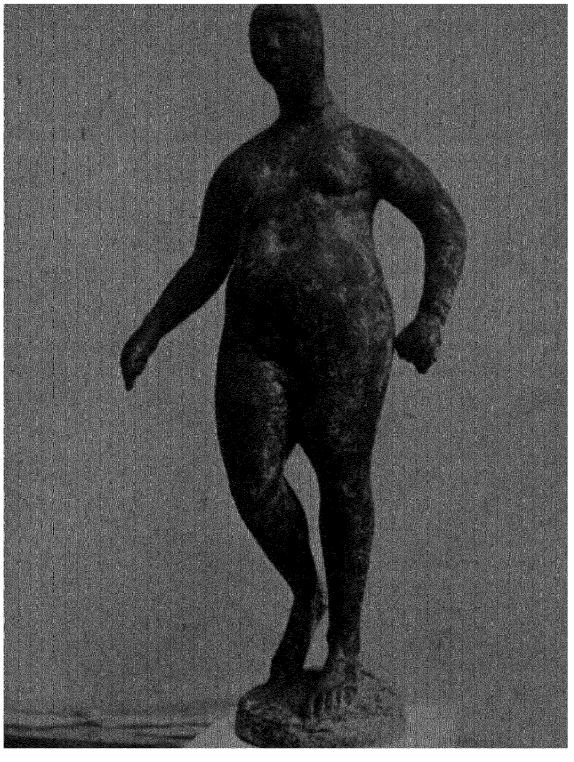
In 1942, largely because of the impact of the war, further compromises became impossible and the more moderate section of the movement withdrew from the National party to found the Scottish convention. From its inception it became clear that the convention with its moderate statement of aims and non-political approach to Scottish problems commanded the support of the largest section of national opinion in Scotland. In 1947 it brought together the first of a series of widely representative national assemblies which in Oct. 1949 launched the new National covenant. The covenant was a document which pledged its signatories to do everything to secure the establishment, within the United Kingdom, of a Scottish parliament having full legislative power in Scottish affairs. Within two years it had been signed by more than two million people in Scotland and these signatories were by 1951 organized in the Scottish Covenant association which incorporated the Scottish convention and included members of all political parties, many dignitaries of the Church of Scotland and many leading figures in Scottish local government. The association hoped to advance towards its goal not by rivalling the political parties but by a process of education and persuasion and it had already secured a promise from both the Conservative and Labour parties that they would establish a royal commission to examine the relationship between Scotland and England in the light of modern conditions. (J. M. MacC.)

Scottish Council. The council, a representative body co-operating with government departments to promote Scottish economic prosperity, had by 1951 offices and local committees in London, New York and Toronto. During the year it assisted the establishment in Scotland of a number of new industrial units including two factories from the United States and one from Canada, one of which, when in full production, would employ nearly 7,000 workers. Since World War II 20 factories had been established, or were in process of being established by United States and Canadian corporations, this being over 50% of the total number of new factories set up in the United Kingdom by north American firms.

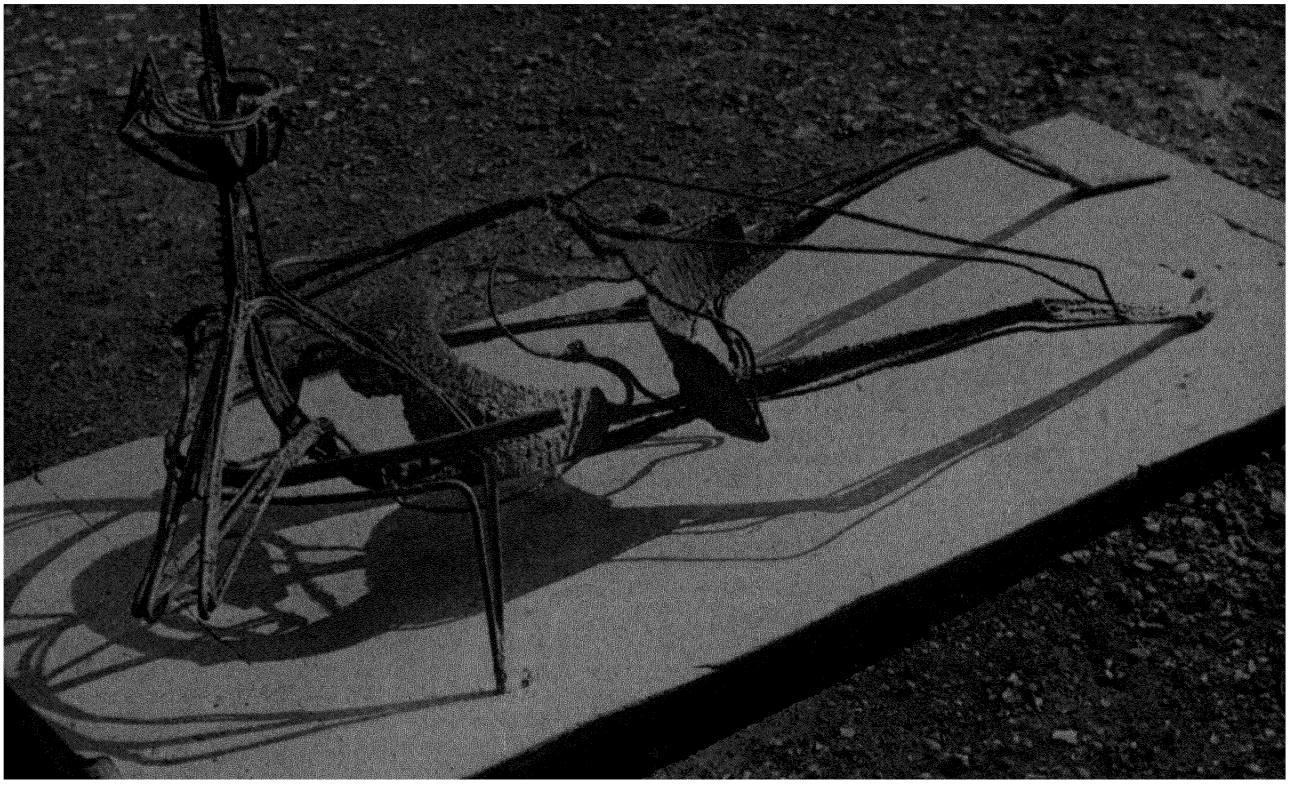
The council paid particular attention to the development of exports and Scottish exports of all categories, particularly those to dollar markets, increased considerably.

In May the government accepted a scheme devised by the council for the promotion of an electronics industry; under this a number of electrical and mechanical engineering firms would collaborate in research and development. A laboratory block to be built at Ferranti's factory in Edinburgh would form the headquarters of this group and provision was made for advanced training of electronic engineers. (X.)

SCULPTURE. In sculpture, as in painting, the movement towards realism gained impetus in 1951. The spindly standing and walking figures of Alberto Giacometti, the Italian-Swiss sculptor of the school of Paris, were the outcome of a preoccupation as important as it was revolutionary—a preoccupation with representing the human body in such a way as to imply both the space surrounding it and the viewpoint from which it was observed. Other sculptors concerned with representing appearances were more traditional in their conception, although the flavour, the emotional content, of their work was essentially contemporary. In Italy, Marino Marini's nudes and horsemen reflected the inspiration of the statues of the 13th-century Pisan, Tino da Camaino, while his portraits, with their taut, nervous surfaces, followed the lead given by the largest of Degas' extant busts. Degas' bronzes were also an important source for another distinguished Italian sculptor, Giacomo Manzù, for whom movement served above all as the expression of character. In Austria, Fritz Wotruba, by simplifying the volumes of the figure into blocks, brought to the surface its latent architecture, although without petrifying it, for his stone statues and bronze statuettes were full of a robust yet grave humanity. Whether Henry Moore's excursions into the naturalistic field entitle him to be included in this movement towards realism is doubtful, for he was not really concerned with making a fresh investigation of appearances, but rather with his constant aim of composing an expressive harmony of monumental sculptural forms; on occasion, he was led to adopt a naturalistic idiom deriving from Masaccio because this could express certain gentle and contemplative moods better than his more abstract style. So in England the most interesting researches into realism were probably those of William Turnbull, a member of the generation following that of the artists already mentioned and whose style was much less formed; he was clearly indebted to Giacometti, though his aim was different



" Pomona " by Marino Marini, exhibited in 1951 at the Tate gallery, London.



" Woman Resting, 1950-51 " by Reginald Butler, exhibited in [illegible] owned by the Aberdeen Art Gallery and Museum.

and less complex. His statues of male nudes distilled all the conceivable drama from conventional gestures unexpectedly rendered fanatical by the implausible, almost hysterical, tension of his forms. Less ambitious but more accomplished were the figurines and reliefs (which gave a charming personal twist to the tradition of Degas) of Uli Nimptsch, a German artist working in London: his larger works, however, were somewhat stilted and unimaginative.

Outside the field so far discussed, there was very little sculpture produced in 1951 that was not stereotyped. All the familiar styles and techniques of modern art had their exponents: Expressionism, neo-classicism, Constructivism, biomorphic abstraction, the mobile, the iron construction in the Cubist tradition, etc. But in general they seemed barren of new imagery and new formal relations, especially when handled by artists a generation or two younger than their respective originators. One lively young sculptor working along familiar lines—on the boundary between surrealism and abstraction—was Eduardo Paolozzi, a Glaswegian of Italian parentage working in London, who produced a number of thoroughly personal inventions which as objects were distinguished by a strangely graceful uncouthness, and as images by a compelling power to evoke all kinds of submarine life.

But the outstanding practitioners of established styles were the two leading sculptors of the Cubist generation, Pablo Picasso and Henri Laurens. Picasso maintained his mastery over a wide range of idioms and moods, while Laurens developed with ever-increasing freedom the highly individual—yet, in France, extremely influential—style in which he had turned Cubist principles to the service of an exquisite sensuousness. It happened that, during the year, both of them were given large retrospective exhibitions of sculpture in Paris, and it was noticeable that their most recent works showed a gain rather than a diminution of vitality and imaginative power. (A. D. B. S.)

United States. Jacques Lipchitz, whose " Sculpture in Progress " exhibit was notably well received, showed a monumental " Birth of Venus " design for a New York collector, illustrated by models and photographs of the work in progress. Theodore Roszak demonstrated by work in the expressionist field that he was one of the craft's more inventive figures. A comprehensive group of Gerhard Marcks's work was shown in New York, centring around his monumental " Maja " figure earlier acquired by the Philadelphia museum.

In South America, international exchange of exhibits was undertaken with U.S. co-operation. Especially notable was the contribution of 14 pieces by U.S. sculptors to the newly established Brazilian biennial exhibition of paintings and sculpture in São Paulo. Theodore Roszak's design was second among the prize winners (the first prize being taken by the Swiss sculptor, Max Bill).

Less emphasis on the wall, " no longer figuring as a supporting element, but an enclosing screen," was demonstrated by Isamu Noguchi in his design for a ceiling decoration for a building in St. Louis, and by abstract designs by Naum Gabo for one in New York and Jean Arp for a hostel dining room at Harvard university. The possibilities in the use of fused, brazed and forged metal ensembles in symbolical sculpture were exploited further by David Smith, David Hare, Ibrim Lassaw and Leo Amino, the latter also employing plastic materials.

Four heroic equestrian groups designed by James Earle Fraser and Leo Friedlander for the plaza of the Arlington Memorial bridge, Washington, were cast in bronze in Italy as the gift of the Italian government and were put in place. The groups represented the Arts of War and Peace. Fraser received the gold medal award from the American Academy and National Institute of Arts and Letters and, together with Friedlander, the medal of honour of the National Sculpture society.

In Israel, Jo Davidson, the internationally known U.S. portrait sculptor, completed busts of President Chaim Weizmann, David Ben-Gurion, the prime minister, and four of the Israel cabinet, as well as heads of immigrant types. Paul Manship completed " Buddies," his monumental

realist group of two young soldiers, which later was to be seen in the Metropolitan museum's competitive sculpture show. First Metropolitan sculpture prize was awarded to Minna Harkavy, Estonian-born U.S. sculptress, for her "Two Men." Her work struck a style midway between the non-objective and the realistic work which marked the extremes of the exhibition. (C. Bu.)

SEABORG, GLENN THEODORE, United States chemist (b. Ishpeming, Michigan, April 19, 1912), was educated in the University of California and was appointed research associate there in 1937. He became a full professor in 1945. From 1942 to 1946 he was on leave at the University of Chicago metallurgical laboratory, where much of the development of the atomic bomb was carried out. Seaborg took a major part in the work on this weapon, as head of the laboratory's chemical separation section. With Edwin M. McMillan (*q.v.*), Seaborg in the 1930s had conducted the basic research which led in 1940 to the discovery of plutonium (element 94). It was reported that the insistence of Seaborg and Arthur H. Compton led to the selection of plutonium rather than uranium as the source of power for the first experiments on the atomic bomb. Seaborg and his associates later went on to discover elements 95 (americium), 96 (curium), 97 (berkelium) and 98 (californium). He was appointed to the general advisory committee of the U.S. Atomic Energy commission in 1946. In the same year, on his return to the University of California, he was appointed director of chemical research at the university's radiation laboratory. On Nov. 15, 1951, it was announced that Seaborg and McMillan were to be the joint recipients of the 1951 Nobel prize in chemistry.

SEISMOLOGY. The most destructive earthquake of 1951 occurred in El Salvador on May 6 when 1,200 persons in the towns of Jucuapa and Chinameca and in nearby villages were killed, 4,000 injured and 40,000 made homeless. In Changra, Turkey, 44 were killed on Aug. 13. On Oct. 22 a casualty list of 28 dead and 100 injured was reported from the Hualien area of Formosa. At Terminal Island near Long Beach, California, a light seismic disturbance on Aug. 15 caused damage to oil wells. A shock on March 15 ruined many war-damaged buildings at Mechernich, Germany. A strong submarine disturbance southwest of the island of Hawaii wrecked many houses and brought down cliffs on the Kona coast. In the United States activity outside the seismic areas of the Pacific coast was marked by a widespread shock in western Texas and several others in New England and New York state that broke windows and glassware. Seismograph recordings revealed that one of the strongest earthquakes of the year occurred in eastern Tibet on Nov. 18 not far from the scene of the great 1950 shock that was among the three greatest recorded on modern seismographs. A slightly stronger submarine shock was located southeast of Madagascar on Dec. 8. A series of strong shocks off the east and southeast coasts of Formosa indicated a major readjustment of basement rock in that area.

New seismograph stations were established at the University of Arkansas and at Nelson, Nevada, and five new stations were established in other countries. A comprehensive mathematical analysis of strong-motion seismograph records was completed at the California Institute of Technology; this would greatly facilitate the prediction of earthquake stresses in structures—a problem still in the research stage. All important instrumental records of destructive earthquake motions obtained by the U.S. Coast and Geodetic survey over an 18-yr. period were processed on the electrical analogue computer of the institute. Survey seismologists advanced new concepts of the nature of destructive earthquake motions. A seismological research group of Columbia university expanded its seismic surveys of the ocean bottom off the Atlantic coast of the U.S. to outline the extent and depth of the ocean sediments and the structure of the rock beneath. (*See* also Oceanography.) (F. Neu.)

SENANAYAKE, DON STEPHEN, Ceylonese statesman (b. Oct. 20, 1884), became prime minister of Ceylon on Sept. 26, 1947. For his early career see *Britannica Book of the Year 1951.* He was present at the meeting of Commonwealth prime ministers in London (Jan. 4-12, 1951) and in a broadcast on Jan. 8 he said that the countries of southeast Asia, weak and somewhat dazed, needed "a little breathing time when conditions would make it possible to reconstruct their political, social and economic structure largely by their own efforts." He returned to Colombo on Jan. 22. Accompanied by his son, the minister of agriculture and lands, he visited Madras, Rangoon (Oct. 10-12), Singapore (Oct. 12-14), Australia (Oct. 14-21) and New Zealand (Oct. 22-25). At a state luncheon in Wellington he spoke of the common interests of Australia, New Zealand and Ceylon. Returning via Australia he arrived in Colombo on Oct. 28.

SENATE: *see* Congress, U.S.

SENEGAL: *see* French West Africa.

SEWERAGE. Outstanding developments took place in Great Britain in 1951 with regard to the prevention of river pollution. The passing of the Rivers (Prevention of Pollution) act placed wide powers in the hands of the river boards of England and Wales. The report on water pollution research, issued by the Department of Scientific and Industrial Research, summarized the work carried out by the water pollution research laboratory during 1950, including a progress report on a comprehensive survey of the Thames estuary.

Lack of proper facilities for sewerage and sewage treatment is a threat not only to rivers but also to underground sources of water supply; this is particularly true in districts where the geological formations are fissured, as in the Parts-of-Kesteven area of Lincolnshire. This fact was plainly demonstrated in a report issued early in the year by J. H. C. Clarke, county medical officer of health for that area.

The rapid developments which had taken place in recent years in harnessing atomic energy and in the use of radioactive materials had caused concern amongst those responsible for the purification of sewage. Particulars given by E. H. Belcher in a paper on "Experimental Studies on the Fate of Radioactive Materials in Sewage Treatment," presented at the annual conference of the Institute of Sewage Purification on June 22, were, up to a point, reassuring.

One of the principal constructional works of the year was the completion of a further instalment of the Strongford sewage works of the city of Stoke-on-Trent. The main drainage of the district was being reorganized, so that nearly the whole of the sewage from the city, as well as that from the borough of Newcastle-under-Lyme, would be purified at Strongford. The plant put into service cost £320,000 and was the second section of a three-part scheme costing roughly £700,000. The Maple Lodge sewage works of the Colne Valley Sewerage board were nearly completed, and began to receive sewage early in the year. The Colne valley scheme was a good example of regional main drainage; the sewage from the whole valley was led to a single sewage treatment works of advanced design.

Vigorous steps were taken to improve stream conditions in the United States where, it appeared, very heavy expenditure would be needed to remedy existing pollutions and to prevent others from arising. This was exemplified by figures

given by Mark D. Hollis, a senior member of the staff of the U.S. Federal Public Health service, in the January issue of *Sewage and Industrial Wastes.* In his opinion "about $4,250 million for municipal sewage treatment works is required to satisfy the more obvious needs by 1960." As he estimated that about an equal sum would be needed to deal with industrial effluents, the provisional budget would amount to about $800 million each year for ten years.

(J. HY.)

SEYCHELLES. British colony and dependencies, 92 islands (Mahé being the largest) in the Indian ocean. Area 157 sq.mi. Pop. (1947 census): 35,232, mainly Negro. Language: English; creole *patois.* Religion: Christian, (*c.* 66% Roman Catholic). Capital, Victoria (pop. *c.* 7,000). Administration: governor; executive council; legislative council. Governors (1951): J. D. Bates; (from May 14) Frederick Crawford.

History. High copra prices continued during 1951 and the establishment by the Colonial Development corporation of a fishing base on St. Anne gave another fillip to local development. Three vessels were employed and the export of dried fish to east Africa was started. Elections were held for the legislative council and the restriction of the life of the new council to one year suggested that some measure of constitutional reform was likely.

Education. Schools (1950): 31 primary (4,756 pupils); 3 secondary; 1 technical training centre.

Finance and Trade. Currency, Seychelles rupee (Re. 1 = 1*s.* 6*d.*). Budget (1951 est.): revenue Rs. 3,900,000; expenditure Rs. 3,400,000. Foreign trade (1950): imports £441,000; exports £609,000. Production (1950): copra 5,959 tons, cinnamon oil 97,000 kg., cinnamon bark 265 tons, guano 9,847 tons. (K. G. B.)

SHAWCROSS, SIR HARTLEY WILLIAM, British politician (b. Giessen, Hesse, Germany, Feb. 4, 1902), was educated at Dulwich college and in Geneva. He was called to the bar by Gray's Inn in 1925, was senior law lecturer at Liverpool university and became a K.C. in 1939. In 1939 also he was elected a bencher of Gray's Inn. An officer on the reserve, he was found medically unfit for service in World War II. In 1940 he abandoned the bar for government service and was regional commissioner, northwestern region of England, 1942-45. The youngest recorder ever appointed, he officiated for Salford in 1941-45, and for Kingston-upon-Thames from 1946. Shawcross had joined the Labour party while still at school and in 1945 was elected Labour member for St. Helens—he held the seat in 1950 and 1951. He was appointed attorney general in 1945 and was knighted, and from April to Oct. 1951 he was president of the Board of Trade. While attorney general Shawcross appeared as the chief British prosecutor at the Nuremberg war crimes trial, and he led for the crown in the trials of William Joyce (for high treason) and Klaus Fuchs (for betraying atomic secrets). He was a delegate of the United Kingdom to the United Nations general assemblies, 1945-49, and was a U.K. member of the Permanent Court of Arbitration at The Hague from 1950.

SHEEP: *see* LIVESTOCK.

SHIPBUILDING. The shipbuilding industry was active throughout 1951, with prices still rising because of increases in wages and the cost of steel. The yards in Great Britain worked to capacity, as set by the limited materials available, and the order books of British firms were well filled with contracts. The completion of all these would keep the industry busy for some years, although variations in the extent of employment seemed inevitable as between yards specializing on different types of ships and as between the large, medium and small establishments. For example, yards concentrating on smaller craft were not so actively employed as those able to build the largest ships. Shipbuilding in Europe continued to recover from the dislocation caused by World War II; and the removal of restrictions influenced building in Germany and Japan. The work in Great Britain continued greatly to exceed that in other countries. The British construction in hand represented, throughout the year, about 40% of the total volume of building in the world.

The construction of oil tankers formed a large part of both work in hand and orders. In the U.K. it amounted to about 55% of the total. As the year proceeded, anxieties about supplies of steel became evident in the United Kingdom and other shipbuilding countries; rearmament threatened to accentuate the shortage of steel in the shipbuilding industry. For this and other reasons, shipowners and shipbuilders claimed that the rebuilding of the merchant navies could fairly rank as a form of rearmament, since, in the event of war, sea transport would again be vitally important.

By the end of the first quarter of 1951, the work in hand throughout the world had grown from 4,819,000 tons gross to 5,097,000 tons gross, according to the figures of Lloyd's register of shipping; by the end of June the amount had risen to 5,331,000 tons gross and at the end of September it had advanced further to 5,465,000 tons. The causes for this rise in tonnage were, in addition to expansion in Germany and Japan, increased construction in the U.S., France, Italy and Norway.

In Great Britain, the volume of construction throughout the year rose from 2 million tons to 2,272,000 tons (the total at the end of September). The figures for each quarter rose. At the end of March the increase during the preceding three months amounted to only 28,000 tons; by the end of June the work in hand was more by 41,000 tons and by the end of September the rise on the quarter amounted to 157,000 tons. The proportion of work for owners outside the U.K. varied between 34½% and 36%. The percentages of oversea work for some countries were higher, but percentages alone were not a guide to the amount of work being done there. For instance, by the end of September, 119 vessels of 298,000 tons were being built in the Netherlands, of which 43 ships of 201,000 tons were for owners outside the country. In Sweden, 68 vessels of 355,000 tons were under construction and of these 46 vessels of 195,000 tons were to be registered elsewhere. In the U.K., the total construction proceeding was represented by 368 vessels of 2,272,000 tons, of which 119 of 802,000 tons were for owners abroad.

Oil tankers accounted for 55·6% of the total tonnage being built throughout the world at the end of March, and this proportion remained fairly constant throughout the year. The corresponding proportion in the United Kingdom was rather higher. About 60% of the total orders received by British builders related to tankers. The total contracts during the first quarter of the year concluded by British builders totalled over 3,300,000 tons and during the twelve months ended Sept. 1951, 4 million tons gross were added to the books, which was a record. All the orders entered accounted for 6,250,000 tons gross, the current value of which was estimated to be about £550 million, of which export work amounted to a third. Orders were placed during the twelve months for more cargo liners and cargo tramps, as owners expected continued remunerative freight rates in the markets.

It was expected that the consumption of oil would rise by as much as one-third, or 60 million tons, in 1952-56, and that 350 new standard tankers would be required, costing, at current prices, £300 million. (C. MN.)

MERCHANT SHIPS UNDER CONSTRUCTION IN THE WORLD (Oct. 1951)

Country of building	No. of vessels	Gross tonnage	Country of building	No. of vessels	Gross tonnage
Great Britain	623	5,502,379	Denmark	54	315,739
Sweden	170	1,496,173	Italy	40	307,250
Germany	210	1,251,668	Belgium	23	158,281
United States	85	1,082,990	Canada	18	114,150
Netherlands	105	928,765	Spain	30	102,834
Japan	73	577,325	Trieste	4	67,000
Norway	79	490,663	Australia	10	34,170
France	68	487,462	Ireland	1	1,300
			Total	1,593	12,918,149

United States. On Jan. 1, 1951, 15 seagoing commercial vessels, each of 1,000 gross tons or more, aggregating 406,070 gross tons, were under construction or under contract for construction in private seaboard shipyards of the United States. At the same time there were contracted for or under construction in the Great Lakes shipyards 14 vessels (1,000 gross tons or over), aggregating 153,370 gross tons.

Contracts for 77 vessels were awarded during 1951. These contracts were for 35 Mariner type cargo vessels, 36 tankers and 6 ore carriers. However, work on 14 of the Mariner type cargo vessels was suspended temporarily by the Maritime administration because of a reduction in steel allocations by the Defence Production administration. As from Dec. 31, 1951, there were 96 merchant vessels (of 1,000 gross tons or over), aggregating 1,251,190 gross tons, under contract for construction in the United States, of which 16, aggregating 176,870 gross tons, were for construction in the shipyards on the Great Lakes and the balance in seaboard shipyards.

During 1951, the U.S. navy inaugurated a programme of reactivation, modernization, some reconversions and new construction, which covered principally the construction in private yards of one large aircraft carrier, an anti-submarine destroyer escort ship, one nuclear-powered submarine, several tank landing ships, a number of barges, harbour tugs, control boats and other service boats. Contracts for these vessels were awarded to many yards widely distributed throughout the United States.

World. The total of 77,424,000 gross tons of vessels in the world fleet was an increase of 2,425,000 gross tons since June 30, 1950. However, the U.S. fleet during the same period decreased by 39 vessels, aggregating 345,000 gross tons. The remainder of the world gained about 2,770,000 gross tons of shipping. The Shipbuilders Council of America reported as in Oct. 1951 that 1,593 vessels (each of 1,000 gross tons or over), aggregating 12,918,149 gross tons, were under construction in the various maritime countries of the world.

(H. G. S.)

SHIPPING, MERCHANT MARINE. All the main sections of shipping continued to be influenced throughout 1951 by the fighting in Korea and by rearmament among the United Nations and arrangements for the stockpiling of essential foodstuffs and materials. British shipping was particularly affected by the need to import coal and timber on a large scale, and the requirements of India for imported grain, of which about two million tons were sent, was one of the chief factors in a persistent, well-spread demand for tramp tonnage.

Over a million tons of coal were imported to Great Britain from the United States, which meant more than 100 voyages of large cargo ships, whereas in the past the U.K. had been a large exporter of coal. Its recent inability to meet the needs of European countries for coal, as it had done in the past, implied that these countries had also to import coal, and they looked, mainly, to the U.S. for supplies. Late in the year, it was announced that the National Coal board had obtained further limited supplies of coal in the U.S. About 500,000 tons were unofficially mentioned. A tentative beginning was made with the chartering of ships for the transport of the coal, and it was believed that U.S. ships would participate in this.

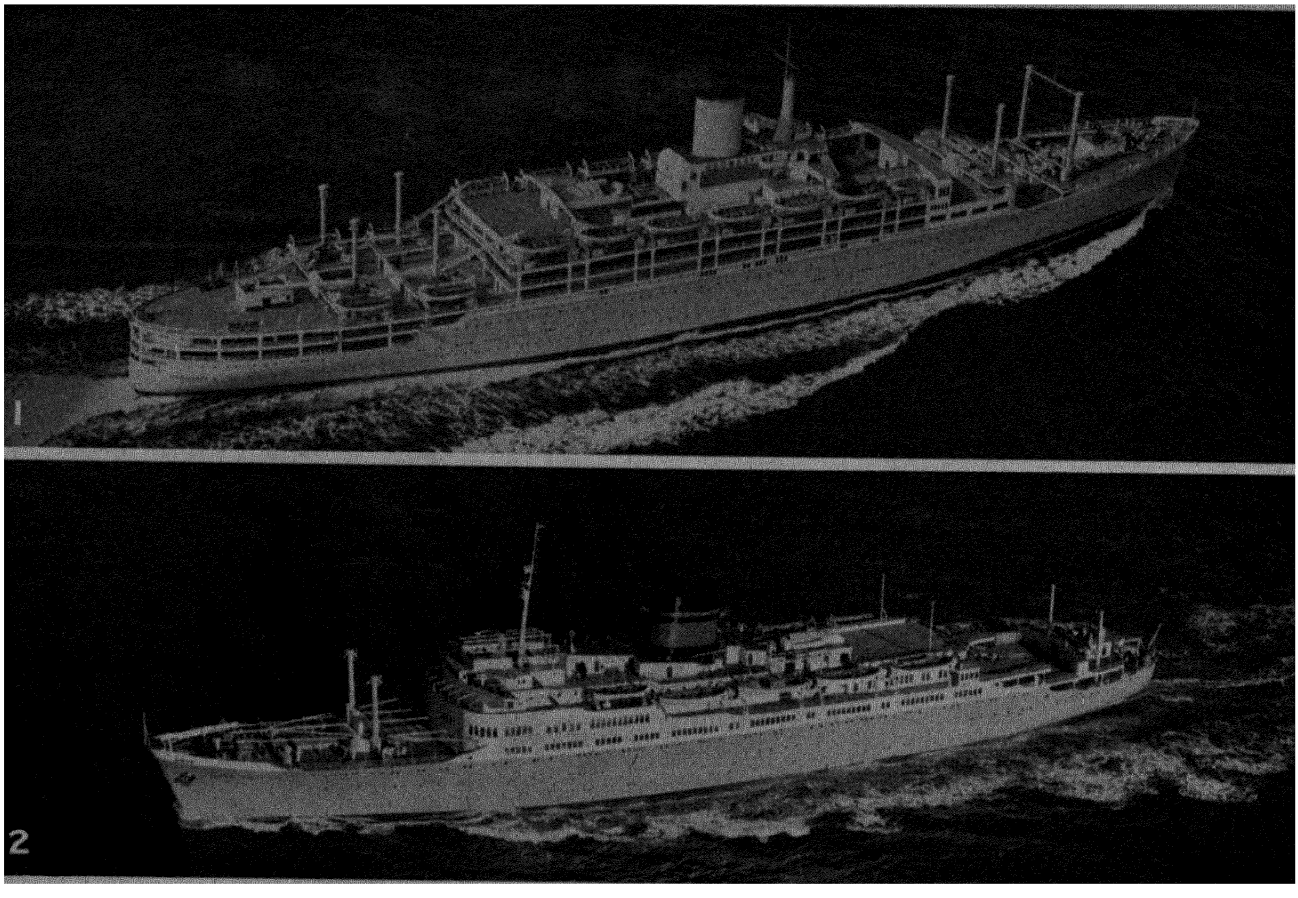
Meanwhile, small quantities of coal were carried from Natal to the continent of Europe until it was found that South Africa needed its own supplies and exports temporarily were stopped. Bunker stations that had relied in the past on coal from the U.K. and then had drawn supplies from South Africa had also to look to the U.S. for replenishments.

At the same time large quantities of timber were bought on the Pacific coast of North America for export to the United Kingdom. In order to provide transport, ships were taken on time-charter at various ports throughout the world and were directed in ballast to the Pacific coast, there to load timber and other commodities. A certain amount of congestion occurred at the loading ports and involved delays. Many trades were in urgent need of tonnage. The transport of ore from Mediterranean ports to the United Kingdom and the United States, for example, absorbed much shipping. Under competition, keen freight rates advanced sharply. Shippers seemed to be concerned only to secure tonnage irrespective of the cost. The insufficiency of the available tonnage was relieved, to some extent, by the re-commissioning of many cargo ships from the U.S. reserve of laid-up vessels. By the late autumn 400 U.S. vessels of about 10,000 tons each had been brought back to service.

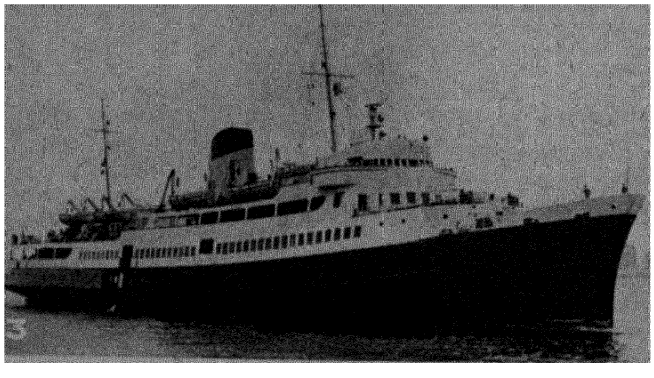
Another demand for cargo tonnage resulted from the expansion of British exports. These increased so much that they far exceeded the carrying capacity of the regular liners, and the liner companies chartered additional cargo ships to supplement their own sailings. This chartering was particularly heavy in the export trade from the U.K. to Australia. Many ordinary cargo ships were also chartered for voyages to New Zealand and for round voyages to west Africa.

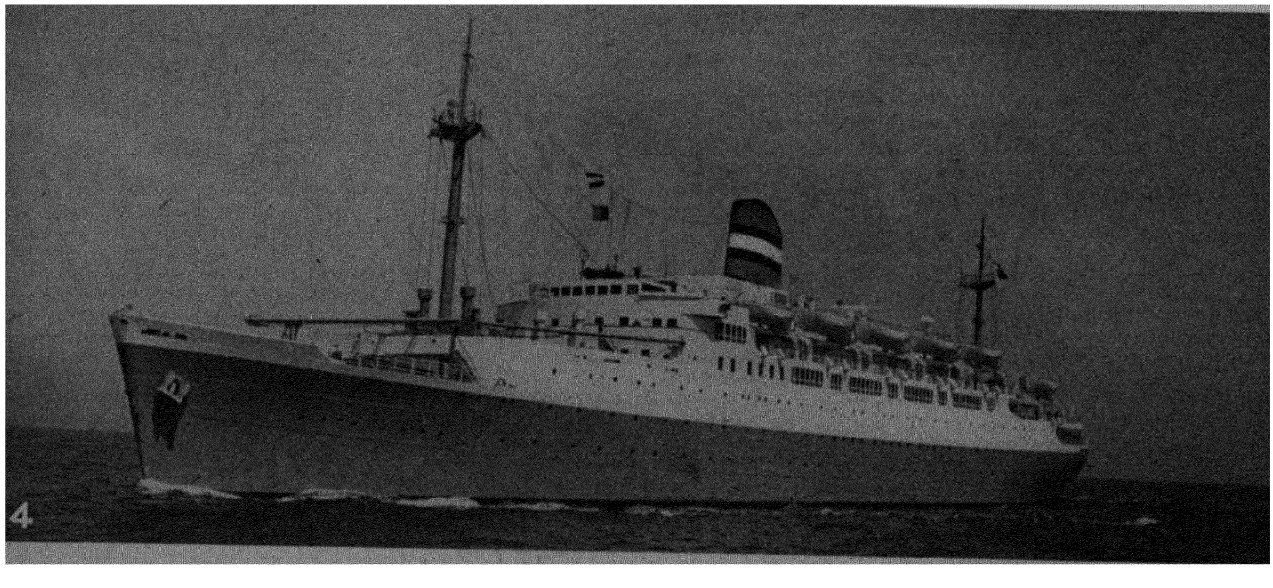
The prolonged interruption of work in New Zealand ports, owing to labour trouble (*see* STRIKES AND LOCKOUTS), immobilized a large volume of specialized, refrigerated liner shipping from the middle of February until mid-June. This created chaotic conditions. At one time more than 50 oversea liners, representing 500,000 tons gross, were lying idle in New Zealand ports or were being worked by ships' officers or by members of the armed forces. Some time elapsed before sailings could be re-established with their normal frequency; meanwhile, immense quantities of cargo accumulated and awaited shipment. Slower work in many ports, especially in Australia, seriously reduced carrying capacity because, over a given period, fewer round voyages could be made. This created a demand for more shipping and was one of the factors that caused the demand to exceed the supply. An interruption of meat exports from Argentina to the U.K. meant that there was no longer employment for all the refrigerated tonnage which had been built for this trade. Employment for some of these ships was found in other routes, notably in loading meat and dairy supplies in Australia and New Zealand and fruit on the Pacific coast of North America.

There was further evidence that the demand for travel, which had to be postponed during World War II, had been largely satisfied, and that traffic by sea was again assuming some of the seasonal character which was apparent before the war. During the customary seasonal periods for travel all the accommodation in the passenger liners was fully booked, and only in the traditional quiet months were the liners able to consider carrying passengers for the shorter distances. Liners leaving England for Australia early in the year were sometimes able to accommodate them to Mediterranean ports and ships sailing for South Africa via the west coast were able to carry them to Madeira and the Canary islands. There were a number of important additions to the liner fleets.



New passenger ships in 1951. (1) The Orient "Oronsay" (27,632 tons) with accommodation for 1,633 passengers on the Great Britain-Australia route, left Tilbury on its maiden voyage on May 16, 1951. (2) The Furness Withy "Ocean Monarch" (13,654 tons), designed primarily for cruising out of New York to the West Indies, left Tilbury on its first voyage to New York, April 17, 1951. Vickers-Armstrong, Ltd., built the "Oronsay" at Barrow-in-Furness, and the "Ocean Monarch" at Walker-on-Tyne. (3) The French Railways "Côte d'Azur" (3,012 tons), with accommodation for 1,450 passengers on the Calais-Folkestone service. (4) The Holland-America "Ryndam" (15,014 tons) which made its maiden voyage from Rotterdam to New York, July 1951. The greater part of the accommodation is for tourist class passengers.





Among the first of these to appear was the turbine steamship "Ocean Monarch," of 14,000 tons gross, which was built to undertake cruises from New York to the West Indies and Canadian rivers, and to share at times in the Furness line's service between New York and Bermuda. The ship left the U.K. on April 17, to begin her sailings in May. The cost of the vessel was estimated at £2,500,000.

On May 16, the Orient liner "Oronsay," of 28,000 tons gross, left London on her maiden voyage to Australia; the ship cost £4 million. A contract for a similar ship had been placed with the builders, Vickers-Armstrong of Barrow-in-Furness. Exactly two months later, the British India Steam Navigation company's passenger and cargo liner "Kenya," of about 15,000 tons, built by Barclay, Curle and company, on the Clyde, entered the Thames preparatory to making her maiden voyage. The cost of the vessel was about £2 million. A sister ship, the "Uganda," was under construction for the company by the same builders.

The Union-Castle liner "Rhodesia Castle," of 17,000 tons gross, built by Harland and Wolff at Belfast for the Union-Castle's round-Africa service also entered the Thames, where she loaded cargo for her maiden voyage. The cost of the ship was about £2 million, whereas the cost of such a ship shortly before World War II was estimated to have been about £650,000.

In November, rising costs were reflected in increases in the fares of the British shipping companies serving India, Australia and New Zealand. The lines stated that an upward revision could no longer be postponed. The minimum first-class fare from London to Sydney was raised from £110 to £120 and the corresponding first-class rate from London to New Zealand was increased from £131 5*s.* to £140. In this route the plan was adopted of one-class accommodation in certain of the ships, with the fares ranging according to the size and situation of the cabin on the principle of the rating of the rooms in hotels, where all guests use the same public rooms.

The interruption of oil supplies from the large refinery at Abadan, owing to difficulties placed by the Persian government in the way of the operation of the plant by the Anglo-Iranian oil company, who owned it, involved the diversion of a certain amount of tanker tonnage to other routes and longer voyages. This diversion would have been more but for a large increase in the output of crude oil from Kuwait in the Persian gulf. Rates gradually advanced and in November amounted to more than 300% above the scales of the Ministry of Transport at the end of the war. A large amount of tonnage was being built by the independent owners of tankers, much of which was chartered for several years ahead. (C. MN.)

United States. There were 1,951 seagoing vessels of 1,000 gross tons and over in the active U.S. merchant marine on Nov. 1, 1951, including those under military control. Of these, 1,424 were dry cargo vessels, 69 were combination passenger and cargo and 458 were tankers. The total exceeded by more than 550 vessels the number in service at the end of 1950. The number of privately owned vessels had risen during the year from about 1,100 to nearly 1,300; the government-owned fleet had increased from about 300 to more than 650, of which about one-third were in military service. The vessels laid up in reserve fleets had decreased from about 2,000 to about 1,430 because of military requirements in Korea and the relief programmes in India and Europe.

When it became necessary to withdraw more and more vessels from reserve, a new government agency was set up to direct the operation of government-owned vessels in programmes required in the national interest. This was the National Shipping authority, established on March 13, 1951, within the Maritime administration of the U.S. Department of Commerce. From its establishment to Nov. 15, 1951, the N.S.A. directed the shipment of 6·5 million tons of coal and grain to Europe and India and the return shipment of strategic ores. Government and privately owned vessels chartered to the Military Sea Transportation service carried a large share of the 14 million tons of cargo transported during the first year of fighting in Korea.

Only nine large merchant vessels were built in U.S. shipyards from Jan. 1 to Oct. 1, 1951, but the government placed orders early in the year for a total of 35 ships of a new type, the 20-knot "Mariner" cargo ship; this vessel was designed to serve as a military auxiliary if necessary. Most of the 15-17-knot Victory ships left in reserve were taken by the Military Sea Transportation service for military service to Korea, and many of the 11-knot Liberty ships were used to carry coal and grain for the Economic Co-operation administration programme, but these vessels were no longer considered adequate for modern high-speed warfare. Late in 1950 three passenger-cargo ships being built for round-the-world service were taken over by the Department of Defence for completion as troop ships. Two other passenger vessels, the "Independence" and "Constitution," were completed in the spring of 1951. The transatlantic superliner S.S. "United States" was launched on June 23, 1951, and was about 85% complete by Dec. 1, with delivery scheduled for the early summer of 1952. On Nov. 1, 1951, there were 86 large vessels under construction in U.S. shipyards, of which 76 were for U.S. flag operation. (*See* also SHIPBUILDING.)

(E. L. Co.)

SHOE INDUSTRY. Footwear prices were being forced upward by a rapidly rising hide, skin and leather market as the year 1951 opened, but shoe manufacturers hesitated to believe that the public would accept prices based on the world-values of raw materials, and were "averaging" their leather costs in an effort to avoid price advances. That process became increasingly difficult as the leather market climbed. Both manufacturers and distributors found themselves forced to pass on higher prices and becoming increasingly short of capital to finance their businesses at the new higher levels. A result of this was seen in many companies seeking new capital. Throughout the industry there was apprehension that rapidly increasing prices would stifle demand and leave production in excess of consumption.

At the end of January the manufacturers' federation rejected a claim from the operatives' union for two weeks' paid holiday, and the union decided to take its claim to the National Arbitration tribunal.

Factories were busy, trade buyers trying to forestall expected price increases. The public also were buying in more than usual quantities.

By March it was becoming apparent that there would have to be an upward revision of all the utility footwear prices. Despite manufacturers' efforts to hold down costs, many lines of higher quality were being "pushed through the ceiling." Makers either had to de-grade their productions or maintain the quality and sell them outside the utility scheme. Then they became subject to purchase tax and high retail prices tended to kill sales. Despite efforts to refrain from buying high-priced leathers, public demand forced manufacturers to replenish stocks. In March the Board of Trade made an order (S.I., 1951, no. 463) suspending the levy by which the Leather, Footwear and Allied Industries Export corporation was supported. It was understood that when further funds were needed the levy would be reimposed. By the end of March shoe manufacturers were showing marked reluctance to buy leather, but higher shoe prices had not reached the public and demand for footwear was brisk.

On April 7 it was announced that the National Arbitration tribunal had awarded shoe operatives two weeks' holiday with pay, leaving an extra week's overheads to be costed into shoes. Wages also rose as a result of the retail prices index figure reaching 119 on March 13. Men's minimum went up from 109*s.* to 112*s.*, women's from 78*s.* to 81*s.*

At the end of May there were discussions between representatives of the industry about increased ceiling prices for utility footwear. Shoe sales were slowing down as higher prices appeared in the retail shops. Nevertheless, output at most factories was high. Shoe operatives in conference at Eastbourne demanded a 40-hr. week with a £6 6*s.* minimum wage for men. Another increase in the index of retail prices to 124 increased male operatives' minimum wages to 116*s.* and women's to 84*s.* from the first pay-day in August.

At the end of June two new orders governing utility footwear were announced, to become operative on July 2. Of these the Utility Footwear (Maximum Prices) order, 1951, raised the ceiling prices for men's shoes to 115*s.*, for women's to 102*s.*, childrens to 55*s.* and infants' to 35*s.* The announcement of this order set the public buying in anticipation of what it thought was to be a severe overall increase in prices, and for two to three weeks retail sales reached boom proportions. But as the year came to an end falling leather prices undermined trade confidence in shoe values, and restricted purchasing powers on the part of the public slowed down sales. Many factories had closed down for varying periods and confidence in the immediate future was at a low ebb. (*See* also LEATHER.) (C. A. SD.)

SHOPS AND DEPARTMENT STORES. The important factors affecting retail traders during 1951 were the reaction from the panic buying of the second half of 1950 after the outbreak of war in Korea and the expansion of rearmament programmes in all western countries during the early part of the year. The trend of retail sales in the United Kingdom was typical of results elsewhere. In the first quarter of 1951 total sales, in sterling, were 13% higher than in the previous year; in the second quarter they were only 8% more. In volume, sales were 5% more in the first quarter than in 1950 but only 1% more in the second.

As in previous years the experience of the large-scale firms differed considerably from that of the smaller organizations. During the first nine months of the year the trade of the large-scale clothing firms increased in value by about 12%, while the independent shopkeepers increased only by 5%, the chief progress in the latter group being in footwear.

In the United States, retail traders expanded their trade by about 10% during the first half of the year. As prices in the same period rose by a similar amount the volume of trading was barely maintained. One of the interesting features of the U.S. was the price war that developed in May in New York between two well-known stores. Many well-known branded goods were cut in price by amounts varying between 6% and 50%. This price war spread quickly to other parts of the country particularly San Francisco, Omaha and Memphis. These cuts were contrary to state legislation in many cases and in New York injunctions were sought before the U.S. Supreme court for a restraint on this activity; an action subsequently resulted. Similar steps were taken in Europe to stimulate retail demand. Firms in the Netherlands gave free merchandise to shoppers appearing in their stores at certain hours of the day.

One of the more serious effects of the failure of retail trade to maintain its progress was a large accumulation of stocks held by retailers and wholesalers both in Great Britain and in the U.S. This fact, together with the high prices of raw materials, made retailers very reluctant to place orders with manufacturers. As a result, the clothing industries in general reduced their output in the latter part of the year. One of the brighter aspects of the decline in retail trade was the stimulation of competition, which helped to hold back the increase in prices which would otherwise have occurred. Nevertheless, prices rose considerably during the year. In Great Britain, by the end of September, prices of clothing and household goods were 20% higher than in the previous year and further prices increases were expected. The announcement by the chancellor of the exchequer, R. A. Butler, on Nov. 7, of the sharp cuts in imports from Europe stimulated sales of unrationed foods and indicated that shortages of these items were likely to develop in the early part of 1952. In the U.S., the price freeze, which was introduced in January, helped to keep prices more stable. The regulations caused traders much extra work and were a contributory factor in increasing costs.

In nearly all countries supplies presented little difficulty. Scarcities, except for rationed foods in Great Britain and some durable goods in the U.S., disappeared for the first time since World War II.

In Great Britain building operations were still restricted, although some interesting new stores were built in Leeds, Exeter, Plymouth and Bristol. Some of these incorporated new developments which had been held back because of restrictions. The introduction of mobile shops, by some of the co-operative retail societies proved labour-saving and gave better service in rural areas. In the U.S. interesting developments occurred in self-service and in big store design. (*See* also BUSINESS REVIEW.) (J. BX.)

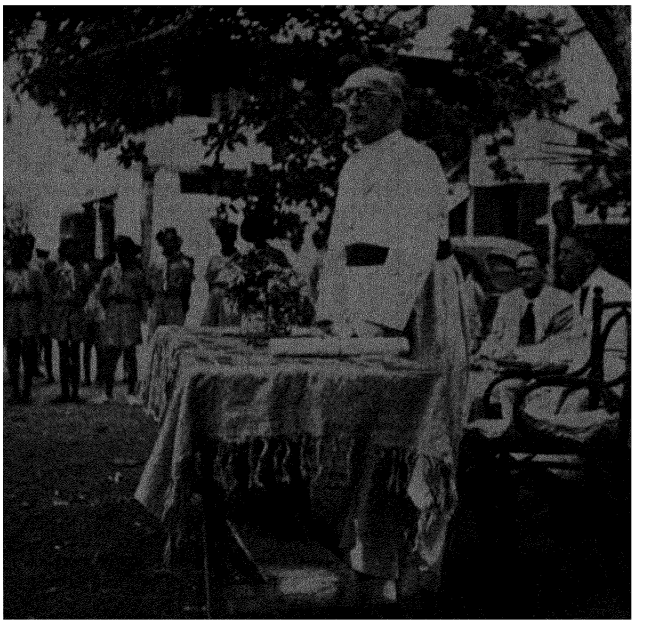
SHOWS: *see* FAIRS, SHOWS AND EXHIBITIONS.

SIAM: *see* THAILAND.

SIERRA LEONE. British colony and protectorate on the west coast of Africa, bounded N. and E. by French Guinea and S.E. by Liberia. Area: colony 270 sq.mi., protectorate 27,655 sq.mi. Pop. (1948 census): colony 124,657, protectorate 1,733,618. Language: tribal dialects, Hausa. Religion: protectorate, pagan with Moslem minority; colony, mainly Christian. Capital, Freetown (pop., 1948 census, 64,576). Administration: governor; executive council, 4 *ex-officio*, 4 unofficial members; legislative council, 7 official members, 7 directly elected (colony), 14 indirectly elected by protectorate assembly (2) and district councils (12), 2 nominated (trade and commerce). Governor, Sir George Beresford-Stooke.

History. The new constitution, delayed by opposition to increased protectorate representation, was introduced in 1951 after a petition from the National Council of Sierra Leone asking that the territory be divided into two separate political units had been rejected. Elections took place in November and were contested by the two most important political organizations, the Sierra Leone People's party and the National council. The People's party stood for the maintenance of the unity of the colony and protectorate but demanded a more democratic constitution; its other objectives included government control of the produce marketing boards, greater Africanization and reduction in the cost of living. The National council did not contest seats for the protectorate, since it stood for separation. This was the first time that women took part in elections for the legislative council. The People's party won all 14 protectorate seats and two of the colony seats.

Dr. Geoffrey Fisher, archbishop of Canterbury, visited Sierra Leone in April and installed Leslie G. Vining, bishop of Lagos, as first archbishop of the province of West Africa. In economic and social development attention was concentrated



The Most Rev. Geoffrey Fisher, Archbishop of Canterbury, addressing the residents of Bengnema, Sierre Leone, during the archbishop's visit to West Africa in April 1951.

on the rural areas, and each district prepared a 5-yr. plan to be financed by grants of £25,000 from the central government. Projects included rest-houses, bridges, markets, roads, causeways, dams, schools and swamp irrigation.

Education. *Colony (1949):* primary schools 52 (attendance 9,200), secondary 9 (2,017), teacher training 2 (61). *Protectorate:* primary 114 (14,082), secondary 2 (304), teacher training 3 (84). There were 99 private and unassisted mission schools with 8,087 pupils. Fourah Bay college, affiliated to Durham university, was enlarged in 1950 to include university and technical departments.

Finance and Trade. Currency: West African pound (£WA1=£1 sterling). Budget (1950): revenue £2,920,729; expenditure £3,205,299. Foreign trade (1950): imports £6,745,865; exports £6,959,130. Principal exports: palm kernels, iron ore, diamonds. (K. E. R.)

SIKKIM. Indian-protected state, bounded N. by Tibet, E. by Bhutan, S. by India and W. by Nepal. Area: 2,745 sq.mi. Pop. (1951 census): 135,646, mostly Nepalese; also Bhotias of Tibetan extraction (10,980) and Lepchas or Rongpa (13,060) of Indo-Chinese origin. State religion is lamaistic Buddhism but most Nepalese are Hindu. Capital, Gangtok. Maharaja, Tashi Namgyal, of the Tibetan ruling family.

To relieve his father, the maharaj kumar (crown prince) Pallen Thondup Namgyal undertook the ordinary state business including arrangements under the new protectorate treaty with India which was signed on Dec. 5, 1950. His assurance that Sikkim would remain within India regardless of events in Tibet recognized India's responsibility for Sikkim's defence. (On May 30, 1951, the Moscow *Pravda* remarked that the two Himalayan states, Bhutan and Sikkim, were " unlawfully " seized by the British from Tibet.)

India lent Sikkim an experienced political officer, J. S. Lall, who was appointed dewan (chief minister) with an advisory council. For local administration more than 50 elected panchayats (village councils) were set up. Pending the creation of an elected council to form the state parliament, on India's advice a cabinet, composed of six members chosen by the Sikkim Congress party, six by the National and Kishan Proja party and five nominated by the maharaja, was formed and took office in November, J. S. Lall remaining as adviser. Out of the five nominated members, one was a plainsman, one a Sikkim lama, two Tibetans and one a Nepali. As the revenue (Rs. 600,000 plus the subsidy of Rs. 300,000 from India) was insufficient to develop Sikkim's mineral resources, India announced its intention to consider giving help. Copper, graphite, soapstone and iron were the chief minerals concerned. The copper mines were abandoned during World War II. (E. Hd.)

SILK. In spite of its improved condition at the beginning of 1951, the silk industry did not maintain the rate of recovery which it had shown in 1950. In the United States, consumption of raw silk dropped by one-third, and less than half as much fibre was imported. Japanese exports to other countries showed a similar decrease. On the basis of ten month's reports, Japan's four best silk customers, the United States, United Kingdom, France and Switzerland, took only 60% of the total exports, compared with 80% in 1950. The estimate for the year was a total export of 67,800 bales, compared with 94,621 bales in 1950.

At the third International Silk congress in London in September it was proposed by the important consuming nations that Japan should stabilize the price of raw silk. In the United States, the price of raw silk in Jan. 1951 was $5·18 per lb., and in December was $4·70. The lowest level for the year was $4·05 in August, and the highest was $5·96 in February. Japan was agreeable to stabilization but did not accept the buyers' proposal that the stabilized price should be at $3·80, with a tolerance of 10% either way. Instead, Japan proposed a price of $4·50. An enabling law to put a stabilization plan into effect was passed, after lengthy discussion, on Nov. 13, 1951, by the Japanese diet with the expectation that it would be put into effect by Feb. 1952 at a price of about $4·45 a lb., to be effective until May 1952.

Production of silk fabrics in the United States reflected the decreased raw silk consumption. From the record of 29·3 million yd. in 1950, the mills reduced their output to 27·2 million yd. Imports of silk fabrics totalled 32 million yd. as compared with 41·7 million yd. in 1950.

Promotion and publicity to increase the use of silk was accelerated with the announcement that a fund of $600,000 would be available during a two-year period, among the principal consuming nations of the world. Of this sum, $225,000 would be spent in the United States, United Kingdom, France and Switzerland during the fiscal year July 1951-July 1952, and $75,000 among other countries. In addition, each country would set up its own publicity committee for administration of its separate campaign, but it was understood that all publicity and promotion would be cleared through the international secretariat in Lyons, France. In the United States, the local committee under the name of International Silk Association (U.S.A.) Inc., announced in December that its plans were being formulated, and appointed an advertising agency for their administration. (*See* also Rayon and Synthetic Fibres; Textile Industry.) (I. L. Bl.)

SILVER. World silver production took a sharp upward turn in 1950, to the highest level since 1943.

World Silver Production
(In millions of fine ounces, smelter output)

	1946	1947	1948	1949	1950
United States	21·10	38·58	39·23	34·94	42·31
Canada	12·54	12·50	16·11	17·64	22·39
Newfoundland	1·11	0·96			
Mexico	43·26	58·84	57·52	49·45	49·14
Honduras	2·68	2·41	3·17	3·43	4·05
Argentina	3·09	2·44	1·20	1·25	1·15
Bolivia	6·11	6·23	7·56	6·63	6·52
Chile	0·56	0·75	0·86	0·80	0·75
Peru	12·33	10·78	9·29	10·63	13·05
Belgian Congo	5·05	4·06	3·81	4·55	4·46
South Africa	1·20	1·15	1·17	1·16	1·12
Australia	9·05	9·53	10·06	9·86	10·68
Japan	1·28	1·79	2·19	2·89	3·68
Sweden	1·29	1·09	1·14	1·14	1·29
World Total	135	168	172	174	192

In the United States domestic production had been gradually improving since 1946, but it had reached only 60% of the 1941 record of 71,075,932 oz. During the first half of 1951 the mine production rate remained at the 1950 level, but a decline in the third quarter cut the total for the nine months to 29,776,128 oz., 6% below the average rate for 1950. The reduction was in the by-product silver from base metal mines closed by strikes.

In Canada, silver production increased from 17,641,493 oz. in 1949 to 22,386,456 oz. in 1950, of which 8,355,183 oz. was exported as refined silver and 3,494,107 oz. in ores and concentrates. (G. A. Ro.)

SINGAPORE. British island colony off the southern extremity of the Malay peninsula with dependency of Christmas island in the Indian ocean. Area: Singapore and adjacent islets 220 sq.mi.; Christmas island *c.* 60 sq.mi. Pop.: Singapore island (1947 census) 938,079 incl. 727,863 Chinese, 114,654 Malays, 71,289 Indians, 8,718 Europeans, 9,012 Eurasians; (mid-1951 est.) 1,041,933; Christmas island (mid-1951 est.) 1,522. Administration: governor; executive council; legislative council, 4 *ex-officio* members, 5 nominated official, 4 nominated unofficial, 3 elected by the Singapore, Chinese and Indian chambers of commerce and 9 elected by all British subjects. Governor, Sir Franklin Gimson; United Kingdom commissioner general in southeast Asia, Malcolm John MacDonald.

History. Singapore experienced a record trade boom in 1951, chiefly as a result of rearmament and world demand for raw materials. The high revenue of the colony during the year, 168 million Malayan dollars, was the result mainly of larger yields from income tax and from customs and excise. The estimated surplus was about $45 million.

Paradoxically the trade boom arrested Singapore's programme of economic and social development. The government suspended capital expenditure contracts during several months of the year to avoid contributing to inflation. Some building materials were scarce and the public works department was short of engineers, architects and surveyors. Only $750,000 were spent on expanding medical services instead of a budgeted $4 million and only 11 new schools were built instead of a projected 23; Singapore Improvement trust constructed only about 800 dwellings compared with their target of 2,790.

Communist sabotage and terrorism showed a marked diminution during the year, partly due to successful police work and partly no doubt because of reorganization in the Communist formations; "incidents" decreased from 120 in January to 5 in March. A number of university students and lecturers and some school teachers were detained in January on suspicion of distributing Communist propaganda. More important was the seizure in July of the Communist party printing press which had been used since 1946 and had produced the illegal *Freedom News*.

From Feb. 14 to March 9 a commission under the chairmanship of Sir Lionel Leach investigated the riots in Dec. 1950 when 18 persons were killed after the judgment declaring void the marriage of the Dutch girl Maria Hertogh with a Malay, Mansoor Adabi. The commission noted that Malay (Moslem) police had defected in the riots. It criticized actions of the colonial secretary and of the acting police commissioner and other police officials and found the work of the government information services to have been defective. Major General Dunlop, military commander in Singapore, was praised for restoring order with the minimum of force. Police failure was attributed chiefly to the newness of many members of the force after the Japanese occupation and the shortage of gazetted officers; inadequate pay, overwork and delay in settling pension claims were contributory causes of discontent.

On Sept. 22 Singapore was raised to the status of a city. A royal charter was presented by Sir Franklin Gimson, the governor, and the occasion was celebrated with carnival processions and the towing of a Chinese dragon, picked out in electric lights, across the harbour.

Elections for the nine elective seats in the legislative council took place on April 10; the Progressive party won six, the



Sir Franklin Gimson, governor of Singapore, presenting a royal charter giving Singapore the "status and dignity" of a city, Sept. 22, 1951. Singapore was the second colonial city; Nairobi was made a city on March 30, 1950.

Labour party two and one was won by an independent. About 50% of electors voted. On Dec. 1, elections for six seats in the Singapore city council were held with the following results: Labour party three, Progressive party two, independent one; 58% of the electors voted. On Sept. 30 the newly formed trade union council held its first congress; 30 unions and 50,000 workers were represented.

Between Nov. 30 and Dec. 11 Oliver Lyttelton, secretary of state for the colonies, visited Singapore and Malaya and met government officials, members of the legislative and city councils, trade union leaders and university students. On Dec. 11, he announced that a knowledge of English would no longer be a requirement from Singapore Chinese who wished to become British subjects.

It was announced on June 22 that the Cocos-Keeling islands, which had been administered by Singapore, had been transferred to the control of the Commonwealth of Australia; the commonwealth government intended to develop a wartime airstrip for use by commercial aircraft. (D. A. SN.)

Education. Government maintained, aided and private schools: English 131 (49,521 pupils); Malay 43 (8,436 pupils); Chinese 302 (76,200), Indian 23 (1,486). University of Malaya (1950-51 session): students 781, teaching staff 105.

Foreign Trade. ($ million) imports: (1950) 2,145, (Jan.-June 1951) 1,943. Exports: (1950) 2,535, (Jan.-June 1951) 2,368. Main sources of imports (1950): Indonesia 631, United Kingdom 278, India 164, Sarawak 163, Thailand 158. Main destination of exports (1950): U.S. 546, United Kingdom 268, Indonesia 229, Hong Kong 178, Australia 121, China 106.

Finance. Currency: Malayan dollar ($M 1 = 2*s.* 4*d.*) Budget: (1950 revised est.) revenue $110,488,210, expenditure $96,173,559; (1951 est.) revenue $124,734,668, expenditure $111,156,650.

SISAL: *see* HEMP.

SKATING: *see* ICE SKATING.

SKIING. All over Europe skiing was affected by the abnormal conditions which caused the worst avalanches ever known in Switzerland and Austria. In early January snow fell for 100-120 hr. at the rate of 3 in. an hr. and later turned to rain. Some races had to be postponed, but though there were no world championships of the Fédération Internationale de Ski national teams were already in training for the 1952 winter Olympic games, and race meetings attracted numerous international entries.

The newly formed international committee of the Arlberg-Kandahar invited Italy to organize the 1951 A-K, which was held for the first time at Sestiere in March. It was won by the world champion, Zeno Colò of Italy, Jacqueline Martel of France winning the ladies' A-K.

The ski-jumping world record was again broken at Oberstdorf, Bavaria, by Lauric Tsano of Finland, the new record being 139 m. The Norwegians again brought artificial snow to build a jump on Hampstead heath, London.

It was claimed that experiments with various types of safety bindings had decreased the number of accidents in Europe and America. Increasing attention was paid to soft-snow technique, and the telemark turn was again taught. (P. W. B. C.)

See *The British Ski Year Book 1951* (London, 1951); Peter Lunn, *A Skiing Primer* (London, 1951) and *High Speed Skiing* (London, 1951).

SKIN DISEASES: *see* DERMATOLOGY.

SNOOKER: *see* BILLIARDS AND SNOOKER.

SOAPS, PERFUMERY AND COSMETICS. There were few notable developments in the soap industry during 1951. Shortages of oils and fats continued to prevent soaps from competing more actively with synthetic (soapless) detergents. This issue of soaps *versus* synthetics was fairly complex, because both exhibited advantages and disadvantages, ordinary soaps being badly affected by hard water, for example, while most of the synthetic detergents possessed a tendency to be too active, as fat solvents, on the skin and hair. The issue was further complicated by over-simplified advertising and by the fact that most of the big soap firms had also a direct interest in the production of synthetic detergents. Other types of surface-active agents experiencing heavier demand were the "reversed" cation-active soaps; of these, the quaternary ammonium compounds were popular as highly germicidal cleansing agents.

Toilet soaps continued to be in good supply, there being a return to soap novelties (in the shape of animals, fanciful characters, etc.) in Great Britain. British toilet soaps of good quality fully maintained their demand overseas, where their fine perfuming and packaging had long won them many friends.

Technical developments in the soap industry included increasing attention to continuous and other modernized soap processes (Victor Mills, Monsavon, Sharples, Mazzoni, etc.) and also to improved machines for the wrapping of soaps.

Much useful work in trade organization and liaison with government departments continued to be carried out by the Toilet Goods association (U.S.A.) and the Toilet Preparations federation (Great Britain). The latter increased its service to members in June 1951 by issuing the first of a series of printed memoranda, several of which were devoted to matters relating to export markets and raw material and packaging problems.

With few exceptions, cosmetic manufacturers throughout the world experienced difficulties with metal containers for lipsticks, etc., and shortages of zinc and titanium oxides, glycerine and starch. Paper and board standards declined sharply in Great Britain, with a consequent falling-off in package appeal. The use of plastic bottles, a U.S. innovation, became widely popular. The prices of many perfumery materials reached a new high level during the second half of 1951.

Heavy taxation (notably purchase tax in Great Britain) aided by other high costs of living, kept the sales of most cosmetics down, except such "necessities" as face powder, lipstick and foundation make-up. Luxury perfumes were less in evidence than at any time during the previous 20 years. (F. V. W.)

See R. Cerbelaud, *Formulaire de Parfumerie*, rev. ed. (Paris, 1951); J. McCutcheon, *Synthetic Detergents* (New York, 1950).

SOCIALIST MOVEMENT. The Socialist International was formally reconstituted at the seventh postwar meeting of the International Socialist conference in Frankfurt-am-Main, Germany, from June 30 to July 3. The new International was the lineal successor of the Labour and Socialist International, which disintegrated under the impact of European fascism, and of its predecessor the Second International, which collapsed during World War I. The new International consisted of 33 Socialist parties, with an aggregate membership of 9,783,000 and an electoral support of 43·5 million. The only non-European parties were those of Israel, Japan, Canada, New Zealand, Argentina and Uruguay. From the United States the Socialist party and the Social Democratic federation were represented jointly.

In its functions and constitution the Socialist International closely resembled the International Socialist conference from which it grew. All member parties except those in exile from eastern Europe had a single vote; but except on procedural questions decisions would usually be unanimous and in any case would have no mandatory power over the individual

SOCIALIST PARLIAMENTARY REPRESENTATION IN EUROPE*
(Figures in brackets are those of the preceding election)

	Date of last election	Votes obtained		% of total votes		Seats obtained by Socialists		Total No. of seats
Austria	Oct. 9, 1949	1,621,275	(1,434,898)	38·6	(45·1)	67	(76)	165
Belgium	June 4, 1950	1,704,360	(1,529,720)	34·5	(29·7)	77	(66)	212
Denmark	Sept. 5, 1950	813,590	(834,089)	39·7	(40·3)	59	(57)	151
Finland	July 2-3, 1951	479,998	—	26·4	(26·3)	53	(54)	200
France	June 17, 1951	2,764,210	(3,431,954)	14·5	(17·9)	107	(101)	627
Germany, Western	Aug. 14, 1949	6,932,272	—	28·5	—	131	—	402
Great Britain	Oct. 25, 1951	13,948,385	(13,295,736)	48·7	(46·4)	294	(315)	625
Greece	Sept. 9, 1951	4,208	(163,520†)	0·25	(9·6)	0	(7)	258
Iceland	Oct. 23, 1949	11,938	—	16·5	—	7	(9)	52
Ireland	May 30, 1951	151,831	(144,089)	11·4	(11·2)	16	(19)	147
Italy	April 18-19, 1948	1,860,528‡	—	7·1	—	33	—	574
Luxembourg	June 3, 1951	—	—	—	—	18	(14)	52
Netherlands	July 7, 1948	1,263,366	(1,347,940)	26·1	(28·6)	27	(29)	100
Norway	Oct. 10, 1949	800,792	(609,255)	45·8	(41·2)	85	(76)	150
Sweden	Sept. 19, 1948	1,789,440	(1,436,571)	46·5	(46·6)	112	(115)	230
Switzerland	Oct. 27-28, 1951	—	—	—	—	49	(48)	196

* Only European countries having a parliamentary system and free elections are included.
† Votes obtained by an electoral bloc of which the Socialist (E.L.O.) party was a component part. ‡ Partito Socialista dei Lavoratori Italiani led by Giuseppe Saragat.

parties. The plenary conference would meet once a year. All parties with voting rights would sit on the council which ordinarily would meet three times a year; 10 parties were represented on the bureau which would meet at least twice between council meetings. Morgan Phillips, secretary of the British Labour party, was chairman of the Socialist International; Louis Lévy, France, and Erich Ollenhauer, Germany, were vice chairmen, and Julius Braunthal was secretary. The small permanent secretariat was located in London.

The most important work of the founding conference in Frankfurt was to approve a general declaration of the " Aims and Tasks of Democratic Socialism " and to pass a resolution on " Socialist World Action in the Struggle for Peace." Both these documents marked an unprecedented level of agreement among the parties. The declaration of aims and tasks conformed with the ethical pragmatism of the British and Scandinavian Labour parties rather than the dogmatic materialism of most continental Europe Socialists. It presented socialism as the fulfilment of liberal trends towards fuller democracy, not as an economic system expressing the class interests of the workers as against the owners of property. Thus it recognized no kinship between Socialism and Communism, which it described as:

the instrument of a new imperialism, based on a militarist bureaucracy and a terrorist police.

As the immediate economic aims of Socialist policy, it set full employment, higher production, a rising standard of life, social security and a fair distribution of incomes and property. These, it claimed, can only be achieved by effective democratic control of the economy. But:

the structure of the country concerned must decide the extent of public ownership and the forms of planning to apply . . . Socialist planning does not presuppose public ownership of all the means of production.

A separate section of the declaration dealt with social and cultural democracy :

Economic and social progress have moral value to the extent that they serve to liberate and develop the human personality.

The international section stressed the need for positive action to reduce illiteracy, poverty and disease in the underdeveloped areas of the world.

The resolution on socialist world action in the struggle for peace supported the United Nations' action in Korea and recognized the need for the free democratic countries to build up their strength in arms. The special problems of Germany and Japan were hinted at in the statement that:

countries which do not enjoy equality of rights cannot be expected to play their full part in common defence.

These two documents showed the kind of influence which the new International might exert in developing a common approach towards major issues of world policy. As against this the year gave fresh proof of the inadequacy of intervention by the International in the affairs of a national party. The conflicting democratic Socialist groups in Italy, the Partito Socialista dei Lavoratori Italiani (P.S.L.I.) and Partito Socialista Unitario (P.S.U.) joined forces in May as the Partito Socialista (Sezione Italiana dell' Internazionale Socialista)—P.S.(S.I.I.S.). Unity, however, was achieved only after the International had ceased trying to enforce it. The Greek Socialist party, despite the moral support it had received from the International Socialist conference since Jan. 1949, was obliterated in the general election of August, receiving only 4,208 votes.

The Frankfurt conference was attended by five representatives of the Japanese Social Democratic party including its chairman, Mosaburo Suzuki, and by Rammanohar Lohia of the Indian Socialist party as an observer. These Asian delegates showed some uneasiness both about the declaration of aims and tasks and about the resolution on world action, the Japanese abstaining on the latter.

In October a large part of the Japanese Social Democratic party split off under the leadership of Mosaburo Suzuki to form the Japanese Socialist party, opposing both the peace treaty and the security treaty. Rammanohar Lohia on his way home to India across the Pacific announced his intention of organizing an Asian Socialist International separate from that of Frankfurt, to include Socialist parties from the Lebanon to Indonesia. It was, however, uncertain whether in this he represented the Indian Socialist party as a whole. It was clear that the political unity so slowly achieved among the parties of western Europe did not extend to the new parties in Asia, which were more doctrinaire in domestic policy and neutralist in world affairs. Nevertheless the Frankfurt International had, on the proposal of the British Labour party, set up a fund to finance aid for Socialist parties in Asia, whether or not they were members of the International themselves.

In Europe the most important issue on which the Socialist parties disagreed was European unity. A certain rapprochement was however noticed in 1951. In 1950 several of the continental parties contained wings which favoured a continental federation excluding Great Britain; and all the continental parties supported the Schuman plan for a continental coal and steel pool and the Pleven plan for a continental European army. In 1951, when it finally became clear that Great Britain would not join even functional agencies for European unity if they had supra-national powers, all the continental parties except the Italian reluctantly decided that

even a loose form of unity which included Great Britain would be preferable to a supra-national union which excluded it.

The council of the Socialist International met in Brussels from Dec. 14 to 16 and passed a further resolution on "Action for Peace." This asked the Soviet leaders to prove their desire for peace by agreeing to a settlement in Korea, by holding free elections in Germany under international supervision, by signing the Austrian peace treaty and by ending the war of nerves against Yugoslavia. The resolution also contained a section on the European army which reflected the changing attitude to European unity in the sentence:

> The International believes that collective security would be effectively strengthened by the creation of a truly European army with which all free countries could be associated from the first moment.

In addition to the meetings of the International itself, expert conferences were held on the co-ordination of European agricultural policy, on aid to under-developed areas, and on the organization of Socialist newspapers. The parties directly concerned with the Schuman plan held a short meeting in Brussels on May 28 under the neutral chairmanship of Morgan Phillips.

Many parties showed interest in the development of Yugoslav Communism, but the International as such refrained from expressing a collective view, leaving each member free to choose its own attitude towards the Yugoslav Communist party.

In Jan. 1951 the International Socialist conference launched a weekly bulletin of information entitled *COMISCO Information Service*. By the end of the year this was published as *Socialist International Information* by the Socialist International.

The defeat of the British Labour party at the general election of Oct. 25 was the most important change in any national party. Since, however, the Labour party received almost a quarter of a million more votes than the Conservatives, whose majority in the House of Commons was only 17, the impact of this defeat was much less on the international Socialist movement than was at first feared.

In most other countries the position of the Socialists was not greatly changed by elections. The Socialists in France emerged from the general election of June 17 as the strongest of the Third Force parties, but with a total vote smaller by 667,744 than that of 1946.

In Italy the newly formed P.S. (S.I.I.S.) obtained 9·6% of the total vote in the municipal elections of June 17, considerably more than its components had received separately at earlier elections. But it failed to win converts from the Communist party by exploiting the dissident Communists Valdo Cucchi and Aldo Magnani.

In Austria the Socialist candidate Theodor Körner (*q.v.*) unexpectedly won a slight majority over the Volkspartei candidate at the presidential election of May 27.

In Germany local elections showed an increasing strength for the Social Democratic party whose main rival, the Christian Democratic union, was weakened by schism and internal dissension. In Australia and New Zealand the Labour parties were decisively defeated at general elections on May 7 and Sept. 1.

Aneurin Bevan's resignation from the British Labour government on April 22 gave evidence of the strains which Atlantic rearmament programmes imposed on all the European Socialist parties. Similar crises occurred also in the Norwegian, Danish and Dutch Socialist parties. In November the Belgian Socialist party as a whole committed itself to the same position on rearmament as Bevan in England

(D. W. H.)

See D. Healey, ed., *The Curtain Falls: The Story of the Socialists in Eastern Europe* (London, 1951).

SOCIAL SERVICES. The general scope of the social services administered by the state and local authorities under the national health and national insurance schemes continued on a similar basis during 1951, but there were important changes in the insurance scheme providing for an extension of benefit, and provision was made for effecting economy in the national health service scheme by a stipulation that payment should be made towards the cost of spectacles and dentures.

An important feature of the national insurance scheme, from its inception, was the provision of increments of retirement pensions which employed and self-employed persons could earn by continuing work beyond the minimum pension age. It was considered that these increments did not make it a sufficient inducement for men and women to remain in full-time employment when they reached pensionable age. Thus, the rate of these increments was increased from 1*s.* to 1*s.* 6*d.* for every 25 contributions paid on or after July 16, 1951. The increments of a wife's pension paid on her husband's insurance remained at 1*s.* during his lifetime, but if he died before her, any 1*s.* increments he had earned for her since July 16, 1951, would then be paid to her at the 1*s.* 6*d.* rate. As a result of these bigger increments, a man who continued in full time employment until 70 years of age could earn increments of 15*s.* for himself and 10*s.* for his wife, if she was not more than five years younger than he. This meant that he and his wife could then qualify for a combined retirement pension of 75*s.* a week for life. If his wife survived him, her pension would then be 45*s.* a week.

In comparing these rates with those payable in other parts of the Commonwealth, such as Australia, New Zealand and Canada, it should be remembered that in those countries retirement or old age pensions had generally to meet all needs, such as rent, whereas in Great Britain allowances were made under the national assistance scheme for extra needs, and an allowance was usually made for the rent actually being paid.

The revised insurance regulations included amended earning rules to encourage retirement pensioners to take up part-time work if they were not able to continue in full-time employment. The amount which a retirement pensioner could earn without any reduction of his pension was increased from 20*s.* to 40*s.* a week. The amount which a widow drawing a widowed mother's allowance could earn without a reduction of her allowance was increased from 30*s.* to 60*s.* a week. For a widow drawing the 26*s.* widow's pension, the amount was increased from 30*s.* to 40*s.* a week. The basic rate for retirement pensions was increased by 4*s.* for men of 70 and over and for women of 65 and over. The allowance for widowed mothers was also increased, and increases were given in respect of the children of pensioners drawing benefits or pensions. The cost of the new arrangements was estimated at £39 million in the first year. No increase in existing contributions was considered necessary to meet this cost, beyond the extra 4*d.* a week which was already due to come into force under the original scheme. National assistance scales were also increased so as to provide 50*s.* a week for a married couple, plus an allowance for rent. The rate for each dependent child, which varied according to age, was increased by 1*s.* 6*d.* a week.

National Health Service. Whereas the alterations in the national insurance scheme were effected with the object of improving the position of the recipients of insurance benefit, and also increased the expenditure on this scheme, the alterations to the national health service scheme were due to the need to economize in this service by requiring payments for certain appliances according to the means of the recipient. Attempts had been made previously to charge some of the cost of this service to the recipients, particularly by charging

a nominal sum for each prescription dispensed by a chemist; but, because of administrative difficulties, these proposals were not brought into effect, although they had been authorized by parliament. It was considered, however, that the one way in which there could be economy without hardship was in the provision of spectacles and dentures at the public expense. Accordingly, it was decided that a person provided with dentures should pay half of the cost, but no charge was to be made for extractions or fillings. Further, no charge was to be made to expectant mothers and nursing mothers. Similarly, in the case of spectacles, 10*s.* was to be charged for each lens, together with the actual cost of the spectacle frames, but no charge was to be made for children's spectacles. In each case the balance of the cost would be defrayed by the national health service scheme.

In order to prevent hardship to any person through the imposition of the charge in either case, the National Assistance board was authorized to increase its payments to persons requiring assistance, or to make special grants to persons in employment who would not normally be entitled to assistance. It was estimated that the imposition of these charges would result in a saving of £25 million a year, of which £17 million would be in respect of dentures and £8 million in respect of spectacles. Arrangements were also made whereby the board enquired into the financial circumstances of persons applying for legal aid in connection with proceedings in the courts.

It was not only in Great Britain that it became necessary to provide extensions of the social service schemes. Increases of benefits were made in Australia and New Zealand. In Australia, there was an increase of age and invalidity pensions of 10*s.* a week, which raised the maximum pensions, under a means test, to £3 a week. A married couple thus received £6 a week, together with free medical service and free pharmaceutical benefits. Proportional increases were also made in other pension rates. Further alterations in the Australian scheme provided for making the means test less stringent in the case of property and savings. These alterations would result in an increased expenditure of £A 11 million.

Voluntary Social Services. Voluntary organizations played an important part in co-operating with the state and local authorities in the social services in Great Britain. This was particularly noteworthy in the field of old people's welfare. The National Council of Social Services provided an opportunity for the co-operation of voluntary organizations, and 77 voluntary bodies were represented on the central body. The government recognized the value of this organization by the appointment of representatives from 10 departments and the local authorities were represented by their associations. There were also a number of individual members on the council who were appointed for their special experience in some particular phase of social work. In different parts of the country there were councils of social service for counties and boroughs, on each of which the local authorities and voluntary organizations were represented.

The co-ordination of voluntary effort for old people throughout Great Britain and Northern Ireland was the responsibility of the National Old People's Welfare committee, which worked in association with the National Council of Social Service. There were 41 national voluntary bodies represented on this committee and there were also regional and county committees represented on the national committee. The National Old People's Welfare committee worked in close association with the Ministry of Health and was instrumental in the setting up of local committees in all parts of the country. This resulted very largely from the action of the Ministry of Health in circularizing local authorities and asking them to co-operate with voluntary bodies in setting up these committees. One of the main activities of the local committees was the establishment of old people's clubs and the organization of a voluntary visiting service to supplement the official service provided by local health authorities, particularly in connection with the domestic help scheme. The Women's Voluntary services also established a large number of old people's clubs on a part-time basis, but an increasing number of whole-time clubs were established, mainly through the stimulus given by local old people's welfare committees. There were 48 county committees and 702 local committees in 1951.

Another organization concerned with the welfare of old people was the National Corporation for the Care of Old People, which was established by the governing body of the Lord Mayor's Air Raid Distress fund and the Nuffield foundation. The corporation made grants to voluntary bodies, such as old people's homes and clubs. It also assisted research and other projects. (Jo. Ms.)

United States. Large-scale changes in the social security programme in the U.S. resulted from the 1950 amendments to the Social Security act. The amendments extended coverage and liberalized benefits under old-age and survivors insurance; they also broadened and liberalized federal grants to the states for public assistance and maternal and child health and welfare services. Amendments to the Railroad Retirement act were adopted in Oct. 1951.

The federal programme of old-age and survivors' insurance administered by the Social Security administration of the Federal Security agency was established to provide monthly benefits related to previous earnings for insured retired workers at the age of 65 and supplementary benefits to their children under 18, to their wives if aged or having such entitled children in their care, and to the dependent aged husbands of women workers. At the end of Oct. 1951, monthly benefits totalling $151,825,500 were being paid to 4,290,791 individuals. As from June the 1951 average monthly benefit for a family consisting of a widowed mother and one child beneficiary was $75; for an aged widow $36·20; for a retired man $43·50; and for a man and his aged wife $70·40. The programme was being financed by contributions from employers and employees of 1·5% each on wages up to $3,600 a year and, from Jan. 1951, by contributions of the self-employed (except farmers and members of certain professions) of 2·25% of earnings up to $3,600. The amendments extended coverage to new groups, and in June 1951 almost 46 million workers were in insured jobs.

Payments were also being made under other public programmes. In Oct. 1951 monthly retirement, disability and survivor benefits were being paid to beneficiaries under the railroad retirement programme (414,500), veterans' programmes (3,404,100) and the federal civil service (202,400). Under plans for state and local government employees, retirement, disability and survivor benefits were being paid to a large group of beneficiaries. Disability benefits under these plans and payments under the programme of aid to the permanently and totally disabled were the only payments made under public programmes for permanent disability that was not connected with work. For temporary disability unconnected with work, public provision was limited to the temporary disability insurance systems in effect in four states and in the railroad industry. For disability connected with work, workmen's compensation programmes were in effect for workers in all states and for federal employees.

In Oct. 1951, on the average, 712,800 unemployed workers a week drew unemployment insurance benefits under the state-federal system; total benefits in the month were $67,449,000. Workers in 11 states had their weekly benefits supplemented by small allowances for dependants.

Protection against wage loss from unemployment was also available to railroad employees under the Railroad

Unemployment Insurance act. In Oct. 1951 about $1,376,000 was paid to an average of 21,200 workers.

The four special types of public assistance—old-age assistance, aid to dependent children, aid to the blind and, from Oct. 1950, aid to the permanently and totally disabled—were administered and financed by the states and/or the states and local communities, with the federal government sharing in the costs within certain maximum amounts. Federal grants to the states for this purpose in the fiscal year 1950-51 amounted to $1,202 million; for assistance and administration for these four programmes total expenditure—federal, state, and local—was $2,260 million. In Oct. 1951, 2,710,300 needy persons aged 65 or over were receiving old-age assistance; the average payment was $44·54; 596,800 families (including 1,532,900 children) were receiving aid to dependent children (average payment per family, $74·84); 97,200 were receiving aid to the blind (average payment, $47·75); and 114,200 disabled persons in 35 reporting states were receiving aid to the permanently and totally disabled (average payment, $46·13). About 312,000 cases were receiving general assistance, financed by states and localities without federal assistance; the average payment per case was $46·21.

(A. J. A.)

Canada. The federal Old-Age Security act passed by parliament on Nov. 8, 1951, guaranteed $40 a month from the federal treasury for all Canadians over 70 without any means test. Payments started on Jan. 1, 1952, with an estimated yearly cost of $342 million, to be raised by new taxes of 2% on personal and corporate incomes and a 2% sales tax. At the end of 1951, applications for the pension were being dealt with at the rate of 7,000 a week, and the estimated total number of beneficiaries for the start of the scheme was 730,000 (as against 320,000 old-age pensioners in 1951).

The Old-Age Security act was preceded (on June 23) by the Federal Old Age Assistance act, which authorized the federal government to share, on a 50-50 basis, with the provinces the cost of a pension of $40 a month to needy persons between 65 and 69 years. On the same date parliament passed the Blind Persons act, establishing for the first time in Canadian history separate legislation providing for assistance to the blind. The act authorized the federal government to make payments to the provinces covering 75% of blindness allowances of $40 a month.

By mid-1951 family allowances were being paid at the rate of more than $27 million a month to 1,934,238 families on behalf of 4,438,958 children (an average of $13·79 per family).

(C. Cy.)

SOCIETIES, LEARNED AND PROFESSIONAL. During 1951, as in 1950, little news was generally available about the work of learned societies in the U.S.S.R. and Soviet-controlled countries. Otherwise publications circulated freely, limited only by customs and currency regulations to which U.N.E.S.C.O. gave some attention during the year. Apart from discussion of advances in fundamental knowledge and of techniques affecting the trend of future research, the learned societies were concerned notably with such topical subjects as the production, transport and storage of food, the development and use of energy, including atomic energy, for peaceful purposes, new drugs and techniques for the treatment and cure of disease in plants, animals and man, and technical and other aid for under-developed countries. In all countries the choice of topics for the programmes of the learned societies was to some extent affected by international developments and especially by military decisions and the adjustments to internal economies which were the results of intensified preparations for defence.

During the year about 20 international congresses were held including those on chemistry (New York), industrial medicine (Lisbon), anaesthetics (London), crystallography (Stockholm), metallurgy (Detroit), scientific films (The Hague), naval architecture (London, Glasgow and Newcastle), building research (London), petroleum (The Hague) and astronautics (London). In each case learned and professional societies on the site acted as organizers and hosts.

In Great Britain nearly all the principal learned societies were in some way associated with the Festival of Britain and included in their programmes discussions, lectures and exhibitions which illustrated British contributions to science and culture during the century since the Great Exhibition in 1851. Some of the societies were also directly concerned with the planning and staging of exhibits at the various large exhibitions in London, Glasgow and Belfast.

Among the many important exhibitions arranged in Great Britain during the year were the following: historical exhibits, by the Royal Society and the Royal Institution; an exhibition of scientific instruments, by the Physical society; British maps and charts, by the Royal Geographical society; a historical exhibition of British achievements in photography, by the Institute of British Photographers and an exhibition of recent photographs by the Royal Photographic society; and a travelling exhibition on the petroleum industry, by the Institute of Petroleum in collaboration with oil companies.

An expedition to Mount Everest, led by Eric Shipton and sponsored by the Royal Geographical society, aroused wide interest on account of the discovery of a possible new route to the summit; and interesting despatches were received at intervals from the antarctic expedition to Maudheim sponsored by the R.G.S. and others in Scandinavia. Towards the end of the year the research ship " Discovery II " of the Royal Institute of Oceanography completed an important voyage in south polar regions.

In India, Pakistan, Ceylon and other eastern countries which had recently acquired independence and were faced with the need to establish economies worthy of stable sovereign states, the learned societies were encouraged by governments to give serious attention to the planning and development of existing resources and the establishment of new institutions. With generous grants of money they were able to invite experts from other countries to attend meetings and conferences and to make tours during which they were able to give advice.

In Latin-American countries, already well endowed with cultural institutions, there were increasing signs of interest in science and technology. These were manifest in the arrangement of regional conferences of national bodies and in the extension of exchanges of experts and of publications by arrangement with countries in other parts of the world.

In North America, and in Great Britain, France and other European countries involved in the North Atlantic Treaty organization, the learned societies were concerned with issues arising from defence commitments and provided forums for the pooling of knowledge and for the expression of corporate specialist opinion on important issues. The applications of scientific knowledge for the production of armaments were discussed as far as security arrangements would permit, and renewed concern was expressed about the harm done to science by what appeared to be unduly strict censorship of publication of the work of scientists in government employment. In the United States several societies were severely critical of state security arrangements, including political questionnaires, which had the effect of driving good people out of State service and diminishing new recruitments. In the U.S., also, the learned societies expressed concern about preoccupation with technology (which increased the output of factories for both peaceful and warlike uses) at the expense

of fundamental science (on which future advances in technology would ultimately depend). In Great Britain, on the other hand, the concern was less for fundamental science than for technology, and there was widespread discussion during the year on the need for changes in technical education. Although it was agreed that a development of technical education in Great Britain was necessary the experts were divided on the means of achieving this, whether by development of existing institutions or by establishing universities of technology. Indeed controversy was so strong that it seemed likely to prevent progress.

In several countries recent social developments and legislative reforms greatly stimulated academic and public interest in sociological theory and research and in 1951 a new body was established in Great Britain (the British Sociological association) to provide opportunities for discussion of theoretical and practical problems and to promote co-ordination of research.

The year was notable for the growth in strength of associations for the advancement of science as there were important developments in two directions, first in the foundation of new associations and, secondly, in the establishment of closer collaboration between existing bodies. The new associations were set up in the Philippines and in Siam and they were welcomed into full membership of the international committee set up by U.N.E.S.C.O. in 1949 to co-ordinate the work of associations for the advancement of science. In November, U.N.E.S.C.O. held a conference at Bangkok where, with the help of representatives from long-established associations, arrangements were made for developing collaboration between such bodies in Asia.

The American Association held its annual meeting in Philadelphia in December. In addition to the usual large number of discussions on a wide range of scientific topics there was an important discussion on the future policy of the association when it was decided that there should be a shift in emphasis from the more detailed aspects of the various technical branches of science to the broader problems of science as a whole, and that the association should also regard the improvement of public understanding of science as one of its main objects.

The British Association's annual meeting was held in Edinburgh under the presidency of the Duke of Edinburgh whose presidential address reviewed the contributions of British science and technology during the past century. As the meeting formed part of the Festival of Britain many of the papers were critical reviews of a century of progress but there was also the usual wide range of discussion. The meeting was memorable for the first public demonstration of television on a large screen, using a radio link, when the presidential address, delivered in the McEwan hall, was seen as well as heard by an overflow audience of over 2,000 people in the Usher hall.

The French Association held their annual meeting in Tunis in April and celebrated their 75th anniversary in Paris in September. Other anniversaries included the 75th anniversary of the American Chemical society, celebrated at New York in September at the time of the International Congress of Chemistry, and the 200th anniversary of the Society of Antiquaries of London. Learned societies also took special note of the 50th anniversary of the formulation of the quantum theory by Max Planck and of the sending of the first transatlantic radio message by Guglielmo Marconi.

Professional societies continued to give attention to questions affecting the qualifications, conditions of work and emoluments of their members. At one time wholly independent, professional men had been drawn more and more into large organizations controlled by national and local governments, and during 1951 there were discussions on the extent to which men required to show initiative, judgment and integrity in high degree could retain their independence in such circumstances. Among those so affected were doctors in countries with nationalized medical services.

Towards the end of the year scientific societies in every country were invited by U.N.E.S.C.O. and the International Council of Scientific unions to nominate candidates for the award of a new international prize, the Kalinga prize, for the best work in any language by a science writer. Important prizes awarded during the year included royal medals awarded by the Royal Society to Sir Howard Florey and Sir Ian Heilbron. At the anniversary meeting of the Royal Society the president announced that an appeal for £100,000 for a Rutherford Memorial fund had been entirely successful.

(D. N. L.)

SOCIETY ISLANDS: *see* PACIFIC ISLANDS, FRENCH.

SOCIOLOGY. The founding of the British Sociological association, in Feb. 1951, marked a significant step towards the establishment of sociology as a recognized branch of learning. The constitution and membership of this association, however, illustrated the uncertainty that still prevailed as to whether sociology aimed to offer a synthesis of all the social sciences, or whether it ranked, more modestly, as one amongst a number of specialisms. Amongst the members were to be found anthropologists, criminologists, demographers, historians, philosophers and psychologists, as well as sociologists expressly so called. Since the most fruitful contemporary areas of research seemed to be those which lay on the fringes of many of the longer-established academic disciplines, this indifference to boundaries was welcome.

Among other specific studies, those concerned either with social and political attitudes and the relation of these to social class, or with the techniques of measurement of public opinion, occupied a large place. Hadley Cantril and Mildred Strunk produced, for the Princeton Institute of Public Opinion, a monumental study, *Public Opinion 1935-46* (London), covering the activities of 16 polling organizations in 23 countries during one decade; the work largely consisted of a factual review of the actual questions on which attempts had been made to test public opinion. Meanwhile, H. J. Eysenck, continuing his study of attitude and social class in Great Britain, not only explored further the conservative-radical dichotomy, but also suggested the presence of another factor—tentatively defined as " tough or tendermindedness " —as an important influence on class attitudes to such non-political subjects as euthanasia, or the double standard of sex morality. This work, again, was relevant to the surveys, by various authors, of politics and social class in Greenwich, in Lancashire and in English and Welsh county boroughs, that appeared in the *British Journal of Sociology* in 1950 and 1951. In a more strictly political area, the hypothesis of a cube law determining the proportion of parliamentary seats to votes in two-party elections, associated during the year with the names of Professor Maurice Kendall and A. Stuart, passed the test of the 1951 British general election very creditably.

The work of exploring contemporary industrial cultures made further progress. An important United States work by Clellan S. Ford and Frank A. Beach, *Patterns of Sexual Behaviour* (New York), developed further, and from a fresh angle, the famous work initiated by A. C. Kinsey: this study was the more valuable in that it treated the subject from both a physiological and a social angle. In Great Britain, a small but outstanding piece of research by Eliot Slater and Moya Woodside provided the first exact picture of a sample of British urban working-class marriages in *Patterns of Marriage* (London). Two other studies of British social

life came from B. S. Rowntree and G. R. Lavers. The first, *English Life and Leisure* (London), which gave a very pessimistic picture of what purported to be the main preoccupations of typical contemporary Britons, was severely criticized on methodological and other grounds. The second, *Poverty and the Welfare State* (London), repeated for 1950 (though on this occasion on a sample basis and in relation only to standards of living) the surveys of the city of York carried out on well-tried lines by Rowntree in 1900 and 1936. Such a periodical review, designed to give, as nearly as possible, comparable results for each date, was clearly of exceptional value. The most remarkable finding of this enquiry was the striking diminution in distressful poverty that had been achieved in the previous 15 years. More disquieting were the issues raised by Professor R. M. Titmuss in a critical analysis of contemporary British social services contained in his inaugural lecture, as professor, to the London School of Economics in May 1951, " Social Administration in a Changing Society " (*Brit. J. Sociol.*, vol. II, no. 3, London), which illuminated, in a new way, the dangers of rigid administration, and of the domination of the social services by highly organized professional interests.

On the subject of race relations and racial differences, U.S. work (apart from the valuable but popular U.N.E.S.C.O. pamphlets, *The Roots of Race Prejudice* and *Race and Psychology*) continued to dominate the field. Two valuable contributions were the study by Professor Kardiner and Lionel Ovesey of American Negro psychology, *The Mark of Oppression* (New York), and Brewton Berry's useful text, *Race Relations* (New York).

In industrial sociology Elliot Jaques's team, under the auspices of the Tavistock Institute of Human Relations, broke what for Great Britain was new ground (though there had been comparable U.S. work) in *The Changing Culture of a Factory* (London), an intensive study of group relations in a single factory in what might be called psycho-socio-anthropological terms. (B. W.)

SOIL CONSERVATION. A significant trend noted during 1951 was the incorporation of soil and water conservation into programmes designed specifically to improve conditions in underdeveloped countries. It was becoming apparent in most that better living conditions could not be achieved without increased agricultural production. And, fortunately, nearly everywhere there were at least a few agriculturists, holding positions of importance and trained in modern conservation methods, who could advocate care and improvement of the soil as a primary factor essential to greater yields of food and forage crops.

The Food and Agriculture organization of the United Nations was assisting in the spread of conservation methods to the needy nations. Other United Nations organizations gave impetus to the movement by setting up educational programmes, such as the pilot projects of U.N.E.S.C.O., and stressing soil and water conservation as an important feature of educational activities for backward communities. These projects were proving especially valuable in some of the Latin-American countries. At the same time, a number of conservation technicians were dispatched into underdeveloped areas through the Point Four programme or the Economic Co-operation administration, where funds were made available to assist worthwhile soil conservation programmes already in operation.

The Soil Conservation service of the U.S. Department of Agriculture continued to train conservationists on a world-wide basis for the benefit of food production in general. By Nov. 1951, nearly 1,000 agricultural scientists or technicians had visited the United States from 90 nations, colonies or protectorates, to study soil conservation.

Some of the underdeveloped nations or colonies reporting benefits in the form of better food production from soil conservation were: the Belgian Congo, Algeria, Nigeria, Uganda, Tanganyika, Kenya, Nyasaland, Haiti, Guatemala and El Salvador.

In Europe there was a significant acceleration in planning and organizing for modern soil conservation as a basis for increasing food production in small countries with dense populations. Soil conservation work was started in Spain, Portugal, Switzerland, Austria, Germany and France. About 250 agricultural specialists from European countries, including Iceland, Great Britain and the Azores visited the United States to observe and study soil and water conservation methods applied on farm land.

Some of the technical problems encountered during the year were the restocking of derelict woodlands and the reclamation of land devastated by opencast mining in Great Britain; water spreading and flood control methods adaptable to barren lands slated for reclamation in India; and suitable water spreading methods for the great plains of the United States, and parts of Australia and India. Special studies were being conducted in all these regions to devise the least expensive and most permanently effective ways of solving such problems.

A soil and water survey was started early in the year in Libya, North Africa, with funds allotted under the United States Point Four programme. At the same time, an agricultural education programme, including simple soil conservation methods, was launched in Eritrea. Programmes already in operation in Algeria and the Sudan were stressing wind erosion control in flat lands, and attempting to develop sound practices to save all rain water falling in highlands.

The Israeli Soil Conservation department established a large nursery for erosion-control grasses and legumes at Migdal Got during 1951. Much of the area was seeded to a variety of grasses, which were to be studied to determine those best adapted to erosion control and grazing through the country.

A National Soil Conservation act was passed in the Phillippines in June 1951. The act established the Bureau of Soil Conservation. It was authorized to make erosion studies and surveys, establish conservation demonstrations and assist soil-conserving farmers. Four regional areas with field headquarters had been already established, and soil conservation tillage, sedimentation control and soil fertility demonstrations were under way on farmland.

A soil conservation committee of five agricultural technicians was appointed by the minister of agriculture of Portugal in June 1951 to develop a soil and water conservation programme for that country, including the Madeira islands. All of them were sent to the United States to study with the U.S. Soil Conservation service. In France, also, a new technical section to conduct research with special reference to soil conservation, irrigation and drainage problems, and to aid in development of conservation education, was set up and staffed within the Ministry of Agriculture's office of rural engineering. The newly organized staff visited the United States for study and observation.

Commonwealth. In Pakistan a central soil conservation organization was established to conserve soil and water resources by extending sound land practices and reducing hazards of floods and siltation. Intensified research was launched, including five new research stations in Baluchistan, North-West Frontier Province, Sind, Punjab and east Pakistan, in order to develop erosion control practices under local conditions. A survey had shown that soil erosion and waterlogging were putting about 200,000 ac. of land out of use every year and reducing fertility of other lands.

In the Union of South Africa, 408 soil conservation districts,

covering 118,390,000 ac. and including 46,393 farms, had been formed by the beginning of 1951. District committees were functioning in 298 of the districts, and soil conservation technicians were at work with farmers in 150 of them. In addition, seven conservation areas, covering about 4,400,000 ac. of critically eroded land, were being treated with gully control, cover cropping, regrassing, and re-afforestation methods adapted to different conditions. The total area in the districts and the conservation areas represented about half the land farmed by Europeans in the Union. It mainly included, however, areas devoted to pastoral farming, that is, ranching and production of wool and mutton. Arable farms were proving much slower in becoming part of the soil and water conservation programme. In May, officials of the Union's Division of Soil Conservation began assisting South-West African farmers and farm organizations in the formation of a soil and water conservation programme for that territory.

A survey of water resources was a natural corollary to a survey of soil erosion and land use, but this had to be more than the mere routine measurement of streamflow at a few points. It had to correlate the rainfall in the catchment, the intensity of the rain, the efficiency of the catchment basin in terms of flood run-off at the peak and the nadir flow at the driest season, the subsoil storage of water which served to build up the permanency of springs and wells and reservoirs and the efficiency of forests and other plant covers in maintaining porosity.

Recent legislation aimed at regional management by catchments. The New Zealand Soil Conservation and River Catchments act provided for a board of management for each major river. The Ceylon Soil Conservation act of 1951 laid down that any river catchment might be gazetted an "erodible area" and subjected to restriction of land uses and enforced afforestation of river banks. The need for planning all such work on a basis of the river catchment and not upon artificial civil district or provincial boundaries was stressed in discussions sponsored by the British Association at its Edinburgh meeting in 1951 and by the U.N. Food and Agriculture organization whose conference on tropical land use met in Ceylon in Sept. 1951.

In most southeast Asian countries and in Africa the problem of restoring the fertility of the soil after forest had been cleared and the ground impoverished by primitive cultivation of food crops such as maize was acute. Temperate countries depended upon a short spell of say three or four years under a grass "ley" to restore the fertility between crop rotations, but experience in the drier tropics tended to show that this was not enough. In tropical heat the vegetable matter in the soil disappeared very fast, for instance the mulching with cut grass or tree twigs round tea bushes disappeared in a few weeks. So the effect of three or four food crops such as maize and chillies or cotton was to leave the soil completely impoverished. To restore some lost fertility, more attention was being paid to the use of tree crops as a sort of "bush fallow," and species such as *Leucaena glauca*, *Indigofera teysmannii*, and the bushy *tur dal* (*Cajanus indicus*) were being tried under a variety of conditions but chiefly in dry zones.

In Kenya, with 500,000 ac. needing broad-base terraces, the soil conservation service was terracing 20,000 ac. a year with the help of 17 heavy tractors. In the native reserves on the other hand the need was for hand-made narrow-based contour banks, but these were not sufficient on steep slopes and had to be combined with other items such as strip cropping, diversion ditches, bench terracing with stone walls, tree crops in shelterbelts or as a bush fallow, if erosion was to be prevented.

United States. The scope of work on the land broadened considerably as farmers and ranchers organized more than 80 new soil conservation districts including nearly 55 million ac. and 100,471 farms. By Nov. 1, 1951, 2,412 such districts had formed in the 48 states and in Alaska, Hawaii, Puerto Rico and the Virgin Islands. They covered about 1,333 million ac. and included 4,929,464 farms and ranches.

Technicians of the Soil Conservation service were located in all but 51 of the districts. Ten states and two territories were completely covered by the districts: Alabama, South Carolina, Delaware, Rhode Island, New Hampshire, Vermont, New Jersey, Massachusetts, Nebraska, Mississippi, and Puerto Rico and the Virgin Islands.

These districts were proving the most important feature of the national soil and water conservation programme. They were especially effective during 1950-51 in gaining the interest and support of state and local agencies and institutions in soil conservation.

State experimental stations continued to co-operate with the Soil Conservation service in soil and water conservation research, while many state nurseries assisted by producing seed and planting materials for erosion control plantings in the districts. The state legislatures were appropriating directly, on an annual basis, between $4 million and $5 million for use by the districts. In addition, many local government agencies, as well as civic and business groups, were contributing valuable aid in the form of technical assistance, benefit or incentive payments and grants, or materials and equipment needed by the districts for conservation works benefiting the communities.

A working method developed by Soil Conservation service technicians and farmer supervisors of soil conservation districts, known as neighbour group action, was effective in speeding conservation work in many communities. By this method, natural neighbourhood groups, bound by common interests and daily living, planned and worked together, with the technicians' assistance, to spread soil and water conservation within their farm communities. They made conservation plans of the whole communities, loaned one another machinery and seed, assisted each other in laying out terracing and strip cropping, formed working parties to build ponds and diversions, and co-operated in conservation work in many other ways.

The Soil Conservation service was providing technical assistance to nearly 26,000 such groups during 1951. About 16,500 additional groups had been identified and many had started this type of neighbourhood co-operation. Considerable attention was given by the Soil Conservation service to effective and inexpensive ways to maintain soil and water conservation practices in good working condition after they were applied. Nearly 150 million ac. of farm and ranch land had been completely treated for erosion control and conservation use and farmers were keenly interested in maintenance. Application of conservation plans was in progress on an additional 110 million ac. Complete conservation farm plans had been prepared for more than a million farms including 275,116,000 ac. by the end of the 1951 fiscal year. Conservation surveys had been completed on 375,300,000 ac.

Substantial progress was made in range conservation in 1951. Conservation management plans were applied on 11 million ac. of range, making a total of about 70 million ac. that had been put under conservation treatment by July 1, 1951. Nearly 10 million ac. of pasture and range seeding had been completed. Studies made of livestock production on ranges which were in poor condition and on those in good condition after conservation treatment showed an average increase of 60% in pounds of beef an acre on the treated ranges. (*See* also FLOODS AND FLOOD CONTROL.)

(H. H. BE.; R. M. GE.)

SOLOMON ISLANDS: *see* TRUST TERRITORIES.

SOLOMON ISLANDS PROTECTORATE: *see* PACIFIC ISLANDS, BRITISH.

SOUTH AFRICA, THE UNION OF. A self-governing member of the Commonwealth of Nations, extending from the southernmost point of the African continent to the Limpopo river in the north. The mandated territory of South-West Africa is administered by South Africa.

Provinces	Area (sq.mi.)	Population (1951 census*)	Capital (total and European pop., 1951 census*)
Cape of Good Hope	277,113†	4,417,330	Capetown (571,638; 242,493)
Natal . . .	35,284	2,408,433	Pietermaritzburg (74,399; 31,512)
Orange Free State .	49,647	1,018,207	Bloemfontein (109,130; 47,856)
Transvaal . . .	110,450	4,802,405	Pretoria (283,148; 149,614)
Total, Union of South Africa .	472,494	12,646,395	
South-West Africa .	317,725	430,354	Windhoek (1946 (census, 14,933; 6,985)

* Revised preliminary figures. † Incl. Walvis Bay (430 sq.mi.; pop., 1946 census, 2,270) administered with South-West Africa.

The population of the Union included: European 2,643,187; Bantu 8,535,341; Coloured (mixed) 1,038,766 (923,914 in Cape Province); Asian 365,524 (299,068 in Natal); Cape Malays 63,557 (56,542 in Cape Province). Pop., South-West Africa: European 49,641; African 380,686; Malay 16; Asian 11. Language: official languages (1946 census, Europeans only), 69% spoke Afrikaans and English, 17% English only, 14% Afrikaans only; Africans, generally Bantu. Religion: (Europeans, 1946 census) Dutch Reformed Church 55%; Anglican 19%; Methodist 6%; Presbyterian 5%; Roman Catholic 5%; Jewish 4%, other 6%; (non-Europeans) 51% Christian. Capetown is the seat of the legislature and Pretoria the seat of government. Other principal towns (total pop. and European pop., 1951 census) are: Johannesburg (880,014; 359,539); Durban (475,026; 148,980); Port Elizabeth (187,071; 78,315); Germiston (149,982; 65,854); East London (90,695; 43,668); Springs (115,880; 31,389). State of the parties (Dec. 31, 1951): House of Assembly, National 86, United 64, Labour 6, native representatives 3; Senate, National 21, United 13, Labour 3, native representatives 3, National Party of South-West Africa 4, independents 2. Governor general, Ernest George Jansen; prime minister and minister of external affairs, Dr. Daniel François Malan (*q.v.*).

History. Dr. A. J. Stals, minister of health, who died in Feb. 1951, was replaced both in the cabinet and in parliament by Dr. Karl Bremer, who easily held the seat for the Nationalists at the by-election in Ceres. An important political development was the amalgamation of the two government parties, the small Afrikaner party led by N. C. Havenga and the Nationalist party led by Dr. Malan. Havenga became Nationalist leader in Natal. A new Nationalist party was formally constituted with a somewhat broader programme of general principles and the prohibition against Jews as members of the Transvaal Nationalist party was lifted. The United South Africa Trust fund was inaugurated with Harry F. Oppenheimer, M.P. for Kimberley, as chairman to foster national unity and to improve inter-racial relations on the basis of democratic principles. The trust's avowed support of the United party was criticized by ministers who warned the country against its political influence.

Legislation. The work of the parliamentary session was overshadowed by the contentious Separate Representation of Voters act which transferred some 50,000 Cape Coloured (mixed race) voters from the common electoral roll to a special roll. These voters would in future elect four Europeans to represent them in the House of Assembly and two persons to the Cape provincial council. One senator would be nominated by the government to represent them in the Senate. After hearing argument from both sides, the Speaker ruled that under the constitution a two-thirds majority was not required for the passage of the bill, thus confirming the government's view. The opposition, however, contended that good faith, if not strict law, demanded that so momentous a constitutional step should not be taken by a small majority. On May 7, a strike of Coloured factory and other workers occurred in Capetown to protest against the bill. The leader of the United party, J. G. N. Strauss, undertook to repeal the act when returned to power and to entrench the Coloured franchise as well as other fundamental rights in a bill of rights. The validity of the act was contested in the Supreme court, whose decision was awaited at the end of the year.

The constitutional controversy produced a new political movement, the War Veterans' Torch commando, under the leadership of A. G. Malan, an R.A.F. pilot in World War II. The movement organized spectacular torchlight processions and public meetings. The climax was reached in Capetown on May 28 when an unprecedented crowd assembled and marched in protest to the gates of the parliament building. The demonstration ended in a clash with the police, some 75 people being injured. The Torch commando thereafter organized its activities on a national basis, soon claiming over 100,000 members. It pledged itself to defeat the government.

The act to suppress Communism, passed in 1950, was amended to close loopholes. It also provided for the expulsion of Communist members of parliament and of the legislative assembly of South-West Africa at the instance of the minister of justice and with the approval of the House of Assembly or the Senate. The Bantu Authorities act abolished the Natives' Representative council which had existed since 1936 as a forum for the expression of African opinion. It provided instead for tribal or regional local authorities to be established with due regard for native law and custom and after consultation with the tribe concerned. Other acts defined the future sphere of African workmen in the building trade, regulated merchant shipping and increased the salaries of members of both houses of parliament from £1,000 to £1,400 a year.

Economic Position. The budget was presented in March by N. C. Havenga, minister of finance. He expected a surplus for 1950-51 of £4,755,000 in spite of total expenditure having risen to £156 million. Budgeting for a surplus of £560,000 for the year 1951-52, he estimated total expenditure at £182,043,000. Estimated revenue from existing taxes would fall short of that sum by some £13,690,000, but the deficit would be met by slight additional taxation, notably on mining companies, and by the collection of arrears of income tax. The loan programme was large but no difficulty in borrowing was expected since the internal capital market had improved considerably and external capital markets were also more accessible. Production continued to expand and, with it, the national income. This generally healthy position was confirmed in July by Dr. M. H. de Kock, governor of the South African Reserve bank, in his annual survey. He recalled that after the middle of 1950 the rise in the world prices of wool and other primary products had improved the union's terms of trade to such an extent that the increased cost of imported goods was less than the increased yield of exports.

The wool season was the best the farmers had known, the average price being double that of the previous season. Secondary industries continued to expand, producing in

value more than mining and agriculture combined. Steel production rose to 1 million tons. Among new projects was a big oil-from-coal plant. The cost of living continued to rise.

Gold mining benefited by the sale of up to 40% of current output at a premium in the industrial market. The Treasury announced, however, that the government would not embarrass the free market in gold and would, if necessary, reduce the percentage of production sold in that market. It was also announced that, in consultation with the United States and Great Britain, the production of uranium from gold-bearing ores was planned.

Race Relations. A serious disturbance occurred near the end of 1950 in the native reserve of Witzieshoek, in the Orange Free State. There was a clash between 600 Africans and a small police force, as a result of which 14 Africans and 2 European policemen were killed. A commission of inquiry found that the unrest was due to radical and unpopular changes in tribal agriculture imposed by officials of the Native Affairs department who had failed to realize how deeply the Africans were disturbed. The enforced culling of cattle was a major grievance. The people in the reserve misunderstood and resented efforts to improve their livestock and to alter their grazing and other rights. The commission recommended that the arable area of the reserve be extended by over 10,000 ac. and that the needs of landless Africans be provided for. After a prolonged trial at Harrismith, 75 Africans were convicted of public violence and sentenced to varying terms of imprisonment up to five years.

International Relations. Another stage was reached in the controversy between the United Nations and the South African government over the future status of the former mandated territory of South-West Africa. A committee of the United Nations submitted a draft agreement providing for a limited degree of international supervision over the administration of the territory. Rejecting this, the government put forward counter-proposals involving an agreement with Great Britain, France and the United States as the only remaining members of the group of powers that conferred the original mandate. South Africa was willing to have such an agreement sanctioned by the United Nations, but unwilling to submit annual reports to the United Nations on its administration of the territory. In February Dr. Malan, on the occasion of the visit of Patrick Gordon Walker, secretary of state for commonwealth relations, renewed the proposal that the British South African protectorates should be transferred to South African administration. Dr. Malan also criticized British colonial policy in Africa. The Union strengthened its defence forces and undertook commitments in respect of joint defence with Great Britain against aggression in the middle east. An agreement was concluded with the United States for the supply of military equipment.

Census. Preliminary figures for the census on May 8, 1951, showed that since the census in 1946 the population had increased by 1,018,878 (8·9%). Europeans had increased by 216,243 (9·1%) and Africans by 579,020 (7·4%). The total Coloured population was 1,016,019, an increase of 150,137 (16·7%). Asians totalled 358,738, an increase of 73,478 (25·8%). (J. LN.)

Education. State schools (1947): primary 1,190 (European 1,110), pupils 115,368 (European 92,291), teachers 3,927; secondary and high schools 241, pupils 75,339 (European 65,232), teachers 3,122; mission schools 3,031; training institutions 32 (European 9), pupils 3,790 (European 874), teachers 218. Private schools (1947): kindergarten 92; primary 773; secondary 114; commercial and business 19; others 10; pupils at all private schools 73,787 (European 36,500). Technical colleges (1948) 11, students 46,000, teachers 2,150. Universities (1951) 9; total enrolment of students (1949) 23,977.

Agriculture. Main crops ('000 metric tons, 1949-50; 1950-51 in brackets): maize 2,569 (2,470); wheat 372 (680); oats 115; potatoes 270 (270); dry beans 29 (32); sugar, raw value 509 (622); groundnuts 84 (180); sunflower seed 21; tobacco 18·9 (19·7); grapes 430; oranges and tangerines 193 (204); grapefruit 15 (15); lemons 4 (4); raisins (1948) 8·7. Wire production ('000 hectolitres, 1949-50; 1950-51 in brackets): 2,609 (2,670). Livestock ('000 head, Aug. 1949): cattle 12,242; sheep 31,908; goats 5,529; pigs 761. Meat production ('000 metric tons, 1949; 1950 in brackets): total 432 (430) of which beef and veal 306 (307); mutton and lamb 79 (74), pork 47 (49). Dairy production ('000 metric tons, 1950; 1951, six months, in brackets): butter, factory production 27·1 (17·1); cheese, factory production 9·4 (5·0). Wool production, greasy basis, including Basutoland and South West Africa ('000 metric tons, 1949-50; 1950-51 in brackets): 102 (102). Fisheries: total catch ('000 metric tons, 1949) 125. Fish oil production (metric tons, 1949; 1950 in brackets): 5,489 (11,177).

Industry. Industrial establishments (1948-49): 14,361; persons employed 670,000 (Europeans 228,000). Index of employment in manufacturing and building (1937=100, 1950; 1951, six months, in brackets): 161 (169). Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 26,064 (13,079); electricity (million kwh.) 10,872 (5,635). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): iron ore, metal content 1,188 (702); pig-iron 733 (372); steel ingots and castings 816 (444); copper, smelter 33·0 (17·1); chrome ore 496 (273); manganese ore 791 (382); asbestos 79·3 (44·1); gold ('000 fine ounces) 11,659 (5,695); diamonds ('000 carats) 1,926; silver ('000 fine ounces) 1,134 (578); osmiridium (ounces) 6,450 (2,748). Cement production ('000 metric tons, 1950; 1951, six months, in brackets): 1,847 (981). Production of leather footwear ('000 pairs, 1950; 1951, six months, in brackets): 12,525 (6,606). New dwellings completed (1950; 1951, six months, in brackets): 5,016 (2,369).

Foreign Trade. (Million £SA, 1950; 1951, six months, in brackets): imports 307·3 (229·1); exports 248·2 (179·6). Main sources of imports (1950): U.K. 41·2%; U.S. 16·0%; Canada 4·2%; Persia 3·6%. Main destinations of domestic exports: U.K. 26·0%; France 12·2%; U.S. 8·5%; Southern Rhodesia 7·4%. Main imports: metals, metal manufactures, machinery and vehicles 33%; textiles and clothing 22%; petroleum and products 9%. Main exports, excluding gold and bullion: wool 25%; semi-processed and processed gold 15%; diamonds 8%; fruits 4%.

Transport and Communications. Roads (1950): national 6,000 mi.; provincial main roads 80,715 mi. Licensed motor vehicles (Dec. 1950): cars 466,000, commercial 134,000. Road services (1949-50): passengers conveyed 13·8 million; goods carried 1,754,500 metric tons. Railways (1950): 13,942 mi.; goods ton-mi. 11,570 million; goods carried ('000 metric tons) 39,600. Shipping (merchant vessels of 100 gross tons and over, July 1950): 156, total tonnage 177,893. Air transport (1950): passenger-mi. 125 million; cargo net ton-mi. 4·2 million. Telephones (1950): subscribers 415,518. Wireless licences (Dec. 1949): 531,300.

Finance and Banking. (Million £SA) Budget: (1950-51 actual) revenue 161·5, expenditure 156·6; (1951-52 est.) revenue 168·4, expenditure 182·0. National debt (Aug. 1950; Aug. 1951 in brackets): 747·0 (780·6). Currency circulation (Aug. 1950; Aug. 1951 in brackets): 68·4 (79·5). Bank deposits (Aug. 1950; Aug. 1951 in brackets): 307·6 (321·7). Gold and foreign exchange (million U.S. dollars, Sept. 1950; Sept. 1951 in brackets): 595 (581). Monetary unit: South African *pound* at par with the pound sterling and with an exchange rate (Nov. 1951) of £SA 0·357 to the U.S. dollar.

BIBLIOGRAPHY. F. Gerard, *Springbok Rampant* (London, 1951); Sarah G. Millin, *The People of South Africa* (London, 1951); R. E. Wallace and A. S. Robertson, *Economics of South African Goldmining* (Johannesburg, 1951); A. J. H. van der Welt, J. A. Wiid and A. L. Geyer, *Jeschiedenis van Suid-Afrika* (Capetown 1951); W. A. Lewis, M. Scott, M. Wight and C. Legum, *Attitude to Africa*, (London, 1951).

SOUTH AFRICAN LITERATURE. English.

The influence of the approaching tercentenary of the founding of Capetown was apparent in various publications during 1951. Such were: Lawrence G. Green's *Grow Lovely Growing Old* (Capetown), the story of Capetown's 300 years of life; *The Old Company's Garden at the Cape and its Superintendents* (Capetown), by Mia C. Karsten; C. A. Lückhoff's beautifully illustrated *Table Mountain Our National Heritage after Three Hundred Years* (Capetown). Olga Racster's *Curtain Up* (Capetown) reviewed the theatre from 1700; *A Victorian Lady at the Cape* (Capetown), by A. F. Hattersley, based on a valuable collection of letters, pictured life at the Cape in 1849-55; and *Strangers may be Present* (Capetown), by Scott Haigh, dealt entertainingly with the life of parliament.

Historical works included *The People of South Africa* (Johannesburg), by Sarah G. Millin, a resumé of South African history with an analysis of the chief racial groups, *The Jameson Raid* (Capetown), a scholarly work by Jean van der Poel, and *The Thoughts of General Smuts* (Capetown),

compiled by P. B. Blanckenberg, revealing the statesman, scientist and philosopher. In *Great South African Christians* (Capetown), Horton Davies portrayed various representative religious leaders from 1737 onwards.

Fiction yielded *This was the Old Chief's Country* (London), by Doris Lessing, a collection of short stories showing aspects of South African life, and *A Grove of Fever Trees* (London), by Daphne Rooke, a novel concerned with two English families in Zululand.

Of especial interest to the gardener was the beautifully illustrated *Flowering Trees and Shrubs for South African Gardens* (Capetown), by Sima Eliovson. (M. E. WR.)

Afrikaans. With the passing of a half-century since the creation of the first Afrikaans poems of real merit by E. N. Marais, there was evidence of a desire, in 1951, to take stock of past attainments in the literary field. A comprehensive—if fragmentary—picture was given by a team of 20 collaborators in *Perspektief en Profiel* (P. J. Nienaber, ed.). A concise and compact picture was offered by Abel Coetzee and S. C. Hattingh in *Die Afrikaanse Letterkunde—Rigtingslyne en Hoogtepunte*. F. V. Lategan produced an anthology of short stories, *Kortpad—Keurbeeld van die Afrikaanse Kortverhaal*, and F. E. J. Malherbe edited a selection of humorous stories, *Afrikaanse Humorverhale*.

Special mention must be made of the appearance of vol. III of the account of the Afrikaans cultural history, with C. M. van den Heever and P. de V. Pienaar as co-editors, *Kultuurgeskiedenis van die Afrikaner* (vol. 1, 1945). After a quarter of a century's effort, mainly by the University of Stellenbosch, vol. I of the official Afrikaans dictionary, *Afrikaanse Woordeboek*, was published.

Only two notable volumes of poetry appeared: *Engel uit die Klip*, by D. J. Opperman, and *Tussensang*, by Elizabeth Eybers—both established poets.

The output of prose continued to be extensive, much of it being mediocre. The following volumes should be mentioned: *En wie is My Naaste?*, by Hymne Weiss; *Daarom is die Winddreun Diep*, by H. S. van Blerk; and *En die Oranje Vloei Verby*, by A. A. Pienaar, the author of *The History of a Lion Family*, a volume that had been translated into many European languages. Based on autobiographical material, was the novelette *Jeug*, by C. M. van den Heever, who also contributed a mature volume of short stories, *Die Laaste Baken*. A newcomer among the writers of short stories was Dirk Richard who published: *Die Swart wa en Ander Kortverhale*.

Of interest in the dramatic field were *Vlamme Oor La Roche*, by W. A. de Klerk, and *Salome Dans!*, by Gerhard Beukes. (A. J. COE.)

SOUTHERN RHODESIA. Self-governing British colony in central Africa separated from Northern Rhodesia by the Zambesi river and bounded N.E. and E. by Portuguese East Africa, S. by Transvaal and S.W. and W. by Bechuanaland protectorate. Area: 150,333 sq.mi. Pop. (1951 census): 2,146,324 incl. 136,017 Europeans, 4,343 Asians and 5,964 mixed; the permanent European population had increased from 75,000 at the 1946 census. Chief towns (European pop.): Salisbury (cap., 40,510), Bulawayo (32,269). Umtali (5,762), Gwelo (5,115). Languages: English, Afrikaans and tribal dialects. Religion: Africans mainly pagan, Christian minority. Administration: governor; executive council (cabinet); legislative assembly, in which seats were held (Dec. 1951) as follows: United party 23, Rhodesia (former Liberal) party 5, Rhodesia Labour party 2. Governor, Major General Sir John Noble Kennedy; prime minister, Sir Godfrey Huggins.

History. Defence measures taken during 1951 included the registration of all non-African males between the ages of 18 and 29 for six weeks' training in camp; the raising of an additional company of the Rhodesian African Rifles; a short service commissions scheme to train fighter pilots for two complete squadrons in two years; and an expenditure of £2 million on building up strategic stocks. The educational test for the franchise was stiffened, the property qualification raised to £500 and the income qualification to £240 a year. The Liberal party changed its name to the Rhodesia party and a new political organization called the Democratic party was formed, mainly with Afrikaner support. R. F. Halsted, minister for trade and industrial development, was dropped from the cabinet after failures in petrol supplies. A report on agriculture by Sir Frank Engledow was published. In January the government issued £5 million 3½% stock 1980-85 at par; 43% was left with the underwriters. The United States gave a loan of £5 million for Rhodesia railways through the Economic Co-operation administration. (G. R. MN.)

Central African Federation. Proposals for associating more closely Southern Rhodesia, Northern Rhodesia and Nyasaland (*qq.v.*) had been discussed for a number of years. The issue was complicated by the differing status of the territories, Southern Rhodesia a self-governing colony and the other territories protectorates. The presence of permanently resident and land-owning European groups distinguished the territories from others in Africa in which Africans had made rapid constitutional progress. In all the territories attempts were being made to work out a constitutional partnership between the elements of a plural society but the directions taken were different. In the north considerable constitutional advance, in which the African had a substantial place, had been made by 1951; in Southern Rhodesia the emphasis was placed on African economic and educational advancement as an essential preliminary to increased participation in government. A royal commission in 1938 considered closer association but recommended at that time only an inter-territorial advisory body which came into being in 1945, after being delayed by World War II, as the Central African council. This was reduced in 1951 to a secretariat.

Informal discussions took place in 1949 between Southern Rhodesian leaders and the unofficial members of the Northern Rhodesian legislature and a conference of officials met in London in March 1951 to examine the matter afresh. Its report (Cmd. 8233 and 8234) was published in June and was accompanied by a comparative survey of native policies (Cmd. 8235). The survey found that the principles of policy, of leading the African to full partnership, did not materially differ as between the northern territories and Southern Rhodesia; the main difference was that it was held in the north that the African must be induced from the outset to play a full part in the administration of his own area and a direct part in the politics of the whole territory whereas in Southern Rhodesia it was held that he must first become the equal of his future partner—the European—in health, material well-being and education.

The officials' report emphasized the interdependent nature of the economies of the territories; *e.g.*, Southern Rhodesian coal for Northern Rhodesian copper smelting, and pointed out that a slump in any one of a few commodities would have a disastrous effect on the territories working as isolated units. The economic development of all had gone forward rapidly in ten years and the European population had more than doubled. Differences in native policy could no longer be regarded as a valid argument against closer association; African opinion in the north was still opposed to it, which was a serious obstacle, but in the last resort, the officials thought, and given adequate representation and protection of their interests, the Africans would come to realize its advantages from their point of view.

The report therefore proposed a federation, to be called British Central Africa. The federal authority would control

external affairs, defence, economic matters and the principal public utility services, while the territories would control most other matters, in particular those most affecting the African. But African interests would also be watched in the federal sphere by a minister responsible ultimately to the United Kingdom government, and Africans would have representation in the legislature.

The proposals were discussed by representatives from the three territories with James Griffiths, secretary for the colonies, and Patrick Gordon Walker, secretary for commonwealth relations, at Victoria falls, Sept. 18-21. The Africans from the north opposed them, according to the communiqué that was issued on Sept. 21, but the other interests accepted federation in principle. The Conservative government which took office in London in October announced on Nov. 21 (Cmd. 8411) that it endorsed federation and believed it to be in the best interests of the Africans; assurances given by earlier governments were renewed; amalgamation, except by majority consent, was ruled out; and it was proposed that the conference re-assemble in London in July 1952.

The course of events caused much disappointment in Southern Rhodesia. Sir Godfrey Huggins, the prime minister, explained in parliament on Nov. 19 that he had always wanted amalgamation but, as it was unattainable, accepted federation in principle. He complained of the treatment of Europeans' views at the Victoria falls conference which, he said, degenerated into "a native benefit society" led by Griffiths. At Gatooma, on Dec. 3, he made a speech of particular importance on the "destiny" of Southern Rhodesia; it could be in one of three directions: uniting with the north in a British central African *bloc*; obtaining dominion status and working as a separate entity; or joining with the Union of South Africa. On federation he said that while accepting the principle of eventual African representation in the federal legislature he could not agree to it from the beginning, and this had caused a complete deadlock. The issue of joining South Africa had been settled by the referendum (in 1922) and opinion had hardened against it. They might have to press for dominion status, but that left them with the prospect of seeing eventual independent native states as northern neighbours, which he did not relish. (R. JA.)

Education. *European (1950):* government primary schools 76, teachers 527, pupils 14,254; high schools 15, teachers 333, pupils 5,011; private registered schools 11, aided European schools 10, teachers 196, pupils 3,755; aided farm schools 12, teachers 12, pupils 172. *Asian and mixed:* government schools 12, teachers 65, pupils 1,815; other schools 5, teachers 33, pupils 994. *African:* government primary schools 9, teachers 5 European and 126 African, pupils 4,477; aided primary schools 2,133, teachers 8 European and 5,980 African, pupils 212,184; government post-primary schools 3, teachers 19 European and 21 African, pupils 854; aided post-primary schools 10, teachers 27 European and 9 African, pupils 506; aided teacher training schools 19, teachers 85, students 944.

Agriculture. Tobacco (Virginia 1950-51): 89,431,985 lb.

Industry. Fuel and power: coal (1950) 2,346,000 tons, (Jan.-June 1951) 1,209,000 tons; electricity (1950) 219,159,417 units sold. Raw materials (1950; Jan.-June 1951 in brackets): gold 511,000 oz. (243,000 oz.); asbestos 71,527 tons (38,000 tons); chrome 321,353 tons (193,000 tons).

Foreign Trade. Imports (1950) £58,875,000, exports £40,754,000 re-exports £7,500,000; (Jan.-June 1951) imports £38,934,000, exports £19,578,000, re-exports £4,389,000.

Transport and Communications. Main roads (1950): *c.* 15,600 mi., incl. 2,500 mi. hard-surfaced. Railways: 1,352 mi.; (1950) passenger traffic 2,368,017; goods 6,001,496 tons.

Finance and Banking. Currency: Southern Rhodesian pound (£SR 1 = £1 sterling); circulation incl. Northern Rhodesia and Nyasaland (June 1951) £11,109,000. Budget (1950-51): revenue £17,997,385; expenditure £16,736,780; (1951-52 est.) revenue £20,885,200, expenditure £21,901,326. National debt (March 1951) £91,614,059. National income (1950 est.) £89,100,000.

SOUTH PACIFIC COMMISSION.

This advisory body was set up in 1947 to advance the economic and social welfare of the territories administered by its members, Australia, France, the Netherlands, New Zealand, the United Kingdom and the United States. The permanent headquarters were at Noumea, New Caledonia, and there were two auxiliary bodies, the research council and the South Pacific conference.

In 1949 the research council had drawn up a programme of 28 projects, of which 13 were concerned with economics, 10 with social development and 5 with health. During 1951 work proceeded on most of these, though shortage of expert staff was a continuing handicap. An investigation into the possibilities of professional and technical training in the south Pacific was completed and it was decided to invite Dr. Frederick James Harlow, adviser on technical education to the Colonial Office, London, to visit the area in 1952 and advise on the establishment of a central training institute. Agreement was also reached to bring within the scope of the commission the island of Guam and the United States trust territories. Sir Brian Freeston, retiring governor of Fiji, was designated secretary general. The draft budget of the commission for 1952 was £216,380. (K. G. B.)

SOUTH-WEST AFRICA:

see SOUTH AFRICA, THE UNION OF; TRUST TERRITORIES.

SOVEREIGNS, PRESIDENTS AND RULERS.

The following list includes the names of those holding chief positions in their countries as on Dec. 31, 1951:

Country	*Name and Office*	*Accession*
AFGHANISTAN	Mohammad Zahir Shah, king	1933
	Shah Mahmud Khan, prime minister	1946
ALBANIA	Omer Nishani, chairman of the presidium of the People's Assembly	1946
	General Enver Hoxha, prime minister	1944
ARABIA, SAUDI	Abdulaziz ibn Abdurrahman ibn Faisal ibn Sa'ud, king	1927
ARGENTINA	General Juan Domingo Perón, president	1946
AUSTRALIA	Sir William John McKell, governor general	1947
	*Robert Gordon Menzies, prime minister	1949
AUSTRIA	*Theodore Körner, president	1951
	Leopold Figl, chancellor	1945
BAHREIN	Sulman bin Hamad al-Khalifah, sheikh	1942
BELGIUM	*Baudouin I, king	1951
	Joseph Pholien, prime minister	1950
BHUTAN	Jigme Wangchuk, ruler	1927
BOLIVIA	General Hugo Ballivián, president	1951
BRAZIL	Getulio Dornellas Vargas, president	1951
BULGARIA	Gheorghi Damianov, chairman of the presidium of the National Assembly	1950
	Vlko Chervenkov, premier	1950
BURMA	Sao Shwe Thaik, president of the Union of Burma	1948
	Thakin Nu, prime minister	1948
CANADA	Field Marshal Viscount Alexander of Tunis, governor general	1946
	Louis Stephen St. Laurent, prime minister	1948
CEYLON	Lord Soulbury, governor general	1949
	*Don Stephen Senanayake, prime minister	1948
CHILE	Gabriel González Videla, president	1946
CHINA (People's Republic (Communist))	*Mao Tse-tung, chairman of the Central People's government council	1949
	Chou En-lai, chairman of the state administrative council	1949
CHINA (Republic (Nationalist))	Chiang Kai-shek, president	1943
	General Chen Cheng, premier	1950
COLOMBIA	Laureano Gómez Castro, president	1950
COSTA RICA	Otilio Ulate Blanco, president	1949
CUBA	Carlos Prío Socarrás, president	1948
CZECHOSLOVAKIA	Klement Gottwald, president	1948
	Antonin Zápotocký, premier	1948
DENMARK	Frederik IX, king	1947
	Erik Eriksen, prime minister	1950
DOMINICAN REPUBLIC	*General Rafael Leónidas Trujillo y Molina, president	1942
ECUADOR	*Galo Plaza Lasso, president	1948
EGYPT	Farouk I, king	1936
	Mustafa el-Nahas Pasha, prime minister	1950
ETHIOPIA	Haile Selassie I, emperor	1930
	Bitwadded Makonnen Endalkachaw, prime minister	1944
FINLAND	Juho Kusti Paasikivi, president	1946
	Urho Kaleva Kekkonen, prime minister	1950
FRANCE	*Vincent Auriol, president of the republic	1947
	René Pleven, premier	1951
GERMANY (Western) Federal Republic	Theodor Heuss, federal president	1949
	*Konrad Adenauer, federal chancellor	1949
GERMANY (Eastern) Democratic Republic	Wilhelm Pieck, president	1949
	Otto Grotewohl, minister-president (premier)	1949
GREAT BRITAIN	*George VI, king	1936
	*Winston Churchill, prime minister	1951
GREECE	Paul I, king	1947
	General Nikolaus Plastiras, prime minister	1951
GUATEMALA	Jacopo Arbenz Guzmán, president	1951
HAITI	Paul E. Magloire, president	1950

Country	Name and Office	Accession
HONDURAS	Juan Manuel Gálvez, president	1949
HUNGARY	Sándor Rónai, chairman of the presidium of the National Assembly	1950
	Istvan Dobi, prime minister	1948
ICELAND	Sveinn Björnsson, president	1944
	Steingrímur Steinthórsson, prime minister	1950
INDIA	Rajendra Prasad, president of the republic	1950
	*Jawaharlal Nehru, prime minister	1947
INDO-CHINA — Vietnam	Bao Dai, chief of state	1949
INDO-CHINA — Cambodia	Norodom Sihanouk, king	1941
INDO-CHINA — Laos	Sisavang Vong, king	1945
INDONESIA	Ahmed Sukarno, president	1949
	Sukiman Wirjosandjojo, prime minister	1951
IRAQ	Faysal II, king	1939
	Abdullah, prince regent	1939
	Nuri Pasha as-Sa'id, prime minister	1950
IRELAND	Séan T. O'Kelly, president of the republic	1945
	*Eamon de Valera, prime minister	1951
ISRAEL	Chaim Weizmann, president	1948
	David Ben-Gurion, prime minister	1948
ITALY	Luigi Einaudi, president	1948
	Alcide De Gasperi, prime minister	1946
JAPAN	Hirohito, emperor	1926
	Shigeru Yoshida, premier	1948
JORDAN	Talal I, king	1951
	Tewfik Pasha Abulhuda, prime minister	1951
KOREA (South) Republic of Korea	Syngman Rhee, president	1948
KOREA (South) Republic of Korea	John Myun Chang, prime minister	1951
KOREA (North) Democratic People's Republic	Kim du Bon, chairman of the presidium of the Supreme People's Assembly	1948
KOREA (North) Democratic People's Republic	Kim Ir Sung, premier and commander in chief	1948
KUWAIT	Abdullah bin Salin as-Subah, sheikh	1950
LEBANON	Beshara Khalil el-Khuri, president	1943
	Abdullah el-Yafi, prime minister	1951
LIBERIA	William V. S. Tubman, president	1944
LIBYA	*Idris I, king	1951
	Mahmud Bey Muntasser, prime minister	1951
LIECHTENSTEIN	Franz-Josef II, sovereign prince	1938
	Alexander Frick, prime minister	1945
LUXEMBOURG	Charlotte, grand duchess	1919
	Pierre Dupong, premier	1937
MEXICO	Miguel Alemán Valdes, president	1946
MONACO	Rainier III, sovereign prince	1949
MONGOLIA	G. Bumatsende, chairman of the presidium of the Great Khural	1940
	Marshal Kh. Choibalsan, chairman of the council of ministers and commander in chief	1935
MOROCCO	Mohammed ben Yussef, sultan	1927
	Augustin Guillaume, French resident general	1951
NEPAL	Tribhuvana Bir Bikram Shah Deva, king	1951
	Matrika Prasad Koirala, prime minister	1951
NETHERLANDS	Juliana, queen	1948
	Willem Drees, prime minister	1948
NEW ZEALAND	Lieut. General Lord Freyberg, governor general	1946
	*Sidney George Holland, prime minister	1949
NICARAGUA	Anastasio Somoza, president	1950
NORWAY	Haakon VII, king	1905
	*Oscar Torp, prime minister	1951
OMAN and MUSCAT	Said bin Taimur, sultan	1932
PAKISTAN	*Ghulam Muhammad, governor general	1951
	*Khwaja Nazimuddin, prime minister	1951
PANAMA	Alcibiades Arosemena, president	1951
PARAGUAY	Federico Chaves, president	1949
PERSIA	Mohammad Riza Shah Pahlavi, shahanshah	1941
	*Mohammad Mossadegh, prime minister	1951
PERU	General Manuel A. Odria, president	1950
PHILIPPINES	Elipidio Quirino, president	1948
POLAND	Bolesław Bierut, president	1947
	Józef Cyrankiewicz, prime minister	1947
PORTUGAL	*General Francisco Higino Craveiro Lopes, president	1951
	António de Oliveira Salazar, prime minister	1932
RUMANIA	Constantin Parhon, chairman of the presidium of the National Assembly	1948
	Petre Groza, prime minister	1945
SALVADOR, EL	Lieut. Colonel Oscar Osorio, president	1950
SIKKIM	Tashi Namgyal, ruler	1914
SOUTH AFRICA	Ernest George Jansen, governor general	1951
	*Daniel François Malan, prime minister	1948
SOUTHERN RHODESIA	Sir John Noble Kennedy, governor	1946
	Sir Godfrey Huggins, prime minister	1933
SPAIN	*General Francisco Franco-Bahamonde, chief of state and prime minister	1939
SWEDEN	Gustaf VI Adolf, king	1950
	Tage Fritiof Erlander, prime minister	1946
SWITZERLAND	Eduard von Steiger, president of the confederation	1951
SYRIA	Colonel Fawzi Silo, president	1951
THAILAND	Phumiphon Adundet, king	1946
	Marshal Luang Pibul Songgram, prime minister	1951
TUNISIA	Mohammed el-Amin, bey	1943
	Marcellin-Marie-Louis Périllier, French resident general	1947
TURKEY	Celâl Bayar, president	1950
	Adnan Menderes, prime minister	1950
UNION OF SOVIET SOCIALIST REPUBLICS	Nikolay Mikhailovich Shvernik, chairman of the presidium of the supreme soviet	1946
	*Joseph V. Stalin, chairman of the council of ministers	1941
UNITED STATES	*Harry S. Truman, president	1945
URUGUAY	Andres Martinez Trueba, president	1951
VATICAN CITY	*Pius XII, pope	1939
VENEZUELA	Germán Suárez Flamerich, president	1950
YEMEN	Ahmad ibn Yahya, king	1948
YUGOSLAVIA	Ivan Ribar, president of the Presidium of the People's Assembly	1945
	Marshal Tito (Josip Broz), prime minister	1944
ZANZIBAR	Khalifa bin Harub, sultan	1911
	J. D. Rankine, British resident	1951

* *See* separate article.

SOVIET UNION: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

SPAIN. Country of southwestern Europe, bounded N. by the Bay of Biscay and France, W. by the Atlantic and Portugal, and S. and E. by the Mediterranean. Area: 194,945 sq.mi., including Balearic (1,936 sq.mi.) and Canary (2,804 sq.mi.) islands. Pop.: (1940 census) 25,877,971; (1950 est.) 28,287,000, including Balearic (1940 census, 407,497) and Canary (680,294) islands. Language: mainly Spanish (Castilian) but Catalan, Galician and Basque are also spoken. Religion: mainly Roman Catholic. Chief towns (pop., 1947 est. if not otherwise stated): Madrid (cap., 1950 est., 1,609,524); Barcelona (1950 est., 1,205,909); Valencia (562,967); Seville (382,013); Zaragoza or Saragossa (292,965); Málaga (277,582); Murcia (226,702); Bilbao (220,333). Leader (*Caudillo*), chief of state and prime minister, General Francisco Franco-Bahamonde (*q.v.*).

History. When asked in Jan. 1951 by Dean Acheson, U.S. secretary of state, whether Spain would be willing, given modern arms, to put forces under General D. D. Eisenhower's command, General Franco indicated a preference for direct collaboration with the United States rather than with the North Atlantic Treaty organization. The Spanish ambassador to Washington spoke in June of Spain's interest in a military alliance with the United States and in receiving economic aid towards developing vital communications and industries. "Spain," he said "would not ask for U.S. soldiers." Reports of such a bilateral pact provoked sharp political reactions in London and Paris, and in western Europe generally suspicions of a U.S. intention to defend the Pyrenees. U.S. senators visiting Spain in July on a mission of enquiry into western defence on behalf of the senate foreign affairs committee were told by General Franco that it would depend on circumstances whether Spain would participate in a general war but that, given the equipment, she could produce an army of 2 million men. General Omar N. Bradley, chairman of the U.S. chiefs of staffs, gave 300,000 to 400,000 men as his estimate. Talks held in Madrid in mid-July by Admiral Forrest P. Sherman to discuss the use by U.S. forces of Spanish naval and air bases, in return for military aid, were described by Acheson as "purely exploratory." The "unfriendly attitude" to these conversations shown by Great Britain and France led the Spanish government on July 21 to lodge formal protest with both powers against "these new attempts at interference in a matter which concerns Spain's sovereign right to hold direct relations with another power." A U.S. military survey team representing the three services went to Spain in August to inspect bases. In September it was announced that Spanish officers of infantry and armoured units were being sent to the U.S. for six months' training, and Brig. General Garado Caballero, military governor of Bilbao, went to Frankfurt in October to attend U.S. autumn manoeuvres. Three new destroyers, their armament including three 4-in. guns, were launched in September at Ferrol, where the hulk of the former Italian battleship "Trieste" was taken for conversion into an aircraft carrier. A committee on nuclear energy was set up by the cabinet in October.

The decision of Dec. 27, 1950, to exchange ambassadors (José Félix de Lequerica and Stanton Griffis) between Madrid and Washington, after a lapse of five years, was followed in January by the resumption of full diplomatic relations with Spain by Great Britain and France. Sir John Balfour (*q.v.*) was appointed to Madrid and, after refusal of the British *agrément* to Fernando María Castiella, Duke Miguel Primo de Rivera to London. Bernard Hardion, chargé d'affaires in Madrid, became French ambassador and Aguirre de Cárcer Spanish ambassador to Paris. Relations were resumed with the



General Franco in March 1951 receiving Sir John Balfour (right), the first British ambassador to Spain since Dec. 1946, when heads of missions were withdrawn following a resolution of the United Nations general assembly.

Netherlands in January, and instituted with Ethiopia in April, with the German Federal republic in May, with South Africa in June and with Pakistan in September. In Paris in June the " Basque government-in-exile " was evicted from a building held by a civil court to have been bought (in Feb. 1939) with assets the property of the Spanish state. The new British government officially informed Spain on Nov. 7 of its desire to see established more friendly relations between the two countries.

The curtailment of " secondary political liberties " in Spain was explained by Alberto Martín Artajo, foreign minister, in June as necessary to the defence of those fundamental principles which Communist tyranny still denied or threatened throughout the world: " No totalitarian or economic restrictions of any kind are implicit in our policy or ideology." On July 19 General Franco announced the reconstitution of his government after six years. Martín Artajo (Foreign Affairs), Blas Pérez González (Interior), José Antonio Girón (Labour) and General Eduardo González Gallarza (Air) retained their portfolios. Four new ministries were created: Presidency (designed to relieve General Franco of routine business), Captain Luis Carrero Blanco; Information, Gabriel Arias Salgado; Commerce (previously one with industry), Manuel Arburúa; and Falange, Raimundo Fernández Cuesta. The remaining appointments were: Army, General Agustín Múñoz Grandes; Navy, Admiral Salvador Moreno; Justice, Mariano Iturmendi; Finance, Francisco Gómez Llanos; Industry, Joaquín Planell; Agriculture, Antonio Cavestany; Education, Ruiz Jiménez; Public Works, Conde de Vallellano. Nine ministers in the new cabinet were reported to be monarchists, against six in the old. Earlier, on July 10, the pretender Don Juan had sent a personal letter from Lisbon to General Franco calling for an immediate restoration of the monarchy and of personal liberties to all Spaniards and indicating his rejection of any suggestion of a regency with General Franco as regent and Juan Carlos as heir. Prince Xavier de Bourbon-Parma, known as " regent of the Traditionalist communion," arrived from France in November to visit Carlist communities in the Basque provinces, Navarre, Seville and Barcelona.

A one-day general strike in Barcelona on March 12, observed by 300,000 workers, was the first sign of acute and prolonged labour unrest attributed chiefly to a rising cost of living over twice as steep, since 1945, as the rise in wages. The government sent a cruiser and three destroyers to the port, and the Cortes, meeting on March 12, approved a 30% increase in police pay and one of 20% for civil servants. In April, when Madrid students went on strike, General Franco initiated a series of emergency cabinet meetings to study the country's economic difficulties. A 48-hr. strike called in Bilbao and other northern towns for April 23 was observed by 100,000 workers in spite of government threats of dismissal; another strike followed in Pamplona in May. Official statements sought to pin responsibility on separatist and Communist elements working from across the Pyrenees; and of 41 persons arrested in Barcelona in March 27 were at the end of the year awaiting court martial on charges of active membership of the banned United Socialist (Communist) Party of Catalonia and of issuing clandestine Communist newspapers. New municipal elections, the second since 1939, began on Nov. 25.

Budget proposals for 1952-53 announced in June showed an increase of some P. 3,000 million in national expenditure, to P. 22,477 million. Following rejection by the Cortes in July of a bill increasing by 10% the tax on landed property and livestock, higher taxation was foreshadowed in November on a wide range of commodities including wines, tobacco, wireless sets, furs, sugar, petrol, gas, electricity and cement. The system of multiple exchange rates continued with minor modifications, the 7 rates for imports and 13 for exports ranging from 45·99 to 110·95 and from 36·79 to 91·98 to the £ respectively. Sterling on the " free official market " for approved invisible transactions

and for a proportion of the proceeds of certain exports remained at about 110. The world sulphur shortage led to the establishment in January of a government commission to stimulate the production and export of pyrites. In November the minister for commerce, saying that circumstances had begun to justify a gradual return to normal trading, announced as a first step the government's intention of introducing a single basic rate, of P. 21·90 to the $, for five types of exports; there was no intention of devaluing the peseta. Bread, sugar and oil were the only foodstuffs then still rationed. Of the $62½ million loan authorized by the U.S. congress in 1950 $10 million was advanced in February and March to buy wheat and cotton; the intention was in the main to exclude expendable in favour of capital goods, and Washington announced in July the sending to Spain of an economic survey group to study application for credits. A further $5·6 million was released in August for hydro-electric and mineral production. Foreign trade agreements were signed with Norway (the first since the war) in January, with Turkey (providing for the supply by Spain of arms and ammunition) in June and with France in November. Existing agreements with Great Britain were extended to the end of 1951, with some reduction of British exports arising from rearmament. An associate of the Banco Exterior de España, to be known as the Banco Español en Londres, was founded in London in October to help develop trade between the two countries. An adjustable type of railway axle allowing trucks to cross the Franco-Spanish frontier in spite of the difference of gauge came into use in May.

Montserrat, the mountain near Barcelona famous for its 9th-century Benedictine monastery, was declared a national trust in January. Neolithic cave paintings, thought to be 5,000 years old, were discovered in September in Mount Valonsadero near Soria. Lieut. General Gonzalo Queipo de Llano, who seized and held Seville for the Nationalists during the Civil War, died there in March, aged 76. Rafael Altamira y Crevea, the historian, died in Mexico on June 1 (*see* OBITUARIES). (W. C. AN.)

Education. Schools: primary (1947-48) 55,111, pupils 2,425,762 (1,212,921 girls), teachers 55,833 (30,030 women); secondary (1948-49) 119, pupils 212,210 (74,319 girls); training colleges for elementary teachers (1948-49) 53, students 24,171 (17,575 women). Universities (1948-49) 12, students 49,980 (6,866 women), professors and lecturers 3,300. Illiteracy (1947): 20·8%.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): wheat 2,580 (3,380); barley 1,460 (1,500); oats 500 (500); rye 460 (560); maize 540 (620); rice, paddy 275 (240); sugar, raw value 184 (177); potatoes 2,560 (2,800); cotton, ginned 3 (2); tobacco 13·2 (15·0); groundnuts 10 (12); linseed 7 (7); olives 1,924; olive oil 338 (194); oranges and tangerines 685 (970); lemons 30 (43). Wine production ('000 hl., 1949; 1950 in brackets) 14,300 (15,680). Livestock ('000 head): cattle (Dec. 1948) 4,000; horses (Dec. 1949) 600; asses (April 1948) 747; mules (April 1948) 1,079; pigs (April 1948) 2,668; sheep (Dec. 1950) 23,000; goats (April 1948) 4,222; chickens (July 1950) 35,000. Meat production ('000 metric tons, 1949) total 110, of which beef and veal 71 and pork 9. Wool production, greasy basis ('000 metric tons, 1949; 1950 in brackets) 41 (39). Index of agricultural production (on basis of 1934-38=100, 1948-49; 1949-50 in brackets): 83 (90). Fisheries: total catch (1949) 550,000 tons.

Industry. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 11,040 (5,516); lignite 1,344 (688); manufactured gas (million cu. m.) 267 (148); electricity (million kwh.) 6,312 (3,461). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): iron ore, metal content 2,076 (1,077); pig iron 671 (324); steel ingots and castings 818 (407); copper, black and blister 9·7 lead 34·6 (20·3); zinc 21·3 (10·7). Manufacured goods ('000 metric tons, 1950; 1951, six months, in brackets): cement 2,100 (1,147); cotton yarn 57·8 (26·7); wool yarn 10 (5·2); rayon filament yarn 10 (5·0); rayon staple fibre 14·6 (6·5). New dwelling units completed (1950; 1951, six months, in brackets) 16,608 (8,518). Index of industrial production (on basis of 1948=100, 1950): 104.

Foreign Trade. (Million gold pesetas, 1950; 1951, six months, in brackets): imports 1,199 (571); exports 1,090 (781). Main sources of imports (1950): Spanish colonies 24%; U.S. 13%; France 8%; Western Germany 7%. Main destinations of exports: Spanish colonies 24%; U.S. 15%; U.K. 14%; France 6%. Main imports (Jan.-June 1951): machinery, apparatus and vehicles 16·6%; food and drink 15·5%; chemicals and derivatives 10·6%; textiles 12·7%. Main exports: food and drink 54·7%; textiles 11·2%; minerals, earths and stones 8·4%; metals and metal goods, including gold and silver, 5·2%.

Transport and Communications. Roads (1949): 68,651 mi., of which 51,202 mi. were macadamized. Licensed motor vehicles (Dec. 1950): cars *c.* 100,000, commercial 65,000. Railways (1950): 11,068 mi., of which 925 mi. were electrified; passenger-mi. 4,422 million; goods, ton-mi. 4,004 million; goods carried, 25 million m. tons. Shipping (merchant vessels of 100 gross tons and over, July 1950): 1,163; total tonnage 1,192,928. Air transport (1949): aircraft entered Spain 19,426; passengers 234,790; freight 3,576 tons; passengers leaving Spain 249,460; freight 4,070 tons. Telephones (Dec. 1949): subscribers 591,948. Wireless sets (1949): 375,635.

Finance and Banking. (Million pesetas) Budget: (1952-53 est.) revenue 22,208, expenditure 22,477. National debt (Jan. 1950; Sept. 1951 in brackets): 57,459 (58,195). Currency circulation (July 1950; July 1951 in brackets): 28,300 (31,600); Bank deposits (million pesetas, March 1950; March 1951 in brackets): 32,100 (38,100). Gold reserve (million U.S. dollars, July 1950; July 1951 in brackets): 61 (61). Monetary unit: *peseta* with an official exchange rate (Nov. 1951) of P. 30·66 to the pound and P. 10·95 to the U.S. dollar.

See Carlton J. H. Hayes, *The United States and Spain* (New York, 1951); Sheila M. O'Callaghan, *Cinderella of Europe* (New York, 1951).

SPANISH-AMERICAN LITERATURE: *see* LATIN AMERICAN LITERATURE.

SPANISH COLONIAL EMPIRE.

Under this heading are grouped the Spanish possessions in Africa. Their total area is approximately 134,715 sq.mi. and the total population (1947 est.) 1,553,700. Areas, populations, capital towns, status and governors of the territories are given in the table.

History. A Franco-Spanish commercial agreement on interzonal trade in Morocco was concluded at Tetuan on March 12. The Spanish government approved on the same date plans for the utilization of the waters of the River Muluya to irrigate 15,000 ha. of desert land and to power hydro-electric stations; the project was linked with similar plans in the French zone, and some of the hydraulic installations would be common to both.

Lieut. General José Enrique Varela, high commissioner for Spanish Morocco since 1945 and one of the outstanding Nationalist leaders in the Civil War, during which he relieved the Alcázar of Toledo, died in Tetuan on March 24, aged 59.

SPANISH COLONIAL EMPIRE

Country	*Area* (sq.mi.)	*Population* (1947 est.)	*Capital*	*Status*	*Governor*
SPANISH MOROCCO:					
Northern zone	7,592	1,120,000	Tetuan (pop., 1945, 93,658)	Protectorate	High commissioner: Lieut. General Rafael García Valiño y Marcén
Southern zone	10,039	12,000	Cabo Juby	Protectorate	
Ifni territory	741	42,000	Sidi Ifni	Colony	Khalif (viceroy): Muley Hassan Ismael el-Mehdi
Ceuta, Melilla, Alhucemas, Chafarinas and Peñón de Velez	82	167,700	—	Administered as part of Spain	
SPANISH SAHARA:					
Rio de Oro	73,362	40,000	Villa Cisneros	Colony	
Saguia el Hamra	32,047				
SPANISH GUINEA, including Fernando Pó and four small islands	10,852	172,000	Santa Isabel, on Fernando Pó (pop., 1945, 17,000)	Colony	

Lieut. General Rafael García Valiño y Marcén was appointed his successor.

The khalif of the Spanish zone, Muley Hassan Ismael el-Mehdi, visited southern Spain in August. The 26th anniversary, in November, of his "exaltation to the throne" was made the occasion of much official celebration throughout the zone.

Four thousand troops, comprising infantry, artillery, cavalry, engineers and the air arm, took part in manoeuvres at Bu Hazchan, near Larache, in October; they were attended by members of the U.S. military mission in Spain.

(W. C. AN.)

Foreign Trade. (Million gold pesetas). All territories (1947; 1948 in brackets): imports 526·3 (578·4), exports 168·2 (206·4). Ceuta and Melilla only (1949; 1950, six months, in brackets): imports 123·0 (59·5); exports 55·0 (21·2).

Transport and Communications. Spanish Morocco (1947): roads, 1,430 mi.; railways 140 mi. Shipping (1949): vessels entered, 120,000 NRT.

Finance. Spanish Morocco, budget (1947), balanced at P. 211 million. Spanish Guinea, budget (1943): revenue P. 23·3 million, expenditure P. 23·6 million.

SPANISH LITERATURE. Poetry, represented by Fernando Gutiérrez's *Anteo e Isolda* and Dionisio Ridruejo's *En once años*, was less prominent in 1951 than fiction, though the new Aguilar edition of the poems and plays of Miguel Hernández gave it distinction. The veteran novelist Concha Espina published *Un Valle en el mar*. Another woman writer, Elena Quiroga, was successful with a Galician novel *Viento del norte*. Successful, too, were Mariano Pombo Angulo's *Sin Patria*, Ramón Ledesma Miranda's *La Casa de la fama* and Francisco Montero Galvache's *El Mar está solo*. A notable play was Claudio de la Torre's *Cortesana*.

In criticism, the year was most fruitful. Dámaso Alonso published a collection of lectures and essays under the title *Poesía española* and (with Carlos Bousoño) *Seis Calas en la expresión literaria española*. The first two volumes appeared of the gigantic *Homenaje* to Menéndez Pidal, who contributed to the Colección Austral its 1,000th volume, *El Cid Campeador*. An outstanding historical work was Francisco Elías de Tejador's *Las Doctrinas politicas en la Cataluña medieval*, Joaquín Casalduero published a new and enlarged edition of his biography of Benito Pérez Galdós. Ricardo Gullón's *Cisne sin lago* was a critical biography of Enrique Gil y Carrasco. E. Correa Calderón edited a volume of selections from *costumbristas* of the 17th to 19th centuries. Esteban Pujals brought out a substantial study of Espronceda and Byron, and Vicente García de Diego an equally substantial treatise on linguistics. Guillermo Diaz-Plaja published the second volume of his omnibus history of Spanish literature and José Simón Díaz continued his Hispanic bibliography. Don Francisco Sánchez-Castañer edited a two-volume *Homenaje a Cervantes*, containing the text of a series of lectures delivered by various scholars at the University of Valencia for the quatercentenary of Cervantes' birth.

Of literary reviews, always abundant in Spain, though generally short-lived, *Intus* established itself in Salamanca, *Platero* in Cádiz and *La Calandria* in Barcelona. Notable works published in Catalan included the first volume of Ferran Soldevila's biography of Peter the Great of Aragon-Catalonia and two anthologies, one of 20th-century verse and one of the short story, both by Joan Triadú.

Ciriano Pérez Bustamante was elected to the Academy of History and the well-known author Don Pedro Lain Entralgo was appointed rector of the University of Madrid. Rafael Altamira y Crevea (*see* OBITUARIES), the historian and judge, died in Mexico, aged 85. Other deaths were those of the critic and essayist José Ramón Lomba y Pedraja, the Galician academician Armando Cotarelo Vallador, the Basque scholar Julio de Urquijo, the composer Jacinto Guerrero and the former Madrid professor of rabbinical language and literature, A. S. Yahuda (*see* OBITUARIES). (E. A. P.)

SPEEDWAY RACING. British speedway went through its most critical period during the 1951 season when a heavy entertainment tax of 60% made it impossible for some clubs to continue. Southampton and Sheffield closed down and others sold riders to provide additional money to keep going. Wet weather and the absence of star personalities also played a big part in falling attendances.

Among the newcomers was a 25-year-old Australian, Jack Young (Edinburgh), who became the first second division rider to win the world championship. In this event three riders tied for first place. Young won the decider from "Split" Waterman and Jack Biggs, both of Harringay. Waterman, the most consistent English rider, also won the British match race title. The Australian Aub Lawson (West Ham), became London Riders champion. Australia won the test series against England, 4-1. Wembley, again the team of the year, won national league and London cup honours. Norwich repeated their second division league success and Poole headed the third division. A record number of New Zealanders offered a new threat to British riders and won the junior test series, 3-2. (L. Hs.)

SPICES. World production of pepper for export in 1951 was estimated at 450,000 cwt., as compared with 360,000 cwt. in 1950. Production in India reached a total of 620,000 cwt. in 1950-51, the area under the crop being estimated at nearly 200,000 ac. A number of other producing countries in the far east, however, had not yet recovered from wartime dislocation of production, and in some cases political disturbances also hampered recovery; in Indonesia production in 1950-51 was less than 180,000 cwt. while in Indochina blight further reduced production. Exports from India in 1950-51 totalled 300,000 cwt., valued at Rs. 200 million of which Rs. 147 million represented exports to hard currency areas, principally the United States. Indonesia shipped 65,000 cwt. in 1951, or 77,000 cwt. less than in 1950, while exports from Indochina in the first 11 months of 1951, at 12,000 cwt., were less by some 6,000 cwt. than those of the corresponding period of the previous year. The average import valuation per lb. of black pepper into the U.S., which was about 5 cents in the prewar years, was $1·56 in 1950-51, as compared with $1·10 in 1949-50. During the year the export duty of Rs. 120 per cwt., imposed by the Indian government in Sept. 1950, was raised to Rs. 150 per cwt.

Clove production in Zanzibar in the 1950-51 season, at 436,000 cwt., was one of the highest on record. Exports in 1951 dropped to 230,000 cwt. from a peak total of 350,000 cwt. in the previous year. In the first nine months of 1951 exports from Madagascar were 136,000 cwt., or 88,000 cwt. more than those for the corresponding period of the previous year. The price of cloves in Zanzibar, which was 100*s*. a bag in June 1950 rose to about 500*s*. at the end of 1951. Ginger production in India in 1950-51, according to preliminary reports, was much the same as that for the previous season, which was given as almost 440,000 cwt., while production in Jamaica, which was estimated at 23,000 cwt. in the 1949-50 season, rose to some 25,000 cwt. in 1950-51. Exports from India in 1950-51 were 43,000 cwt. and provisional figures for exports from Sierra Leone and Nigeria showed a total of almost 70,000 cwt. shipped in 1951, or 15,000 cwt. more than in the previous year.

Nutmeg and mace exports from Grenada for the period Jan.-Nov. 1951, at 26,000 cwt., showed a fall of some 34,000 cwt. over those for the corresponding period of 1950. Exports from Indonesia for the whole year were 56,000 cwt., as

compared with 62,000 cwt. in 1950, while Ceylon shipped 5,000 cwt. in 1951. Cinnamon exports from Ceylon, the principal producer, were 44,000 cwt. in 1951, or 24,000 cwt. less than the previous year. (W. J. G. C.)

SPIRITS. Production of Cognac brandy in France in the 1950-51 season was equivalent to 200,000 hectolitres of pure alcohol and was the highest since 1878. Exports were close to 100,000 hectolitres or 50% more than in the previous season. The main importers were the United States, the United Kingdom, Sweden and Malaya. Production prospects from the 1951 harvest were poor as a result of bad weather and diseases of the vine.

In Great Britain the figures for production and export of potable spirits compared with the previous year, taken from Board of Trade statistics, are shown in Table I.

TABLE I. PRODUCTION, EXPORT AND CONSUMPTION OF SPIRITS IN GREAT BRITAIN (million proof gal.)

Year	Production	Export	Consumption
1949-50* . . .	32·27	10·21	9·79
1950-51* . . .	29·33	12·20	10·88

* Years ending Aug. 31.

The exports of whisky to many countries, including the United States, Brazil, New Zealand and South Africa, increased again during the year. The start of the 1951 distilling season was delayed because of a late grain harvest and a low reserve of cereals held from the previous season.

Great Britain imported 10% more brandy than in the previous year, the bulk of it from France. Rum imports increased, after a drop in 1950, to a figure close to that of 1949; there was a considerable increase in imports from Mauritius and Trinidad but those from British Guiana and Jamaica fell.

In Australia the excise duty on spirits increased, that on whisky rising from 54*s.* 6*d.* to 85*s.* 6*d.* the proof gal.

In Great Britain production of industrial alcohol was sufficient to meet all needs, as is shown in Table II taken from Board of Trade statistics.

TABLE II. PRODUCTION AND CONSUMPTION OF INDUSTRIAL ALCOHOL IN GREAT BRITAIN (million proof gal.)

Year	Production (including methylated spirits)	Consumption
1949-50*	48·89	55·07
1950-51*	62·41	62·34

* Years ending July 31.

Imports of molasses were about 10% greater than in 1950. The price of molasses increased again and this was reflected in that of industrial alcohol, which rose to more than twice the price prevailing at the end of 1950. Production of alcohol from oil started at Grangemouth, Stirlingshire, but no figures were issued.

In France the Institut Français de l'Alcool was set up to deal with problems connected with the production, control and uses of alcohol including its employment in new directions. The government considered arrangements with industry to manufacture synthetic rubber, starting from alcohol, with a view to making the country independent of natural rubber by 1954. This would involve an annual production of about 100,000 tons.

Figures given in Italy showed that in the 1949-50 fiscal year 14·3 million liquid gal. of alcohol were made, of which 6·8 million were from molasses, as compared with 20·6 million gal. made in 1937-38, 17·2 million being from molasses.

In Sweden crude alcohol production in 1951 was expected to be on the same level as in the previous year. Owing to increased industrial use, the quantity available for mixing with petrol was reduced by half. Alcohol was exported to Great Britain under a trade agreement.

In Pakistan the new Premier Sugar factory, Mardan, was expected to produce 1·3 million gal. of alcohol a year (see *Int. Sugar J.*, London, April 1951). In Thailand a large expansion of output of alcohol made from rice and sweet potatoes was planned for medicinal purposes and for manufacture of perfumes and the beverage mokang. (D. I. C.)

United States. Developments in the distilled spirits industry in the U.S. during 1951 were strongly influenced by world conditions and their political ramifications, most particularly the war in Korea. Early in the year the government announced, through the Department of Agriculture, probable restrictions in the use of grain. The results were not only a speeding up of buying and an abnormal increase in inventories of distributors and wholesalers, but also a considerable acceleration in production. Distilled spirits production for the year ending June 30, 1951, totalled 401,452,796 tax gal. as compared with 208,235,050 tax gal. for 1950. Whisky (205,702,460 tax gal.) and spirits (173,025,280) accounted for 90% of the production, with brandy (11,584,486), rum (2,030,180), gin (8,962,289) and a small amount of vodka accounting for the balance. In addition to providing alcohol for drinking, the distillers furnished about 45 million gal. of industrial alcohol to the government during the later months of 1950 and the early months of 1951. This was made available on the open market, not purchased by contract.

Government original entry gauge figures representing barrelled whisky ageing in warehouses at the end of June 1951 stood at 751 million gal. After allowances for evaporation and leakage this was about 632,575,000 gal. At the end of September there was little change in these figures. Only a small portion (156 million gal.) of this inventory was more than four years old, as from June 30, 1951. The balance was all new or young whisky which would come of age during succeeding years. No unbottled eight-year old whisky remained in warehouses.

Distilled spirits of all types withdrawn from internal revenue bonded warehouses during the fiscal year 1951 increased by 21% over 1950, from 144 million gal. to 175 million. Withdrawals of whisky alone increased by 16 million gal., or 26%, over 1950, continuing the consumer preference trend toward bonded and straight whiskies, and high quality blends. Whisky of all types represented 86% of total distilled liquors bottled in 1951; gin 9%; brandy 1½%; cordials and liqueurs more than 2½%; and small quantities of vodka, specialities and rum. (A. J. Li.)

See Sir R. B. Lockhart, *Scotch: The Whisky of Scotland in Fact and Story* (London, 1951).

SPITSBERGEN: *see* NORWAY.

SQUASH RACKETS. The outstanding performance of the 1950-51 season was the victory of Hashim Khan (Pakistan) in the professional, the English open and the Scottish open championships at the first attempt. He showed remarkable speed and retrieving power, but the English open holder, M. A. Karim (Egypt), was far from fit.

I. R. Carson, J. A. Gillies and B. H. Callaghan won the Australian, New Zealand and South African championships respectively. Abdul Bari (India) won the Australian professional and open championships.

The amateur championship had a record entry of 104. N. F. Borrett won for the fifth year, the runner-up being G. Hildick-Smith (South Africa). Miss J. R. M. Morgan won the women's championship. England remained unbeaten in postwar internationals, beating Scotland and Ireland. Scotland beat Ireland and Wales; Wales beat Ireland and Sweden beat Denmark. Sussex and Surrey won the men's and women's inter-county championships. Oxford beat Cambridge.

papers *Documents on German Foreign Policy*. Winston Churchill carried his story of *The Second World War* into the year 1943, calling vol. 4 *The Hinge of Fate* and writing with some elation of the brighter prospects which then opened for the western allies. In the United States the various series of their campaign and civil service histories continued, while in France an independent committee of well-known historians—Pierre Caron, Lucien Febvre and Pierre Renouvin—began the issue of *Cahiers d'histoire de la guerre* (Paris). At the same time the report of the Commission Parlementaire on *Les Evénements survenus en France de 1933 à 1945* (Paris) made public masses of verbal and documentary evidence, as valuable to the historian in its field as the revelations about prewar Germany at the Nuremberg trials a few years before. (A. T. ME.)

HISTORIC BUILDINGS. *Wren Drawings.* In May 1951, 122 of 200 lost working drawings by Sir Christopher Wren were identified at a sale of the Marquess of Bute's library at Sotheby's, London. The National Art-Collections fund bought many of the drawings and gave an important group concerning the church of St. Stephen, Walbrook, London (1672-87), to the Royal Institute of British Architects; of the remainder of the fund's purchase most went to the Victoria and Albert museum, London, some to the All Souls college, Oxford, collection and one to Winchester museum. The drawings relating to St. Paul's (1675-1710) fell to a dealer but were later recovered by the cathedral authorities with the help of the N.A.C.F. and a benefactor, Esmond de Beer.

Of the St. Paul's drawings, four sheets, apparently relating to the 1673 design (finished drawing at All Souls; model at St. Paul's), were thought to be the earliest post-Great Fire designs for the cathedral so far brought to light. The remainder were large-scale working drawings made in the surveyor's office in *c.* 1703-6, but they also contained studies for the southwest tower partly in Wren's own hand; two drawings seemed to have been made by Wren's distinguished assistant, Nicholas Hawksmoor. (See *The Times*, London, Oct. 11, 1951.)

Gowers Report. In April Lord Pakenham announced in the House of Lords that the Labour government could not accept the Gowers committee's proposal for tax exemptions for owners of historic houses, " which would amount to a subsidy of a special class of persons," but would introduce legislation in the next session empowering the minister of works and the secretary of state for Scotland to carry out preservation and to make loans and grants; the chancellor of the exchequer would make changes in estate duty in the Finance bill. (*See* also *Britannica Book of the Year 1951.*) At the end of the year the intentions of the Conservative party, who were returned to power in October, were still not known.

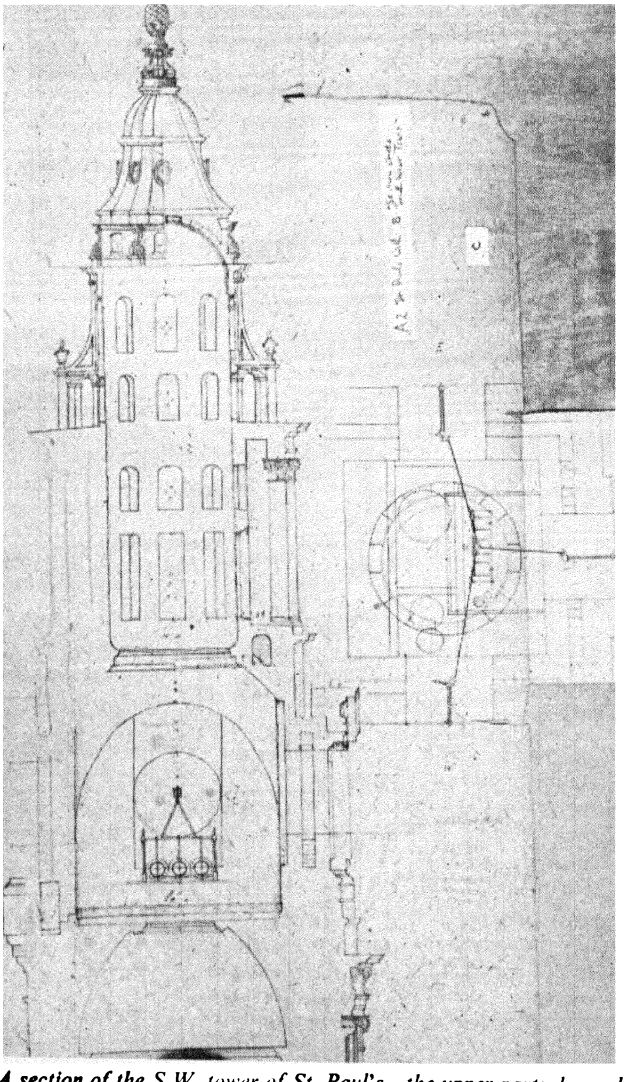
Restoration and Preservation: Secular Buildings. Considerable controversy was aroused by a proposal to restore Washington Old Hall, County Durham, an indifferent 17th-century manor house incorporating fragments of a building of 1183. It was intended to hand over the repaired hall, once the home of the first United States president's family, to the city of Washington, D.C. One of the most distinguished buildings subjected to a Ministry of Local Government and Planning preservation order during the year was Gosfield hall, near Halstead, Essex, a notable Tudor mansion which was for a time the home of the emigré Louis XVIII. In April, the Rubens paintings were replaced in the ceiling of the Banqueting house, Whitehall, London (Inigo Jones, 1619-22), after cleaning and restoration. The restoration of war damage in Westminster hall (1394-1402) was completed.

Among buildings newly opened to the public during the year were: Clandon, Surrey (Giacomo Leoni, 1732; gardens by " Capability " Brown); and Wilton house, Wiltshire (centre of E. front, Tudor; south wing, Inigo Jones, begun 1648, completed to Jones's plans by J. Webb after 1652; remainder, James Wyatt, early 19th century; furniture by William Kent and Thomas Chippendale).

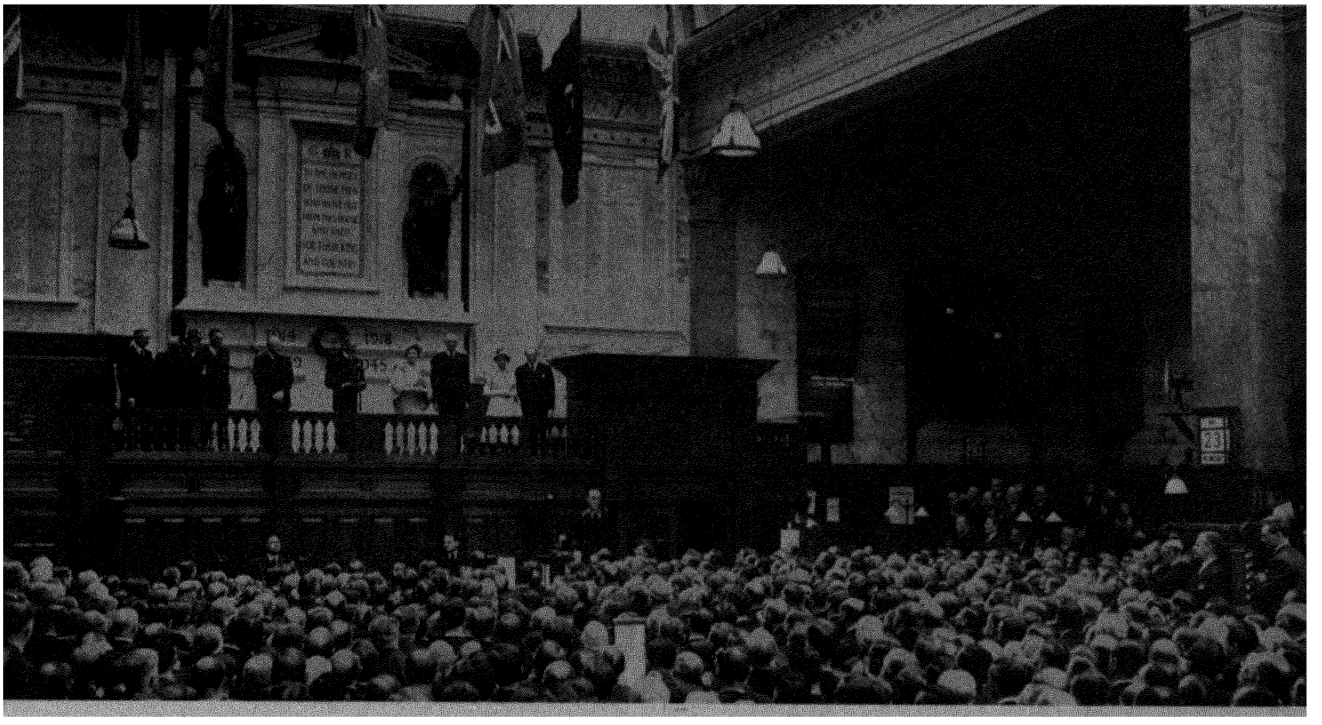
Restoration and Preservation: Church Buildings. Attention was drawn to the increasing difficulties of those responsible for the upkeep of ancient church buildings, and only one indication of the inadequacy of subscriptions and benefactions in dealing with the backlog of restoration was the Pilgrim trust's decision not to entertain further applications for aid to lesser churches. In June, the Church assembly set up a commission to advise on the preservation of old churches.

In the nave of York minster, the Jesse window, badly jumbled during William Peckitt's " restoration " of 1789, was re-arranged in its correct form; it was now possible to date the glass to the earlier part of the period 1305-25. " Cannibalized " panels of another window were restored to it from other nave lights into which they had been intruded, and a third window, reglazed with plain glass in 1657, was rebuilt after most of its ancient glass had been discovered in the Becket window in the chapter house. In August an anonymous Yorkshireman gave £10,000 to the minster's £250,000 appeal fund. By the autumn renovations to the Zouche chapel and north transept roofs were completed.

An appeal for major repairs to Winchester cathedral central tower (1374) was launched; and extensive restoration inside the tower (*c.* 1100) of St. Albans abbey was completed.



A section of the S.W. tower of St. Paul's—the upper parts drawn by Wren himself—one of the original designs rediscovered in 1951.



The scene at the stock exchange, London, when King George VI, Queen Elizabeth and Princess Margaret visited it on May 23, 1951.

distributed profits, more and more companies felt free to raise dividends, since they would be paying for the pleasure of doing so. This led to government threats to find some other method than taxation and entreaty to restrain dividends and finally to the publication of a white paper on dividend control. This provided guidance on a bill to be introduced later limiting permissible gross dividends. The basis chosen meant, in fact, that many companies would have had to reduce their dividends. The stock market was thrown into confusion, partly because of the difficulty of calculating the dividend standards of many companies. As events developed, the bill was never introduced as the general election was held on Oct. 25 and the Labour party lost power.

The election of a Conservative majority to parliament was a critical point for markets—how critical was not realized at the time. The difficult economic problems foreseen at the beginning of the year had been aggravated. Nationalization in Persia had cost the United Kingdom supplies of Persian oil; shortages of raw materials had developed; the terms of trade had deteriorated; an external payments crisis worse than in 1949 had threatened; and the Labour government had failed to take the remedial measures in time.

When the new economic and monetary policy of the Conservative government to prevent the country from becoming " bankrupt, idle and hungry " was introduced, the effect on stock markets was profound. The Labour government had already abandoned the cheap money policy to the extent of allowing long-dated British government securities to find their own level while holding short-term rates unnaturally low. But it became apparent, that the Conservative government, which had raised the Bank rate from 2% to 2½%, was prepared to allow its new monetary measures—aimed at discouraging credit expansion—to work themselves out in both " short " and " long " securities. As a result, by the end of the year very substantial falls had taken place without the market yet finding a stable level. The expansion in yields of government securities was naturally accompanied by a more or less corresponding expansion in yields of other classes of paper, so that equity prices lost most of the ground gained earlier in the year.

Unsettled conditions continued at the close of the year since the government's further economy measures, including cuts in the capital investment programme, had still to be announced and the industrial world faced the unknown exactions of an excess profits tax beginning on Jan. 1, 1952, which was to be introduced in the 1952 budget.

But for the possibility of dividend control and, in the final two months of the year, rising interest rates, new capital issues might well have attained to the postwar record established in 1950. As it was, according to the figures compiled by the Midland bank, the year's total fell from £312·9 million to £251·9 million. An important feature of the figures was the continued high level of capital raised for home production, the amount rising from £94·3 million in 1950 to £108 million in 1951.

A completely new development for the postwar period was the resumption of foreign lending; Norway borrowed £4,750,000 and the World bank nearly £5 million on the London market. (A. L. W. S.)

United States. Based upon Standard and Poor's composite index of 90 stocks, U.S. common stock prices in 1951 continued the bull market which began about the middle of 1949. The index showed a substantial increase from January until March 1951, when a reaction occurred. Thereafter, common stocks moved up until June, when a second decline occurred. After this the average moved up again until November when another decline was experienced. At the end of December,

TABLE II. U.S. STOCK MARKET PRICE INDICES, 1926 BASE

	Industrials (50 stocks)		Railways (20 stocks)		Public utilities (20 stocks)	
	1951	1950	1951	1950	1951	1950
January	213·0	165·0	62·3	43·7	80·3	83·8
February	221·4	168·4	65·3	43·8	84·3	85·2
March	217·6	169·6	61·1	44·1	85·0	86·8
April	221·6	175·2	60·9	44·4	83·6	87·1
May	222·0	182·0	60·1	44·6	83·3	88·0
June	218·0	186·1	57·6	43·5	83·2	86·8
July	222·2	172·4	57·2	45·0	84·5	78·4
August	232·6	184·0	59·8	49·1	86·3	78·6
September	238·8	191·1	62·4	51·0	87·2	79·5
October	237·0	199·9	62·9	52·1	87·5	80·7
November	230·0	199·7	59·1	51·8	87·4	79·9
December	237·4	198·4	61·6	56·0	89·0	78·2

SOURCE. Standard and Poor's *Trade and Securities, Current Statistics.* Figures are an average for the month, based upon closing prices with 1926 used as base period.

TABLE III. U.S. CORPORATE BOND PRICES AND YIELDS, 1951
(Composite Bonds A1; average price in dollars per $100 bond)

Month	Average	Yield	Month	Average	Yield
January	121·4	2·61	July	116·2	2·92
February	121·3	2·62	August	117·1	2·87
March	119·4	2·73	September	118·0	2·81
April	117·8	2·82	October	116·9	2·88
May	117·4	2·85	November	115·3	2·98
June	116·6	2·90	December	114·8	3·01

SOURCE. Standard and Poor's *Weekly Corporate Bond Price Index.*

common stock prices were close to their highest point for the year.

Industrial and public utility stocks carried the composite average to new high levels. In January the industrial average was 213. At its highest level in September it was almost 239, an increase of more than 12%. At the year-end, industrials were up more than 11%. Public utility stocks ended the year with an increase of approximately 11%. On the other hand, the railway stocks declined from March to July; and in spite of a recovery thereafter, they ended the year with a slightly lower average. Preferred stocks of the highest grades also declined in price during the greater part of 1951.

The number of shares traded on the various exchanges, as reported by the Securities and Exchange commission for the first nine months of 1951, was about 3% less than for the same period of 1950. Expressed on a money value basis, the trading on all exchanges during the first nine months of 1951 was about 5% more than in the comparable 1950 period. For the full year 1951, the volume of shares traded on the New York Stock exchange was 443,504,076 as compared with 524,799,621 shares in 1950. On Nov. 1, 1951, there were 2,592,311,000 shares listed on the New York exchange, with a total value of $106,439,230,000 and a flat average price per share of $48·28.

The following factors may be mentioned as important in their influence on common stock prices during 1951: (1) a high yield compared with that from good-grade corporate bonds—the yield throughout the year on a composite list of 90 stocks was about 6%; (2) an excess of earnings over dividends paid by corporations, approximating to 100% of their dividend payments; and (3) the protection against inflation, which many believed that common stocks afforded.

U.S. government long-term bond prices started a steady and appreciable decline in March 1951, reaching their lowest levels for the year in December. There was considerable recovery in July, August and September, with a decline thereafter until the end of the year. Corporate bond prices followed a similar pattern. They started to decline in March, reached their lowest level in July, recovered until September and then started to decline again. According to the Standard and Poor indices, U.S. government bonds ended the year 1951 with a decline of a little more than 3·8%; and U.S. corporate A1 bonds with a decline of slightly more than 5·4%.

TABLE IV. 1951 PRICE RANGE OF 20 MOST ACTIVE U.S. COMMON STOCKS

	Highest	Lowest	Last Sale
Radio Corporation of America	25¼	16⅜	23½
International Telephone & Telegraph	19⅛	13⅛	16½
New York Central	26¼	15½	17⅞
General Motors	54	46	52
Canadian Pacific	38⅜	21¼	35⅜
United States Steel	47¼	37⅜	39⅞
Packard Motors	6⅞	4¼	4⅞
Baltimore & Ohio	24½	15¾	18⅞
Socony-Vacuum Oil	37½	25¼	35⅛
Pepsi-Cola Co.	12¾	8⅝	9¾
Northern Pacific	70½	31¼	63¾
Pennsylvania Railroad	26¼	16⅞	17⅞
Sunray Oil	24⅛	17¾	20⅞
Chicago, Milwaukee St. Paul & Pacific	30	17⅛	21⅝
Benguet Consolidated Mining	2	1⅛	1½
United Corporation	5	4	4⅞
Westinghouse Electric	42½	34⅜	39¾
Sinclair Oil	46¼	34¼	42¼
American Airlines	17⅜	13½	16⅞
Pan American World Airways	13⅜	9¾	11¾

Sales of bonds on the New York Stock exchange for 1951 amounted to $824,002,920, as compared with $1,112,425,170 for 1950. According to a compilation by the New York Stock exchange, the total par value of bonds listed on the exchange on Nov. 1, 1951, stood at $99,205,637,000, with a market value of $97,511,474,000.

Yields increased with the decline in bond prices. On corporate bonds they rose from 2·61% in January to 2·92% in July; and on U.S. government long-term bonds the increase for this period was from 2·40% to 2·68%. From January to December the increase was from 2·61% to 3·01% for corporate bonds, and from 2·40% to 2·72% for long-term governments.

The spread between the yields of bonds and stocks narrowed in 1951 as compared with 1950, although the difference was still wide by comparison with the years prior to World War II. In Jan. 1951 the average yield on A1 corporate bonds was 2·61% and the average yield on 90 composite stocks was 6·34%, a difference of 3·73 basis points. In Dec. 1951 this difference had narrowed to 2·97 basis points.

The most important factor affecting prices of high-grade bonds in 1951 was the unpegging of government bonds by the federal reserve board, to increase interest rates and curtail credit, which started in March. Prior to this date the board had supported the federal bond market when necessary in order to keep long-term government bonds above par. As soon as the board withdrew its support, prices of some long-term government bonds found their own level well under par.

The amount of common stock issued by U.S. private corporations in 1951, as reported in the *Commercial and Financial Chronicle*, was higher than in any previous year from 1946. A comparison of the years of 1947, 1948, 1949 and 1950 with 1951 showed a steady increase each year in the issuance of common stock of new capital purposes. Public utility corporations issued many more securities of all kinds in 1951 than any other single type of corporation; and this was true also for the years going back to 1946. Another important feature of equity financing by private corporations in 1951 was the large amount of convertible preferred stocks issued. (*See* also BUSINESS REVIEW.) (C. A. K.)

STOMACH AND INTESTINES, DISEASES OF.

The importance of stomach acidity in the formation of ulcer received additional emphasis during the year 1951. In dogs, stimulation of gastric secretion by the hormone gastrin caused typical ulceration; surgical removal of the antrum of the stomach eliminated this hormonal influence and decreased the acidity. In man, the recurrences of peptic ulcer during the administration of ACTH and cortisone were attributable directly to the increased production of acid and pepsin. The search for better methods of controlling the acid continued during 1951.

Suppression of gastric secretion by compounds acting upon certain nerve mechanisms (cholinergic blocking agents) was studied in detail. Atropine was not effective as it decreased stomach acidity in only one-third of patients with duodenal ulcer; uncomfortable secondary effects developed frequently. The action of the synthetic preparation dibuline was similar. Tetraethylammonium salts, given by injection, and hexamethonium compounds, taken by mouth, decreased gastric secretion temporarily, relieved pain and facilitated the healing of peptic ulcer. These compounds produced undesirable reactions, however, including a fall in blood pressure upon standing, fainting, weakness, blurring of vision and dryness of the mouth. Banthine decreased acidity and gastrointestinal motility when injected intramuscularly; these effects were less pronounced when the drug was administered by mouth.

Although it was not consistently effective in many cases, banthine appeared to be a useful addition to antacid treatment.

Gastric acidity was found to be subnormal in patients with cancer of the stomach; the lowered secretion apparently preceded the development of the tumour. Earlier recognition of this disease had become increasingly important because of improving surgical techniques and survival rates. The operating gastroscope, permitting removal of tissue for examination, revealed the cancer in some cases; however, this procedure was not generally applicable. Study of the cells in the stomach contents as a method of diagnosis seemed more promising. The use of a solution of papain and the introduction of a balloon encased in a hat veil into the stomach were designed to provide more suitable material for this purpose; the early results were encouraging. A new "stomach" was created in patients requiring total removal of this organ for cancer by transplanting a portion of the large bowel; initial observations indicated surprisingly adequate function in the transplanted structure.

Intestines. Antibiotics, including chloramphenicol (chloromycetin), terramycin, neomycin, bacitracin and polymixin, were administered in the treatment of various gastrointestinal infections. Chloramphenicol induced prompt improvement in typhoid fever; however, haemorrhage or perforation complicated treatment occasionally and development of the chronic carrier state was not prevented. None of the antibiotics excelled sulphadiazine in the treatment of bacillary dysentery. Results in other bowel infections varied but were good in individual cases. Polymixin B was most effective in the control of infections with certain resistant bacteria (proteus and pseudomonas). Aureomycin and chloramphenicol appeared helpful in the rectal inflammation accompanying the venereal disease *lymphopathia venereum*. Favourable results with aureomycin were observed occasionally in patients with inflammation of the gall bladder and acute and chronic infections of the liver. It should be noted that large quantities of this antibiotic by mouth and by vein injured the liver in animals and occasionally in man. However, antibiotics were of value in the treatment of secondary infection. Many reports emphasized the undesirable secondary effects occurring during antibiotic therapy; these were probably even more common than the literature indicated.

The causes of ulcerative colitis and the treatment of this serious disease were investigated extensively during 1951. The large quantities of lysozyme produced experimentally after injury of the bowel and the failure of this enzyme persistently to damage the colon in dogs suggested that lysozyme was not of primary importance in the development of the disease, as had been thought originally. The concentration of lysozyme in the faeces increases during the active stage of ulcerative colitis and decreases with healing. However, the administration of antilysozyme compounds did not improve the course of the disease significantly. The importance of emotional stress was re-emphasized; psychotherapy was helpful in several groups of patients. As in other diseases, ACTH or cortisone did not cure ulcerative colitis but were definitely beneficial.

Liver. The course of infectious hepatitis, a viral infection of the liver, usually is mild and ends in complete recovery. Chronic hepatitis, cirrhosis, or massive destruction of the liver occurred in a small percentage of cases. A new skin test for the diagnosis of this disease was undergoing evaluation in 1951.

Cirrhosis of the liver had proved to be more common than appreciated; it may not produce symptoms. Examination of liver tissue obtained by the introduction of a needle remained the best method of diagnosis. The bromsulfalein excretion test was the most useful measure of liver function in patients without jaundice. Patients with cirrhosis and excess abdominal fluid (ascites) reacted unfavourably when the fluid was removed too frequently, because this procedure resulted in serious loss of protein and electrolytes. A low intake of salt and the use of resins facilitating the removal of sodium via the bowel proved helpful in retarding or preventing the reaccumulation of fluid. The value of a high protein diet, including salt-poor human albumin, in the treatment of this disease was re-emphasized. (*See* also SURGERY.) (J. B. KR.)

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STRIKES AND LOCK-OUTS. European countries, except Spain, were remarkably free during 1951 from serious industrial disputes. Nor were there any further extensive stoppages in the British colonies or in India. The absence of extensive strikes in western Europe was largely due to the uncertain political conditions following the outbreak of the war in Korea. The Communist-led trade unions in France and Italy were unwilling to take any action that might lead to strong anti-trade union measures by the governments, and preferred to conserve their resources.

Great Britain. There were again few extensions or prolonged stoppages of work in Great Britain in 1951; but both the number of disputes and the numbers involved were higher than in 1950, and more working days were lost. During the first nine months of 1951 there were in all 1,318 disputes, involving 307,000 workers and a loss of 1,444,000 days. The comparable totals for 1950 were 1,049 disputes, 245,000 workers and 1,045,000 days lost. The main increase was in the transport trades, which accounted for more than half the total days lost. The coal miners had more disputes than in 1950, but these involved fewer workers and a smaller loss in working days. The vehicle-building trades were the only other group in which there were any considerable stoppages of work. The principal disputes were as follows: February, dockers in Lancashire, London and the Clyde area, in protest against a wage award and against arrests of men accused of inciting to strike action—unsuccessful; March and April, a series of one-day stoppages of dockers in London and Birkenhead, on the same issue of arrests for incitement—unsuccessful; May, a brief stoppage of road-haulage workers in a number of areas in protest against the introduction of a new system of road patrols by the Road Haulage executive—compromised; June, South Wales miners, in protest against transfers of workers from collieries closed —unsuccessful; also, motor-car workers, Birmingham, a demand for withdrawal of notices issued to certain workers, including a shop steward, because of redundancy—unsuccessful; September and October, dockers, stevedores and lightermen, London and Tilbury, on a variety of issues, the most important being the wages of lightermen, who protested by working to rule, and substitution of full-time employees for men drawn from the pool for particular jobs (Tilbury dockers). Most of the stoppages were again unofficial; a government inquiry into the Manchester dock dispute attributed much of the trouble to Communist influence.

Australia. In Australia, the railway strike, which lasted from Oct. 1950 to Dec. 1950, brought to the forefront the question of Communist influence in certain trade unions. In Jan. 1951 the New South Wales coalminers began a "one-day-a-week" strike, which soon spread to other states and developed into a complete stoppage. The strike was against an award of the arbitration court, and the

government met it by punitive measures against the leaders, taken under emergency powers. The strike ended in mid-March, when the Australian Miners' federation ordered a return to work on promise of a re-hearing of their claims by the court. Meanwhile, on Feb. 5, the Waterside Workers' federation had instituted a ban on overtime, in protest against a wage award, and this was followed on March 1 by a complete stoppage at Sydney following the arrest of the secretary of the W.W.F. The government again proclaimed a state of emergency under the Crimes act and introduced legislation to strengthen the powers of the arbitration court. The Australasian Council of Trades Unions, although holding that the strikers had a case, warned them of the danger of playing into the hands of the Communists. The strike ended on March 9, the day on which the act banning the Communist party was declared invalid by the high court.

New Zealand. The New Zealand waterside workers engaged in a considerable strike in Sept. 1950. The issue on this occasion was the payment of " dirty money " for handling certain cargoes, and the matter became one of principle, because the waterside workers refused to accept as binding the system of arbitration in force in New Zealand. The government countered by proclaiming a state of emergency at the ports and by assuming special powers; in face of this action the strikers returned to work and a royal commission was set up to investigate the entire condition of the industry. The Waterside Workers' union, however, decided to boycott the commission, and, after further incidents, a renewed strike broke out at Wellington on Feb. 18, 1951, and soon spread to other ports and also to a number of other trades, including the coal mines. These further strikes were " sympathetic." The issue was that of wages, the union standing out for a larger advance than the employers were prepared to pay. The government ordered the strikers back to work and, on their refusal, suspended the Waterfront Industry commission, a joint body through which a guaranteed wage was paid. It also outlawed the W.W.U. by cancelling its registration at the national arbitration court. This opened the way for the registration of new unions hostile to the strike; and, as the stoppage dragged on, new unions on a local basis were formed and registered at the various ports. Though there were a number of sympathetic strikes in support of the waterside workers, the New Zealand Federation of Labour, which accepted the arbitration system, and the New Zealand Labour party both disapproved of the strike, and helped to persuade the strikers in other industries to return to work. These major bodies did not, however, approve of the government's measures, accusing it of attributing the strike to Communist influence in order to get public opinion to accept its assumption of arbitrary powers and to discredit the labour movement as a whole. The government persisted and from May onwards there was a gradual drift back to work. It was not, however, until July 11 that the Waterside Workers' union finally ended the strike and the emergency regulations were not fully withdrawn until July 25.

Spain. From March to May 1951 a sequence of strikes occurred in which a high proportion of the workers in the affected areas took part, including those enrolled in the so-called trade unions organized by the Falangist party. The leadership remained for the most part unknown, and the movement showed a great deal of spontaneity. It was chiefly a protest against high prices and low wages, but was also directed in some areas against particularly unpopular holders of high official positions. The strikes began in and around Barcelona in March; similar movements in the Basque area followed in April, and in Pamplona and Vittoria in May. There was also, in May, an organized protest movement in Madrid, taking the form of a boycott of public transport services. At Barcelona the movement was successful in securing the removal of the unpopular governor; and in other areas also the government made some attempt to meet the widespread grievances. Numerous arrests were made of supposed leaders, and the government alleged that the movement was being organized from abroad and was inspired by Communist influences.

Persia. Early in the year, before the crisis over the general position of the Anglo-Iranian Oil company had come to a head, extensive strikes broke out in the Persian oilfields and in some of the works of the company; but most of the workers at Abadan itself remained at work, though there were demonstrations which demanded the nationalization of the oil industry and disorders occurred in a number of areas. The strikes first broke out in the latter part of March and were met by the proclamation of martial law in the affected areas by the Persian government, which attributed the trouble to the outlawed Tudeh party. There was a serious recurrence of strikes, accompanied by more rioting, in April; but these movements were also suppressed by the government. Thereafter, the industrial troubles died down as the dispute over nationalization came to a head. (G. D. H. C.)

United States. In 1950 there were 4,843 strikes in the United States, an increase of 1,237 from the 1949 total of 3,606. However, the number of workers involved (2,410,000) and the lost man-days (38·8 million) in 1950 were considerably less than in the previous year.

U.S. STRIKES, WORKERS INVOLVED AND MAN-DAYS LOST

	Strikes	Workers involved	Man-days lost	% of est. work time
1935-39 (average)	2,862	1,130,000	16,900,000	·27
1947 . . .	3,693	2,170,000	34,600,000	·41
1948 . . .	3,419	1,960,000	34,100,000	·37
1949 . . .	3,606	3,030,000	50,500,000	·59
1950 . . .	4,843	2,410,000	38,800,000	·44
1951 (8 months) .	3,075	1,550,000	14,900,000	·24

SOURCE. United States Bureau of Labour Statistics, *Monthly Labour Review*.

The number of strikes in the first eight months of 1951 did not differ greatly from the number of strikes for the corresponding period in 1950. Likewise, there was no significant difference in the number of workers involved in strikes during these two periods. Nevertheless, there was a large decline in man-days lost in the 1951 period, the eight-month 1951 figure of 14·9 million being about 50% less than that for 1950.

Canada. In the first eight months of 1951 there were 242 strikes and lockouts, as compared with 187 for the corresponding period in 1950. However, the number of workers involved in industrial disputes and the number of days lost during the 1951 period were considerably less than 50% of the corresponding numbers for 1950, the latter having been greatly increased by a railway dispute. (P. TA.)

SUDAN: *see* ANGLO-EGYPTIAN SUDAN; FRENCH WEST AFRICA.

SUEZ CANAL. For two reasons the Suez canal was a subject for anxiety during 1951: first, because Egypt was accused before the Security council of the United Nations for its restrictions on goods in transit through the canal; secondly, because the Egyptian government took drastic steps to enforce the evacuation of the Suez canal zone by the British troops stationed there.

Claiming that it was formally at war with Israel, Egypt continued its policy of " blockading " it, that is, refusing to allow the transit through the canal of war material, mainly fuel oil, to Israel. The British government protested in Cairo against these restrictions, describing them as illegal because they contravened the 1888 convention guaranteeing free passage to all traffic through the canal, and also because an Egyptian-Israeli armistice was concluded on Feb. 24, 1949.

Ten other governments sent similar protest notes to Cairo but Egypt remained adamant. The dispute had to be referred to the Security council and the formal complaint came from Israel. The case was considered at Flushing Meadow from July 26. A resolution sponsored by Great Britain, France and the United States was introduced on Aug. 16 calling on Egypt to terminate the restrictions on the passage of shipping and goods through the Suez canal wherever bound. The resolution was passed on Sept. 1 by 8 votes to nil, the U.S.S.R., India and Nationalist China abstaining. An Egyptian government spokesman curtly declared on the same day in Cairo that his government had no intention of implementing the resolution.

On Oct. 8, Mustafa el-Nahas Pasha, prime minister of Egypt, tabled among others a decree abrogating the Anglo-Egyptian treaty of 1936 under which British troops were stationed in the Suez canal zone. It was passed by both houses of parliament on Oct. 15. In the night of Oct. 16-17, Lieut. General Sir George Erskine, commanding the British troops in Egypt, broadcast to his forces: " We are not going to be turned out, forced out or knocked out." Acting in conformity with the policy laid down by General Sir Brian Robertson, c.-in-c., middle east, he seized Ismailia, Kantara East and West, the railway bridge linking Egypt and Sinai at El Ferdan and the ferry at Kubry, 5 mi. north of Suez. At the same time reinforcements were rushed to the canal zone by air from Cyprus and Libya and by sea from Britain. By the end of the year the British position in the zone was considered as readily defensible. " Attempts to force Britain out by pressure or terrorism will be strongly resisted," warned General Sir Brian Robertson on Dec. 31.

At the annual general meeting of the Suez Canal company held in Paris on June 12, François Charles-Roux, its president, said that the traffic through the canal in 1950 was larger than ever: 11,751 transits were made, representing a total of 81,795,523 net registered tons, compared with 10,420 transits in 1949 (68,861,548 n.r.t.). Receipts for 1950 amounted to Fr. 28,020·3 million, an increase of Fr. 2,083·3 million over those of 1949, whereas expenses, at Fr. 10,705·5 million, showed a reduction of Fr. 334·8 million. After deduction from the gross profit of Fr. 1,152·6 for interest and amortization of the capital, the available profit stood at Fr. 16,162·2 million, but Fr. 2,000 million were allocated to improvement works planned in the company's seventh programme.

GOODS IN TRANSIT THROUGH THE SUEZ CANAL
('000 metric tons)

	1938	1946	1949	1950	1951 (6 months)
Southward	7,767	6,000	13,032	12,144	7,528
Northward	21,012	15,936	48,024	60,468	29,469
Total	28,779	21,936	61,056	72,612	36,997

The first stage of the seventh programme—the 7½-mi. by-pass canal halfway between Port Said and the Bitter lakes—was completed during the year. The second section of the programme was the deepening of the canal by inches over the whole of its length. This involved not only extensive dredging of sand, but also considerable excavation of rock. It was estimated that the completion of this deepening would take another three years, but that it would eventually enable gigantic tankers with a draught of 35 ft. to pass through without difficulty. (*See* also EGYPT.)

SUGAR. Production of beet sugar (raw value) in Europe (including the U.S.S.R.) in the 1950-51 season reached the record level of 11 million tons as compared with less than 9 million tons in 1949-50. This increase in output was obtained from a total area only 7% greater; the average yield of sugar was 1·6 tons an ac. as compared with a ten-year prewar average of 1·2 tons an ac. These results were due to exceptionally favourable weather conditions and a more adequate supply of fertilizers. In Germany and France, the chief producing countries after the U.S.S.R., production, at 1·8 and 1·4 million tons respectively, showed a very large increase, while in Poland and the United Kingdom record results of 1 million and 750,000 tons respectively were obtained. In 1951 there was a further expansion of the European beet acreage, but weather conditions were at first unfavourable and total sugar production in the 1951-52 season was expected to be some 200,000 tons lower than in 1950-51.

World cane sugar production in 1950-51 also increased, the estimated total output (raw value, including the equivalent of the inferior quality *gur* of India and Pakistan) reaching 21·8 million tons, over 1 million tons more than in 1949-50. There was a further increase in Cuban production which, at 5,668,000 tons, was the third largest crop ever produced there. Production of sugar and *gur* in India and Pakistan was estimated to have risen from 3,560,000 to 3,680,000 tons; *gur* production declined slightly, but sugar production, stimulated by government measures to safeguard supplies of cane for the factories and partial decontrol of prices, rose from 1,200,000 to 1,350,000 tons. There were record crops of 612,000 tons in South Africa and 449,000 tons in Mauritius; Australian production declined slightly to 930,000 tons, while in the British West Indies and British Guiana production rose slightly to about 870,000 tons. In the far east, production in Indonesia and the Philippines continued to recover, though hurricane damage reduced yields in the Philippines; in Formosa, however, output fell by 200,000 tons, and, as in Indonesia, remained far below the prewar level.

Preliminary estimates of the 1951-52 cane crop forecast a further substantial increase in production; although adverse weather had reduced the expected yield in Australia and South Africa, it was expected that these declines would be more than offset by increased production in Cuba, the Philippines, Puerto Rico and Mauritius.

Despite increased production in the 1950-51 season, the carry-over into the next year was very moderate; part of the increased supply was absorbed by stockpiling. Although currency shortages continued to restrict consumption in some major importing countries, notably the United Kingdom, there was a further increase in consumption in some important producing countries, particularly in South Africa, Mexico and Brazil. Exports from Cuba to countries other than the United States in the quota year 1950-51 (September-August) rose to 3 million tons as compared with 2 million tons in 1949-50. Over the same period, United Kingdom imports rose from 2·2 million to 2·5 million tons, of which 1·2 million tons were provided by Cuba. Imports from the chief Commonwealth sources—the West Indies, Australia and Mauritius—were lower than in 1949-50.

The British Commonwealth Sugar agreement was, in Dec. 1951, extended to 1959, enabling Commonwealth sugar growers to plan eight years ahead. Total Commonwealth exports of 2,375,000 tons a year from 1953 were planned; of these the United Kingdom would purchase, at negotiated prices, 1,643,000 tons annually, including 75,000 tons for New Zealand. Sugar not sold at this price was to be offered for sale competitively in the preferential markets of the United Kingdom and Canada. Under the Anglo-Cuban trade agreement of Aug. 10 the United Kingdom undertook to buy, in the three-year period 1951-53, 1·5 million tons of Cuban sugar, at an annual rate of 500,000 tons which could be reduced by 100,000 tons in any one of the three years. United Kingdom imports from Cuba in 1951 amounted to 878,000 tons. Canada agreed to purchase 67,000 tons from Cuba,

57,000 tons from the Dominican Republic and 2,000 tons from Haiti in each of the years 1952 and 1953. (V. C. N.)

United States. Total sugar production in the U.S. proper was estimated at only 1,967,000 tons, as compared with 2,576,000 tons in 1950. The 1951 U.S. crop included 1,588,000 tons of beet sugar and 379,000 tons of cane sugar; in 1950 the comparable data were 2,012,000 tons and 564,000 tons. The U.S. sugar-beet crop in 1951 was 10,584,000 tons, 22% less than the 1950 record crop of 13,535,000 tons, but more than the 9,880,000-ton average for 1940-49. The yield was 15·1 tons per ac., as compared with 14·6 tons per ac. in 1950 and an average for 1940-49 of 13·1 tons.

The U.S. sugar cane crop of 1951 for sugar-making was 5,187,000 tons, as compared with 6,481,000 tons in 1950. The yield of 18·5 tons per ac. and the harvested acreage of 280,500 were much lower than comparable data for 1950 and slightly below the 1940-49 average.

Sugar-cane syrup production in 1951, mostly from Louisiana, continued its sharp decline of previous years, falling to 5,140,000 gal., the smallest crop on record, as compared with 9,230,000 gal. in 1950 and an average for 1940-49 of 19,008,000 gal. A sharply decreased acreage accounted for most of the decline. Sorgo syrup production in 1951 declined to 2,831,000 gal., from 3,691,000 gal. in 1950. Even maple syrup and maple sugar declined in 1951—1,809,000 gal. of syrup (2,062,000 gal. in 1950) and 200,000 lb. of sugar (a record low), as compared with 257,000 lb. in 1950. Honey in 1951 was an excellent crop of 249,053,000 lb., as compared with 233,013,000 lb. in 1950.

The average U.S. civilian in 1951 consumed three-quarters of his weight in sugar, only one quarter of which was produced domestically. Sugar production in 1950-51 in the principal areas supplying the U.S. was a record 12,198,000 tons, with a slightly larger crop in prospect for 1951-52. (J. K. R.)

SUMATRA: *see* INDONESIA.

SURGERY. Interest in the surgery of cancer had been largely concerned with the treatment of the advanced case, that is, cancers that had recurred after excision and a maximal course of radiation but that still appeared to be confined within definite, though wide limits; or with those that had spread widely through the blood stream yet had not given rise to any profound cachexia. One of the features of surgical development had been the extension of the criteria of operability. A. Brunschwig had consistently taught that surgery more radical than any previously attempted could sometimes cure cases hitherto considered uncurable and could offer appreciable palliation in many that could not be cured; in particular he advocated " pelvic evisceration " with implantation of the ureters into the pelvic colon in cases of refractory and recurrent growths of the cervix and vaginal vault (*Ann. Surg.* 133, 4: 574, London, 1951). O. A. Wangensteen went further and believed that a surgeon should remove metastases as they appear in the hope that one day he might remove the last of them (*Lancet*, 70: 411, London).

Harvey Stone, however, made a plea for greater consideration before performing these extensive and often mutilating operations, holding that they were often too high a price to pay for temporary relief (*Arch. Surg.*, 63, 1: 2, Chicago).

Hormone therapy proved of value chiefly in cancer of the prostate and in the late stages of cancer of the breast. In cancer of the prostate, castration and the administration of oestrogens were both used to reduce the androgens and thereby produce a milieu innimical to the growth of the malignant cells. Huggins advocated bilateral adrenalectomy in addition to castration in the attempt to reduce the androgens still further and the effects of such deprivation were being investigated, not alone in cancers of the prostate but in other cancers occurring in the male. The totally adrenalectomized patient could only be kept alive by a maintenance dose of cortisone.

The place of chemotherapy in the treatment of cancer was reviewed by A. Haddow, and that of the radio-active isotopes by J. S. Mitchell (*Practitioner*, 167: 37, London; *B.M.J.*, ii: 747, London). Radio-phosphorous had become the accepted treatment for polycythaemia vera and its beta emission had proved of value for superficial skin lesions. Radio-iodine was employed successfully in the treatment of thyrotoxicosis, but only a few of the well-differentiated and functioning thyroid carcinomas were affected, though the " take up " might be increased by thyrotropic hormone and thyouracil. After removal of the thyroid with the primary tumour the metastases often became amenable to treatment. Radiocobalt and radio-sodium were used for intracavitory irradiation, as in cancer of the bladder, and radioactive colloidal gold was tried in the treatment of multiple metastases in the pleural and peritoneal cavities.

Sir Stanford Cade advocated a simple classification of soft tissue sarcomata, and showed that the prognosis was better than had usually been believed (*Proc. Roy. Soc. Med.*, 44: 19, London). Wide excision, with pre- and post-operative radiation, was followed by survival in half the cases.

J. B. Graham in a comprehensive review of the pheochromocytomas, pointed out that these rare tumours provided the only cause of hypertension readily responsive to surgery (*Surg., Gynae. and Obstet.*, 92: 2, Chicago). The dangers of surgery were considerable, since handling the tumour, and even a change of posture, had been known to precipitate a fatal attack. The operative mortality was 25% and about 11% of the tumours were malignant. A. O. Whipple discussed islet-celled tumour of the pancreas, another rarity that produced hypoglycaemic attacks cured by excision of the tumour (*ibid.* 93, 1: 112). R. B. Cattell stressed the importance of finding and removing the tumour, however small, since the symptoms were always due to a tumour and never to diffuse islet hyperplasia and they did not respond to partial pancreatectomy.

Many writers expressed dissatisfaction with vagotomy as a treatment for peptic ulcer. W. Walters found that vagotomy, with or without drainage operations, gave poor results in 40% of cases (*Arch. Surg.*, 62: 183). The so-called oesophageal ulcer occurring in association with congenital short oesophagus was shown by N. R. Barrett to be a misnomer; the ulcer occurred in gastric mucosa drawn up into what appeared to be an oesophagus, but belonged functionally to the stomach (*Proc. Roy. Soc. Med.*, 43: 421). The ulcer was, therefore, gastric and not to be confused with the peptic ulcer occurring in squamous epithelial mucosa described by P. R. Allison (*Thorax*, 3: 20, London).

F. H. Lahey's series of common bile duct strictures totalled 314, a proof of the hazards of biliary surgery (*Surg. Clin. N. Amer.*, 31, 3: 719, Philadelphia). J. H. Garlock found that stone in a cystic duct remnant was a common cause of recurrent symptoms after cholecystectomy; he advised ligature close to the common duct, a step demanding a precision that could not always be achieved in operation for acute cholecystitis (*Surgery*, 29: 833, St. Louis).

The significance of the sensory innervation of the rectum in the maintenance of tone and voluntary control of the anal sphincter was investigated by J. C. Goligher and E. S. R. Hughes in a post-operative study of patients who had undergone restorative resection (*Lancet*, 1: 543). They also showed by inferior haemorrhoidal nerve block and bilateral total sympathectomy that the route of the sensory impulses was by the para-sympathetics and the 1st and 2nd sacral segments. It appeared that six to seven centimetres of rectum were

necessary for perfect control. The exact location of the nerve endings was not known, but in two cases in which anorectal mucosa was removed and the muscular coat retained in the hope of their preservation, true rectal sensation was lost and incontinence resulted.

The tendency in cardiac surgery was towards an increase in the direct attack on heart lesions. The mortality of mitral valvulotomy was reduced to 4%. R. C. Brock emphasized the danger of damaging the valve cusps, particularly the aortic ones, when splitting the commissure (*Ann. Roy. Coll. Surg., Eng.*, 9, 1: 1, London). In cyanotic heart disease Brock regarded pulmonary valvulotomy as the operation of choice for pure valvular stenosis, but a final decision between this and the indirect procedures of the Blalock-Taussig type for Fallot's tetralogy had yet to be made. The provision of a new arterial bed in cardiac ischaemia was attempted by C. S. Beck, who brought blood from the aorta to the coronary sinus by a transplant; the final results of this ingenious operation were not available at the end of the year (*Ann. Surg.*, 133, 2: 153, London). The pain of cardiac ischaemia was relieved by bilateral sympathectomy from T1 to T4 inclusive.

The surgical history of aneurysms was reviewed by H. J. Croot, who discussed their partial or total exclusion by ligature (*Brit. Jour. Surg.*, 38, 152: 432, Bristol). He advised the production of protective fibrosis by wrapping the aneurysm in cellophane, a procedure similar to that advocated by A. H. Blakemore, who also achieved concentric clotting by electrothermic coagulation through a fine wire introduced directly into the aneurysmal sac (*Ann. Surg.*, 133, 4: 447). E. J. Wylie used fascia lata grafts as external support after aneurysmorrhaphy (*Surg. Gynae. and Obstet.*, 93, 3: 257). The development of storage of aortic grafts, for use in operations for the relief of coarctation, was continued by R. A. Deterling, who successfully used grafts stored for 40 days at —40° to —60°C. (*Surgery*, 29: 419).

In orthopaedics P. D. Wilson used refrigerated homografts of bone stored for periods up to a year and found that they differed from autografts only in their slightly slower "take" (*J. Bone and Joint Surg.*, 33-B: 301, Edinburgh). The use of acrylic resin prostheses, both in operations of the Judet type for reconstruction of the hip joint, and to replace extensive gaps in the long bones for benign and malignant lesions was advocated by W. R. MacAusland and others and became an accepted method of constructive bone surgery (*Surg., Gynae. and Obstet.*, 92: 513). (*See* also CANCER.) (W. H. OE.)

SURINAM: *see* NETHERLANDS OVERSEAS TERRITORIES.

SWAZILAND: *see* BRITISH SOUTH AFRICAN PROTECTORATES.

SWEDEN. Constitutional monarchy of northern Europe, lying on the eastern side of the Scandinavian peninsula, bounded N.E. by Finland, E. and S. by the Baltic sea, S.W. by the straits of Öresund and of Kattegat and W. and N.W. by Norway. Area: 173,390 sq.mi. Pop.: (1945 census) 6,673,749; (Dec. 1950 est.) 7,046,920. Language: Swedish, with some Finnish (1930: 33,929) and Lappish (1945: about 4,410) in the north. Religion: predominantly Lutheran; there were, however, (1930 census) 119,361 Protestant dissenters of various denominations, 4,818 Roman Catholics and 6,653 Jews. Chief towns (pop., 1950 est.): Stockholm (cap., 745,936); Gothenburg or Göteborg (353,991); Malmö (192,498); Norrköping (84,939); Hälsingborg (71,718). Ruler, King Gustaf VI Adolf, prime minister, Tage Fritiof Erlander.

History. In the uneventful course of northern history in 1951, Sweden's internal policy was preoccupied with measures to combat inflation. Its foreign policy still seemed to some western observers to be "tight-rope walking," but it was endorsed by most Swedes as the path of sanity and realism in an overstrung world.

Presenting the ten-point Scandinavian Peace manifesto in Stockholm on Jan. 26, the prime minister defined his country's alignment in the ideological sphere by stating:

> It is necessary that the responsibility for the wave of rearmament that is sweeping the world, and for the price rise that has followed in its wake, be placed where it belongs, namely, on the Communist policy of aggression.

The Social Democratic parties of Sweden, Norway, Denmark and Iceland had produced this manifesto as a counterblast to the 1950 Communist-sponsored Stockholm "Peace" appeal, which had stressed only the atomic bomb menace. Largely ignored abroad and concerned with ideal ends rather than means, the manifesto epitomized the international aims of the Scandinavian Labour movement and, in particular, much of the policy of the Swedish government, where its power remained secure.

When the foreign ministers of Denmark, Norway and Sweden met in Copenhagen on Jan. 16 they combined to direct an appeal to Communist China to accept the U.N. peace proposal, and also deprecated any plan for further action in Korea even if the proposal were rejected by Peking. But whereas Denmark and Norway agreed to support the U.N. resolution "branding" China as aggressor, Sweden diverged and in due course refrained from voting. In the next foreign affairs debate in the Swedish Riksdag (Feb. 7) this decision was strongly attacked by the Conservative and Liberal leaders. Östen Undén, the foreign minister, explained that it was the coupling of sanctions with the plain statement on aggression which deterred Sweden; sanctions might give moral satisfaction to the United States, which had made heavy sacrifices, but he questioned their effectiveness or expediency.

During the spring a more positive rationale of neutrality began to be formulated, chiefly on the "cultural page" of the government organ, *Morgonntidningen*, and the contributions of nine authors were reprinted in a booklet as *The Third Standpoint*. Erwin Leiser sketched similar trends of reasoning on both the Right and Left in France under the title, "Die for Nothing?" Sivar Arnér's "Why Neutral?" described the choice as lying between the preservation of peace, on the one hand, and the destruction of most life and all culture, on the other. Herbert Tingsten, editor of the Liberal *Dagens Nyheter*, replied with a booklet, in similar format, called *The Third Standpoint: An Absurdity*. Even if the people of Europe should surrender to threats, which he found incredible, the United States and Great Britain would not do so, and the fate of those who capitulated would be to fight under Russians against the rest. The other Liberal paper, *Göteborgs Handels- och Sjöfarts-Tidning*, also reflected uneasiness about current symptoms of defeatism by publishing a series of articles headed "If War Should Come," and addressed an open letter to Undén asking what the government would do if Russia were to demand free transit. The answer that such a demand would be resisted, if necessary by force, gave satisfaction.

Meanwhile the increasing sums spent on rearmament provided the chief reply to charges of wishful thinking. Defence expenditure in the budget year 1951-52 was expected to reach Kr. 1,380 million, more than one-fifth of total government expenditure and about 5% of the national income. Civil defence and shelters received closer attention. Conservative members of parliament complained that only part of the navy's plan for urgent expansion (June 29) was dealt with in the autumn parliament, despite reports of sensational developments across the Baltic and an alleged Soviet statement that in time of war it would become an

inland sea and the Öresund be "closed to traffic." The Swedish air force celebrated its 25th anniversary as a separate arm by staging the largest air manoeuvres ever seen in Sweden, over both Gothenburg and Stockholm (June 3), when the Swedish-built jet aircraft "The Flying Barrel" (J-29) was demonstrated to a crowd of 200,000. Sweden was described as the fourth air power in the world.

The chief of the defence staff since 1947, Major General Nils Swedlund, Sweden's youngest general and the man who trained the free Norwegian "police forces" towards the end of World War II, succeeded Helge Jung as commander in chief on Jan. 26. A fortnight later the army approved, for submission to the government, a project for an armoured infantry battalion of 1,000 officers and men for possible service abroad under the U.N. "Uniting for Peace" resolution of 1950. There was no suggestion that it might be assigned to Korea. The Swedish hospital at Pusan was, however, maintained.

A coalition government took office on Oct. 1, the product of an agreement between the ruling Social Democrats and the Agrarian minority which caused considerable surprise. Agrarians received the ministries of agriculture, education and the interior, and a ministry without portfolio, in a cabinet of 16, and Erlander made use of this opportunity to drop his unpopular minister of defence, Allan Vougt. The inducement offered to the Agrarians was presumed to be an assurance that agricultural prices would not suffer in a time of financial stress. The common ground between the two parties was stated to lie in foreign policy, Scandinavian co-operation and neutrality; strong defence; full employment and a fair distribution of income; a realization of the necessity for combating inflation and for a balanced foreign trade; reduced credit facilities but low interest rates; increased levies on forestry products; more effective price control and a budget surplus. Strengthened by a secure parliamentary majority, the prime minister forecast (Oct. 10) lean years in which consumption would not be allowed to rise more than 1% annually; wages could not be increased more than 4%, despite high prices, in the next 12 months, and imports must be cut down further still, he said.

Over 98% of all wage adjustments in Sweden had been settled by negotiation every year since 1940 except 1945, and in 1950 only 5,407 working days were lost through strikes, a record even for Sweden. Unemployment fell to 1·4%, consisting mainly of workers "in transit." The spring of 1951 had been dreaded by some economic experts as the end of those "wage freezes" which, in view of Sweden's postwar difficulties, trade union leaders had urged upon their loyal membership. In the event the only major strike involved some 30,000 municipal employees. Most groups of workers received a 15% to 20% wage increase, more favourable working hours and a legal right to three weeks' paid holiday a year from 1952.

At the end of September the arrest of a naval petty officer, Ernst Hilding Anderson, for extensive espionage on behalf of the Soviet Union profoundly shook public opinion. An intelligent man, with photography as a hobby, he had made two journeys on the icebreaker "Ymer" along the Norrland coast, had studied the Karlskrona base and been aboard a visiting British naval vessel. When confronted by detailed evidence he freely confessed that, impelled by Communist ideals, he had been spying for Russia since 1946; but his activities in preceding years remained a mystery. He was sentenced to life imprisonment. According to unofficial estimates the alterations to coastal and naval defences which Anderson's revelations might require would cost the country tens of millions of kronor. The official alleged to have received Anderson's reports was attached to the Soviet embassy, though not on the diplomatic list. He left the country, at Swedish request, four days after Anderson's confession. Questions were asked in parliament (Nov. 24) about the number of officials at the Soviet embassy who were not occupied with diplomatic work.

In new notes to the Soviet Union on the disputed extension of the eastern Baltic sea frontier, Denmark and Sweden suggested referring the problem to the International Court of Justice. The U.S.S.R. rejected this proposal on Aug. 21., maintaining its claim. The perennial problem of refugees troubled Polish-Swedish relations, especially after the Stockholm police released a cook locked in a cabin on a Polish ship in port (Sept. 22) and granted him asylum. On Nov. 2 the Swedish foreign minister categorically denied all the accusations of the Warsaw government regarding the alleged maltreatment of Polish subjects in Sweden.

Soviet contracts with Swedish firms under the Kr. 1,000 million credit granted by Sweden in 1946 were valued at Kr. 453 million by March 31, 1951. The credit was due to expire on Dec. 10. Normal trade with the Soviet Union was expected to total Kr. 40 million in each direction during 1951, in accordance with an agreement reached in April. Polish coal continued to play an important part in the Swedish economy.

Sweden's decision to dispense with further aid under the Marshall plan (July 30) caused satisfaction in the United States. In response to the O.E.E.C. council's request Sweden agreed (Sept. 8) to increase its annual iron ore production from 15 to 19½ million tons during the next three or four years. The Anglo-Scandinavian Economic committee held its fourth session in London (Dec. 12-13).

In the field of Northern co-operation, the 28th meeting of parliamentary delegates took place in Stockholm in August and the former Danish premier, Hans Hedtoft, suggested a permanent institution where such delegates could discuss all northern questions. A committee of five was appointed to report on the proposal to the council. Historical documents from Swedish archives concerning Norwegian foreign policy, 1897-1905, the first of a series to be made available, were handed over to the Norwegian government by the Swedish ambassador, explorer Hans W:son Ahlmann, on Nov. 23. From the beginning of the year new citizenship laws enabled nationals of Denmark, Norway and Sweden to become naturalized in each other's countries within a shorter period. In connection with the Åland islanders' demand for greater autonomy under Finnish rule, the Swedish foreign office declared that Finland's assurances to Sweden regarding the islands, given in 1921, were still regarded as binding, as Sweden had already reminded Finland in 1945 and again in 1950.

Prince Carl of Sweden died at the age of 90 in October, and the kings of Norway, Sweden, Denmark and Belgium followed him to his last resting place, the royal cemetery near Haga palace. He was mourned not only as "the grandfather of Europe," but as the virtual founder of the Swedish Red Cross, over which he presided from 1906 to 1945.

Education. Schools (1950): elementary 28,850, pupils 611,869, teachers 20,093; secondary 404, pupils 134,843, teachers 7,822; technical, pupils 147,359; teachers' colleges 29, students 6,512, professors and lecturers 1,102. Universities 4 and institutions of higher education 12, students 11,142, professors and lecturers 1,484.

Agriculture. Main crops (in '000 metric tons, 1950; 1951 in brackets): wheat 739 (484), barley 210 (250), oats 807 (820), rye 244 (176), potatoes 1,734 (1,751). Livestock (Sept. 1950, '000 head): cattle 2,648; sheep 279; pigs (1949) 1,238; horses 440; poultry (1949) 8,204. Fisheries (salt): total catch (1949): weight 182,419 metric tons; value Kr. 104 millions.

Industry. Industrial establishments (1948) 17,491; persons employed 666,344. Fuel and power: electricity (million kwh. 1950) 18,348. Raw materials ('000 metric tons 1950; 1951, six months, in brackets): iron ore 13,728 (8,060); pig iron 784·8 (409·2); crude steel 1,440 (750). Manufactured goods ('000 metric tons): cement (1950) 1,944; wood pulp (1949) 2,886; timber (1949) 5,250,000 cu. m.

Foreign Trade. (Million kronor, 1950; 1951, six months, in brackets): imports 6,101 (4,554), exports 5,710 (3,975).

Transport and Communications. Roads (1951): 90,474 km. Motor vehicles licensed (Jan. 1951): cars and buses 260,049, lorries 84,904. Railways (1951): 16,516 km., passenger traffic (1950), 6,252 million pass.-km.; goods traffic (1950), 8,016 million ton-km. Shipping (Jan. 1951): number of merchant vessels 2,202; total tonnage 2,135,183 gross tons. Air transport (1950): km. flown 10,764,000; passenger-km. 245,521,000; cargo net ton-km. 6,768,000. Telephone subscribers (1950): 1,591,473. Wireless licenses (1951): 2,153,000.

Finance and Banking. (Million kronor) Budget (1950-51 actual) revenue 5,821, expenditure 6,260; (1951-52 est.) revenue 6,406, expenditure 6,650. National debt (Jan. 1950): 12,055. Currency circulation (Oct. 1950; Oct. 1951 in brackets): 3,250 (3,755). Gold reserve (Sept. 1950; Sept. 1951 in brackets): 448 (664). Deposit money (July 1950; July 1951 in brackets): 2,850 (3,400). Monetary unit: *krona* (pl. *kronor*) with an exchange rate (Dec. 1951) of Kr. 14·49 to the pound sterling and Kr. 5·18 to the U.S. dollar. (E. J. L.)

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SWIMMING. A definite improvement in the standard of British swimming appeared in 1951. Nineteen-year-old Daphne Wilkinson (Woolwich) reduced the Amateur Swimming association 440 yd. freestyle record from 5 min. 23 sec. to 5 min. 22·2 sec., and, later, to 5 min. 17·6 sec., which compared well with Olympic champion Ann Curtis's 5 min. 17·8 sec. for 400 m. John C. Wardrop (Motherwell) created a new 220 yd. A.S.A. and British native record of 2 min. 12·2 sec., and new Scottish records of 52·6 sec. for 100 yd. (also B.N.R.) and 10 min. 8 sec. for 880 yd. Two 15-year-old backstrokers, Margaret McDowall (Kilmarnock) and Pauline Musgrove (York), returned new 100 yd. records for their respective countries in 68·3 sec. and 68·4 sec. John Brockway (Maindee, Cardiff) reduced his 100 yd. backstroke British record from 60 sec. to 59·4 sec. Fourteen-year-old Angela Barnwell (Worthing) sprang into the limelight with a new girl's A.S.A. record of 62·2 sec.—later reduced to 61·5 sec.—for 100 yd.

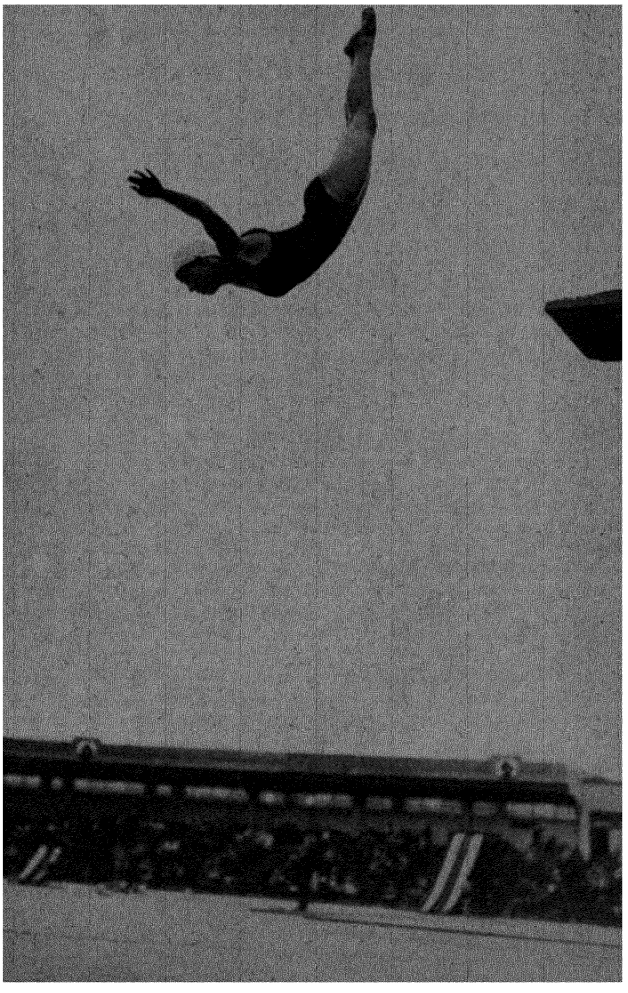
The return swimming, diving and water polo contest between England and France, at Brest, was won by France, by 60 points to 52. International water polo match results were: England beat Wales (13-3) and Scotland (10-2); Wales beat Ireland (6-5); England drew with Belgium (3-3) and lost to Holland (0-9). Scotland won the inter-country speed swimming contest for the second successive year.

The visit of Matt Mann, Michigan university swimming coach, and 14 U.S. swimmers, originally planned for 1939, took place in August; the team travelled 3,500 mi. in Great Britain and gave 35 demonstrations to more than 35,000 people. (B. W. C.)

Ford Konno, 18, of Hawaii, swimming in a 100-m. pool at Honolulu, covered 200 m. freestyle in 2 min. 8·8 sec., 400 m. in 4 min. 34·8 sec., 800 m. in 9 min. 30·7 sec. and 1,500 m. in 18 min. 25·6 sec. Only the time for 800 m. broke the world record officially, but if the gain afforded by the racing turns were estimated, all four of these feats would have been materially faster than the official records.

John B. Marshall, a Yale university student from Australia, brought down the free style record for 400 m. to 4 min. 27·9 sec., that for 440 yd. to 4 min. 28·1 sec. and the 500-m. record to 5 min. 43·7 sec. L. Meshkov of the U.S.S.R. and H. Klein of Germany decreased the breast stroke records for 100 m. to 1 min. 6·6 sec. and 200 m. to 2 min. 27·3 sec.

Gretjen Wielema of the Netherlands reduced the women's record for 150 yd. back stroke to 1 min. 40·4 sec. E. Szekely (Hungary) improved the time for the women's 100 m. to 1 min. 16·9 sec. and E. Novak (Hungary) that for 200 yd. and 200 m. to 2 min. 34 sec. and 2 min. 48·5 sec.



Fifteen-year-old Ann Long taking part in the 1951 Amateur Swimming association national diving championships. She won three titles, being the first woman to do so.

H. Furuhashi of Japan, international freestyle champion of 1949, gave two sparkling performances in the national championships, thrashing 200 and 400 m. in 2 min. 8 sec. and 4 min. 38·8 sec. in a 50-m. pool.

The Pan-American games were held in Buenos Aires, and U.S. entrants won four events for men and six for women. (L. DE B. H.)

Channel Swimming. The second international cross-channel swimming race organized by the *Daily Mail* was held on Aug. 16. Twenty entrants started at Cap Griz Nez and all but two reached the English coast. Mareeh Hassan Hamad, who was third in 1950, won in 12 hr. 12 min. Roger Le Morvan was again second. Brenda Fisher broke the women's record when she completed the course in 12 hr. 42 min. The full list of finishers (with ages in brackets) was:

		hr.	min.
*Mareeh Hassan Hamad (34)	Egypt	12	12
*Roger Le Morvan (27)	France	12	13
*Hassan Abd el-Rehim (42)	Egypt	12	25
Saied el-Arabi (35)	Egypt	12	42
Brenda Fisher (23)	England	12	42
Godfrey Chapman (21)	England	12	56
Winnie Roach (25)	Canada	13	25
Enriqueta Duarte (22)	Argentina	13	26
Lars-Bertil Warle (31)	Sweden	13	28
Raphael Morand (33)	France	13	45
Daniel Carpio (39)	Peru	13	50
Jenny James (23)	Wales	13	55
*Jason Zirganos (41)	Greece	14	10
*Antonio Abertondo (32)	Argentina	14	14

		hr.	min.
Jan Van Hemsbergen (37)	Netherlands	14	30
Sally Bauer (39)	Sweden	14	40
*William E. Barnie (55)	Scotland	15	01
*Jenny Kammersgaard (32)	Denmark	15	38

* Also finished in the 1950 race.

W. E. Barnie, who finished 17th, also swam from England to France in 19 hr. 2 min. on July 28-29. He became the fourth person to cross in both directions, having swum from France in 1950, and his swim in the *Daily Mail* race made him the first man to cross twice in one year. On July 28, Philip Rising (41), England, and Abd el-Latif Abon Heif (22), Egypt, swam from France to England. Their respective times were 15 hr. 55 min. and 15 hr. 43 min.

See Edna Child, *The Art of Swimming and Diving* (London, 1951); R. J. H. Kiphuth, *Basic Swimming* (London, 1951).

SWITZERLAND. Republican confederation of 22 cantons in west-central Europe, bounded W. by France, N. by Germany, E. by Austria and Liechtenstein and S. by Italy. Area: 15,944 sq.mi. Pop.: (1941 census) 4,265,703; (1950 census) 4,714,992. Language: German 72·6%; French 20·8%; Italian 5·2%; Romansch 1·1%. Religion: Protestant 57·6%; Roman Catholic 41·1%; Jewish 0·5%. Chief towns (pop., 1946 est.): Berne (cap., 136,700); Zürich (360,500); Basle (170,300); Geneva (137,600); Lausanne (99,300). President of the confederation for 1951, Eduard von Steiger; vice president of the federal council (government), Karl Kobelt (*q.v.*).

History. In spite of the avalanches early in the year, and the floods, especially in the Ticino, in November, Switzerland appeared to be increasingly prosperous during 1951 for the industrial boom and the expansion of foreign trade, the first signs of which had become evident in Aug. 1950, continued. In 1951 Switzerland imported to the value of Fr.S. 5,900 million and exported to the value of Fr.S. 4,600; the figures for 1950 were Fr.S. 4,536 million and Fr.S. 3,911 million respectively. (It should be noted that the Swiss expect and prefer to import more than they export; it should also be borne in mind that prices in 1951 were higher than in 1950 so that the increase in the volume of trade was not quite so great as the increase in value.) In 1951 Western Germany often overtook the United States as Switzerland's most important commercial partner. During the year the export of Swiss watches out-distanced that of machines and headed the export commodities list, reaching a record figure of Fr.S. 104·4 million in November. The summer tourist season (June to September inclusive) showed a 14% improvement on 1950.

Nevertheless the unsolved problem of the year was to find the money to finance the rearmament programme approved by the parliament in Oct. 1950. Many schemes were brought forward but none accepted in the spring, summer and autumn sessions of the Swiss parliament, the Social Democrats advocating a capital levy. After the elections of Oct. 28 the Federal Council on Nov. 15 went back to the recommendation of a plan put forward in February which involved heavy taxes on luxury foods and on drinks, but this was opposed by the powerful hotel keepers' interest and was again shelved by a parliamentary commission on Nov. 24. Meanwhile prices and, with them, administrative and military costs were rising, so that at the end of the year a budget was brought forward for 1952 which envisaged a deficit of Fr.S. 250 million. The *Neue Zürcher Zeitung* condemned this "worst of the post-war federal budgets," pointing out that a large deficit would mean further government borrowing and consequently sharper inflation at a time when inflation should have been curbed by heavier taxes.



Early in 1951 many parts of Switzerland were severely damaged by avalanches. In Andermatt houses were buried and some of them were completely destroyed.

Elections to the National Council (parliament) fell due towards the end of 1951. This accounted for an unprecedented amount of agitation in favour of the enfranchisement of women who in Switzerland were still disqualified from the exercise of the vote in local or federal elections or in the referenda. In June, however, the Council of States vetoed the proposal that a referendum should be held on this issue, and it was generally thought that the matter had been shelved for a long time.

The National Council elections were held on Oct. 28; on the same day most of the cantons elected or re-elected their representatives in the Council of States. There were even fewer changes than had been foreseen. For the Communist party (called the Partei der Arbeit or Parti Ouvrier Populaire), which had been expected to disappear except in Geneva, was reduced—by the loss of two seats in the Vaud canton—only from 7 to 5. The three large parties—Radical, Catholic Conservative and Social Democrat—were returned respectively with 51, 48 and 49 representatives as against 52, 44 and 48 in the previous parliament, while the smaller but important Peasant party increased its seats from 21 to 23. (Owing to the increase of population to 4,714,992 officially recorded in the census taken on Dec. 1, 1950, the number of parliamentary seats was increased from 194 to 196.) The smaller parties virtually disappeared, with the exception, not only of the Communists, but also of the so-called Landesring der Unabhängigen, the followers of the erratic Gottlieb Duttweiler, owner of a chain of stores. While this independent party increased its seats in the National Council from 8 to 10, its leader who had been elected to represent the canton of Zürich in the Council of States in Sept. 1949, was defeated by a radical, Ernst Vaterlaus. Zürich had hitherto been regarded as Duttweiler's stronghold and he barely succeeded in saving his face by taking one of the National Council seats won by his party in Berne: that the equivalent of a senator should have to slip back to the rank of a deputy aroused acid comment.

After the election the two in some ways most prominent federal councillors (or ministers) resigned. One was the outgoing president of the confederation, a member of the Peasant party and minister of justice and police, Eduard von Steiger, who had held office since 1940. The other was the minister of finance, Ernst Nobs, the first Social Democrat to become a federal councillor (in 1943). They represented respectively Berne and Zürich, the two most important cantons. When the new National Assembly (National Council sitting with the Council of States) met on Dec. 13 it elected as their successors Markus Feldmann (Berne, Peasant party) and Max Weber (Zürich, Social Democrat); the latter received rather half-hearted support, partly because, though a citizen of Zürich, he no longer lived in that canton. On the same day Karl Kobelt was elected president of the Swiss confederation for 1952 and Philip Etter vice president of the federal council.

Towards the end of November the federal council brought a case against Pierre, son of Léon Nicole, the president of the Swiss Communist party. Pierre Nicole had published articles abroad accusing the federal council of abandoning Swiss neutrality by associating the country with the "aggressive" United States and the western anti-Communist bloc; he was condemned to 15 months' imprisonment for calumny and for undermining the independence of his country.

On June 2, 1951, the 600th anniversary of the adherence of the Canton of Zürich to the Helvetic union was celebrated with enthusiasm. (E. Wi.)

Education. Schools (1948-49): primary, pupils 434,498, teachers 14,136 (5,460 women); secondary and lower middle, pupils 78,587 (girls 36,266), teachers 3,275 (women 427). Universities (1949-50) 7, students 14,903, professors and lecturers 1,379; institutions of higher education 2, matriculated students 3,957, teachers 453.

Agriculture. Main crops ('000 metric tons, 1950; 1951 in brackets): wheat 228 (207); rye 38 (32); barley 44 (46); oats 55 (55); sugar, raw value 28; potatoes 1,130. Wine production ('000 hectolitres, 1949; 1950 in brackets) 551 (720). Livestock ('000 head, April 1950): cattle 1,530; pigs 908; goats 180; sheep 180; horses 134; chickens (April 1951) 6,268; geese, ducks and turkeys 85. Meat production ('000 metric tons, 1950; 1951, six months, in brackets): 69·6 (35·0). Dairy produce: butter 18·8 (12·1); cheese 52·1 (19·9); milk, about two-thirds of total production ('000 hectolitres) 16,608 (8,535).

Industry. Industrial establishments (1950): 11,568; persons employed 492,563. Fuel and power: manufactured gas (million cu. m., 1949) 299; electricity (million kwh., 1950; 1951, six months, in brackets): 9,120 (4,863). Index of industrial activity (1938 = 100, 1950; 1951, six months, in brackets): building 116 (136); cotton 99·5 (106); silk 119·5 (129·5); embroidery 108 (119); metals 136 (149); watchmaking 123 (133); chemicals 162 (174); foodstuffs 129 (127). Index of employment in manufacturing, 1937 = 100 (1949; 1950 in brackets) 127 (125).

Foreign Trade. (Million francs, 1950; 1951, six months, in brackets): imports 4,536 (3,139); exports 3,911 (2,246). Main sources of imports (1950): U.S. 13·8%; France 11·3%; Germany 11·0%; U.K. 8·1%. Main destinations of exports: U.S. 13·2%; Italy 13·2%; Germany 9·3%; France 9·2%. Main imports: machinery 4·5%; coal 4·1%; fruit and vegetables 4·1%; raw cotton 3·8%; cars 3·7%. Main exports: machinery 22·1%; watches 18·7%; instruments and apparatus 6·6%; paint 5·7%; cotton fabrics 3·2%.

Transport and Communications. Roads (1949) 10,250 mi. Licensed motor vehicles (Dec. 1950): cars 146,998, commercial 41,514. Railways (1949): total 3,345; state 1,812; passenger mi. (1950) 3,356 million; goods, ton-mi. 1,215 million. Shipping (1951): number of merchant vessels 20; total tonnage 100,000 tons; goods handled (1949) 2,252,020 metric tons. Air transport (1950): passenger-mi. 91,487,000; cargo net ton-mi. 2,450,000. Swissair traffic (1950): passengers flown 196,625; freight carried 2,349 metric tons; mail carried 1,554 metric tons; mi. flown 5,618,309. Telephones (1950): subscribers 574,400. Wireless receiving sets (1949): 986,679.

Finance and Banking. (Million francs) Budget: (1950 est.) revenue 1,622, expenditure 1,466; (1951 est.) revenue 1,577, expenditure 1,901. National debt (Dec. 1949; Dec. 1950 in brackets): 11,109 (11,176). Currency circulation (Sept. 1950; Sept. 1951 in brackets): 4,683 (4,919). Bank deposits (Aug. 1950; Aug. 1951 in brackets): 7,159 (6,927). Gold and foreign exchange (Sept. 1950; Sept. 1951 in brackets): 1,495 (1,425). Monetary unit: *franc*, with an exchange rate of Fr.S. 12·25 to the pound and Fr.S. 4·36 to the U.S. dollar.

SYNTHETIC PRODUCTS: *see* CHEMISTRY; PLASTICS INDUSTRY; RAYON AND SYNTHETIC FIBRES; RUBBER.

SYRIA. Independent Arab republic, formerly under French mandate, bounded by the eastern Mediterranean, Turkey, Iraq, Jordan, Israel and Lebanon. Area: 66,063 sq.mi. Pop.: (1938 census) 2,930,107, incl. the inhabitants of Hatay ceded to Turkey in 1939; (1947 est.) 3,043,310. Language: Arabic is the mother tongue of some 86% of the population, but Kurdish, Armenian, Turkish and Circassian are also spoken. Religion: Moslem 82% (mainly Sunni Arabs); Christian 14% (Roman Catholic of six rites, Greek Orthodox, Gregorian Armenian etc.); other 4% (Druze, Jewish, Yezidi, etc.). Chief towns (pop., 1947 est.): Damascus (cap. 312,000); Aleppo (331,000); Homs (109,000); Latakia (90,000); Hama (80,000). Presidents in 1951: Hashim el-Atassi and (from Dec. 3) Colonel Fawzi Silo. Prime ministers: Nazim el-Kodsi, (from March 27) Khalid el-Azam, (from Aug. 9) Hassan Hakim and (on Nov. 28, for nine hours) Maruf ed-Dawalibi.

History. Early in January there was the first resumption of internal trade between Syria and the Lebanon since Syria's denunciation of the Lebanese-Syrian customs union in March 1950; but in June it was reported that resumed negotiations for the re-establishment of the union had broken down. Meanwhile local Syrian development projects were being pursued such as the reclamation of the Ghab valley in the northeast of the country and the development of cotton cultivation in the Euphrates valley, while in April tenders were invited for the improvement of the port of Latakia and for the building of a railway from it to Aleppo.

On March 29 there arose serious Israeli-Syrian tension in the upper reaches of the Jordan river where the Israelis

claimed the right to extend their drainage work in the Lake Huleh swamps while the Syrian authorities asserted that as the area was part of the demilitarized zone between the two countries, no work of this nature could be undertaken without their approval. There followed a series of clashes between the frontier posts on both sides and on April 5 the Israelis bombed a Syrian frontier post. These outbreaks brought the Arab league into action with offers of assistance from Saudi Arabia, the Lebanon and Iraq, while the chief of the Syrian staff proceeded to Cairo to consult Egyptian army authorities. Clashes of varying intensity continued through April and the first week in May when the U.N. Security council, whose services had been solicited by both parties, stepped in, and on May 15 both Syria and Israel agreed to cease hostilities.

On March 9, Nazim el-Kodsi who had been prime minister for seven months, resigned, and on March 27 Khalid el-Azam succeeded him. On July 30, however, he in his turn resigned following on a strike of government employees against his labour policy. He was succeeded by Hassan Hakim.

On Sept. 25 Syria, with the other Arab delegates, rejected the proposals put forward by the Palestine Conciliation commission for a settlement. On Oct. 9, after the abrogation by Egypt of the Anglo-Egyptian treaty of 1936 and of the Sudan Condominium convention of 1899, Syria expressed its support of the Egyptian action and on Oct. 19 there were anti-British demonstrations in Damascus. Meanwhile the proposals for the organization of a middle east command had been rejected by Egypt, and on Oct. 23 the Syrian foreign minister, Faydi Atassi, denounced the four-power proposals. On Nov. 3, however, the prime minister, Hassan Hakim, in a newspaper interview, announced his approval of Syrian participation in the four-power defence scheme and criticized Egypt for not having consulted the other members of the Arab league before its rejection of the four-power offer. On Nov. 10 the prime minister resigned, giving as his reasons the differences within the cabinet as to Syrian participation in the four-power scheme and condemning Faydi Atassi in particular for his official statement criticizing the plan while the cabinet, of which he was a member, was still considering it. Hassan Hakim on his resignation also sent a letter to the president of the Syrian Chamber of Deputies, affirming his support of the defence plan and of the U.S. mutual aid programme which, he stated, would strengthen the economic and military position of Syria and enable the country to resist Israeli aggression.

On Nov. 23 the Soviet government in a statement to all members of the Arab league warned them against the four powers' defence plan which, it asserted, would forfeit them Soviet friendship and ultimately lead to their loss of independence.

After Hakim's resignation and a three weeks' ministerial crisis, Maruf ed-Dawalibi, the leader of the People's party, succeeded in forming a cabinet on Nov. 28. As he appointed himself defence minister and therefore showed his intention of controlling army and police, he was overthrown by the army nine hours after his nomination. The *coup d'état* was engineered by Colonel Adib es-Shishakly, chief of the general staff. On Dec. 1 it was announced that President Atassi had resigned. Two days alter the Higher Military council, headed by Shishakly, appointed Colonel Fawzi as chief of state, prime minister and minister of defence. (O. Tw.)

Education. Schools (April 1951): elementary 1,759, including private 228, foreign 38; total pupils 260,759, including private 48,817, foreign 6,715; secondary 136, including private 69, foreign 18; total pupils 28,595, including private 10,127, foreign 2,227. Technical schools (1950) 8 (including 2 private); university 1.

Agriculture. Main crops ('000 metric tons, 1950; 1951 est. in brackets): wheat 889 (700); barley 357 (300); maize (1948) 39; oats 5 (3); potatoes (1948) 15; rice (1948) 20; cotton, ginned 40; cottonseed 73. Fruit production ('000 metric tons, 1949; 1950 in brackets): grapes 150; olives 120 (40); olive oil 18 (5); oranges and tangerines 2 (2). Livestock ('000 head, Dec. 1949): sheep 2,750; goats 17,323; cattle 368; horses 98; donkeys (Dec. 1948) 245; mules 54; chickens (Dec. 1950) 2,171.

Industry. Production: cotton textiles ('000 metric tons, 1950 est.) 5·6; natural and artificial silk textiles (million m., 1950) 26·7; box calf and kidskin leather ('000 sq. m., 1947) 29·0; salt ('000 metric tons, 1947) 18·8; cement ('000 metric tons, 1950; 1951, six months, in brackets) 67·7 (14·0); asphalt ('000 metric tons, 1947) 14·5.

Foreign Trade. Syrian-Lebanese customs union was terminated in March 1950. (£S million, April-December 1950; 1951, three months, in brackets): imports 198·0 (76·8); exports 207·9 (96·9).

Transport and Communications. Roads (1950): 9,740 mi., of which 3,021 mi. are usable all the year. Licensed motor vehicles (Dec. 1950): cars 4,172, commercial 5,476. Railways (1949): 539 mi. Telephones (1948): 6,200. Radio receiving sets (1950 est.): 50,000.

Finance and Banking. Budget (£S million): (suppl. est., Jan. 1-June 30, 1951) balanced at 67·8; (1951-52 est.) balanced at 197·0. Currency circulation (April 1950; April 1951 in brackets): 183 (225). Monetary unit: Syrian *pound*, with an exchange rate (Nov. 1951) of £S 6·16 to the pound and £S 2·20 to the U.S. dollar.

See Philip K. Hitti, *History of Syria* (New York, 1951).

TABLE TENNIS. The world championships were held in Vienna in March 1951. Neither of the previous year's finalists in the men's singles participated—Richard Bergmann (England) because of disciplinary suspension and F. Soos (Hungary) because of illness. The title was won for the second time by Johnny Leach (England) who beat Ivan Andreadis (Czechoslovakia) in the final. The women's singles title was won for the second year running by Angelica Rozeanu (Rumania) who again beat Gizi Farkas (Hungary) in the final. The men's team event (Swaythling cup) and women's team event (Marcel Corbillon cup) were retained by their respective holders, Czechoslovakia and Rumania. B. Vana and A. Andreadis (Czechoslovakia) won the men's doubles; the 17-year-old twin sisters R. Rowe and D. Rowe (England) the women's doubles; and B. Vana and Miss Rozeanu the mixed doubles.

In April at St. Louis, Missouri, R. Miles (U.S.) recovered



Diane and Rosalind Rowe, 17-year-old twins, who in March 1951 won the women's doubles title in the world table-tennis championships at Vienna.

his U.S. open men's singles title, his sixth win; L. (Thall) Neuberger (U.S.) won the women's title. (I. MU.)

See Johnny Leach, *Table Tennis for All* (London, 1951); Ivor Montagu, *Table Tennis* (new ed., London, 1951).

TAIWAN: *see* FORMOSA.

TALAL I, King of Jordan (b. Mecca, Feb. 26, 1909), succeeded his father King Abdullah who was murdered in Jerusalem on July 20. He received the education customary in a ruling Arab family and, after the setting up of the Emirate of Transjordan in close relationship with Great Britain, was sent to the Royal Military college, Sandhurst. In later years he took little part in affairs of state. He went to Beirut for treatment in June 1951 and afterwards left for Geneva to continue treatment there. The Emir Naif, Talal's younger brother, accepted the regency on his father's death on July 20 until his brother could return. Talal summoned Said Pasha el-Mufti, minister for the interior, to Geneva on Aug. 7. By Aug. 25 Talal's health was pronounced restored. On Sept. 5 both houses of the Jordanian parliament proclaimed him king. He reached Amman by air the following day and took the oath. He stated that he intended to maintain the same friendly relations with Great Britain as his father had done; and he made arrangements to send his elder son to be educated in Britain. King Talal visited Saudi Arabia in November as the guest of the Emir Faysal.

TANDON, PURSHOTTAMDAS (or PURUSHOTTAMDAS), Indian lawyer and politician (b. Allahabad, United Provinces, 1882), was educated at Government college and Muir Central college, Allahabad, and was law minister of Nabha state, Punjab, 1914-18. He had joined Congress in 1899 and took up his first major political appointment in 1923 when he became president of the U.P. Congress committee (a post which he held again in 1948). He was speaker of the U.P. legislative assembly in 1937 and again in 1946-50. In 1919 he had taken part in the agitations against the Rowlatt act—a measure giving the Indian government emergency powers to deal with revolutionary disturbances—and was prominent in the subsequent *satyagraha* ("insistence on truth"; *i.e.*, disobedience to unjust laws). In 1921, in accordance with non-co-operation, he gave up his legal practice in Allahabad (where for several years he was president of the municipality). Tandon believed that India's only salvation lay in the strict discipline of Hindu morality, and in 1929 he became president of the Servants of the People society, a social-service organization founded on Hindu principles. Tandon was imprisoned many times for his part in the non-co-operation and civil disobedience movements, including a term from Aug. 9, 1942, to Aug. 22, 1944. In Sept. 1950 he was elected Congress president.

Dissatisfaction with Tandon's conduct of party affairs was soon shown by the formation within Congress of a "democratic front" led by J. B. Kripalani (*q.v.*) who, in May 1951, resigned from the party and later formed an independent group. But the most serious dissension came from Jawaharlal Nehru (*q.v.*) himself. The prime minister's quarrel with Tandon soon showed itself not only as a conflict between government and party for the right to interpret Gandhi's ideals, but also as a struggle between the two leaders for personal supremacy. On Aug. 11, Nehru resigned from the working committee, and later was able to enlist the overwhelming support both of the parliamentary Congress party and of the committee itself. On Sept. 8 Tandon, deprived of the confidence of these two bodies, resigned to avoid further tension, yielding the party presidency to Nehru. When, on Sept. 15, the new president re-formed the working committee, he included Tandon as a member.

TANGANYIKA. British trust territory in east Africa, formerly German East Africa, bounded N. by Uganda and Kenya, S. by Mozambique and Nyasaland and W. by Northern Rhodesia and the Belgian Congo. Area: 362,688 sq.mi. Pop. (1948 census): 7,412,327, incl. 16,299 Europeans (incl. Polish refugees in transit), 44,435 Indians, 2,056 Goans and 11,952 Arabs. Language: Swahili generally understood. Religion: pagan with a large Moslem population in coastal areas; 991,700 African Christians, mainly Roman Catholic. Capital, Dar-es-Salaam (pop. 1948, 69,277). Administration: governor, executive council; legislative council, 15 official and 14 unofficial members (7 Europeans, 4 Africans and 3 Indians). Governor, Sir Edward Francis Twining.

History. A revised 5-yr. development plan to cost £24 million was introduced in Feb. 1951 which included as an immediate project the extension 60 mi. westward of the Southern Province railway. Meanwhile the decision was taken by the British government to write off £36·5 million advanced to the Overseas Food corporation for the groundnuts scheme, to dispose of the corporation's surplus assets and to transfer the responsibility for its future operations in east Africa from the Ministry of Food to the Colonial Office. A much reduced programme would be continued at Kongwa and Urambo, and operations in the more promising Southern province would be limited to the farming of 60,000 ac. in small, closely supervised units under a variety of crops, with the main purpose of experimenting in the techniques of opening up and utilizing virgin bush country. The necessary legislation had a long and stormy passage through parliament during February and March. In September Urambo achieved the first export of groundnuts, 1,000 tons, to Great Britain. In October the Colonial Development corporation reported the finding of a 200-million-ton coalfield of good quality in the Ruhuhu valley with adjacent iron deposits.

A report on constitutional reform published on Aug. 28 recommended the maintenance of official control in an enlarged legislative council of 42 members; inter-racial partnership was to be implemented by an equal division of the 21 unofficial seats between Europeans, Asians and Africans, a recommendation unpopular with some, though by no means all, Europeans. Less controversial, but of equal importance, were the comprehensive proposals for a modern system of local government, with district and county councils and regional administrations. These were designed to encourage inter-racial co-operation in local affairs, to decentralize administration and to provide a sound, democratic foundation for the steady development of self-government at the centre. A special commission was to be appointed to work out the details. These proposals were debated in the legislative council towards the close of the year.

Education. Schools: primary, 21 European, 80 Asian, 1,378 African (129,000 pupils); secondary, 1 European, 6 Asian, 27 African (2,405 pupils); 55 African teacher training colleges (3,110 students); industrial and vocational, 1 Asian, 25 African (786 pupils).

Finance and Trade. Currency: East African shilling (20*s.* = £1 sterling). Budget (1951 est.): revenue £14,300,000; expenditure £15,000,000 (incl. development). Foreign trade (1950): imports £28 million; exports £26 million. Principal exports: diamonds £746,067, sisal £13,400,000, hides £1,500,000. Production (1950): maize 625,000 tons, cassava, etc., 800,000 tons, bananas 1,200,000 tons, copra 17,000 tons, sisal 122,000 tons, pyrethrum 300 tons, gold 125,206 oz., diamonds 70,603 ct., tin ore 129 tons, mica 112,000 lb., lead ore 1,093 tons. Livestock: cattle 6 million, sheep 2,200,000, goats 3 million. (K. G. B.)

See J. T. Purvis, "The Sukumaland Development Scheme," *Corona* (London, Feb. 1951).

TANGIER. From 1912 an international and demilitarized zone of Morocco on the southern shore of the Straits of Gibraltar. Area: 232 sq.mi. Pop. (mid-1949 est.): 150,000

including 30,000 Europeans. Language: Arabic, French and Spanish. Religion: mainly Moslem. On Oct. 11, 1945, the international administration was re-established with a committee of control composed of the resident consuls general of France, Great Britain, the United States, the U.S.S.R., Belgium, the Netherlands, Portugal and Spain. The Soviet representative refused to take his seat on the committee as long as Franco Spain was represented. Italy was re-admitted to the committee on March 8, 1949. The committee of control appoints a legislative assembly of 26 members (4 French, 4 Spaniards, 3 British, 3 American, 1 Belgian, 1 Dutchman, 1 Portuguese, 3 Jews and 6 Moslems). Tangier remained under the nominal sovereignty of the sultan of Morocco and his representative (the *mendub*) was Haj Mohamed el-Tazi.

It was announced on July 25 that Jonkheer H. L. C. van Vredenburch (Netherlands) had terminated his three years' appointment as administrator and was succeeded by José Luis Archer, the Portuguese consul general.

Allal el-Fassi, leader of the Moroccan Istiqlal (Independence) party, was arrested on March 9 to face charges before the Mixed Tribunal of spreading false rumours about the French policy in Morocco. Habib Bourguiba, leader of the Neo-Destour (New Constitutional) party of Tunisia, was banned on Nov. 2 from the international zone when he was conferring with Moroccan Nationalist leaders.

Banking authorities estimated that about 50,000 kg. of gold, worth more than $60 million, was stacked away in vaults of the tax-free city of Tangier.

TARIFFS. The worldwide trend towards tariff reduction continued during 1951 in spite of adverse conditions. The actual reductions achieved were, however, moderate and were mostly the results of efforts initiated in previous years. There were distinct indications that the movement had come to an end. This was due mainly to rearmament which affected adversely the trade balance of the countries concerned. They were anxious to reserve their foreign exchange resources for essential requirements and to avoid encouraging imports of secondary necessities and luxuries through a lowering of their tariff walls. From the point of view of their budgetary position, too, it was essential not to relinquish any sources of revenue provided by customs duties.

The relative importance of tariffs, which had increased in previous years, underwent a decline in 1951. The buyers' market that was developing in 1949 and 1950 gave way once more to a sellers' market. Prices were rising and in many cases the prevailing tariffs were unable to prevent the import of inessential goods. Producers and merchants did not find it difficult to add the duties to the sale price of their goods.

Export duties increased during the year. The rise in world market prices of raw materials induced a number of governments to introduce or increase export duties in order that their treasuries should take a fair share of the proceeds. The worldwide shortages in these materials also caused many countries to impose export duties in order to retain what was required for their own domestic use. Yet another object of such duties was to try to maintain the inland prices of these goods below their increased world market prices.

Some steps in the direction of tariff reduction were made in the Torquay agreement, details of which were published in May. A 1,200-pp. volume was published in Geneva listing the tariff concessions negotiated during the conference at Torquay during 1950-51. The number of reductions covered 8,700 items. What was more important, duties on more than 80% of the world's trade were frozen till Jan. 1954. The number of reductions was, generally speaking, more impressive than their extent and importance. It must be admitted that the progress towards the lowering of tariff walls was not nearly as substantial as in the Geneva and Annecy agreements. The Torquay agreement, however, consolidated the reductions achieved in the two previous agreements.

At the Torquay conference the United States and the United Kingdom failed to come to an agreement. American hopes of reductions in imperial preference were disappointed and, in the circumstances, the U.S. negotiators did not feel justified in making concessions. Nevertheless, Great Britain benefited indirectly through the most-favoured-nation clause in concessions made by the United States to other countries in respect of chemical products, perfumes, tiles, bricks, crockery, kitchen utensils, porcelain, scientific instruments, electrical apparatus, field glasses, clocks, swords, sewing machines, wines, etc. In return, Great Britain made concessions to the imperial preference area in respect of musical instruments, clocks, gramophone records, etc. The total involved was £7 million a year, out of a total trade of £392 million with the imperial preference area. The same concessions were also granted to other participating countries, but in their case higher rates were maintained in accordance with the principle of preference.

The results of the Torquay conference showed that the main trading countries had reached the limit of their progress towards free trade. Because of the British reluctance to make concessions in respect of imperial preference and the unwillingness of most countries to restore their cuts in dollar imports, the United States was not prepared to reduce its prohibitive tariff wall.

One of the retrograde events of the year was the decision to abandon the International Trade organization scheme. Great Britain decided not to ratify the Havana charter because the U.S. administration had decided against its ratification. On the other hand the General Agreement on Tariffs and Trade (G.A.T.T.) made satisfactory progress as a result of the Torquay conference. Recently added countries included Austria, Western Germany, Korea, Peru, Philippines and Turkey. Countries still outside the agreement included Argentina, Mexico, China, the U.S.S.R. and all countries behind the Iron Curtain except Czechoslovakia. When the United States decided to cancel concessions made to Czechoslovakia under previous agreements, a dispute arose between them. The matter was raised at the conference of the countries participating in the G.A.T.T. that met at Geneva on Sept. 17. The United States invoked the escape clause, article 19, of the G.A.T.T. and, in spite of Czechoslovakia's opposition, the conference ruled that the decision was justified.

The new Geneva conference did not aim at new tariff negotiations, although questions relating tariff and trade barriers were discussed. There were no bilateral tariff negotiations on a large scale. Japan was invited to send an observer to the conference. The suggestion was put forward to establish a standing committee to operate the G.A.T.T. but Sir Hartley Shawcross (Great Britain) rejected the idea. (*See* also EXCHANGE CONTROL AND EXCHANGE RATES; INTERNATIONAL TRADE.) (P. EG.)

TASMANIA: *see* AUSTRALIA, COMMONWEALTH OF.

TAXATION. Hopes that there might be some reduction of high taxation, which were entertained in the earlier postwar years, were abandoned in 1951, at any rate so far as the near future was concerned. There was indeed some relief granted in several countries to some groups of taxpayers during the year, but the general trend was distinctly upward. This was chiefly caused by rearmament. Moreover, several governments sought to check rising prices by means of higher taxation.

The idea that taxation merely serves the purpose of collecting revenue required by the state to meet expenses has long been

abandoned. It is generally recognized as an instrument not merely of economic policy, but also of social and political policy. In economic policy, taxation pursues manifold aims: to curtail consumers' purchasing power, to discourage capital investment and to reduce demand for particular kinds of goods. In social policy, taxation is used to redistribute wealth more equally and also to safeguard lower income groups from bearing too heavy a burden. In political policy, taxation is often used to penalize unpopular profits and to appease lower income groups in order that the sacrifices imposed on them should appear more acceptable.

United Kingdom. The budget of the United Kingdom for 1951-52 provides instances of all the above types of taxation. Income tax was increased by 6*d.* in the pound in order to curtail consumers' purchasing power. The initial allowance of 40% given for income tax and profits tax purposes on plant and machinery, and 10% on industrial buildings and mines, was to be suspended from April 1952. This was done to discourage investment in plant, machinery, industrial buildings and mines. The chancellor of the exchequer gave 12 months' notice to enable firms to complete investment that had been initiated before the announcement. Subsequently he agreed to extend this time limit in respect of ships. In order to discourage the demand for more motor cars, which necessarily competed with rearmament requirements, the purchase tax on cars was doubled and the petrol duty further increased by 4½*d.* a gallon to 1*s.* 10*d.* a gallon. As a social measure, certain allowances for the benefit of small taxpayers were increased at the same time as the basic rate of income tax was raised by 6*d.* Political policy was pursued by the increase of the tax on distributed profit by 20% to 50%. That the original revenue-producing aspect of taxation was not overlooked was shown by the raising of the duty on cinema seats.

Commonwealth. Among the countries of the Commonwealth, India undertook very far-reaching changes in its system of taxation, including new methods of computation and assessment. Companies operating in India were to be taxed on the basis of their total world income from all sources. Foreign companies selling goods to India were liable to Indian tax on their whole profit on the sale of the goods. Lenders to a company which used borrowed funds in India were liable to be taxed on the interest yield. These provisions were intended to be retrospective in character. In view of the objections raised, the government of India agreed that the Income Tax Amendment bill should be held over to Feb. 1952. In the budget of 1951-52, the corporation profit tax was increased from 2½ to 2¾ annas. There was a 5% surcharge on income tax and supertax and also a 50% addition to import duties. Surcharges on beer and spirit duties were increased from 100% to 150%. An export duty was imposed on groundnuts amounting to Rs. 80 a ton, and on coarse and medium-grade cloth amounting to 10% of its value.

Pakistan, too, increased its revenue from export duties. The duty on the export of raw cotton and other material was raised over tenfold in a few months. As a result of the revenue thus obtained, the government was able to reduce income tax and supertax. Whereas in other countries business profits were penalized, in Pakistan the first 5% of business profits was exempt of tax till 1955-56.

In the Union of South Africa, the budget provided for an increase of taxation on gold mines by £SA 929,000 and on the corporation tax by £SA 2 million.

In Ceylon, profits tax was raised from 20% to 25%. Income tax on resident companies was raised from 28% to 30%; on non-resident companies from 34% to 36%. Specific export duties on rubber and coconut were replaced by *ad valorem* duties.

Canada made a fiscal effort to meet the increased burden of rearmament. A defence surcharge of 20% was imposed on all corporation income tax. Sales tax was increased from 8% to 10% and duties on cigarettes, tobacco, motor cars, radio, electrical household appliances, cameras and other articles were also imposed. A 15% duty was imposed on refrigerators.

In Australia a 10% levy was added to all income tax assessments. There was a special system of assessment introduced on the average earnings of primary producers above £A 4,000. Instead of the assessment of the last five years, it would henceforward be based on the previous year's income. The object of these changes was to avoid delay in the increase of taxes on their inflated earnings. Corporation tax was also re-organized. There was an increase in the sales tax and in customs and excise duties to discourage spending.

In the republic of Ireland, the budget provided for new taxation of £1·3 million. The petrol duty was raised by 2*d.* to 1*s.* 4*d.* a gallon. Estate duties on estates of over £400,000 were increased. On the other hand, small taxpayers benefited from increased allowances.

Europe. On the continent, Belgium introduced a specific arms profit tax of 25% on all excess profit over the average of 1947-50. An interesting provision was that taxpayers had the option of paying 8% on the re-assessed value of their capital assets. This was probably the first instance in the history of taxation where a capital levy was made optional. Another interesting provision was the one in which professional people had the option of being assessed at the same rate as wage earners, provided that they paid their income tax in advance. There was a rush of advance payments and the government was able to reduce the floating debt. A new tax was introduced on the surrender value of insurance policies.

Among the Scandinavian countries, Sweden introduced a 10% tax on investments. Firms with an annual turnover of Kr. 300,000 or more were to pay this tax on the surplus value of their stocks and on any difference between real and book depreciation of their equipment. Norway increased the purchase tax from 6½% to 10% thereby raising it to the level from which it had been reduced in 1947. Denmark introduced a tax on shipping and the proceeds were to be used for a fuel subsidy.

Middle East. In Egypt, the export tax on cotton was raised in January from 9 to 18 talaris a cantar, but later in the year it was reduced to 4½ talaris owing to the decline in exports. The reduction was to apply to the 1951 crop only. This was one of the few instances of reduction in export duties.

(P. EG.)

United States. During 1951 federal tax collections exceeded $50,000 million, the highest on record, and 15% more than the previous record of $43,000 million collected in the war-time fiscal year 1945.

President Harry S. Truman's message to congress in Jan. 1951 sought an immediate tax increase of $10,000 million to be divided as follows: $3,000 million from corporations, $4,000 million from individuals and $3,000 million from excises. He also stated that later in the year he would seek an additional $6,500 million to make up the $16,500 million deficit forecast in the budget for the fiscal year 1952. However, the latter proposal met with immediate congressional hositility and was abandoned. The Revenue act of 1951, implementing the president's recommendation, was finally adopted in October but failed by almost 50% to meet President Truman's stated revenue requirements.

This legislation had an indicated additional yield, on the basis of a full year's operations, of $5,691 million, the increase being allocated $2,280 million to individual tax increases, $2,207 million to increases in corporation income and excess

profits taxes and $1,204 million to increases in excise taxes. The aggregate increase of $5,691 million made it the second largest tax bill in the country's history, being exceeded only by the $6,100 million tax bill enacted in 1950. These two bills, taken together with the $3,900 million tax increase effected by the Excess Profits Tax act of 1950, brought to $15,691 million the tax increases, on a full year's basis, enacted since the beginning of the Korean war. For the fiscal year ending June 30, 1952, the federal tax load was estimated to amount to about $61,000 million. Assuming state and local taxes of $18,000 million and a national income of $290,000 million this meant that 28% of the national income during fiscal 1952 would be taken by taxes.

Individual income tax increases, which represented the most important source of additional revenue under the Revenue act of 1951, took the form of an increase equivalent to approximately 11·75% of the tax payable under earlier law. This change was made effective as from Nov. 1, 1951, so that the increase for the calendar year 1951 was approximately 1·96%.

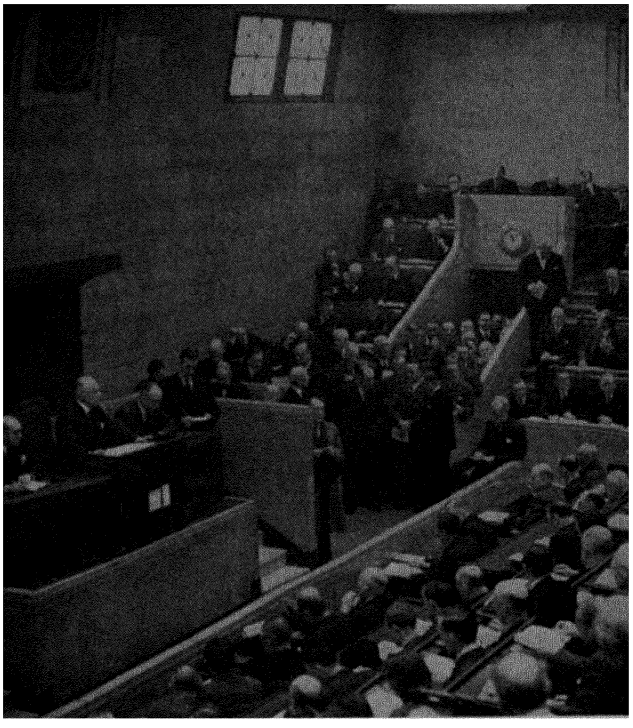
Next in importance were changes in corporate income and excess profits taxes. Increases in this field were made retroactive to April 1, 1951, and consisted primarily of an increase in the rate of normal tax from 25% to 30%. The surtax rate of 22% on all income of more than $25,000 was left unchanged but the combined effective maximum rate of slightly less than 52% represented a record high level for this type of tax. The 1951 act retained unchanged the excess profits tax rate at 30% of corporate net income computed after deducting the applicable excess profits credit. Changes were made in the structure of the excess profits credit by providing that, when this credit was computed on the basis of the average earnings of the best three out of four years of the 1946-49 base period, only 83% of such an average should be taken, rather than 85% as previously. This amendment was made effective as from July 1, 1951.

Another important corporate tax change involved the determination of the ceiling on corporate tax liability. In 1950 a ceiling of 62% of corporate income (before any deduction for the appropriate excess profits credit) was imposed upon the aggregate liability of a corporation for income and excess profits taxes. The 1951 law abandoned the approach of a ceiling on all corporate taxes and imposed a new ceiling on excess profits taxes alone. This ceiling, effective as from April 1, 1951, was set at 18% of corporate income computed before the deduction of the appropriate excess profits credit. The effect of this new ceiling was to increase slightly the excess profits tax liability of any corporation affected by the ceiling rate.

The new law increased the maximum rate of tax on capital gains recognized by both individuals and corporations from 25% to 26% for taxable years beginning after Oct. 31, 1951.

The 1951 law imposed higher excise taxes on liquor, beer, cigarettes, petrol, motor cars, motor-car parts, lorries and buses. New taxes were imposed for the first time on many appliances, on diesel fuel, cigarette lighters, mechanical pens and pencils. The previously existing tax on electrical energy sales was repealed and the tax rate on pipe and chewing tobacco, telegrams and photographic equipment was reduced. (*See* also BUDGET, NATIONAL.) (J. DE.)

TEA. Tea production in India and Pakistan in 1951 showed some increase above the 1950 totals of 610 and 52 million lb. respectively, a small decline in north Indian production being more than offset by an increase in that of south India. In Ceylon there was a further increase in production, from 306 million lb. in 1950 to about 326 million lb. in 1951. The gradual recovery of Indonesian production continued, output reaching approximately 103 million lb., as compared with 78 million lb. in 1950 and a prewar average of 165 million lb. With production maintained or increased in Japan, British East Africa and Nyasaland, world production (excluding China) was above that of 1950.



A view of the tea auction in April 1951—the first to be held in London since 1939.

India and Ceylon were again the principal exporters of tea. Exports from India in the fiscal year 1950-51 totalled 430 million lb. (11 million lb. less than in the previous year) and continued at the same level in the early months of 1951-52. Ceylon's exports in 1951, estimated at 305 million lb., were 7 million lb. more than in 1950. Exports from Pakistan, which fell from 33 million lb. in 1948 to 16 million lb. in 1950 because of the relatively high prices of Pakistan tea, recovered in 1951 to about 43 million lb. Indonesian exports increased from 62 million lb. in 1950 to about 85 million lb. in 1951.

Imports of tea into the United Kingdom (which normally received about 50% of world exports) increased substantially from 369 million lb. in 1950 to 465 million lb. in 1951 and were thus about the same as in 1949. United States imports declined from 114 million lb. in 1950 to 84 million lb. in 1951, and Canadian imports, at 44 million lb., were 11 million lb. less than in 1950. Australia again received about 60 million lb.

The London tea auctions, which were suspended in Aug. 1939, were resumed on April 16, 1951; in the intervening years sales to the United Kingdom had been made entirely by contract on government account. The continuation of price control, rationing and subsidies limited the freedom of the market, and the Ministry of Food continued to dispose of stocks acquired under the 1950 contracts. The governments of India and Ceylon regulated consignments to London to ensure adequate support for the Calcutta and Colombo auctions and to maintain direct exports to the out-markets which, before World War II, were supplied by re-exports from the United Kingdom. Despite these restrictions it was expected that the return to private buying would improve the quality, and possibly the quantity, of United Kingdom tea supplies. (V. C. N.)

TEACHERS, TRAINING OF. In 1951 the recruitment of teachers in sufficient numbers without drastic

lowering of standards continued to be a crucial problem in almost all countries. In England, the first report of the National Advisory Council on the Training and Supply of Teachers, published in May, stated that by 1954 it would be barely possible to maintain 1950 staffing standards and urged that more children should be persuaded to remain at school after the age of 16. Figures published by the Ministry of Education indicated that the maintenance of 1950 staffing standards from 1953 onwards would depend on 800 women beginning two-year courses in Oct. 1951 and on 750 entering three-year courses of housecraft training. In August, 625 two-year and 85 three-year vacancies remained unfilled.

One notable event was the ending of the emergency training scheme; Wandsworth Emergency college was the last to close (in July). The scheme provided the profession with 34,000 teachers and prevented a possible breakdown of the educational system after World War II. In March the Ministry of Education abolished the system of four-year grants to university students awarded on condition that they promised to become teachers; prospective students considering teaching as a career became eligible, like all other students, for the normal state and local education authority awards. To help remedy the shortage of staff, Scotland introduced a new scheme of recruitment in July to attract people from other walks of life into the profession; the scheme included maintenance grants for trainees and their dependants.

A scheme of "in-service" training was introduced at Auckland Training college, New Zealand, and in the Gold Coast the transfer began of the training college at Achimota to the new College of Technology at Kumasi. On a happier note than ever before, Northern Rhodesia was able to report that 80% of teachers in aided schools were properly trained compared with "very few" 25 years earlier.

In eastern Europe additional material rewards were widely used as an incentive. For example, the improved basic salary scales adopted in Hungary in 1950 were further enhanced by additional pay for extra responsibility, overtime, out-of-school duties and work in isolated schools. There was also a technical supplement for teachers in industrial *gymnasia* and technical schools and further additions for large classes. Teachers and their families were permitted to travel at half-rates and to eat in reduced-price restaurants. In the provinces homes were widely provided at rents of between a half per cent. and two per cent. of salary. In September, universities and training colleges introduced correspondence courses for teachers in remote villages, an expedient adopted in Rumania also for training teachers of physics and mathematics in elementary and middle schools. It was reported that 740 students had enrolled for such courses at Bucharest university. In Rumania also, higher salary scales and the provision of houses in rural areas were introduced as incentives.

The Israeli government announced the opening of 9 new training colleges in the autumn, bringing the total up to 12. Some 800 prospective teachers, mostly immigrants, were under training. (H. C. D.; L. WN.)

TEARLE, SIR GODFREY SEYMOUR, British actor (b. New York, Oct. 12, 1884), was educated privately and at Carlisle grammar school. He first appeared on the stage at Burnley, Lancashire, in 1893 as the little Duke of York in *Richard III* and adopted the stage professionally in 1899, touring with his father's company until 1901, when Osmond Tearle died. He played nearly 50 parts during a tour of South Africa in 1902-4 and toured the English provinces in *A Soldier of Fortune* in 1904-6; subsequently he played Shakespeare, Sheridan and Goldsmith in repertory. Godfrey Tearle made his first appearance on the London stage in 1906 when he played the Earl of Bothwell in *Mary Queen of Scots*, and he later appeared in over 100 plays in London and the provinces. The most memorable of his later parts were Saul in J. M. Barrie's *The Boy David* (1936), Madoc Thomas in Emlyn Williams's *The Light of Heart* (1940), Antony in *Antony and Cleopatra* (1947) and Dr. Sloper in the *Heiress* in which he played opposite Wendy Hiller when they took over from Sir Ralph Richardson and Peggy Ashcroft in Jan. 1950. Godfrey Tearle was also actor-manager for several productions, the most notable being Charles Morgan's *The Flashing Stream* (1938), in which he played the part of Commander Edward Ferrers. He achieved considerable success in the cinema, appearing first in 1906 as Romeo in *Romeo and Juliet;* his best-known later films were *The Thirty-Nine Steps* (1935) and *One of Our Aircraft is Missing* (1942). He became first president of the British Actors Equity association in 1932. In the 1951 Birthday Honours Tearle was knighted. In July he opened at the New Theatre, London, as Hillary Jesson in Pinero's *His House in Order* and on Oct. 7 he took part in the memorial performance *Salute to Ivor Novello* at the London Coliseum.

TELEGRAPHY. Periods of severe disturbance of the ionosphere lasting through the winter months of several consecutive years recur in an 11-yr. cycle, corresponding with sunspot activity on the sun's surface. During these periods, long-distance wireless circuits and particularly those on routes traversing high latitudes, are reduced in efficiency or rendered unworkable for many hours daily. The first serious effects of a new cyclical peak were felt in the autumn of 1950 and early months of 1951, with consequent dislocation of the wireless telegraph services between Australia and the far east, the United Kingdom and the North American continent. As the cable circuits of the Commonwealth overseas telegraph system were already heavily loaded, they were unable to carry the whole of the load displaced from the wireless circuits, and communications with Australia were impaired.

It was felt that disturbance of wireless circuits might recur in the autumn months for the next three years and the main effort in the development of the Commonwealth system during 1951 was directed towards strengthening communications with Australia. It fell to Cable and Wireless Ltd., who operated the wireless relay stations on the main Commonwealth routes and also owned and were responsible for the maintenance and development of the 155,000 mi. of British ocean cable network, to formulate and execute plans.

The short-term measures taken during 1951 were mostly calculated to strengthen the wireless services by improving and adding to the numbers of wireless relays. Multi-channel telegraph relays for the London-Australia circuits in the westerly direction were installed at the company's station at Barbados. Automatic relays were also installed for circuits between Montreal and Melbourne and between Montreal and London. Additional automatic relays were provided at the company's stations at Nairobi and elsewhere for the London-Australia service and for the service with Singapore and the far east. Electronic signal regenerators developed by the company's engineers, with the object of substantially increasing the efficiency of the relay services on circuits between London, Australia and the far east were to be installed at all the relay stations.

It was calculated that these measures to strengthen wireless circuits would mitigate, though not entirely overcome, the effects of ionospheric disturbances on the Commonwealth telegraph system. Plans were therefore made to increase the capacity of the cable circuits linking London with Australia and the far east. The first part of a scheme for renewal of 1,800 mi. of cable in the Red sea was carried out during 1951. A survey was also made of the island of Socotra

in the Indian ocean, 600 mi. east of Aden, to ascertain whether a cable regenerator station could be established there. If the project proved feasible, an addition of 40% or 50% to the speed of cables beyond Aden could be effected.

To increase cable capacity in the westerly direction from the United Kingdom, it was decided to restore to use 2,000 mi. of cable from Porthcurno, near Land's End, Cornwall, to Harbour Grace, Newfoundland. This cable, which lay on the main route to Canada, Australia and New Zealand, went out of service in 1943. An order was placed early in 1951, for the manufacture of 1,400 mi. of telcothene-insulated cable which would be used to restore the Porthcurno-Harbour Grace cable in the summer of 1952, with a consequent increase of nearly a third in the carrying capacity of the company's North Atlantic cables. The programme provided for further renewals later, calculated to provide a similar increase.

Execution of the company's plans for increasing cable capacity was being retarded by the difficulty in obtaining cable, due to the world shortage of supplies. For this reason, it was necessary to postpone for a year or two a plan to lay, in deep water between Harbour Grace, Newfoundland, and Halifax, Nova Scotia, a test length of 600 mi. of co-axial cable with ocean-depth submarine telegraph repeaters inserted every 100 mi. along its length. Practical tests in the laying and recovery of co-axial cable with repeaters inserted were carried out by the British cableship "Monarch" in the Bay of Biscay early in 1951, and it had been intended to lay the test length during the year. Submarine cables of the co-axial type with repeaters inserted would permit many channels of communication to be worked simultaneously, either by telegraphy, telephony or phototelegraphy, over trans-oceanic distances. Cable and Wireless Ltd. demonstrated their faith in the future of cable development by arranging in 1951 for a new cableship to be laid down on the Tyne in 1953. This ship, which was to be of about 3,000 tons, would be bigger by some 500 tons than the latest of the orthodox cable-repair ships being built for the company and due to be launched in the early weeks of 1952.

Concessions obtained by Cable and Wireless Ltd. for the operation of internal and external communications in Doha, Qatar peninsula, and Dubai, on the Trucial coast, enabled the company to make an important extension of the Commonwealth telegraph system in the Persian gulf area. Wireless circuits from Doha and Dubai operated via the company's station at Bahrein to all parts of the world.

Improved wireless telegraph services were provided for handling aeronautical traffic between Canada, Bermuda and the West Indies. For this purpose, a wireless telegraph circuit between Bermuda and Nassau was replaced by a radio-teleprinter circuit in September; and in October a radio-teleprinter circuit was opened between Bermuda and Montreal in parallel with the cable circuits.

The number of words handled by the company and the Commonwealth partner governments in the year ended March 31, 1951, was 687 million, as compared with 631 million in the calendar year 1949. The increase of 56 million words was attributed almost entirely to commercial traffic. It was believed to have been influenced largely by greater activity in commodity markets and by the general rearmament programme. The field wireless telegraph unit, sent by Cable and Wireless Ltd. to Korea in the autumn of 1950 to handle troops' social messages and war correspondents' despatches, remained there throughout 1951. In May 1951, the company announced that similar mobile units would be assembled, as equipment and personnel became available, to serve in emergencies.

In April 1951, Sir Stanley Angwin relinquished his post as chairman of Cable and Wireless Ltd. to take up an appointment with the Commonwealth Telecommunications board, of which he later became chairman. Angwin was succeeded as chairman by Major General L. B. Nicholls, managing director.

On June 1, the company's station at Colombo was taken into state ownership by the government of Ceylon in accordance with the Commonwealth Telecommunications agreement of May 1948, and the Ceylon post office operated the station. (L. B. N.)

United States. The centenary of the Western Union Telegraph company on April 1, 1951, marked 100 years of progress in rapid communications. The crowning achievement of the century of progress was the completion of a network of 15 high-speed message centres. Each high-speed message centre serves an area covering one or more states. The operator transmitting a message from a telegraph office may type a routing symbol at the beginning of each telegram. That symbol causes an "electrical brain" at the message centre to route and flash the message to its destination. Under this system, a telegram is typed only once, at the point of origin. With high-speed switching of telegrams, plus the addition of more than 2 million mi. of radio beam and carrier circuits, and improved methods of picking up and delivering telegrams, telegrams and cablegrams could, in 1951, move faster and more efficiently than ever. High-speed Fax, the world's fastest practical communication method, with a faster-than-speech speed of 3,000 words a minute, was publicly demonstrated in March. Ten times faster than any previous facsimile telegraph, the new high-speed facsimile machine could transmit and receive over any distance with absolute accuracy.

The U.S. air force formally inaugurated on April 9, 1951, a nation-wide push-button telegraph network that linked more than 200 of its stations in the United States with high-speed communications. Leased by the telegraph company to the air force, the network included more than 130,000 mi. of telegraph circuits interconnecting the stations and the five push-button switching centres at the Pentagon building at Washington; Sacramento, California; Dayton, Ohio; Montgomery, Alabama; and Fort Worth, Texas.

Also in 1951 Western Union added new push-button centres connecting many additional stations to the extensive private wire switching systems leased to the United States Steel corporation and the General Electric company. Networks leased to the Bank Wire, serving many banks, and to many large companies were also expanded. At the end of the year Western Union was tripling the capacity of its trans-Atlantic cable system by installing submerged amplifiers on the ocean bottom in five cables between the United States, Newfoundland and Ireland. (W. P. MA.)

TELEPHONE. Restrictions on capital expenditure in Great Britain continued to curtail development expansion to meet the growing demand for telephone service. This and an increasing shortage or raw materials necessitated placing a limit on the recruitment of engineers. Considerable progress was made, however, and methods were developed to extend shared service to all types of exchange and to simplify separate metering on all but a few automatic exchanges—separate metering enabled each sharing subscriber to be charged only for calls originating from his telephone. Thirty-one large and 229 small automatic exchanges were opened, the former with a total capacity of 56,600 lines. Total exchange capacity was increased from 3,572,000 to 3,743,000 lines but the margin of spare equipment remained small. Over 2,800 new telephone kiosks were provided during the year, more than 800 of them in rural areas. On Dec. 31, 1951, there were 5,650,391 telephone stations in Great Britain.

Inland trunk and junction cable networks were developed

by additional audio and high-frequency cables and increasing the working capacity of some existing high-frequency plant mainly by converting 12-channel carriers to 24-channel. A 60-circuit submarine cable between Scotland and the Isle of Man was brought into service and two cables between Scotland and Northern Ireland were being provided. Plans were also made to increase the working capacity of submarine cables to the Channel Islands and southern Ireland with submerged repeaters. Work was started on converting Post Office inland radio systems to frequency-modulation working and to increase the working capacity of most of the systems.

Co-axial cables were provided for B.B.C. television requirements. A programme of mechanized trunk switching at all zone and group centres was prepared and equipment ordered; a pilot network was undergoing tests.

Radiotelephone services were opened to Venezuela (via New York), Iraq, Israel and Cyprus, giving service to a total of 76 countries. The international radiotelephone exchange handled nearly 165,000 effective calls in the year to March 31, 1951, as against 144,000 in the previous year. For the American service additional channels were brought into use.

Approximately 2,500,000 outgoing and incoming calls were dealt with by the Anglo-continental services during the year to March 31, 1951. Outgoing traffic calls were 1,246,695 as against 1,005,572 the previous year and 984,043 in 1938-39. More circuits were provided and 308 were in use, as compared with 290 in 1950 and 183 in 1939. Demand service was extended and there were direct routes to 42 continental cities, the busiest being that to Paris for which 91 circuits were in use. (G.P.O.)

United States. Telephones in service in the U.S. increased by 2,450,000 during 1951 to bring the total to 45,450,000, of which 82% were operated by the Bell system. The rest were served by about 5,500 non-Bell telephone companies. About 64% of all U.S. families had telephone service.

The transcontinental microwave radio-relay system represented one of the most important single plant additions of the year. Consisting of 107 relay stations, the new system used directional antennas to beam telephone and television signals from one station to the next. It was opened for telephone service on Aug. 17 and added hundreds of toll telephone circuits along its 3,000-mi. route. Other new toll circuits added during the year increased the industry's toll wire network to 28·5 million mi.

During the year the industry continued its programme of conversion of nondial telephones. The total number of automatic Bell telephones in operation increased to nearly 29 million, or more than 77% of all Bell instruments in service. About 72% of all U.S. telephones were dial-operated at the end of the year. Shipments by the Western Electric company—the manufacturing and supply unit of the Bell system—included 49,000 million conductor feet of exchange cable, 2·5 million telephone sets and enough local central office switching equipment to serve more than 2 million additional telephone subscribers. During the first ten months of 1951, Western Electric company supplied the government with equipment for military service worth more than $85 million. These deliveries included standard telephone type equipment modified for military purposes.

Long-Distance Dialling. Dialling of long-distance calls by customers was inaugurated on a trial basis in Englewood, New Jersey, on Nov. 10, 1951. Individual and two-party line customers in that city could dial directly to any of 11 million telephones in cities as far away as San Francisco. Other areas within dialling range of Englewood included Boston, Massachusetts; Philadelphia, Pennsylvania; Providence, Rhode Island; Pittsburgh, Pennsylvania; Cleveland, Ohio; Detroit, Michigan; Chicago, Illinois; Milwaukee, Wisconsin; Oakland, California; Sacramento, California; and New York city and several of its suburban areas. Automatic accounting equipment keeps track of the charges when a customer dials a long-distance call, summarizes the call information and prints it in final form on the customer's monthly bill. Customers using the new system could make a cross-country call by dialling in a matter of seconds; 30 years before, when the first transcontinental call was made, it took about 14 min. to establish a connection. At the end of the year localities that could be dialled by operators increased to 1,250, with 38% of all toll calls being handled in this manner.

Overseas Calls. Bell system radiotelephone stations handled a total of 888,000 messages to foreign countries and ships on the high seas in 1951, representing an increase of 24% over the preceding year. During the year, telephone service was extended to British West Africa, Guam and Cyprus, making it possible for telephone users in the United States to reach about 90 foreign countries and territories, or all but about 4% of the total telephones in the world. The service to Korea was interrupted by the war in January, but was re-established about one month later.

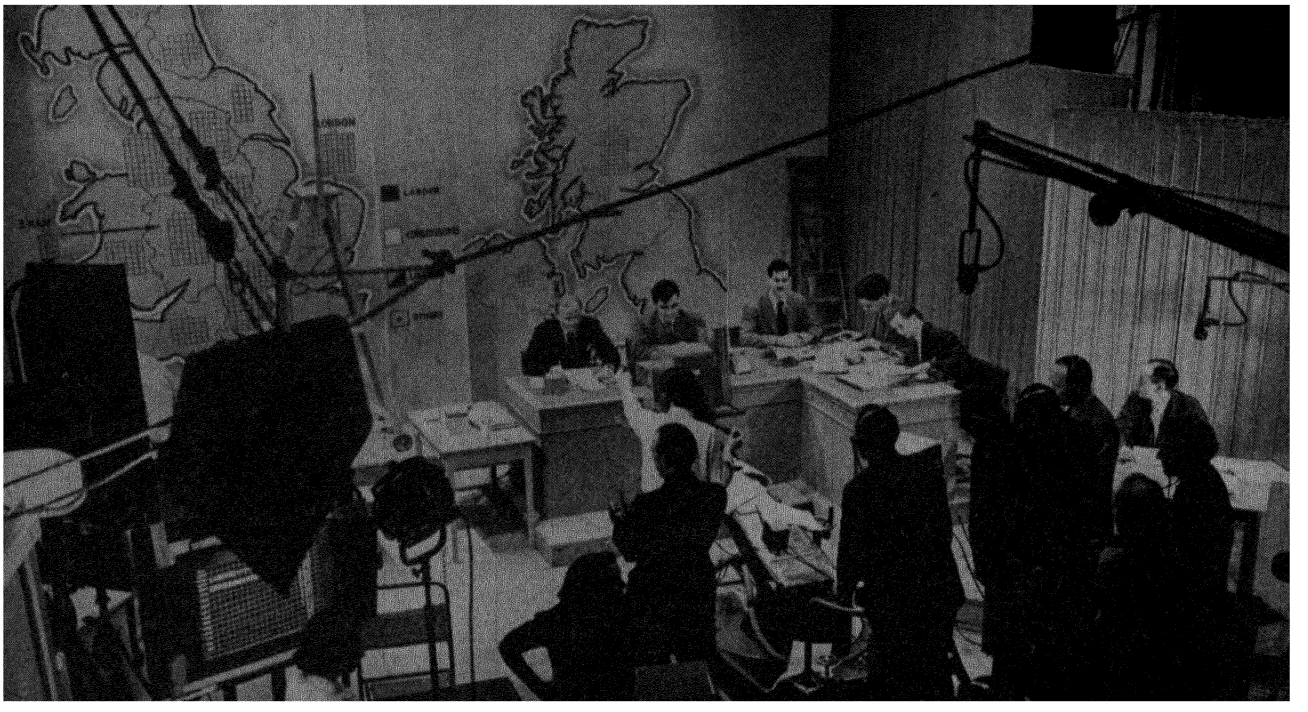
Mobile Service. The Bell system mobile telephone service was available at the end of 1951 in more than 500 communities. The Bell Telephone companies were providing general mobile service to 10,700 vehicles of all types, which were making about 330,000 calls a month. The companies also furnished 5,500 mobile telephones for the exclusive use of specific customers.

World. The world total of telephones on Jan. 1, 1951, was estimated at 74·8 million, 58% of which were in the United States. The United Kingdom was second with 5,433,614 and Canada third with 2,911,900. The U.S. *per capita* telephone development was 28·1 per 100 persons; Sweden was second with 23·9, and Canada third with 20·8. The world average was 3·1 telephones per 100 persons. New York city continued to lead the world's cities in the number of telephones, with 3,137,405 instruments at the beginning of the year—more than any country in the world except the United Kingdom. London was second with 1,632,900 telephones and Chicago, Illinois, third with 1,526,156.

(C. F. Cg.)

TELEVISION. In spite of the claims of rearmament on factories producing television equipment, television made progress throughout western Europe in 1951. Public services continued in France on 441 and 819 lines from transmitters in Paris and Lille. In England a third transmitter, at Holme Moss, Yorkshire, was added in October to the two already in service (Alexandra Palace, London, and Sutton Coldfield, near Birmingham) on 405 lines. Limited public services on 625 lines were established in Western Germany in the summer and in Denmark and the Netherlands in October. Considerable preparatory work, including experimental transmissions for the establishment of services, was carried out in Belgium, Sweden, Switzerland and Spain. It was announced that a public service would begin in Madrid and Barcelona during the first half of 1952. In Norway a government television committee was appointed in April to advise on the establishment of a service in the Oslo area. Radio Italiana studied the question of television for northern Italy and Rome but announced no specific plans for a public service. Arrangements were made in November to establish a television radio-link between Paris and London via Lille, Calais and Dover, converting from 819 to 405 lines between Calais and Dover, to be in operation by July 1952; this would enable programmes broadcast from Paris to be seen in London, and vice versa.

In Australia the federal government set up a committee



The studio at Alexandra Palace, London, during the transmission of the general election results, Oct. 25-26, 1951. In centre (in dark suit) is Graham Hutton, and on his left David Butler. On right of picture is H. G. Nicholas.

of three (representing the Australian Broadcasting commission, the postmaster general and the Australian Broadcasting Control board) which visited Europe, the United States and Canada to study television. After considering their report the government announced that it was sympathetic to the idea of opening a television service in Australia but that in view of defence needs the time was not yet opportune. In the meantime an experimental station was to be established in Sydney working on 625 lines.

In Great Britain the outstanding achievement was the opening of the north of England transmitting station at Holme Moss, which brought television within the reach of about 11 million new viewers and increased the coverage to nearly 60% of the population. The new station, similar in design to that at Sutton Coldfield, was situated some 1,700 ft. above sea level in the Pennines near Huddersfield. The vision transmitter had an output power of about 45 kw. on a frequency of 51·75 Mc./sec. (5·8 m.). The sound transmitter had an output power of 12 kw. and was identical with that at Sutton Coldfield except that its frequency was 48·25 Mc./sec. (6·22 m.). The extension of the service necessitated the extension of the network operated by the General Post Office over which the programmes were passed from the studios in London to the transmitting stations. The G.P.O. network would eventually be extended by radio link to Kirk o' Shotts (between Glasgow and Edinburgh), the site of the Scottish television station under construction. A separate coaxial cable link would be provided from London to Bristol and Cardiff to feed the station being built at Wenvoe, Glamorganshire.

The outside broadcasting fleet run by the British Broadcasting corporation was equipped during the year with a number of transmitters and receivers using very short wavelengths (between 3 and 7 cm.) for sending vision signals over distances from 20 to 40 mi. The maximum distance depended largely on the terrain, because when these very short wavelengths are used, the path between the transmitter and receiver must be unobstructed. For longer distances, however, two or more links can be used.

An important advance in British picture technique was made by the introduction of a "zoom lens" for use at outside broadcasts. It consisted of a complicated optical system which enabled any part of a scene to be gradually magnified.

Many of the year's best programmes came through "O.B." cameras—notably the opening of the Festival of of Britain by the king, and the state visits of the king and queen of Denmark and the king of Norway. Successful microwave relays were made from Bourneville, Worcestershire, and from the Glyndebourne opera house, Sussex, where a performance of *Cosi fan Tutte* was transmitted.

Problems of television in schools were examined in July by the B.B.C. and a committee of the Schools Broadcasting Council of the United Kingdom. It was decided that though television would be of great value as an aid to teaching, a pilot scheme should first be operated on a closed circuit among a few schools in London before any general plans could be drawn up. (X.)

United States. Only one additional station, authorized before the Federal Communications commission's "freeze" of late 1948, began transmitting in 1951—making a total of 108.

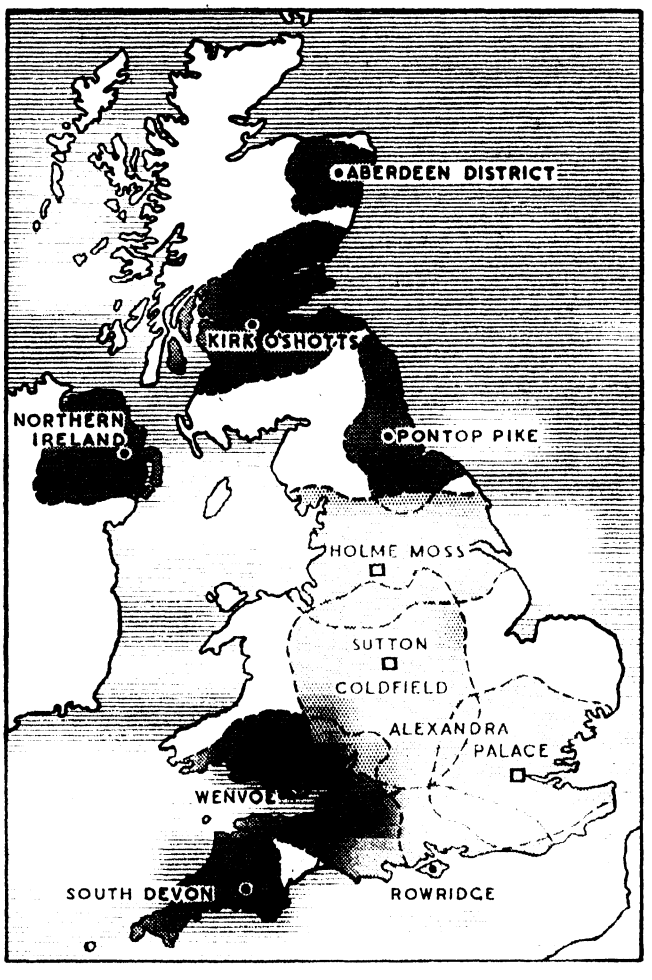
Colour Television. The decision of the F.C.C., late in 1950, adopting the Columbia Broadcasting system's colour television system was appealed to a district court by the Radio Corporation of America and several other manufacturers. On Dec. 20, 1950, the court sustained the F.C.C. order. This decision was appealed to the Supreme court by R.C.A. and at the end of May 1951 the Supreme court affirmed the district court's judgment sustaining the order of the commission. The F.C.C. revised its rules to include standards for the field sequential (C.B.S.) colour system, and C.B.S. began daily broadcasts in colour for half an hour in the morning and half an hour in the afternoon. All or part of these broadcasts were carried by stations in New York, Boston, Philadelphia, Baltimore, Washington and Chicago. On Oct. 19, however, Charles E. Wilson, director of defence mobilization, banned the manufacture of commercial colour

television receivers. C.B.S. announced that they would discontinue the broadcasting of colour television programmes.

Receivers. The 1951 production of television receivers was estimated at 5·2 million, 70% of the 1950 production. The majority of the receivers produced used 17-in. or larger picture tubes. The reduction in television receiver production in 1951 was attributed more to lack of demand than to a shortage of materials.

Stations and Networks. At the end of 1951, 108 stations were transmitting regular programmes in 63 metropolitan areas. Fifty-four cities were interconnected by networks. The most important addition to network facilities in 1951 was the completion by the American Telephone and Telegraph company of the microwave relay chain between Omaha, Nebraska, and San Francisco thus linking the east and west coasts. This circuit was opened early in September, ahead of schedule, to permit the nation-wide televising of the signing of the Japanese peace treaty in San Francisco. One of the most interesting events in television during the year was the telecasting in March from New York and Washington of the proceedings of the Senate Crime committee under the chairmanship of Senator Estes Kefauver.

Theatre Television. At the end of 1951 about 60 theatres had either installed or were installing projection equipment. Several sporting events of widespread interest were telecast in 13 cities exclusively through theatre television, using the inter-city television facilities of the American Telephone and Telegraph company. (*See* also RADIO, SCIENTIFIC DEVELOPMENTS IN.) (G. L. Bs.)



The shaded areas around Alexandra Palace, Sutton Coldfield and Holme Moss show the range of the television transmitters in use at the end of 1951. The darker areas show the range of proposed transmitters.



A cartoon by Giles "It's that beastly Socialist next door—left his car engine running to spoil Mr. Eden's TV election speech," published in the "Daily Express" (London), Oct. 17, 1951.

TENNIS (sometimes called royal tennis and, in the United States, court tennis). P. Kershaw (Manchester) won the amateur championship at Manchester, beating D. J. Warburg in the final match by three sets to love. Alastair B. Martin (New York), the holder, was unable to compete.

Great Britain, the holders, won the Bathurst cup in Paris when they beat France by four matches to one. R. C. Riseley beat both F. Alvarez and C. Blanchy in straight sets and R. Aird beat Blanchy, 3-0, and lost to Alvarez, 1-3. Riseley and M. A. Pugh beat Alvarez and M. Dupont, 3-2. The United States were unable to send players to Paris.

The M.C.C. prizes were played at Lord's, where W. D. MacPherson in his 50th year won the gold racket for the fifth time when he beat R. C. Riseley (the holder), 3-1. Riseley resisted the challenge of M. G. L. Bruce for the silver racket, 3-2.

Oxford university beat Cambridge at Lord's by three rubbers to one. Old Rugbeians won the public schools old boys' competition (Henry Leaf cup), beating Old Etonians, the holders, by two rubbers to one. (*See* also LAWN TENNIS.) (AE.)

TEXTILE INDUSTRY. In 1951 political and economic uncertainty at home and abroad, raw material supplies and prices, labour and power difficulties were the main problems contributing to a disappointing year in the textile industry in the United Kingdom. Despite these adverse factors, however, production of yarn and cloth was well maintained and steadily increased in several instances. The cotton industry suffered from the effects of inadequate supplies of raw cotton—chiefly from the United States—but at the close of the year estimates of U.S. (15 million bales of 500 lb. weight), British empire (one million bales) and Indian growths revealed substantially increased acreages and production. The Egyptian crop in 1950 was 8,302,906 cantars (cantar=99·05 lb.)—the smallest since 1947.

The total weekly average yarn production in the cotton industry in the second period of 1951 was 16·95 million lb.,

as compared with 16·08 million lb. in the corresponding period in 1950. In the same periods the weekly averages for spun rayon were 1·61 million lb. (1·38 in 1950); similarly, cotton and wool yarns were 70,000 lb. (60,000), and cotton and rayon 330,000 lb. (190,000). Employment in the spinning section was higher at 111,160 (107,510). Weekly averages in weaving in the second period of 1951 revealed that production of grey and coloured woven cotton fabrics totalled 44·48 million linear yd., as compared with 41·02 million linear yd. in the same period of 1950. Total rayon and mixture fabrics for the same periods were 15·19 million linear yd. (13·57), and the numbers employed totalled 145,450 (139,270). On the same basis, U.K. exports of cotton yarns were 18·1 million lb., as compared with 16·9 in 1950, and exports of cotton piece-goods 247 million sq.yd. as against 183 million sq.yd.; exports of wholly rayon fabrics in the same periods were 28·3 million sq.yd. (24·3).

A total of 430 million lb. of raw wool was imported by the U.K. wool industry in the first ten months of 1951, as compared with 595 million lb. in the same period in 1950. The monthly average of production and consumption of tops (merino and cross-bred) in September was 17·66 million lb., as against 26·73 million lb. in Sept. 1950.

Following the U.S. decision to stockpile wool prices quickly attained unprecedented high levels; they collapsed just as rapidly when the feverish clamouring and support was withdrawn. A total of 42·1 million lb. of wool tops was exported in the first ten months of the year, as against 62 million lb. in 1950. Exports of woollen and worsted yarns in the same periods were respectively 4·4 million lb. (4·8), and 14·4 million lb. (20·0). Similarly, exports of worsted cloth reached 34·2 million sq.yd. (32·7), and exports of woollen cloth 62·8 million sq.yd. (62·5). In September, the number of operatives engaged was 204,000 (209,000 in 1950).

The total U.K. rayon filament yarn production to the end of Sept. 1951 was 151·4 million lb., as compared with 198 million in the whole of 1950. In rayon staple, the U.K. took third place for the same period with 122·1 million lb., as compared with 173·4 million lb. in all 1950. Germany was the largest producer with Japan a little ahead of the U.K. Exports of rayon yarn in August were 2·19 million lb., as compared with 2·70 million lb. in Aug. 1950; the figures for spun rayon were 270,000 lb. (210,000). Total exports of loom state, bleached and dyed rayon fabrics in August were 6·28 million sq.yd., as against 7·41 million sq.yd. in the same month in 1950. For printed fabrics the figures were respectively 2·60 million sq.yd. (2·48); exports of spun rayon fabrics for the same period were 9·07 million sq.yd. (5·82).

In the cotton industry more progress was made in renewing machinery and equipment than in any year since World War II. The installation of modern opening, carding, drawing and ring spinning machinery proceeded satisfactorily, also the conversion to shortened systems of processing and greater use of high-drafting equipment on speed frames, rings and mules. Although the majority of looms were still non-automatic, it was encouraging to observe that automatic looms in place totalled about 40,000, as compared with the 17,500 at the end of World War II. The innumerable good points associated with re-wound weft—measured length, freedom from slubs and thin places, uniform density and build—received wider recognition, and this led to greater use of auxiliary equipment such as automatic warp and weft stop-motions. Work, study and job analysis received a fair measure of attention, and at the end of the year about 30% of cotton weaving firms had completed re-deployment schemes. Spinning, doubling and weaving mills—cotton and wool—made progress in productive efficiency, and excellent developments occurred in efforts to eliminate man-handling of materials, equipment and machinery by means of modern internal transport schemes and powered lifting gear.

Research continued intensively; a new Shirley institute development made possible for the first time the automatic take-up on cotton warps of a predetermined quantity of size. A new design of hood for cotton cards also gave hopes of collecting at the source a high percentage of liberated dust. Removal of burr from wool continued to be one of the more important research projects for top making, and experimental work in worsted drawing and spinning indicated distinct advantages from using auto-levelling devices. On the linen side, research on the preliminary breaking of flax straw led to improvements in yield and quality, and new designs of loom shedding tappets and picking cams were favourably received by the weaving section. In finishing sections greater use was made of more accurate methods of controlling processes; and new designs in cloth examining, electro-mechanical weft straightening and selvedge marking machines were introduced.

Europe. The output of the French textile industry from June to the end of the year declined steadily, particularly in cotton, woollen, and rayon yarns and piecegoods. Several machinery developments were noticed, however, including a new high draft cotton ringframe incorporating a double-apron two-zone system claiming excellent draft control. Swiss machinery progress centred around highly efficient precision sizing machines, with automatic tension control in the drying chamber and 2×1 box silk, and multi-shuttle, shuttle-changing looms. In Germany, a new ringframe featured a novel high draft system, a stationary ringrail and positively gear-driven spindles, with centralized lubrication. A welded steel loom, made in automatic pirn and shuttle-changing models and a new type overpick loom appeared. Little information was available about Spain, apart from news of a range of light automatic pirn-changing looms in fast and loose-reed models, claimed to be capable of 240 picks a minute. In Belgium, improved methods for decorticating and retting flax were announced. All European countries were handicapped by restricted supplies of raw materials.

Commonwealth. In Australia, the cotton spinning and weaving industry had over 90 mills in operation producing an extensive range of goods. The 170 woollen mills, employing 25,000 people, produced over 12 million sq.yd. of worsted cloth, and over 4 million sq.yd. of flannel. Over 22,000 operatives were engaged in the 500 hosiery and knitwear factories and production had steadily increased each year. Rayon weaving also increased, over 20 mills being engaged in throwing rayon, nylon and silk. A textiles school at East Sydney Technical college offered students a three-year full-time course in textile and allied subjects.

The second largest employing industry in India was the handloom industry with 1,434,000 full-time and 750,000 part-time workers producing 1,842 million yd. of cloth on 2,325,000 handlooms, 72% being engaged on cotton. India also had 20,000 power looms employing 22,000 people. Production of jute manufactures was slightly higher than in 1950, and there was an extension of cotton cultivation in West Bengal.

Canadian cotton mill operations slackened appreciably towards the close of the year. Defence orders accounted for a substantial proportion of business and had a stabilizing effect on the falling-off in demand for domestic purposes. Canada still remained one of the best markets for U.K. textile specialities. (A. Dr.)

United States. Such development as there was in certain sections of the U.S. industry in 1951 resulted from military

requirements. The civilian demand for textile materials was unusually high and record prices were being paid. But the short supply of raw materials curbed market expansion.

The total consumption of cotton in 1951 was about 4% lower than in the latter part of 1950, whereas total wool consumption was about 8% lower. Government orders of woollen and worsted woven goods increased from about 4·4 million yd. in the last quarter of 1950 to 32 million yd. in the third quarter of 1951. Conversely, other orders for woollen goods decreased from nearly 90 million yd. to about 36·8 million yd. during the same period. The effect of the international situation was clearly shown in the imports of silk into the U.S.: they decreased from an average of about 1·17 million lb. a month in the latter part of 1950 to about 500,000 lb. a month in 1951.

During the year progress was made in developing new synthetic fibres and in increasing the production of such fibres. It became increasingly clear that the industry would now devote much of its productive effort to this branch of manufacture. (*See* also CLOTHING INDUSTRY; COTTON; LINEN AND FLAX; RAYON AND SYNTHETIC FIBRES; SILK; WOOL.) (D. G. Wo.)

THAILAND (SIAM). Kingdom of southeastern Asia bounded W. and N.W. by Burma, N.E. and E. by French Indochina and S. by Malaya. Area: 198,270 sq.mi. Pop.: (1937 census) 14,464,105; (1950 est.) 18,480,000. The 1937 census revealed only 524,062 Chinese (3·6%), but it included as Siamese the Chinese born in Thailand, whose number already in 1929 was 113,050. Language: Thai (Siamese) 75%; Chinese 20%; Indian and Malayan 5%. Religion (1947 est.): Buddhist 95%, Moslem 4%. Chief towns (1947 census): Bangkok (cap., 884,197); Khon-kaen (590,664); Chiengmai (534,628); Chieng-rai (481,621). Ruler, King Phumiphon Adundet; prime minister, Marshal Luang Pibul Songgram.

History. Thailand suffered two severe political crises during 1951. On June 29 the prime minister, while attending a ceremony at the Bangkok docks when a dredger presented by the United States was being formally handed over, was kidnapped by a party of marines and removed to the warship " Sri Ayudhya " which lay near by. The naval signals station then issued a wireless statement that a new cabinet had been formed, including a number of moderately liberal politicians, though it later appeared that the affair was organized entirely by naval officers and that the politicians mentioned were not implicated. The premier's supporters in the army, air force and police acted promptly and fighting went on for two days in Bangkok until the " Sri Ayudhya " was sunk by bombing. The prime minister then managed to swim ashore and rejoin his friends. This ended the disturbances and the army later occupied the naval base at Sattahib without resistance. Casualties amongst service personnel were slight, but owing to wild firing on both sides some 100 civilians were killed and 2,000 wounded; amongst the killed was one German national, and the Australian consul general was amongst the wounded. About 700 naval personnel were arrested, including the commander in chief, Admiral Sindhu, and 73 of these were detained for trial on a charge of treason; but most of the ringleaders, who were junior officers, escaped abroad.

The situation remained uneasy and rumours of a possible Communist rising circulated, but the next disturbances took a different form. On Nov. 28, a group of officers, led by General Phin, the commander in chief of the army, effected a *coup d'état:* they declared that the existing government was no longer in power and that the parliament had ceased to function. A committee of ten officers assumed authority. The grounds given were that the former government had failed to eradicate corruption, keep down the cost of living or resist Communism. The *coup* was effected without any resistance. A new cabinet was formed, but it still included Marshal Pibul as prime minister, and the deputy premier, the defence, finance, foreign, justice, health and industry ministers of the evicted cabinet also returned to office. The only important change was the removal of the minister of education, Nai Luang Chayakarn. Besides these not very radical changes in the ministry, however, it was announced that the constitution established in 1949 was abrogated and that the less liberal constitution of 1932 would be re-introduced. In pursuance of this, it was announced that instead of a Senate and a House of Representatives, parliament would consist of a single chamber half of whose members would be elected and half nominated by the crown; and that pending elections the chamber would consist entirely of nominated members; 123 members were then named, including all the *coup* leaders and consisting entirely of those favourable to their action. These events occurred immediately before the return to Thailand of King Phumiphon, who arrived from Switzerland on Dec. 2. Despite the recent events, the king was received with great enthusiasm by the people.

On Sept. 28 judgement was pronounced in the trial of those accused of assassinating the late King Ananda in 1946. A royal page was sentenced to death, but two other accused were discharged for lack of evidence; and the court further refused to pass judgment on the exiled statesman Nai Pridi, who had also been named in connection with the charge, since he could not be tried *in absentia.*

The government continued throughout the year its policy of supporting the United Nations action in Korea, where a force of Thai troops participated in the war; and it also maintained its friendly co-operation with the Malayan authorities on the southern frontier. (B. R. P.)

Education. Schools (1948): government 440, pupils 63,581; local public and municipal 18,670, pupils 2,081,414, teachers 62,028; private 1,501, pupils 167,629; universities 5, students 10,494.

Agriculture. Main crops ('000 metric tons, 1949; 1950 in brackets): rice 6,683 (6,018); sugar, raw value 49 (73); groundnuts 30 (55); tobacco 14·1 (21·3); cotton 6 (6); jute 3; cottonseed 11 (30); soyabeans 7 (8); sesame 6·4 (1·9). Livestock ('000 head, Dec. 1949): cattle 5,000; pigs 2,000; buffaloes 5,000; horses 230. Meat, commercial production ('000 metric tons, 1949): 92, of which beef and veal 20, pork 72. Fisheries: total catch ('000 metric tons, 1949; 1950 in brackets): 195·8 (150).

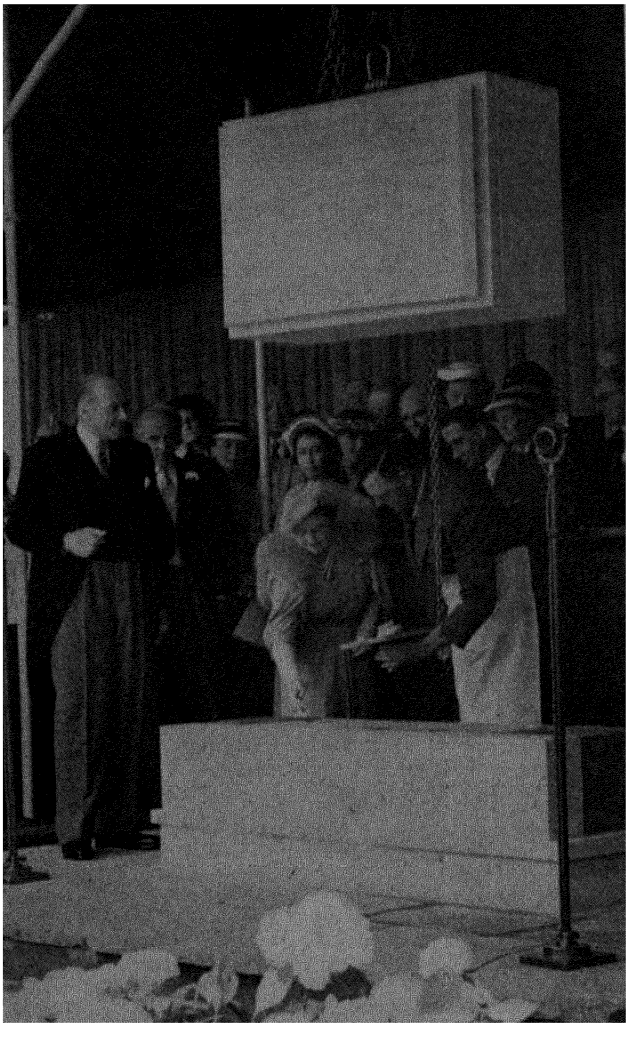
Industry. Electricity production in Bangkok (million kwh., 1950): 53. Raw materials (metric tons, 1950; 1951, six months, in brackets): rubber (net exports) 114,019 (56,063); tin in concentrates 10,529 (5,524); cement 165.

Foreign Trade. (Million baht, 1950; 1951, six months, in brackets): imports 2,880 (1,822); exports 3,624 (2,264). Main sources of imports (1949): Hongkong 17·3%; U.S. 15·7%; Singapore 13·4%; U.K. 8·7%. Main destinations of exports: Singapore 19·5%; U.S. 15·3%; India 13·4%; Penang 9·1%. Main imports: textiles 19·4%; foodstuffs 11·7%; metal manufactures 8·3%; yarns 6·8%. Main exports: rice 50·7%; rubber 15·7%; tin and tin ore 9·7%; teak 4·1%.

Transport and Communications. Roads (1949): 3,536 mi. Licensed motor vehicles (Dec. 1950): cars 8,500, commercial 6,570. Railways (1949): 2,033 mi.; passenger-mi. (1950) 892 million; freight net ton-mi. 298 million. Merchant shipping (1949): vessels owned of 200 tons and over 13; total tonnage 4,709. Air transport (1950): mi. flown 1,265,000; passenger-mi. 11·5 million; cargo ton-mi. 267,000; mail ton-mi. 30,400. Telephones (Bangkok, 1948): 5,586. Radio receiving sets (1950): 100,000.

Finance and Banking. Budget (million baht): (1950-51 est.) revenue 1,596·7, expenditure 2,052·1; (1951-52 est.) revenue 2,200, expenditure 2,500. Currency circulation (Dec. 1949; Dec. 1950, in brackets): 2,365 (3,043). Bank deposits (Dec. 1949; Dec. 1950, in brackets); 1,000 (1,234). Monetary unit: *baht* or *tical* with an official exchange rate of 35·00 bahts to the pound and 12·50 bahts to the U.S. dollar.

THEATRE. In the British theatre in 1951, not in London only but all over the country, the Festival of Britain exerted a great influence. In consequence, the stage events were different in kind from those of other years. This was a



Queen Elizabeth about to lay the foundation stone of the national theatre on the south bank of the Thames near the Royal Festival hall, July 13, 1951.

year in which experimental alchemy was out of place, and an attempt had to be made instead at solid scientific achievement. Myriads of visitors flocked to the Festival from all over the world, and to meet their demand for entertainment the British theatre had to be at its best.

The need for the theatre to be on parade in review order from late spring to early autumn affected the working of the whole year. Whether separately or in consultation, the leading managements in London had come to the conclusion that success was more safely to be commanded by players than by plays, and as their plans matured it was evident that Festival visitors would be given the chance to see almost all the best-known London actors and actresses, most of them in well-tried classical parts carefully chosen. Sir Laurence Olivier and Vivien Leigh in the title-roles in Bernard Shaw's *Caesar and Cleopatra* and Shakespeare's *Antony and Cleopatra*; John Gielgud, Diana Wynyard and Flora Robson in Shakespeare's *The Winter's Tale;* John Clements and Kay Hammond in Shaw's *Man and Superman*, with the long " Don Juan in Hell " act included on special occasions for playgoers of special stamina; Sir Ralph Richardson, Margaret Leighton and Celia Johnson in Chekov's *Three Sisters;* Alec Guinness as Hamlet; the Old Vic company, with Peggy Ashcroft as Euripides' Electra and Shakespeare's Mistress Page, and Roger Livesey and Ursula Jeans in Shaw's *Captain Brassbound's Conversion;* Sir Godfrey Tearle (*q.v.*) in Sir Arthur Pinero's *His House in Order;* and, in the offing, the Stratford-on-Avon Shakespeare company—visitors who were not to be impressed by such a display would be hard indeed to please.

Meanwhile, in the early months of the year, there was a natural reluctance on the part of managers to move their glittering troops into position too early. John Clements was a bold exception, occupying the New Theatre with *Man and Superman* in the middle of February; and the Old Vic pursued its normal course, finishing off one season in February with a notable production of Shakespeare's *Henry V* with Alec Clunes as the King, and entering upon another with *Electra* on March 13. In general, however, the London theatre in the first quarter of the year had an air of reserving its strength. It would have had little that was new or interesting to offer to serious playgoers during this quiet time, had not a few managements taken the opportunity to try out promising productions.

One of these, a translation of Jean Giraudoux' *The Madwoman of Chaillot*, had behind it the recommendations of a long run in New York and the presence in the cast of Martita Hunt who had played the name-part in the United States, and hopes ran high at the St. James's theatre when the fantasy was staged there on Feb. 15. Unfortunately, however, the speed and bite of the American direction was not reproduced in London and, though Miss Hunt's acting captured the London public, the play did not and was taken off after a short run. An even more melancholy fate awaited the next experiment, that of the Haymarket management with *A Penny for a Song*. This was a comedy of the Napoleonic wars written by John Whiting, a young actor-dramatist of high promise, and produced on March 1. The play had all the ingredients which should have ensured success—comic invention, character, sense of the theatre—and it proved to have a trick of lingering in the minds of those who saw it. Yet some failure in the mixing of the ingredients spoilt its effect. Enchantment was always round the corner, just out of reach. Later in the year John Whiting won the play competition which was the contribution to the Festival of Britain of the Arts Theatre club, with *Saint's Day*, a play whose obscurity made it the subject of much controversy. Undoubtedly John Whiting, though unknown to the general public, was the most interesting new dramatist of the year. Another young dramatist, Robert McDougall, whose *To Dorothy, a Son* continued its successful run begun in 1950, scored an honourable failure during this period with *Macadam and Eve* (Aldwych, March 12).

Before the main tide of Festival productions set in, the Haymarket management tried its luck with another new play, N. C. Hunter's *Waters of the Moon* (April 19). This time the experiment was successful, for the comedy, though neither so original in conception as *A Penny for a Song* nor so promising in execution, contained three very effective acting parts, all for actresses, and so satisfied the special requirements of the Festival season. First, Dame Edith Evans and Dame Sybil Thorndike, as two strongly contrasted characters, stood up to one another as the great actresses of the past used to in *The Rival Queens;* and then, when this battle was over, Wendy Hiller stepped forward and saved the play from the anticlimax which had threatened it with ruin.

Dame Sybil's picture of old age gallant in defeat, Dame Edith's of triumphant prime-of-life, and Wendy Hiller's of thwarted and desperate youth might well have carried off the year's acting honours in normal circumstances. But circumstances were not normal, and the supreme effort for which the occasion called came from Laurence Olivier. Both in general anticipation and by general agreement afterwards, Sir Laurence's productions of the two Cleopatra plays at the St. James's on May 10 and 11 were the theatrical event of

1951. So far as individual acting was concerned, he and his wife in the name-parts were equally worthy of praise, since *Caesar and Cleopatra* is Caesar's play while *Antony and Cleopatra* is Cleopatra's. But he seemed to have made up his mind that the spectacular part of their joint success should belong to Vivien Leigh, for in the Shaw play he gave Caesar a quiet impressiveness which threw into sharp relief Vivien Leigh's lively sketch of Cleopatra; in Shakespeare's tragedy, on the other hand, Olivier was a deliberately unemphatic Antony. Furthermore, he had cut the final scenes of the play so as to give Cleopatra's death a statuesque quality not usual to it, with the result that Vivien Leigh made for herself a new reputation as a tragic actress of unexpected power.

Of the other classic revivals listed above as being part of the special Festival effort, John Gielgud's production of *The Winter's Tale* was an unqualified success, but *Three Sisters* was something of a disappointment—though not so much so as to fail to attract audiences. At the Old Vic, Peggy Ashcroft's playing in *Electra* commanded respect, and her subsequent appearance as Mistress Page revealed a new increase in her steadily widening range; but the production of *Captain Brassbound's Conversion* did not add to anybody's reputation. Donald Wolfit, however, achieved a rough grandeur in Tyrone Guthrie's expert production of Christopher Marlowe's *Tamburlaine the Great* in September.

Only one new play by a leading British dramatist was staged during the Festival season, Peter Ustinov's *The Love of Four Colonels* (Wyndham's, May 23). This was a flight of purely theatrical fancy, a satirical fairy-tale which involved parodies of various types of play, and whose success could not have been foretold with any certainty. Fortunately, the jest came off, and the play ran strongly throughout the season. Another piece from Peter Ustinov's pen, *The Moment of Truth*, produced at the Adelphi on Nov. 21 after the Festival was over, aimed higher but did not hit its target so cleanly. A much greater disappointment was the outright failure of Alec Guinness' *Hamlet*. This production, at the New theatre on May 17, had been eagerly awaited both on account of Alec Guinness's rapid rise to the head of his profession of late years, and because his reading of the name-part was known to be a break with tradition and likely to be controversial. By a cruel but not altogether unavoidable misfortune, mistakes were made in the lighting on the first night, and the performance suffered in consequence and was unsympathetically received. From this bad start no complete recovery was made.

Another disappointment, very different both in kind and in degree, awaited a too eager public later in the year, when the American musical play *South Pacific* was staged at Drury Lane on Nov. 1. " Disappointment " seems a strange word to use of a piece which was received with acclamation by an excited first audience, ran to full houses for the rest of 1951, and at the end of the year was solidly booked up for months ahead; yet it is the just word. So great was the expectation built up by the play's phenomenal success in New York that disappointment in some measure was almost inevitable; and the story, which turned largely on an American nurse's colour-bar prejudice, had nothing like the same force in London as in New York. Nevertheless, the seductive quality of Richard Rodgers' music and the personal success of Mary Martin in the leading part were jointly a guarantee of a long run.

At the St. James's, on Oct. 18, an interesting performance of *Othello* by the American film-star, Orson Welles, was seen. The interest lay chiefly in Orson Welles's complete independence of all traditions of playing Othello, and the result was impressive but not particularly memorable. The actor appeared to be playing the part by the light of pure reason and without the aid of Shakespeare's word-music. In this he differed sharply from the Old Vic company, which produced the play during Orson Welles's run, and so gave London the chance to compare the two. Except in the matter of poetic diction, however, the comparison was in Orson Welles's favour. The Old Vic did not in this case achieve much distinction, though the dignified and pathetic Desdemona of Irene Worth lingered in the memory.

Outside the regular London theatres, the Festival was celebrated in a number of ways, by repertory companies, by amateurs in plays and in pageants, and particularly in the churches. The most impressive of these church plays was Christopher Fry's *A Sleep of Prisoners*, produced originally at Oxford and put on for a London run at St. Thomas' in Regent Street. At the Edinburgh Festival drama was represented by, among other productions, Sir David Lindsay's 16th-century morality play *Ane Satyre of the Thrie Estaits* and Thomas Kyd's *The Spanish Tragedy*. (W. A. D.)

France. Although there was much talk of " crise " in French theatrical circles, there was also evidence of great activity, and the sudden death in August of the famous actor-director, Louis Jouvet (*see* OBITUARIES), which, a few years earlier, would have come as an irreparable loss, found a number of younger directors and their companies ready to take up where Jouvet left off. Several years of government-sponsored efforts towards decentralization were beginning to bear fruit, with the result that, in addition to some 40 legitimate theatres open in Paris, the end of 1951 saw six well-constituted provincial drama centres functioning in Rennes, Mulhouse, Toulouse, St. Etienne, Rabat (French Morocco) and Monte Carlo. An additional centre, to be directed by Gaston Baty, last survivor of the prewar " Cartel " of advance-guard *metteurs-en-scène*—others were Georges Pitoëff, Charles Dullin and Louis Jouvet—was being organized in Aix-en-Provence. If to these activities are added a remarkable summer festival season in Avignon, under the direction of Jean Vilar, and this same director's highly successful,



" Caesar and Cleopatra " by G. Bernard Shaw at the St. James's Theatre, London, with Sir Laurence Olivier as Caesar and Vivien Leigh as Cleopatra.

low-priced autumn tour of the Paris suburbs with the newly organized *Théâtre National Populaire*, the word "crise" would appear to have been an exaggeration.

And yet "crise" there was in the plays themselves. Jean Anouilh's *Colombe* was not considered one of his good plays, nor did Jean-Paul Sartre's *Le Diable et le Bon Dieu*, or Jean Cocteau's *Bacchus* (both set in Luther's Germany, both strongly anti-clerical) attain to the best standards of either writer. Both sacrificed dramatic form to didacticism and it is perhaps as much to the fact that they had the good fortune to be extremely well, not to say, luxuriously presented—Sartre's play was put on by Louis Jouvet and Cocteau's by Jean-Louis Barrault—as to their intrinsic worth that they owed their only moderate success. A more modest presentation by the Georges Vitaly company of Georges Schéhadé's *Monsieur Bob'le*, although attacked by certain critics, was hailed by many for its poetic qualities. Other successful plays of the year, *Lorsque l'Enfant paraît*, by André Roussin; *Le Complexe de Philémon*, by Jean-Bernard Luc; *Ami-Ami*, by Pierre Barrilet and Jean-Pierre Grédy; *Un Soir à Samarcande*, by Jacques Deval; and *La Belle Rombière* by Jean Clervers and Guillaume Hanoteau, offered little else to the harassed public of 1951 than the pleasant drug of light entertainment. This was also true in a measure of the numerous revivals and foreign adaptations presented, among which Georges Feydeau's "1900" farce, *Le Dindon*, Bernard Shaw's *Androcles and the Lion* and Jules Romains' satirical *Donogoo* met with greater favour than did, for instance, *L'Héritière* and *Les Innocents*, adapted from stories by Henry James, or August Strindberg's *Père*. Notable exceptions were the Jean-Louis Barrault production of Paul Claudel's sombre *L'Echange* (1893), and Raymond Hermantier's presentation, in French, of Friederich Schiller's *Marie Stuart*, both of which attracted an interested if limited public.

Mutual recriminations between dramatists and directors were, of course not lacking; the latter claiming that there were few new plays worth producing, the former that the theatres were too often in the hands of business men without love or knowledge who merely catered to the rather decadent tastes of the well-to-do public. The truth probably lay somewhere between. It was, however, to the directors that Jean-Jacques Gautier, dramatic critic of *Le Figaro*, addressed the following warning: "It would be too bad . . . if, in a free country such as ours, the authorities should one day be obliged to force you to present a certain percentage of new plays each year." (M. JOL.)

Germany. A feature of 1951 was the re-opening of certain important playhouses wholly or partly destroyed during the war, including the town theatres at Mainz and Frankfurt-am-Main (opera and drama), the Düsseldorf Schauspielhaus (drama), the Residenztheater at Munich (formerly opera, now drama) and the Schillertheater in Berlin (drama). In the smaller towns, the theatres continued as a rule to supply drama, opera and light opera under the same roof, disposing of over half their seats on the subscription system to individual patrons and cultural organizations, thus at once ensuring a regular public and a constantly changing repertory ranging, in drama, from the European classics to the lightest of light modern comedies. The principle of generous state or municipal subsidy remained unchallenged, but, owing to heavy costs and occasional extravagance resulting in deficits despite large audiences, it was closely scrutinized. Various methods of alleviation were tried, including the sharing of one company between two towns, a solution which did not always prove practicable. An arrangement which might work better was adopted at Düsseldorf, where the cost of building the new Schauspielhaus was borne by the town, whose property it was; its running costs were assumed jointly by the town, the Land North Rhine-Westphalia, and a private company. In all, the theatre in the federal republic deserved its claim to be regarded as an educational force rather than as a purveyor of entertainment.

New German authors of distinction were slow to appear, and the lack of good new plays led to a revival of interest in little-known works of authors of the previous generation. Heinz Hilpert produced a new version of Hugo von Hofmannsthal's *Der Turm* at the second annual festival at Monschau, and Nuremberg saw the first performance of *Der Graf von Ratzeburg* by Ernst Barlach, better known as a sculptor than as a playwright, in a version arranged and produced by Hans Joachim Klein. A large proportion of the modern repertory was once again devoted to translations of foreign authors, mainly French. The American contribution did not differ greatly, in the serious field, from that familiar to London. Among British authors, T. S. Eliot and Christopher Fry made a deep impression.

An important addition to the number of established festivals was that held in western Berlin in September. Among dramatic contributions, Boleslaw Barlog's production of Schiller's *Wilhelm Tell* appropriately opened the new Schillertheater, and was followed there by the first performances in Berlin of Carl Zuckmayer's *Der Gesang im Feuerofen* and T. S. Eliot's *The Cocktail Party*, given in Gustaf Gründgens's production by his company from the Düsseldorf Schauspielhaus. Distinguished foreign visitors under official patronage included the Comédie Française, the Old Vic and two companies from New York.

Stage settings generally were low in tone, simple and ingenious, sometimes perversely so. There was little sign of the emphasis on spectacle and stylistic accuracy noticeable in London. In the larger cities, among the few private theatres without subsidy which presented productions for a run, intimate revue with a strong political flavour continued to be popular. (R. H. CN.)

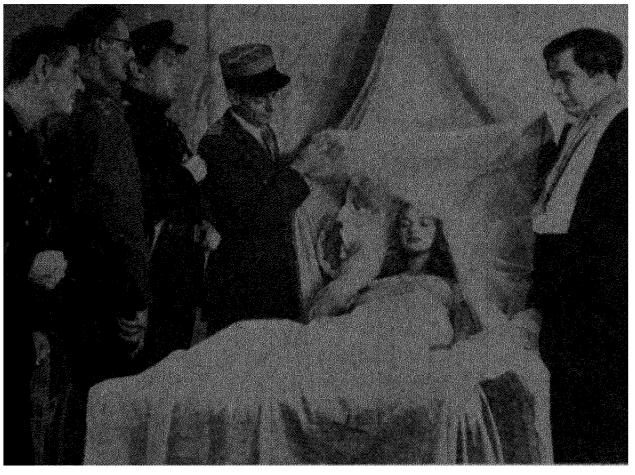
Italy. The Italian theatre was not particularly remarkable during 1951, and new plays were on the whole rather disappointing. Ugo Betti's *La regina e gli insorti* dealt with a prostitute impersonating a queen during a popular insurrection, a plot full of possibilities that were not exploited in full. All the same it was certainly a striking play, showing the influence of Guy de Maupassant. Much more successful was *Gli ultimi cinque minuti* by Aldo de Benedetti. Here the ultimate aim of de Benedetti was to present the public with an experiment in matrimonial psychology. A return to the romantic traditions of the late 19th century might be found in Cesare Meano's *Ventiquattr'ore felici*, which deserved the success it met during its performances by the newly formed company "Estate della prosa" at the Teatro Manzoni in Milan. The world of postwar Italy was portrayed in Roberto Zerboni's *Trittico*. One could not, however, help feeling here that the potentialities offered by the subject matter were not exploited as they deserved, and that the author had failed to grasp in full the situations he dealt with and their implications.

Several old plays were revived. E. A. Morselli's classic *Glauco* was performed in the open-air Graeco-Roman theatre at Taormina and, as usual, there were performances of Luigi Pirandello's plays in several towns.

Foreign plays continued to prove popular with Italian audiences. Among those performed in an Italian version during 1951 may be mentioned *Anna per mille giorni* by the American dramatist Maxwell Anderson and *Colombo* by Paul Claudel, which was produced in the "Parco" at Nervi, near Genoa, during the "Estate Teatrale." This summer festival was also responsible for the performance of *Le Roi Caudaule* by André Gide at the Graeco-Roman theatre at Taormina. An impressive production of the play on Joan of Arc by Thierry Maulnier, translated, with the title *Giovanna e i suoi giudici*, took place in the cathedral

square at San Miniato, near Florence, also during the summer.

The important "Premio Nazionale Riccione per il Dramma" was awarded to *Gorgonio ovvero il Tirso* by Tullio Pinelli. Enrico Verondini's *Sogno di Mayerling* was given the "Premio dell'Istituto del Dramma Italiano"; the "Premio Murano" for an unpublished comedy went to *Il Diavolo* by a young writer, Anita Agamben, from whom more plays were expected. The sudden resignation of the well-known critic Silvio d'Amico from the presidency of the "Accademia d'Arte Drammatica" was both unexpected and regrettable. The deaths of two well-known actors, Annibale Betrone and Giulio Donadio, occurred during the year. *Il Dramma* continued to be the leading periodical connected with the theatre. Most of its numbers included an Italian version of a foreign play of interest. (R. Ws.)



A scene from "The Love of Four Colonels" by Peter Ustinov, at Wyndham's Theatre, London. Left to right: Col. W. Breitenspiegel, United States (Alan Gifford); Col. D. De S. Rinder-Sparrow, Great Britain (Colin Gordon); Col. A. Ikonenko, U.S.S.R. (Theodore Bikel); Col. A. Frappot, France, (Eugène Deckers); the princess (Moira Lister); and a miserable immortal (Peter Ustinov).

United States. Although there was no notable progress in the development of the U.S. drama in 1951, the American theatre—fighting hard against the powerful odds of television, radio and motion picture competition and saddled with increasing production costs and exorbitant taxes—held its own and thrived financially if not always artistically. The public taste was opposed to any serious consideration of topical problems in dramatic form, and musical comedy and farce were preferred.

Sidney Kingsley turned Arthur Koestler's novel of the 1937 Moscow treason trials, *Darkness at Noon*, into a play and with it won the Drama Critics' circle award, though the general public was less enthusiastic despite a fine performance by Claude Rains as the imprisoned former commissar. A second critical choice was Louis O. Coxe's and Robert Chapman's *Billy Budd*, based on the famous Herman Melville short story of martyred innocence. Although a better play than Kingsley's, it met a similar fate at the box office. Tennessee Williams' smothering melodrama of passion about Sicilian emigrants living along the Gulf coast, *The Rose Tattoo*, was more successful. It was improved when its author partly rewrote it after its New York première, and Maureen Stapleton and Eli Wallach in the leading roles lent it great aid.

Lillian Hellman's tragi-comedy of wasted lives, *The Autumn Garden*, contained much muddled writing and some excellent acting by Florence Eldridge, Ethel Griffies and Fredric March. Robert E. Sherwood's doctoring of Philip Barry's last play, *Second Threshold*, failed to enliven a weak script, and neither Arthur Miller's version of Henrik Ibsen's *An Enemy of the People* nor Paul Green's version of Ibsen's *Peer Gynt* were improvements on the earlier translations by William Archer. John van Druten made a skilful adaptation of some Christopher Isherwood stories of pre-Hitler Berlin in *I Am A Camera* and Paul Osborn's adaptation of John P. Marquand's novel, *Point of No Return*, served Henry Fonda as a useful acting vehicle. Anita Loos provided a mildly amusing entertainment with her adaptation of the Colette novelette, *Gigi*, but the translations of two popular French plays, *Nina* by André Roussin and *Le Complexe de Philémon* by Jean Bernard-Luc (retitled *Faithfully Yours*) were too heavy-handed.

Elmer Rice wrote a comedy of a spinster schoolmistress's European holiday in *The Grand Tour* and Maxwell Anderson a pretentious drama of Socrates' life in *Barefoot in Athens*. There were amusing moments in John Patrick's ghost play, *Lo and Behold*, which Leo G. Carroll acted delightfully, and a two-character play of married life, *The Fourposter*—from the Dutch of Jan de Hartog—caught the public fancy. *Remains to be Seen*, a murder play by Howard Lindsay and Russel Crouse with the motion picture actor Jackie Cooper in the leading role, and *Love and Let Love* by Louis Verneuil with another cinema performer, Ginger Rogers, were moderately profitable ventures. A greater success was *The Moon Is Blue*, a light sex play by F. Hugh Herbert, and a makeshift comedy-drama of life in a German prison camp during World War II, *Stalag 17*, by Donald Bevan and Edmund Trzcinski, had a long run.

The musical-comedy stage fared better financially than the straight stage. There was a new and brilliant show by Richard Rodgers and Oscar Hammerstein, *The King and I*, based on Margaret Landon's novel, *Anna and the King of Siam*, in which Gertrude Lawrence was Anna and Yul Brynner the king. Beautifully staged and possessing a melodious score, it towered above its rivals. There were musical versions of Booth Tarkington's *Seventeen*, Betty Smith's *A Tree Grows in Brooklyn* and Ferenc Molnar's *The Good Fairy* (known as *Make a Wish*) all of which were second rate. There was a huge musical of the California gold rush days, *Paint Your Wagon*, with James Barton, and a hilarious one of a burlesque comedian who enters the television studios, *Top Banana*, with Phil Silvers. Bert Lahr and Dolores Gray were seen in a rather commonplace but successful revue, *Two on the Aisle*, and there was a revival of Jerome Kern's 20-year-old operetta, *Music in the Air*. Cole Porter's *Out of This World*—based on the *Amphitryon* of Jean Giraudoux—was unsuccessful.

The New York City Theatre company revived George Bernard Shaw's *Captain Brassbound's Conversion*, Kaufman and Edna Ferber's *The Royal Family*, Shakespeare's *Richard II*, Elmer Rice's *Dream Girl*, Robert E. Sherwood's *Idiot's Delight* and a Margaret Webster production of *The Taming of the Shrew*. The Theatre guild revived Shaw's *Saint Joan* with Uta Hagen but its engagement was limited, as was the production's appeal. The Drama Quartette—Charles Laughton, Charles Boyer, Cedric Hardwicke and Agnes Moorehead—gave a reading of the "Don Juan in Hell" portion of Shaw's *Man and Superman* at Carnegie hall and won such admiration that the reading was subsequently staged for an extended run. Louis Calhern attempted *King Lear* and Olivia de Havilland *Romeo and Juliet*. Marc Connelly's Pulitzer prize play of 1930, *The Green Pastures*, was revived with little success, and Morduant Shairp's *The Green Bay Tree*, *Springtime for Henry*, with Edward Everett Horton, *Diamond Lil*, with Mae West, and Somerset Maugham's *The Constant Wife*, with Katharine Cornell, were other plays of former seasons to play return engagements.

The year ended impressively with the arrival of Sir Laurence Olivier and Vivien Leigh and their London company in productions of Shakespeare's *Antony and Cleopatra* and Shaw's *Caesar and Cleopatra*. (T. Q. C.)

THEILER, MAX, South African physician (b. Pretoria, Jan. 30, 1899), studied at Rhodes University college and, from 1916 to 1918, at the University of Capetown medical school; he then went to England to continue his studies. He received a diploma from the London School of Tropical Medicine in 1922 and in the same year became a member of the Royal College of Surgeons. In 1923 he accepted a teaching post in tropical medicine at Harvard university medical school and remained in the United States thereafter, although he did not become a U.S. citizen. In 1930 he became a staff member of the international health division of the Rockefeller foundation. There he continued the research he had begun at Harvard on the virus of yellow fever. In 1939, after many experiments in inoculating mice and monkeys with the yellow fever virus, he discovered the vaccine called 17-D which proved successful in combating the disease; during World War II this vaccine was widely used. On Oct. 18, 1951, it was announced that Theiler had been awarded the 1951 Nobel prize in physiology and medicine for this and related work.

THEOLOGY. The year 1951 afforded further evidence of the vitality of theological studies. Active research and debate in the various departments of specialized enquiry bore fruit in a number of important publications, but there was evidence, also, of a tendency to explore the frontiers between theology and modern culture.

After an interval of nine years, the *Zeitschrift für die O.T. Wissenschaft* made a welcome reappearance and several other new enterprises were launched or advanced. An important new quarterly, *Vetus Testamentum*, was published by the International Organization of Old Testament Scholars, under the guidance of an editorial board composed of eminent scholars. The international Novi Testamenti Societas, which was inaugurated shortly before World War II, resumed annual meetings in 1951 and its bulletin appeared in the autumn. In 1950, a new Roman Catholic commentary on the Bible was launched with the title *Echter Bibel*. The general O.T. editor was Friedrich Nötscher, one of the foremost German Catholic scholars, and there was news of eight O.T. volumes in the series during 1951. The eighth volume in the Benedictine edition of the Vulgate also appeared and a seventh volume of O.T. studies came from the Dutch O.T. society.

The Old Testament emphasis in these publications drew attention to the recent remarkable ferment in Old Testament scholarship. The causes and consequences of this ferment were admirably surveyed in *The Old Testament and Modern Study: A Generation of Discovery and Research* (London, 1951), a collection of essays by members of the Society for Old Testament Study, edited by H. H. Rowley. Archaeology contributed to this ferment both directly and indirectly. If it solved few problems of historicity and dating, as Rowley showed in his Schweich lectures, *From Joseph to Joshua* (London, 1950), it nevertheless greatly enriched our knowledge of the historical and cultural background of Hebrew life and religion and thus gave a new direction to Old Testament scholarship at several points. Much more attention was given in 1951 to the theological content of the Old Testament. Scandinavian scholars of the " Uppsala " school reacted strongly against the traditional methods of literary criticism, as might be seen from Aage Bentzen's *Introduction to the Old Testament* (London, 1948-49). They maintained that much greater attention should be paid to the significance of oral tradition in the east and to the presence of liturgical and cultic motives in the shaping and transmission of some elements in the tradition. The story of Exodus, for example, may well have been shaped by constant cultic use so that, in its present form, it is a religious interpretation of history rather than a legendary development of history. Literary analysis of Old Testament sources was itself in a fluid condition and even fixed points of reference, such as the date of Deuteronomy, were themselves the subject of vigorous debate in some quarters. In general, however, it may be said that interest moved away from historical dating of documents and events to the religious faith that shaped the records.

A parallel trend in New Testament studies was illustrated in R. Bultmann's *Ursprung und Sinn der Typologie als Hermeneutischer Methode* (Nijkerk, the Netherlands, 1950) and J. Daniélou's *Sacramentum Futuri: Etudes sur les Origines de la Typologie Biblique* (Paris, 1950). Both books were concerned with the religious interpretation of Biblical themes and with the meaning of Biblical material in the early preaching of the church. Bultmann dealt particularly with the significance of Old Testament typology for an understanding of the New Testament. Daniélou followed the same lines in a study of typological interpretation in the writings of the Fathers. *A Study in St. Mark*, by Austin Farrar (London, 1951), made a similar approach to the Gospel record and attempted to bring out the typological significance of the evangelist's arrangement and presentation of his material. We were reminded, by such studies, that the evangelist was steeped in Old Testament tradition and that the spiritual interpretation of the events was a more powerful influence on his pen than prosaic historical memory. There was clearly much to be learned from this new approach to the Biblical records but there was danger, too, lest imagination should run riot and lose contact with the solid historical core of the gospel tradition.

The renewal of interest in Biblical theology was illustrated by Ryder Smith's *The Bible Doctrine of Man* (London, 1951), a comprehensive linguistic survey of references in the Old Testament, the Septuagint and Apocrypha, and the New Testament, which bore on the Biblical understanding of man as he is and as he ought to be. *Biblical Authority for Today*, edited by Alan Richardson and Wolfgang Schweitzer (London, 1951) on behalf of the World Council of Churches (*q.v.*), contained a varied and valuable collection of essays illustrating the work being done in Biblical theology in different branches of the Church Universal. *A Theological Word Book of the Bible*, edited by Alan Richardson (London, 1950), brought a rich harvest from the fields of Biblical scholarship to enrich the intelligent layman's understanding of the English text.

The year brought further evidence that Christian theologians were actively concerned with the relation between their own specialized studies and other areas of contemporary thought. Controversy continued to rage among European theologians over the problems raised by Bultmann's attempt to " demythologize " the New Testament. He drew attention to the problems created for the modern mind by affirming that the proclamation of the Christian message, as it is found in the New Testament, is expressed in terms of a pre-scientific cosmogony and of a mythological world-view derived from Jewish apocalyptic writings and from Hellenistic gnosticism. It was thus, he averred, unintelligible to the modern mind and must be stated in terms of an existential philosophy.

Several books were published which showed that the positive contribution of modern psychology was being absorbed into pastoral theology and that its bearing on theological thought was being soberly appraised. Göte Bergsten's *Pastoral Psychology: A Study in the Care of Souls* (London, 1951) was of special interest. It pleaded for mutual understanding and co-operation between psychology and religion, but maintained that pastoral care must have its own special technique. H. Schaer's *Religion and the Cure of Souls in Jung's Psychology* (London, 1951) was an important contribution to the study of an author whose teaching

does much to bridge the gulf between psychological and theological thought. Mention should also be made here of Erich Fromm's *Psycho-Analysis and Religion* (London, 1950), D. E. Roberts' *Psychotherapy and a Christian View of Man* (New York, 1950) and Leslie Weatherhead's *Psychology, Religion and Healing* (London, 1951).

One of the most interesting publications on the border territory of Christian theology and modern culture was *Glaube und Forshung: Vorträge und Abhandlungen der Evang* (Akademie Christopherus-Stift, Gütersloh, 1950). This was the second volume to come from this source reporting discussions on the relations between Christian teaching and modern culture. It dealt with the interrelationships of Christianity and physical science. Such a volume illustrated the growing recognition that Christian theologians and leaders in other fields of thought should come together and learn to speak one another's language if modern culture was to rediscover a religious synthesis of thought and experience. The Christian Frontier council in Great Britain undertook that task and its new periodical, *The Frontier* (Oxford, 1951), edited by Philip Mairet and A. R. Vidler, although slight in bulk was a very significant sign of the times. (J. W. D. S.)

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TIBET. Country of central Asia, N. and N.E. of the Himalayas. Nominally a Chinese dependency, it had been in practice independent and was the only country in the world entirely under ecclesiastical control. Area: *c.* 469,294 sq.mi. Pop. (1948 est.): *c.* 3,000,000. Capital, Lhasa. Language, Tibetan. Religion, Buddhist. Ruler, the Ling Erh ("divine child") Pamo Töntrup or Lamu Fankha the 14th dalai lama (*q.v.*).

History. The year 1951 opened with the Chinese Communist troops still little further than Chamdo (Chengtu) and the Dalai Lama encamped at Phari Dzong, on the border of Sikkim. Reassuring messages were sent to him from Peking and by May it seemed clear that Lhasa and Peking would come to an agreement. On May 23 a treaty was signed in Peking providing for the establishment of a Chinese military and administrative mission in Tibet, the maintenance of the Dalai Lama's authority but the return to Tibet of the Panchen Lama* and an undertaking by Tibet to unite behind the Chinese People's government's policy of opposing "imperialism."

General Chang Ching-wu, the leader of the Chinese mission and one of the four signatories of the treaty on the Chinese side, arrived in Lhasa on Aug. 8 and declared that the interests of Tibetans would be carefully considered. Reports showed that apart from "beating the bounds" by establishing military posts on the Tibetan borders as far

* He was born in 1937 at Yuehsang, Chinghai province, as Tuteng Chuehchi.



The Panchen Lama (left) with Mao Tse-tung in Peking May 23, 1951, after signing a treaty on the future of Tibet.

west as Kashmir the Chinese started to build roads, lay down airstrips and link up key towns with wireless communication.

On Aug. 17 the Dalai Lama returned to his capital at Lhasa. His supremacy in the secular sphere seemed to have been preserved despite the expected return of the Panchen Lama who by the end of the year was still at Sining (Chinghai), awaiting the word to cross the border to return to his monastery at Shigatse. It seemed probable that the Panchen Lama, theoretically a living deity, who ruled the spiritual lives of 10 million Lamaist Asians, was the tool of Chinese policy. A Chinese force of 3,000 entered Lhasa on Oct. 26 under the command of General Chang Kuo-hua, another signatory of the Peking treaty.

The Indian mission to Lhasa appeared to be left undisturbed, nor had the Chinese yet made the expected request for the withdrawal of the small Indian military detachments at Yatung and Gyantse, the communications between those two places being maintained by India (post and telegraph offices and rest houses).

The 80-year old Takta Ripoche, who ceased to be regent when the dalai lama received full powers on Nov. 17, 1950, was permitted to retire to his Tak-ta (Tiger Rock) monastery.

On the whole, the year 1951 marked the end of Tibetan independence. Kalon Ngabo Ngavang Jigme and his four colleagues, who signed the Peking treaty on the Tibetan side, were obviously hoping that, for the price of surrendering to China the direction of foreign relations and defence, Tibet would be permitted to manage its domestic affairs. By the end of the year, however, this hope seemed slender.

(E. Hd.; X.)

TIMBER. Rearmament dominated the timber trade of Great Britain, the Commonwealth and Europe during 1951. Not only did the free-on-board value of wood rise in practically every species, but also, owing to the diversion of ships to other purposes, there was a continued rise in freight rates. From April onwards, the British government permitted private traders to import softwoods from Sweden, Finland, France and a number of other countries outside the dollar area. This greatly influenced the Baltic markets.

British buyers bought largely for first open water shipment and beyond. Prices rose steadily and by midsummer the price of good unsorted Swedish deals had risen to £88 per

standard, f.o.b. This buying was pursued on such a scale that, aided by large government purchases of softwoods from Canada and the United States, it was estimated that the total stock of softwoods in the United Kingdom at the close of 1951 would be in the neighbourhood of 750,000 standards, compared with approximately 250,000 standards at the end of 1950. In the autumn, this heavy initial buying by private importers in Great Britain had run its course and there was some easing in shippers' quotations and in freight rates. The outlook for the new buying season of 1951-52 was most uncertain because, during the autumn, an increased dollar stringency and a fall in the balance of payments compelled Great Britain to curtail her prospective purchases of softwoods in the dollar area. During 1951, the British government also signed a contract with the U.S.S.R. for 100,000 standards of softwoods. Imports of Yugoslavian softwoods amounted to some 70,000 standards. In the early part of 1951 the British government made extensive contracts in Canada for British Columbian pine, western hemlock and spruce from the eastern provinces. Deliveries in all were said to have amounted to some 300,000 standards for the year.

The French timber trade in softwoods was much hampered by the refusal of the French government to grant export licences on the scale which it had previously done. This applied equally to hardwoods, and the export of oak, beech and poplar was much restricted.

The export of hardwoods, both in the form of logs and lumber, from the west coast of Africa on an increasing scale was a feature of the year. The actual shipment of this material was, however, restricted for some time owing to a shortage of freight and a considerable tonnage piled up in the ports and on the seaboard. By autumn, however, a large increase in the number of ships plying to the west coast of Africa occurred and a far greater weight of timber was moved. Much of this came to the U.K. and the fact that some of the parcels had been overlying through lack of ships for some months, and also that demand in the U.K. for furniture had eased, led to a break in prices. U.S. buyers of mahogany and other choice woods who had been active in the west coast of Africa since World War II, restricted their activities somewhat during the summer, but it was noticed that towards the end of the year they resumed their buying of selected parcels. It was thought that the action of these U.S. buyers would stiffen the market.

Shipments of hardwood timbers from Yugoslavia in the shape of oak, beech and ash were well maintained. The United Kingdom was the principal buyer, but parcels also went to Belgium, Holland and France. Prices showed an increase of some 33⅓-50% over 1950 levels. There was favourable comment on the excellent grading of the parcels of Yugoslavian lumber arriving in the U.K. during 1951. Austria kept up her timber production during the year and sold both softwoods and hardwoods. Czechoslovakia and Rumania both exported small quantities. Poland, however, which used to be a large exporter of timber before World War II, was disappointing.

The production of hardwoods in a number of South American countries such as Brazil, Chile, Ecuador and Colombia was well maintained, but their exports had diminished considerably owing to a rise in the internal consumption and to currency difficulties. A feature of the hardwood market was the arrival in the U.K., after an absence of many years, of shipments of excellent Japanese lumber, both oak and beech. The trade had been restricted owing to currency difficulties, but it was hoped in trade circles in the U.K. that it would be considerably developed.

It was expected that plywood imports into the U.K. for 1951 would amount to some 200,000 tons. The year 1951 also saw an increase in the number of shipments of plywood from newly established factories in such tropical countries as Nigeria, the Gold Coast, French Equatorial Africa and the Belgian Congo. (B. L.)

United States. Timber production in the United States continued at a relatively high level during the year 1951, about the same as for 1950 (37,000 million bd. ft.). Douglas fir had displaced southern pine as the leading species. Southern pine was second in importance, followed by ponderosa pine. The first two species named comprised about 54% of the total timber production of the United States, and the three leading species comprised about 65% of the total production. The fourth most important species was oak, which continued to be produced at an annual rate of about 400 to 500 million bd. ft. The leading softwoods produced were hemlock, eastern white pine, spruce, redwood, sugar pine, cypress, white and noble firs, western larch and lodgepole pine. Among the hardwoods, in addition to oak, the leading species were yellow poplar, red gum and maple. Other fairly important hardwoods were tupelo or black gum, cottonwood and aspen, beech, birch, elm and ash; less important in volume were basswood, hickory, cherry, black walnut, sycamore, alder, locust and pecan. Walnut, cherry, birch, hard maple and oak commanded the highest prices.

Prices for the better grades of timber continued to be exceedingly high. However, they were in general somewhat below the peak levels that prevailed in 1950. The demand for, and therefore the prices of, flooring, doors, veneers and plywood and finishing forms of timber continued to be strong until the summer of 1951. Thereafter the demand slackened for hardwoods for furniture and radio and television cabinets, but continued very strong for construction timber for housing and war operations. (*See* also FORESTRY.) (N. C. B.)

TIMOR: *see* PORTUGUESE OVERSEAS TERRITORIES.

TITO (JOSIP BROZ), Yugoslav statesman and soldier (b. Kumrovec, Croatia, May 25, 1892), president of the council of ministers and commander in chief since 1945. For earlier career see *Britannica Book of the Year 1951.* In Jan. 1951 he ordered an amnesty for 11,327 political prisoners, an act interpreted as a sign of confidence in the stability of his régime. There were two reports of attempts on his life during the year (May and August), both emanating from Italian sources and both denied. In March 64 dockers were arrested on suspicion of sabotage after his yacht capsized in Pulj (Pola) harbour killing several people—Tito was not on board. He was successfully operated on in April for a gall bladder complaint. During the year Tito pursued his qualified approach to the west. Yugoslavia, he said, would fight " when aggression occurs and when, as a result, the independence of our country is threatened." This was amplified to refer to " not only . . . a direct attack against this country, but also one against Europe as a whole." He enunciated his view on arms aid: " Machines and raw materials for the armament industry are being purchased from the west, but not arms . . . but the moment we see that a direct attack upon us is imminent, this [purchase of arms] will be done." He added that for the moment (Feb. 1951) an attack was not imminent, and his acceptance of aid did not go beyond machines and materials during the year. In March he had called on the west to withdraw from Korea because the war was " strategically futile," and in October protested against western attempts to " poison our people with propaganda." Tito sought friendlier relations with Greece—he discussed a rapprochement with Spyros Kapetanidis, the new Greek envoy, on Jan. 4, 1951—and made a new approach to Italy on the Trieste question when he saw Enrico Martino, the Italian minister, in March. He invited the western military

attachés to attend army manoeuvres in January for the first time since World War II and on Sept. 11 visited the British cruiser " Liverpool " off Split. He received a long succession of western representatives during 1951, among them George Perkins, U.S. assistant secretary of state (Feb.); Ernest Davies, British foreign under-secretary (Aug.); W. Averell Harriman (Aug.); and General J. Lawton Collins, U.S. army chief of staff (Oct.). On Nov. 14 Tito and George V. Allen, the U.S. ambassador, signed at Belgrade an agreement providing that the United States would " make or continue to make available " to Yugoslavia military equipment, materials and other services.

TOBACCO. The estimate of the world's tobacco harvest for the year 1951, excluding that of the U.S.S.R., was about 7,320 million lb. This was a slight increase on the previous year's total of 7,200 million lb. but lower than the 1949 total of 7,453 million lb. The estimate for 1951 production in the United States was about 2,226 million lb., as against the previous year's final total of 2,033 million lb. In Canada the 1950-51 crop was estimated at 151 million lb. of which all but 10 million lb. would be flue-cured. This record crop followed the lifting of all acreage restrictions in Ontario.

In Nyasaland, where fire-cured prices declined, growers expected to reduce the acreage sown. India's 1951 tobacco crop was estimated at 551 million lb., including 74 million lb. of Virginia leaf; both total and Virginia production had shown a small but steady decline during the previous three years. Among producers of oriental-type leaf, Turkey's 1951 crop was estimated at a little less than 200 million lb., or practically the same as in 1950, while in Greece production estimated at some 140 million lb. was 13 million lb. greater than in 1950 and appreciably above the prewar average.

Southern Rhodesia, however, suffered a setback in being unable to reach the planned target for 1951 of 125 million lb. Severe drought damaged the crop, and final figures for the auction sales of flue-cured Virginia showed that 88,432,802 lb. sold at an average price of 34*s.* 8*d.* per lb. This meant that the colony's 2,500 growers received less than £13 million sterling for a crop that would have been worth more than £20 million but for the failure of rains at a critical stage of the growing season. Of the total, 48,054,989 lb. were bought for shipment to the United Kingdom, Australia took 5,311,647 lb., South Africa 3,290,248 lb. and the local Rhodesian market took the record amount of 7,272,732 lb.

Cuba's leaf production for 1950-51 was expected to amount to 76-77 million lb. This would be 20% smaller than the preceding crop. The Cuban tobacco growers' association proposed to the government that the 1951-52 crop be limited to 51 million lb., including shade-grown leaf, instead of to 64·3 million lb. as provided in a decree of Oct. 1950. Exports of Cuban tobacco products during the first half of 1951 were valued at nearly $19 million or 62% above the value of exports in the preceding comparable period. The Cuban cigar manufacturers wished to mechanize their industry, but the government opposed this and banned machine-made cigars for the domestic market. Meanwhile the manufacturers proposed to export to the U.K. a proportion of machined productions under a new agreement reached with the British government for a resumption of a limited cigar trade with Cuba, previously barred by dollar restrictions. The British cigar importers, however, announced that they would not accept machined Havanas. This action was taken partly to protect the Jamaican cigar manufacturers, who feared the competition of a machined Havana product.

The British Treasury increased to $147 million the amount that might be spent on buying American tobacco during the 1951-52 season. The U.S. dollar allocation the previous year was originally put at $68·6 million. Owing to increases in prices at the American auctions, the allocation was first increased by $10 million, and later by a further $10 million, bringing the total sum allowed to $88·6 million. Great Britain's imports of U.S. leaf amounted in 1950 to 103 million lb., or 34 million lb. less than the previous year.

There were price rises of cigarettes and tobacco in several countries, notably in Great Britain where the manufacturers increased the price of popular brands by 1*d.* on 20, the first increase since 1920, when there was a rise of ½*d.* on ten. In Canada also most manufacturers, led by the Imperial Tobacco company, raised prices 2 cents (to 40-42 cents) on packets of 20, and government tax rose by 1 cent. The French régie increased cigarette prices, the popular Gauloises rising to Fr. 80 (about 1*s.* 8*d.*) from Fr. 65. In the Irish republic popular brands rose to 10½*d.* for 10, and pipe tobacco also increased by 1½*d.* an ounce.

The British industry and trade were perturbed by a marked decline in smoking, attributed to economic conditions. An analysis by the Royal Statistical society, issued in April, showed that consumption in the U.K. was 16% below that which preceded the 1947 budget, when the chancellor of the exchequer, Hugh Dalton, called for a 25% cut to save dollar expenditure. Before the end of 1951, retailers reported that consumption had further decreased. Canada reported that, in the first nine months of 1951, cigarette consumption had fallen from 13,648,747,399 to 11,543,348,781. Until 1951, Canadian consumption had been increasing for a number of years. No figures were available showing world consumption in 1951.

(G. WT.)

TOBAGO: *see* TRINIDAD AND TOBAGO.

TOGOLAND: *see* FRENCH WEST AFRICA; GOLD COAST; TRUST TERRITORIES.

TONGA: *see* PACIFIC ISLANDS, BRITISH.

TONGKING: *see* INDOCHINA.

TORP, OSCAR, Norwegian statesman (b. Skjeberg, Östfold, June 8, 1893), was the only son of a family of nine children. He was educated at an evening technical school as electrician and at 16 was an active trade union official. In 1918 he was elected a member of the executive committee of the Norwegian Labour party which a year later joined the Third (Communist) International. In 1922 Torp represented the Norwegian Labour party at the Comintern congress in Moscow, but in 1923 the party withdrew from this organization and Torp was elected its chairman; he remained in that office for the next 17 years. In 1934 he was also chairman of the Oslo municipal council and the next year was elected mayor of the capital but resigned after a few months when, as deputy minister of defence, he joined the first Labour government headed by Johan Nygaardsvold. From Nov. 1936 he served as minister of social affairs and from July 1939 as minister of finance. He kept this portfolio when the Norwegian government moved to London in 1940, but in 1942 became minister of defence. In Nov. 1945 he joined the new Labour government, formed by Einar Gerhardsen, as minister of supply and reconstruction but left the cabinet in Nov. 1947 to become chairman of the Labour group in the Storting. Chiefly concerned with questions of defence and foreign policy he accompanied Halvard Lange, the foreign minister, to Washington in Feb. 1949 during the talks which preceded Norway's joining the North Atlantic treaty. On Nov. 19, 1951, he succeeded Gerhardsen as prime minister.

TOURIST INDUSTRY. Tourist travel in western Europe during 1951 exceeded that of 1950. The number of tourists was a record; in the main this achievement was due

to the growing number of Britons taking holidays on the continent. In spite of this boom, the length of stay of visitors in individual resorts and in many European countries was shorter; nowhere were the 1950 figures bettered. Travellers from countries outside Europe showed a small increase in numbers compared with 1950, although there was a fall in United States travel during the first half of 1951 when the international situation was very unsettled.

Inclusive tours and day tours by motor coach, and travel by car or cycle had become increasingly popular. Although there was a considerable difference on most routes between the price of road and rail travel, there was evidence that road travel as a form of transport was preferred by increasing numbers of tourists. Air travel continued to expand thanks to the introduction of cheap air excursion fares on the important routes. Over 25% of the tourist travel in Europe by international routes was carried by air in 1951. Europe's tourist industry continued its postwar progress in rehabilitation and expansion. A number of new hotels were completed in capital cities, some with U.S. capital or Economic Co-operation administration funds. New liners were built and put into service on the long distance routes.

Visitors from the U.S. to Europe in 1951 were estimated at more than 320,000. Their expenditure, including fares, reached $365 million from approximately the same level of traffic as in 1950. Great Britain was visited by 144,000—a figure slightly above that for 1950. Their payments, including fares, were estimated at $100 million. The number of U.S. visitors arriving by air continued to increase. The proportion travelling by air in the first nine months was 41%, compared with 59% by sea, a remarkable testimony to the development of air travel. The Festival of Britain, attended by 450,000 visitors, undoubtedly caused the tremendous increase (30%) in travel from Europe, including countries, such as Switzerland, whose citizens had not previously taken holidays in Great Britain in large numbers. Altogether, 700,000 visitors came to Great Britain, including a substantial increase in visitors from the Commonwealth who, it had been found, usually stayed for long periods and spent a good deal of money. The total revenue from tourist traffic, including international fares paid to British carriers, exceeded £100 million for the first time.

British travel abroad reached a record total of more than 1,750,000 persons, including visitors to Ireland. The raising of the currency allowance to £100 contributed to this increase, the main reason for which lay in the continued high level of personal incomes. Average expenditure, however, was very much less than the £100 allowance. France was by far the most popular country, with well over 750,000 British visitors. Ireland, Italy, Switzerland, Spain and Austria were also popular.

Western Europe's tourist earnings from all countries, excluding fares, can be estimated at more than the equivalent of $1,500 million, of which $350 million were in U.S. dollars. Europe's total traffic, including inter-European travel, was well over 12 million tourists. Although expansion in shipbuilding, development of air transport and international rail and road services continued successfully, one of the greatest difficulties facing most countries in Europe, particularly Great Britain, was the shortage of first-class hotel accommodation. Visitors from English-speaking countries outside Europe expect to find in most establishments standards which only first-class hotels provide. In this category hotel capacity was sufficient to meet only the all-the-year round traffic. Because of the peculiar difficulties of the seasonal fluctuation in tourist traffic, however, it was felt that, without heavy capital investment, Europe's greatest potential dollar-earning export would be without suitable equipment and unable to expand. (*See* also BALANCE OF PAYMENTS.) (A. MWE.)

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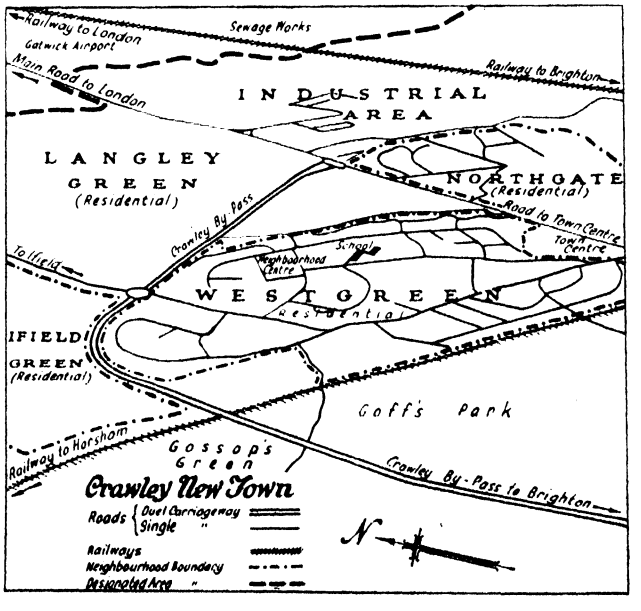
TOWN AND COUNTRY PLANNING. Planning Procedure. In all areas of Great Britain surveys precede or accompany the development plans. Those received by 1951 showed that when all were completed they would represent a very important addition to topographical, economic and sociological knowledge—amounting, indeed, to a new geography of Great Britain. In their compilation the assembly of a mass of facts already known but widely dispersed among different agencies is combined with the results of specific local enquiries. The contents of surveys vary as between areas of different character, but all include such essential data as population structure and distribution and vital statistics, location, classes and scale of industry (including agriculture), business and employment, transport facilities and traffic, the types, ages and quality of buildings, the trends of physical development, the existing public services, including those for education, health, welfare and leisure, and such aesthetic or "amenity" characteristics as architecture, historic monuments and landscape of special beauty. Survey results are presented on maps accompanied by written analyses.

The development plans, submitted to the minister at the same time as the surveys, make broad proposals for the guidance of future development, including redevelopment or changes within the areas already built up. Usually they indicate the extent to which towns should be further expanded, the areas to be reserved (or zoned) for agriculture, industry, residence and other purposes, the densities to be permitted, and the programme of public and permitted private development over the next 20 years. In large counties, where there are many towns, detailed town maps are submitted at this stage for only certain of the towns. The conception is that the areas subject to possibilities of more rapid change are dealt with earlier and in more detail. But the process of both survey and development planning is a continuous one, the Town and Country Planning act, 1947, having provided a normal period of five-yearly revision, with a possibility of revision at any time on special application or appeal. Thus, although the broad conception, when ministerially approved, is definite and reasonably firm, it is not so rigid as to preclude adaptation to emerging circumstances.

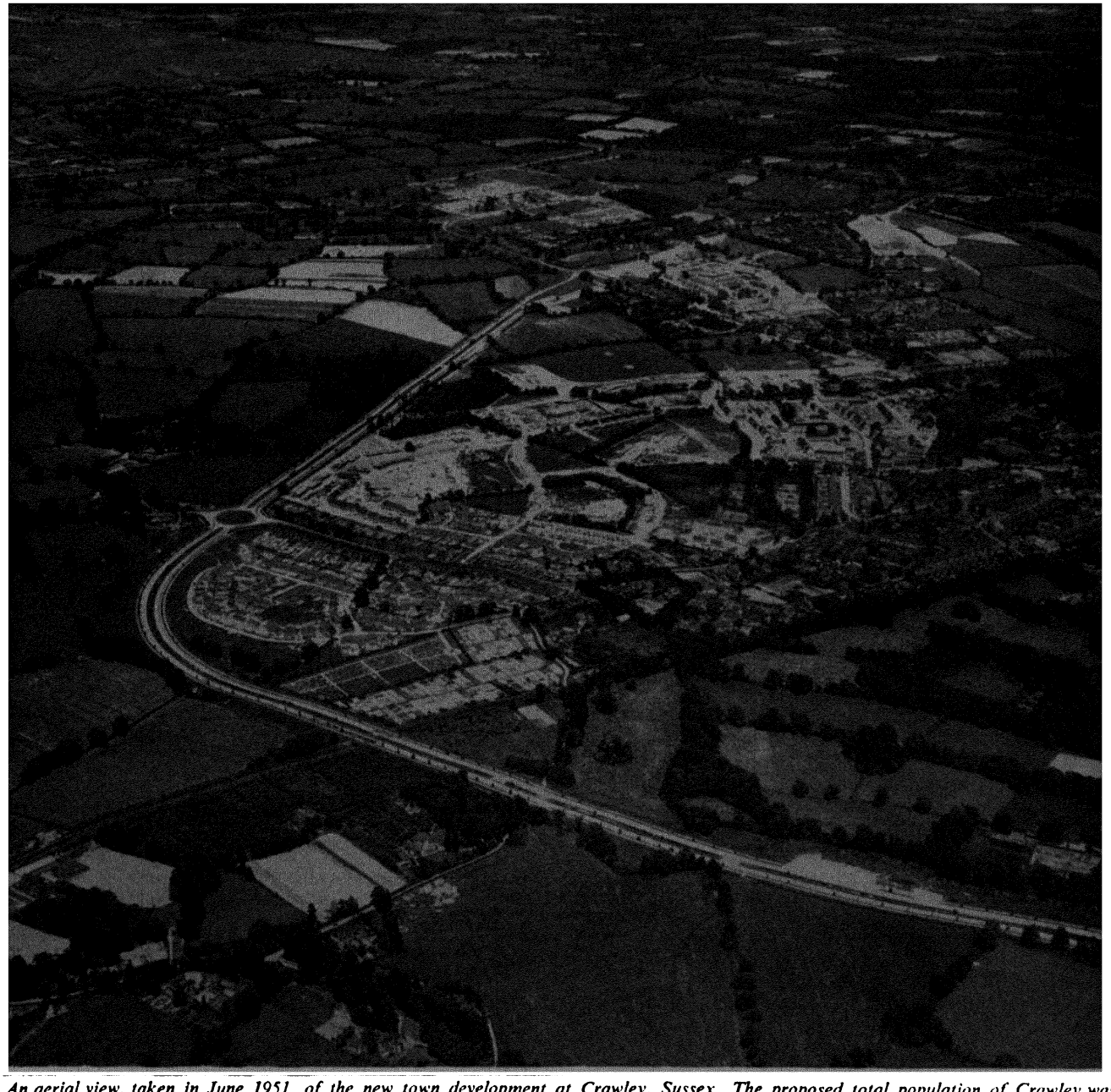


The ministries (for England, Wales and Scotland) have prescribed a standard notation for the various maps (which in some areas are numerous) that enables them to be printed intelligibly in black and white. This is important in view of the large number of people whose interests are affected by the plans, and the intention that, when approved, they shall be published at a reasonable price. In the meantime, on their submission to the ministries, copies are deposited at convenient places for public inspection, and before approval public inquiries or hearings will be held, if required, to consider objections.

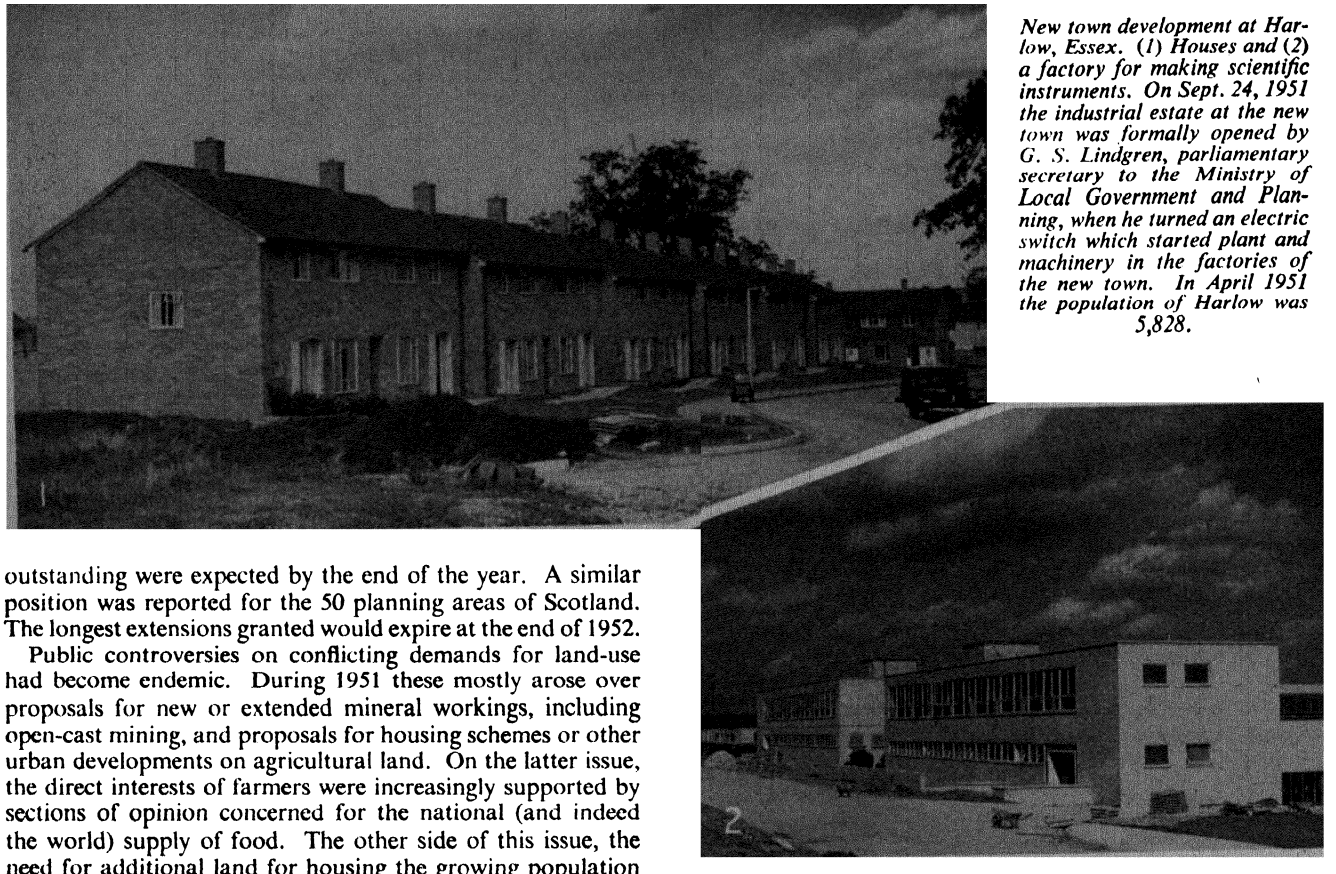
Before the completion and submission of the plans, in most areas public interest by 1951 appeared to be rather small. It appeared likely to increase as the surveys and proposals became known. The local planning authorities of some counties and some county boroughs sought to encourage public interest by publishing, in advance, outlines of their intended proposals, by staging exhibitions in various centres in their areas, and by arranging lectures and explanations to local organizations. In a few places, various voluntary societies or specially formed planning groups were beginning to study the proposals and to stimulate interest and discussion.

Great Britain. The Ministry of Town and Country Planning was amalgamated with the housing and local government departments of the Ministry of Health in Jan. 1951, under the name Ministry of Local Government and Planning. The name was again changed, by the new government, to Ministry of Housing and Local Government in October without change of planning functions.

In Great Britain, 1951 was not a year of new legislation or other innovations but one of steady work in the preparation of surveys and development plans. Under the Town and Country Planning act of 1947 these were required by July 1, 1951, but because of the shortage of trained personnel and for other reasons few were submitted by that date. Extensions of time had to be granted. From the 151 planning authorities in England and Wales 43 development plans had been submitted to the ministry by November, and half the 108



An aerial view, taken in June 1951, of the new town development at Crawley, Sussex. The proposed total population of Crawley was 50-60,000; in April 1951 its population was 10,701. *(See diagram on opposite page.)*



New town development at Harlow, Essex. (1) Houses and (2) a factory for making scientific instruments. On Sept. 24, 1951 the industrial estate at the new town was formally opened by G. S. Lindgren, parliamentary secretary to the Ministry of Local Government and Planning, when he turned an electric switch which started plant and machinery in the factories of the new town. In April 1951 the population of Harlow was 5,828.

outstanding were expected by the end of the year. A similar position was reported for the 50 planning areas of Scotland. The longest extensions granted would expire at the end of 1952.

Public controversies on conflicting demands for land-use had become endemic. During 1951 these mostly arose over proposals for new or extended mineral workings, including open-cast mining, and proposals for housing schemes or other urban developments on agricultural land. On the latter issue, the direct interests of farmers were increasingly supported by sections of opinion concerned for the national (and indeed the world) supply of food. The other side of this issue, the need for additional land for housing the growing population and the " overspill " from congested city areas, with the concomitant industrial and other developments, was also strongly urged, one of the secondary arguments being the considerable value of food obtainable from domestic gardens and allotments. The agricultural and food production pressures gained ground during the year, and the ministries issued recommendations to planning authorities to increase density somewhat and to exercise very great care to allocate, whenever possible, land of lower fertility for development. All parties agreed, however, that some withdrawal of land from agriculture was inevitable. The decisions as to choice of land and density were increasingly seen to be matters of planning judgment in the light of public demands and opinion.

The first results of the census at April 1951 showed that the population of Great Britain (48,841,000) had increased by 9% since the last census in 1931—the lowest rate of increase since 1801. Central areas of cities had declined in population, but the movement appeared to be to city fringes and rural areas just outside the bigger city-groups. A newly apparent feature was the large scale of individual internal migration. One in ten persons had moved to different areas, half of these to distances of at least 40 mi. There was also a considerable regional change: the midland area had gained 20% in the 20 years. By September the employed population had reached 23,482,000.

The National Parks commission made designation orders during the year under the act of 1949 for four large areas: the peak district, the lake district, Dartmoor and Snowdonia. The orders for the first two of these were confirmed by October and joint planning boards set up by the ministry. The first long-distance footpath, the Pennine way, was also approved. Other national parks and pedestrian ways were under active consideration.

The 14 new towns under the New Towns act of 1946 much accelerated their progress, nearly all their master plans having been approved and about 5,000 houses and many factories being completed or under construction at the end of the year. A designation order was made for a further new town at Congleton (Cheshire) in September. Other sites were under consideration. Progress was also made with the listing of buildings of historic or architectural interest. Among those listed were the houses of W. G. Grace, the famous cricketer, and T. E. Lawrence. A number of areas of special control of outdoor advertising were approved; mostly in districts of scenic beauty.

Redevelopment of blitzed and blighted areas made progress in a number of cities. The most notable was the " Lansbury " neighbourhood in Stepney-Poplar, London, part of which was completed as a " live " exhibition for the Festival of Britain.

In other countries the year was also one of progress with surveys and plans rather than of fresh legislation. One of the important plans was that for Sydney, Australia, which included a new town 40 mi. from the city. In August an important jubilee planning congress was held in Australia, and in July a conference of the International Federation for Housing and Town Planning at Hoddesdon, England.

(F. J. Os.)

United States. In the United States, many cities prepared revisions of their zoning ordinances to provide for a more realistic planning of commercial districts and protected industrial districts, the integration of zoning with urban redevelopment, off-street parking and loading, the sharp curtailment of " spot " zoning and the extension of zoned areas into the country. Only a few of the proposed ordinances were enacted into law; the enactment of others awaited the outcome of consultations with citizen groups. Many suburban and regional shopping centres were developed but, in 1951, it was apparent that former estimates for space needed for off-street parking and loading had been too low.

Park Forest, Illinois, as reported in the 1950 *American Planning and Civic Annual* and in the May 1951 *Architectural Record*, was a completely new town near Chicago which had attracted a good deal of attention. The town, adjoining the Sauk Trail forest preserve, consisted of a tract of 2,500 ac., of which 1,500 ac. were being developed. Provision was made for about 3,000 rental units and ultimately there would be 5,000 homes for sale. Redevelopment plans had been prepared or adopted in many cities and some land had been acquired, but in most cases construction was awaiting the release of vital materials. (*See* also HOUSING; LOCAL GOVERNMENT.) (H. Js.)

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TRADE UNIONS. International Movement. Tension between the rival trade union internationals—the Communist-dominated World Federation of Trade Unions (W.F.T.U.) and the western-dominated International Confederation of Free Trade Unions (I.C.F.T.U.)—increased during 1951, especially after the outbreak of the Korean war. In Europe there was little change in the relative strength of the rivals. The W.F.T.U. maintained its hold on the main bodies of French and Italian trade unionists, and the only notable change was the disaffiliation from it of the Finnish Trade Union federation, which sent observers to the Milan conference of the I.C.F.T.U. in July 1951. In Jan. 1951 the French government decided to expel the headquarters organization of the W.F.T.U. from Paris, and in April new headquarters were opened in Vienna, in buildings requisitioned by the Soviet military government, and without any consent being asked of the Austrian government or of the other occupying powers. It was announced that the move to Vienna had been made at the request of the "Austrian workers," but the Austrian Trade Union federation belonged to the I.C.F.T.U. In Feb. 1951 the Belgian government expelled the officials of the Miners' International attached to the W.F.T.U., and this body also moved its headquarters.

During 1951 the main fields of struggle between the W.F.T.U. and the I.C.F.T.U. were outside Europe; they lay especially in Asia and in the African colonial countries, and among the transport workers in Australia, New Zealand and some of the American countries. In the middle of 1951 the W.F.T.U. claimed an affiliated membership of 78 million in 56 countries, the great majority being in the Soviet Union and in China. To these must be added the trade unions in the Soviet-controlled countries of eastern and central Europe, including Eastern Germany, the French Confédération Générale du Travail (C.G.T.) and the Italian Confederazione Generale Italiana del Lavoro (C.G.I.L.), as well as a number of bodies of uncertain membership in a number of non-European countries.

The I.C.F.T.U. claimed at its Milan congress a membership of 52 million in 66 countries, including the main bodies in the United States (both the American Federation of Labor [A.F. of L.] and the Congress of Industrial Organizations [C.I.O.]), Great Britain, the Scandinavian countries, the Netherlands, Belgium, Western Germany, Greece, India, Pakistan, Canada, New Zealand, South Africa, most of the Latin American countries except Argentina, and a number of colonial countries. The Swiss and the Australian Trade Union federations joined the I.C.F.T.U. during 1951, as well as those of Iceland, Malaya, Bolivia, Thailand, Tunis, the Gold Coast, the Philippines, Libya, the Cameroons and certain other colonial areas.

The I.C.F.T.U. was engaged during 1951 in building up a series of regional federations in the main divisions of the world and in extending help to the growing trade unions of the less developed countries, both for their own benefit and in an attempt to detach them from connections with the W.F.T.U., which continued to appeal to colonial nationalism to shake off the yoke of "Anglo-American imperialism." In Europe the I.C.F.T.U. set up in Nov. 1950 a European regional organization with 20 million affiliated members and with a regional secretariat in Brussels. This body began at once to concern itself with the problems of European economic integration. It took over the functions of the E.R.P. trade union advisory committee, and became responsible for handling the trade union case in connection with the Schuman plan. This raised certain difficulties for the British representatives, in view of the British decision to remain outside the plan and of British difficulties in respect of European economic unity. The British, and also the Swedish, trade union delegations abstained from voting on some of the resolutions dealing with these matters, while announcing that they would do nothing to stand in the way of the other countries' efforts to promote economic integration. The principal demands approved by the European regional organization of the I.C.F.T.U. included the gradual reduction of tariffs and import restrictions in inter-European trade, the elimination of differences between home and export prices in this field, and the establishment of a joint European planning commission to plan the expansion of markets and production and to follow a concerted policy of full employment. It was also proposed in connection with the Schuman plan that the I.C.F.T.U. should represent the united trade union movements of the participating countries within the various international bodies to be set up under the plan. (*See* also EUROPEAN COAL AND STEEL POOL.)

During the year I.C.F.T.U. delegations visited Latin America, southeast Asia, west, central and north Africa, and parts of the near and middle east. Regional conferences were held in the Americas and in Asia, and there was a preliminary conference in west Africa. Plans were made for further conferences, including one in the near and middle east. The I.C.F.T.U. launched an appeal for a sum of £250,000, to be spent over three years exclusively on trade union development in areas in which trade unionism was in a rudimentary state; and the British Trades Union congress led off with a contribution of £60,000 to this fund, and also issued an appeal for further contributions to its affiliated unions. Before this fund was instituted, the A. F. of L. had launched an international campaign of its own and had set up regional offices in a number of areas, and the relations between this campaign and that of the I.C.F.T.U. were not clear. The A.F. of L. took a more exclusively militant anti-Communist line than many of the European bodies considered to be fully appropriate for the purpose of building up free trade unions in the colonial countries, though the I.C.F.T.U. as a whole had unequivocally denounced totalitarian practices and had refused to recognize as "true" trade unions any bodies which were under government domination. On this basis it refused to recognize either the workers' organizations sponsored by the Franco government in Spain or the Peronista Labour unions in Argentina; and it also took steps to bring about a reorganization of the Greek trade unions designed to set them free from undue government control.

An Asiatic regional trade union conference was held under I.C.F.T.U. auspices at Karachi, Pakistan, in May 1951, and an Asiatic regional organization was set up. Twelve countries

were represented. The conference protested against the restrictions imposed on trade union development by the government of Vietnam, and demanded full freedom of organization throughout Asia. It set up a special committee to report on trade union organization among workers on plantations and took steps to secure recognition as a consultative agency by the United Nations, the International Labour organization (I.L.O.) and other U.N. regional organizations in Asia. The I.C.F.T.U. also helped in the reorganization of the Japanese trade unions under the Sohyogikai—the recently established general council of Japanese trade unions, to which the majority of organized workers in Japan were now attached. Colombo was chosen as the provisional centre of the Asiatic regional organization.

In north Africa, attention was concentrated in the first instance on the French overseas territories. An I.C.F.T.U. delegation visited Tunisia, Morocco and Algeria in Dec. 1950 and helped to reorganize the trade unions in these areas. As a result the General Workers' union of Tunis left the W.F.T.U. and joined the I.C.F.T.U. A similar delegation to west Africa in Jan.-April 1951 visited Nigeria, the Gold Coast, Gambia, Sierra Leone and French West and Equatorial Africa. The west African regional conference held at Douala, in the French Cameroun, in April 1951 called for the establishment of an African regional organization of the I.C.F.T.U. and a provisional regional organization was set up.

In America, an Inter-American regional trade union conference was held in Mexico City in Jan. 1951, and a regional organization representing 21 million trade unionists in 21 countries was formally constituted (Organización Regional Interamericana de Trabajadores). Havana was chosen as the office centre. The conference was largely concerned with organizing opposition to totalitarian tendencies in Latin American countries, especially Argentina.

When the I.C.F.T.U. was set up, an invitation was issued to the Christian trade unions to join it, on condition of their dissolving their separate International federation. Prolonged negotiations failed to achieve agreement and in May 1951 the Confédération Française des Travailleurs Chrétiens finally decided not to join the I.C.F.T.U. by a vote of 2,072 to 962. The International Federation of Christian Workers maintained its separate existence; but some arrangements for collaboration between it and the I.C.F.T.U. in connection with the United Nations and its specialized agencies was made, especially in European affairs.

The I.C.F.T.U. received full recognition as a consultative body in relation to the U.N. Economic and Social council, the I.L.O., U.N.E.S.C.O. and other specialized U.N. agencies. It opened in July 1950 a New York office for the maintenance of contact with these bodies, and was active in pressing trade union claims, particularly before the I.L.O. and the Economic and Social council. It concerned itself especially with the insistence on the need for international policies making for full employment, with the human rights charter and with questions of forced labour and freedom of trade union organization throughout the world.

Commonwealth. The trade unions of the Commonwealth countries held a second Commonwealth Trade Union conference at Geneva in June 1951. Delegates were present from Great Britain, Australia, New Zealand, Canada, South Africa, India, Pakistan and Ceylon. Arrangements were made for a further meeting in 1952, and for help from the bodies represented in promoting trade union development throughout the Commonwealth. The British T.U.C. provided scholarships for a number of trade unionists from India and Pakistan to attend special training courses in Great Britain, and plans were made for similar courses for students from colonial areas.

Great Britain. For the second year in succession there was a small decrease in the affiliated membership of the British Trades Union congress from 7,833,000 in 1950 to 7,827,000 in 1951. The fall was entirely in male membership, from 6,666,000 to 6,608,000, the number of women rising from 1,217,000 to 1,220,000. The largest reductions were in the railway group (34,000), among general workers (20,000) and civil servants (14,000). Some groups increased their membership—for example cotton (10,000), printing and paper (12,000) and public employees (11,000). In other groups there were only small changes. The two biggest unions—the Transport and General Workers (1,242,000) and the General and Municipal Workers (786,000)—both suffered a small decline in membership, as they had done the previous year.

The most important trade union event of 1951 was the abrogation of the system of compulsory arbitration that had been in force since the war years. The National Arbitration order (Order 1305) was withdrawn on Aug. 2, 1951, and was replaced by a new Industrial Disputes order under which arbitration became entirely voluntary. An Industrial Disputes tribunal replaced the National Arbitration tribunal, but the minister of labour might not refer any dispute to it unless he was satisfied that full use had been made of any existing machinery for negotiation and conciliation. Awards of the tribunal became implied terms of contract between employer and workmen; but there was no prohibition of strikes or lock-outs and no criminal penalty for disobeying an award. (*See* STRIKES AND LOCK-OUTS.) The trade unions also ceased to accept any general responsibility for "wage restraint"; and many applications for wage advances to meet the increased cost of living were put forward during 1951. (*See* WAGES AND HOURS.)

The Trades Union congress and its general council gave full support to the government's policy in respect both of the Korean war and of rearmament. They also continued to participate in the drive for higher production and in the work of the Anglo-American Productivity council. A number of reports of teams that visited the United States, dealing with particular industries or problems, were published during the year. An effort was also made to strengthen the regional machinery of the Trades Union congress, which had been developed mainly in connection with the productivity drive. The T.U.C. regional committees were chosen by, and consisted entirely of, full-time trade union officers in the various regions; they were the principal bodies with which the government dealt in handling regional questions affecting labour, and they provided the delegates for numerous special regional bodies. They were entirely separate from the local trades councils, which consisted of delegates from trade union branches in each locality and had their own federations, mostly on a county basis. The trades councils mostly acted as local agents for the T.U.C. but had no share in policy-making. In 1951 there were 523 trades councils recognized by the T.U.C. (excluding some not recognized because they refused to accept T.U.C. discipline): they had 2,994,000 affiliated members, more than half the T.U.C. union membership not belonging to them. The main cause of non-recognition was refusal to take action against Communist infiltration. The T.U.C. convened an annual conference of recognized trades councils; but its functions were purely advisory.

The annual Trades Union congress, which met at Blackpool during Sept. 3-7, was chiefly concerned with questions of defence policy and with wages and cost of living. The chancellor of the exchequer (Hugh Gaitskell) addressed it on the need for higher productivity and moderation in wage demands. The congress carried a resolution demanding more effective price control, reconsideration of the government's

refusal to spend more on subsidies to keep down living costs, enquiry into costs and methods of distribution, stricter limitation of profits and removal of purchase tax from household necessities. It also demanded a more comprehensive system of government purchase and marketing of essential goods. A resolution moved by the Electrical Trades union deploring the rise in profits and demanding all-round wage increases at the expense of profits was defeated by 5,284,000 votes to 2,199,000. This was the principal trial of strength between the general council and its left-wing critics. A proposal to reduce the compensation paid to former owners of nationalized property was defeated by a similar majority. Arthur Deakin, secretary of the Transport and General Workers' union, was elected chairman of the general council for 1951-52. (G. D. H. C.)

United States. All branches of organized labour in the U.S. were concerned throughout 1951 with the operation of the defence mobilization programme and with their share in its administration. From the beginning of the emergency created by the war in Korea, the spokesmen for union labour pressed for an extensive and effective system of economic controls to be exercised by the federal government. They wanted severe price and rent controls, but flexible wage regulation; they demanded increased taxes on business and the higher incomes; they opposed compulsory allocation of manpower; and they insisted on full, or equal, representation of organized labour on the government's emergency regulatory agencies. To make their influence felt, the American Federation of Labour (A. F. of L.), the Congress of Industrial Organizations (C.I.O.), the Railway Labour Executives association and the International Association of Machinists set up, in Dec. 1950, the United Labour Policy committee.

By the beginning of 1951 the union representatives had decided that mobilization policies and administration were working against their interests. Their principal grievances appeared to be that an excessive share of the burden of rearmament was being imposed on labour, that price control was lax while wage control was firm and that unions were not adequately represented in making and applying mobilization policies. These issues were brought to a head in February by the mass resignation of labour representatives from all mobilization agencies. In March the United Labour Policy committee called a meeting of 1,000 union leaders in Washington, D.C., which devoted itself to strong public attacks on the handling of practically the entire programme of rearmament.

The government promptly took steps to devise some means of conciliating organized labour. The form conciliation finally took was the creation by the president of the National Advisory Board on Mobilization Policy, composed of representatives of farmers, business, labour and the public. This new agency, answerable directly to the president, initiated several of the reforms demanded by the unions and, more important, enhanced the prestige of organized labour. Consequently the representatives of labour returned to the agencies they had left a few months before. In addition they were granted a concession of considerable practical importance. The reconstituted Wage Stabilization board, which was originally charged solely with making and interpreting wage policy, was empowered to settle labour disputes and thus become an arbitration as well as a stabilization agency.

In view of the policy of the administration to restrain the inflationary influences of large and expanding military expenditures by preventing excessive increases in wages and prices, it was to be expected that public policy toward wages would become the leading labour issue of the year. It was, in fact, the attempt of organized labour to make wage control more flexible that led to its revolt against the Wage Stabilization board and other agencies. The upshot was that wage increases equal to the rise in living costs and an annual increase in productivity of about 2·5% were allowed. Wages went up during the year and by Nov. 1951 factory hourly earnings were 11 cents greater than in Nov. 1950—a rise not very different from that of the year before. In Dec. 1951, when the steel contract ended, the wage and related demands of the United Steel Workers, estimated to cost from 30 to 40 cents an hour, made the future of wage stabilization uncertain.

The second important issue was the union shop—a condition under which all employees of a shop, factory or company are required, after a specified lapse of time, to join the union. This issue rose to importance because of an amendment to the Railway Labour act which, for the first time in the history of that statute, made it lawful for railway employees to bargain for the union shop, and because of an amendment to the Taft-Hartley act which removed the requirement of a poll of employees as a prerequisite to a union-shop demand. The result was a wave of union-shop negotiations, an increase in the number of such shops, a probable growth in membership and greater union security.

Of the two federations of labour, the A.F. of L. and the C.I.O., the A.F. of L. remained by a substantial margin the larger organization. Apart from a small growth in the membership of its affiliated unions, it gained 600,000 members by the reaffiliation of the machinists' union. The C.I.O., on the other hand, was still trying to recoup the heavy losses in membership it experienced from the expulsion in the past several years of about ten Communist-dominated organizations. (L. Wo.)

TRANSJORDAN: *see* JORDAN.

TRIESTE, THE FREE TERRITORY OF. Small state at the northern end of the Adriatic sea, between Italy and Yugoslavia, demilitarized and neutral, whose integrity and independence were assured from Sept. 15, 1947, by the Security council of the United Nations. Total area: 293 sq.mi. Total pop. (mid-1950 est.): 378,000. Military governors under provisional régime: Zone A, British-U.S. (area, 96 sq.mi.; pop., 318,000), Major General Sir John Winterton; Zone B, Yugoslav (area, 197 sq.mi.; pop., 60,000), Colonel M. Stamatović. Mayor of the city of Trieste, Gianni Bartoli.

History. Throughout 1951 a sense of rising indignation animated the predominantly Italian population of the free territory. This was stimulated by the departure from Zone A of Lieut. General Sir Terence Airey, who was regarded as Italophil, in March. He was succeeded by Major General Sir John Winterton, who was looked at askance by the Italians because on April 18 he met the Yugoslav Colonel M. Stamatović, his opposite number in Zone B; this was the first time that the zone commanders had met. A Yugoslav rally on July 22 in Capodistria, the capital of Zone B, in favour of the annexation of that zone by Yugoslavia, answered the excitement in Italy proper during the same month (*see* ITALY); this was capped by the opening of Zone B to United States and British military and civilian tourists on July 30. The Italian Triestines had also felt outraged since March 1951 when Allied military government had refused to allow a judicial appeal from the free territory to the Italian Supreme court, thus denying the sovereignty of Italy. This decision led to strong protests in Rome. Later in the year, on Nov. 4, when a census was taken in Italy it was held in Zone A as if it were a part of the Italian republic.

Communal elections were due to be held in Zone A in Oct. 1951, but partly at Alcide De Gasperi's request it was announced on Sept. 6 that they were to be postponed and on Oct. 6 it was stated thay they would not take place until

1952. The Independence front of the free territory, led by Dr. N. Stokla, which championed the independence of the whole area as originally laid down in the Italian peace treaty, protested against the delay. The views of this front were expressed by the newspaper, *Corriere di Trieste*, which was said to enjoy British protection; this supposition contributed to the unpopularity of the British in Italian nationalist circles; it was, however, categorically denied in July. It should be added that, since Trieste was more prosperous than the rest of Italy and since the Allied forces provided much employment which could otherwise not be replaced, many unpolitically minded Triestines genuinely desired the prolongation of the *status quo*, while others wished for the independence and union of the two zones. It was rumoured that the U.S.S.R. favoured the *status quo* as providing an excuse for barring the Austrian peace treaty and that the United States had no great desire to close down the U.S. bases in Trieste; Great Britain certainly had no interest in remaining in the free territory.

On March 11, 1951, just before the Italian visit to London, Marshal Tito made a speech in which he declared that the time was not ripe for a solution of the question of Trieste, but on April 28 he suggested—what the western powers advocated—direct negotiation between Yugoslavia and Italy. In September, after the excitements of the summer, the Yugoslav foreign minister, Edvard Kardelj, made several public pronouncements in favour of a compromise with Italy over Trieste. These contrasted sharply with his statements in 1950 and showed that Belgrade now felt it important that the question should really be solved: it was possible that the Soviet note handed to representatives of the three western powers on Nov. 17, demanding that the peace treaty be at last carried out in Trieste, was due to the Kremlin's fear of an Italo-Yugoslav settlement. (E. WI.)

Foreign Trade. (Million lire, 1950; 1951, six months, in brackets): imports 25,408 (14,927); exports 5,239 (4,773). Main sources of imports (1950): U.S. 23·9%; Western Germany 5·5%; Austria 3·0%; Switzerland 2·6%. Main destinations of exports: Austria 18·7%; Western Germany 11·4%; Greece 2·4%; Turkey 2·2%.

Finance. Budget (million lire, 1951-52 est.): revenue 12,730, expenditure 15,680. Monetary unit: *lira* with an exchange rate (Aug. 1951) of 1,749 lire to the pound and 625 lire to the U.S. dollar.

TRINIDAD AND TOBAGO. British colony, two islands off the South American continent north of the Orinoco river delta. Area: 1,980 sq.mi. Pop.: (1946 census) 557,970 (27,208 in Tobago); (Dec. 1950 est.) 635,839 (31,000 in Tobago). Language: English, Hindu, French, Spanish. Religion: Christian 70%; Hindu 23%; Moslem 6%. Chief towns (pop. 1950): Port of Spain (cap. 105,700); San Fernando (32,870). Administration: governor; executive council, 3 *ex-officio* members, 5 elected in secret ballot by legislative council, 1 nominated; legislative council, speaker, 3 *ex-officio* members, 5 nominated, 18 elected. Governor, Major-General Sir Hubert Rance.

History. Speaking on Oct 19, 1951, the governor said that the new constitution, which came into operation in Oct. 1950, had " worked extremely well." Under this constitution, the executive council, with a majority of elected members, was the chief instrument of government policy and was responsible to the legislature. The governor retained reserve powers in defence, external relations and finance.

Abnormally heavy rains during the first half of the year caused damage to sugar, cacao, citrus and coffee crops. Among other agricultural products, rice production was good, and forest prospects very encouraging. Further efforts were made to diversify the economy by increased industrialization; and a Cement Industry (Development) act was passed towards the end of the year. Responsible trade unionism made satisfactory progress during 1951, and a new public service commission proved its worth. A local government department was established, and the first local government commissioner, Sir John Imrie, arrived in November.

A steady rise in the cost of living caused concern in Trinidad as in other colonies in the area. A new index of retail prices was to be brought into force early in 1952. The new currency board for the eastern group of colonies, with headquarters in Trinidad, was constituted at the end of 1950, and the first issue of unified currency notes for all the British Caribbean colonies with the exception of Jamaica and British Honduras was made on Aug. 15, 1951.

Education. Pupils enrolled (1950): elementary 115,300; secondary 5,600. Government expenditure $5,287,000.

Finance and Trade. Currency: British Caribbean dollar ($4·80=£1). Budget (1951 est.): revenue $55,415,814; expenditure $53,832,725. Foreign trade (1950): imports $169,226,000; exports, incl. re-exports, $177,592,000. Production (1950): petroleum 20,632,000 bbl.; asphalt 121,850 tons; rum 2,120,000 proof gal.; cocoa 72,300 tons exported; sugar crop (1951) 140,600 tons. (P. H.-M.)

TRIPOLITANIA: *see* LIBYA.

TRISTAN DA CUNHA: *see* SAINT HELENA.

TROPICAL DISEASES. *Amoebiasis.* Interest continued to centre on the therapeutics of amoebiasis which in 1951 was still not entirely satisfactory. H. H. Anderson and E. L. Hansen presented a particularly well-documented review of the position (*Pharmacol. Rev.*, *2*, 3:399, Baltimore, 1950). Frequently, testing of amoebicidal drugs had developed as an offshoot of other research. *In vitro* tests appeared to indicate that a wide range of compounds was active against *E. histolytica* though their mode of action was unknown.

The response of intestinal amoebiasis to aureomycin encouraged the use of the newer antibiotics. Nor el-Din treated nine patients in relapse with terramycin (*J. Roy. Egypt. Med. Ass.*, *34*, 2:150, Cairo, 1951). The usual total dose was 60 capsules, or 15 gm., over a period of five days. The drug was well tolerated. Treatment was controlled by daily stool examination and sigmoidoscopy. Amoebae disappeared in an average period of 2-4 days. Tenesmus improved on the third day, but diarrhoea persisted a little longer.

Three patients were given a combination of aureomycin with terramycin in a dosage of 10 gm. for a period of five days. The amoebae disappeared in one day in two cases and in two days in a third. The conclusion appears to be that improvement was more rapid than with terramycin alone. Ruiz Sanchez and others appear to have obtained similar results (*Medicina*, *30*, 611:365, Mexico City, 1950).

Fumagillin, a new antibiotic, was isolated from an aspergillus culture. Though its activity against bacteria and fungi was small and though it had no effect on viruses, it was a potent amoebicide. McCowen and colleagues established that it could inhibit *Entamoeba histolytica* in dilutions as high as 1 in 130 million, while in rats caecal infections with this organism were cleared up by administration of 12 mg. of fumagillin per kg. body-weight in the space of two days. It was equally efficient in young rabbits with amoebiasis, and A. K. Hrenoff and M. Nakamura found it very active in monkey amoebiasis (*Proc. Soc. Exp. Biol.*, *77*:162, New York, 1951). To these animals it was given in doses of 50-125 mg. per kg. for 5 days and there was no recurrence in 8-14 weeks of observation.

A crystalline form was prepared. It was a monobasic acid containing four conjugated double bonds with a dicarbonyl or *a*-hydroxy carbonyl group. Fumagillin possessed the attributes of the ideal amoebicide as it killed the amoebae in the cystic and trophozoite stages in the lumen of the gut.

H. Most, J. W. Miller, E. B. Grossman and N. Conan reported favourably upon bacitracin in the treatment of 51 patients with proven intestinal amoebiasis (*J. Amer. Med. Ass., 143*, 9:792, New York, 1950). The total daily dosage varied from 40,000 to 120,000 units by mouth over a period of 5-20 days and in only three patients was it obviously unsuccessful; but in a large proportion a parasitic relapse was reported in an average period of 20 days. Of the 51 patients 66% were cured after one course of treatment, and of those who relapsed and were re-treated once or twice, 33% were eventually cured.

In eight who were moderately ill the clinical improvement was striking within the first few days of treatment. The mode of action of bacitracin was uncertain and no detectable level of the drug in blood or urine could be found in five patients two to four hours after single doses of 10,000 to 50,000 units.

Malaria. Klinger reopened the much-debated subject of the role of the spleen in malaria (*Ztsch. f. Tropemed. u. Parasit., 1*, 2:195, Hamburg, 1949). Splenectomy was usually undertaken in tropical countries on account of rupture in chronic malaria. An opportunity presented itself of observing a patient who, as the result of bomb injury, had the whole spleen destroyed. On his transfer to Germany he passed through several endemic areas of malaria, so that a month after this accident he suffered from a typical malarial attack and numerous forms of *P. vivax* were found in his blood. It was a particularly severe infection which did not react to atebrin or quinine and the author concluded that in a splenectomized subject infection acquired increased virulence.

Wernicke's Encephalopathy and Avitaminiosis B_1. E. K. Cruickshank described this syndrome as it occurred amongst British prisoners of war in Changi camp, Singapore (*Quart. J. Med., 19*, 76:327, Oxford, 1950). As originally described the clinical signs were paralysis of the eye muscles, reeling gait and disturbances of consciousness. The pathological findings were punctate haemorrhages in the vessel sheaths of the third ventricle, in the corpora quadrigemina and in the retina.

During their period of internment nearly 100 patients presented these clinical features. Beriberi was prevalent and the ratio between vitamin B_1 and non-fat calories was below the critical level of ·3 mg. per 1,000. In five cases the onset was preceded by diarrhoea. Nystagmus was the earliest sign, soon followed by severe, effortless vomiting. Subsequently diplopia, ophthalmoplegia and mental disturbance were noted.

Small doses of vitamin B_1 (2-4 mg. by injection) brought almost immediate cessation of vomiting and disappearance of ocular paralysis. Six recovered but three displayed residual mental changes. In two patients who died characteristic haemorrhagic lesions were found in the basal ganglia.

Trypanosomiasis. Two papers from Guatemala dealt with *Trypanosoma rangeli*, first described by Montenegro in 1943. J. R. de Leon found 17 children infected with this parasite, all of which were diagnosed by the demonstration of the trypanosome in thick stained bloodfilms (*Publ. del Instit. de Invest. Cientificas*, 163, Guatemala, 1949; " Un numevo foco de trypanosomiasis humana por el *T. rangeli* descubierto en Guatemala," *ibid.*, no. 4, 1950). As the infection was slight it was probable that the actual incidence was a great deal higher; indeed there were some grounds for believing that it was commoner than was Chagas's disease (*T. cruzi*) in that area. *T. rangeli* was a very slender trypanosome with well-developed undulating membrane and long free flagellum. This trypanosome was transmitted by the triatomid bug, *Rhodnius prolixus*, and in some districts infected bugs were found in dwellings in association with infected children. X-rays of these seemed to indicate enlargement of the cardiac shadow which might be due to trypanosomiasis.

Aureomycin in the Treatment of Yaws. E. H. Loughlin and colleagues treated 30 cases of yaws in hospital in Haiti (*Amer. J. Trop. Med., 31*, 1:20, New York, 1951). Aureomycin, in total dosage of 10 gm., was given by the mouth for five consecutive days. In infectious lesions spirochaetes had diminished in numbers 48 hr. after commencement of treatment. Secondary lesions started to heal within 24 hr. and by the fifth to sixth days most crusts had become detached, whilst the pain of dry palmar and plantar lesions subsided in one to five days. In tertiary lesions, too, the response was good, but not so rapid as in secondary lesions. In some tertiary cases aureomycin dusted on the ulcers hastened healing.

Leprosy. The authentic and really striking advances made in the treatment of this hitherto incurable disease aroused much sympathetic interest. M. Smith produced an important communication on the absorption, distribution and excretion of sulphetrone, diasone and the active principle of the sulphetrone-diaminodiphenyl sulphone (D.A.D.P.S.) (*Leprosy Review, 20*, 3:78, London, 1949). In 24-hr. stools it was shown that the mean rate of excretion of D.A.D.P.S. was 4%, of diasone 46% and of sulphetrone 85%. It was thus shown that D.A.D.P.S. was extremely well absorbed and slowly excreted in the urine and was therefore well suited for oral administration.

Floch and Destombes reported on the results of their use of promin, diasone and the parent sulphones during three years trial on undifferentiated and tuberculoid leprosy (*Bull. Soc. Path. Exot., 43*, 5-6:294-303, Paris, 1950). Their conclusions were in favour of the treatment with the important exception that it was not as effective in preventing reacting tuberculoid cases from becoming lepromatous.

A new therapeutic was Thiosemicarbazone (TB-1) introduced by M. Vegas and colleagues who, learning of its effects on tuberculosis reported from Germany, tried it out on 43 patients of the lepromatous type (*Intern. J. of Leprosy, 18*, 4. pt.1:451, New Orleans, 1950). Large doses up to 650-900 mg. (18 tablets) were given. The results were followed up for five to six months and in the majority of cases important regression of the lesions was registered. Twenty-seven patients had reactions during treatment, but in two only was it severe; in only four, however, was there any appreciable decrease in the number of bacilli.

Other communications on this new drug were by J. Schneider and colleagues, in 14 cases, one for 11 months, eight for nine months, and five for three months (*Rev. Bras. Leprologia, 18*, 4:186, São Paulo, 1950). Daily doses up to 200 mg. were given. The drug was considered decidedly effective in leprosy and was likely to be particularly useful in cases which did not yield to other drugs.

(P. H. M.-B.)

TRUCIAL SHEIKHDOMS: *see* ARABIA.

TRUJILLO Y MOLINA, RAFAEL LEONIDAS, Dominican statesman (b. San Cristóbal, Dominican Republic, Oct. 24, 1891), was educated in state schools, and also attended the Centro de Ensenanza Militar and the University of Santo Domingo. He entered the army of his country as a second lieutenant in 1918, and advanced through the grades until he had become a brigadier general by 1927 and commander in chief of the army by 1932. As the leader of the Dominican party he was president of the republic from 1930 to 1951. On July 17, 1951, he announced that he would not seek a new term and his party nominated his brother, Major General Hector B. Trujillo y Molina, as its candidate for the election to be held in 1952.

TRUMAN, HARRY S., U.S. statesman (b. Lamar, Missouri, May 8, 1884). He was elected to the U.S. Senate in 1934 and re-elected in 1940. Elected vice-president of the U.S. on Nov. 7, 1944, he became 33rd president after the death of Franklin D. Roosevelt on April 12, 1945. He was elected president on Nov. 2, 1948. (For his early career see *Encyclopædia Britannica.*)

In 1949 President Truman stepped forward as a confident, determined and aggressive leader of his party, despite the presence of a hostile combination of Republicans and conservative Democrats in congress. In Dec. 1950, six months after the outbreak of the Korean war, he proclaimed the existence of a national emergency. The year 1951 was, perhaps, Truman's most difficult year in the White House. He asked congress for a $71,594 million budget and $16,500 million in new taxes, though he later reduced that figure to $10,000 million. He reiterated demands for enactment of the Fair Deal. A combination of Republicans and southern Democrats reduced the budget by $4,750 million despite his protests, raised taxes by only $5,691 million and blocked action on his domestic programme. President Truman's attitude toward the Soviet Union hardened steadily in 1951 until it gave concern to British and French statesmen lest it provoke another global war. In April Truman relieved General Douglas MacArthur (*q.v.*) as United Nations commander in Korea. Congressional exposure of political corruption, favouritism and laxity harried the administration. At first Truman discounted the revelations and refused to accept proposals for reforms and personnel changes. As the year ended, however, he was engaged in "house-cleaning." President Truman had numerous clashes with the press, in which he accused reporters at Washington and in Korea of misrepresenting the facts. As a result, he issued a security order restricting release of public information of a non-military nature. It was criticized by some newspapermen as censorship. On his possible running for the presidency again in 1952, Truman was reserved. He said that he had made up his mind about 1952 plans, but that he was not telling anybody. He did note, however, that the 22nd amendment barring a third term did not apply to him. (R. TU.)

TRUST TERRITORIES. Former German colonies and islands which became mandates after World War I and trust territories after World War II; South-West Africa, which remained mandated; and former Italian Somaliland which became a trust territory with Italy administering on April 1, 1950. Total area: 1,247,761 sq.mi.; total population *c.* 18,900,000. Certain essential information is given in the table.

TRUST AND MANDATED TERRITORIES

	Area (sq. mi.)	Population		Administering Authority
South-West Africa*	317,725	(1951 cen.)	430,354	South Africa
Togoland (Br.Adm.)	13,041	(1948 cen.)	382,768	United Kingdom
Togoland (Fr.Adm.)	22,463	(1948 est.)	953,000	France
Cameroons (Br.)	31,150	(1949 est.)	1,000,000	United Kingdom
Cameroun (Fr.)	169,436	(1948 est.)	2,902,400	France
Tanganyika	362,688	(1948 cen.)	7,412,327	United Kingdom
Ruanda-Urundi	20,120	(1951 est.)	3,796,727	Belgium
New Guinea (Northeast New Guinea; Bismarck archipelago; certain of Solomon Is.)	93,000	(1947 est.)	900,000	Australia
Western Samoa	1,133	(1951 cen.)	82,493	New Zealand
Nauru	8	(1948 est.)	3,162	Australia
Pacific Is. (Marshall, Marianas and Caroline)†	687	(1950 est.)	54,843	United States
Somaliland	216,310	(1949 est.)	971,879	Italy

* Mandate. † Former Japanese mandates.

History. For the first time, in 1951, the United Nations Trusteeship council had to handle reports from all the 11 trust territories. Partly because of its own experience and partly as a result of suggestions made by the general assembly, the council adopted a procedure by which it examined the Pacific reports at its winter sessions (Jan.-March) and the African reports at its summer sessions (June-July); and by which it could at the same time consider petitions dealing with the territories and any current report by a visiting mission. Thus, once every year, the council would be able to fulfil its supervisory role by a comprehensive study of the political, economic, social and educational advancement of the inhabitants of all trust territories.

The Soviet representative returned to the council. But little change was observable in the Soviet attitude of obstructive criticism and of propaganda generalizations from a few hand-picked items in reports, and in the demand for the abolition of tribal systems so that a transition could immediately be made to self-governing democratic principles. Nevertheless, the steady constructive progress of the council's work was beyond doubt. Increasing familiarity with on-the-spot problems of administration enabled it, more and more, to obtain a balanced view of conditions and to strike a happy medium between the desire, on principle, to see the advance towards autonomy or self-government made as rapidly as possible and a fair appreciation of the actual achievements by the administrating authorities to date. This constructive approach was marked in all the council's important tasks, and its continuation, as the president, Sir Alan Burns, pointed out, meant great promise for the future of the trusteeship system and of unbounded usefulness to the administrating authorities in protecting and advancing the real interests of the peoples in their charge.

In reviewing the annual reports the council recognized advance—more rapid in some territories than others, but common to all—in political development, economic improvement, betterment of social conditions and the spread of education. It freely commended specific achievements, such as the advancement in political responsibility of the indigenous population in Western Samoa, the economic improvement in British Cameroons, and the spread of education in Belgian Ruanda-Urundi and, in spite of all difficulties, in the U.S. Pacific islands. It made many constructive suggestions proposing, for example, a loan from the world bank to Somaliland (Italian), the training of more teachers and the adjusting of administrative systems to enable indigenous peoples to pass more rapidly from junior to senior civil service posts. It also made recommendations for action by the administrating authorities on more than 257 petitions. The machinery for visiting missions was overhauled in the light of experience and provision made for the issue of a standard statement on the purposes, principles and structure of the United Nations to reach the widest possible area. In the summer a second visiting mission set out for east Africa to include Italian Somaliland, as well as Belgian Ruanda-Urundi and British Tanganyika.

The 9th session of the council was faced once more with the Ewe problem, arising from certain demands for both the unification of the Ewe peoples, who inhabit parts of British and French Togoland and of the Gold Coast, and the unification of the two Togolands. The two governments concerned, after taking a series of measures designed to remove difficulties between the Togolands and to find out the real wishes and interests of all the peoples concerned, became convinced that no solution altering the boundaries or political allegiance could at present command general assent. As a practical solution, a joint council of representatives of the two Togolands was to be set up, associating the peoples more directly with all efforts to harmonize the policy of development in both Togolands as steps to self-government. The council concurred with this step and urged that all elements of the population of the two trust territories co-operate in the establishment of this joint council.

Complex trusteeship problems were also kept under almost continuous review. Throughout the year a special committee on rural economic development, set up in response to an assembly recommendation, made real progress in the first phase of documentation; the next stage involved the examination of land policies. (M. FE.)

TSHEKEDI KHAMA, former regent of the Bamangwato, Bechuanaland Protectorate (b. Serowe, Bechuanaland, Sept. 20, 1905), was educated at Lovedale Missionary institute, Cape Province, and the South African Native college, Fort Hare. He became regent for his nephew, Seretse (see *Britannica Book of the Year 1951*), in 1926. He strongly opposed Seretse's marriage in Sept. 1948 to an Englishwoman, Ruth Williams, and when tribal opinion swung in favour of acceptance of the chief-designate and his European wife, Tshekedi, with some influential supporters, left the Bamangwato reserve for neighbouring Bakwena territory. In March 1950 the British government, in an attempt to avoid tribal conflict, exiled Seretse from the protectorate for five years and excluded Tshekedi from the reserve. On March 16, 1951, Tshekedi arrived in London for talks with Patrick Gordon Walker, secretary of state for commonwealth relations. On May 24, however, the Commonwealth Relations office announced that the exclusion order would stand. On June 26 a Liberal motion in the Commons urging the government to end Tshekedi's banishment was defeated by 300 votes to 279, and Gordon Walker announced that the decision on Tshekedi's return to the reserve would rest with a *kgotla* (tribal meeting); the government would send observers. Early in July riots between Seretse's and Tshekedi's supporters broke out in Serowe. On Aug. 5 Tshekedi arrived in the protectorate for the proposed *kgotla* but this was subsequently abandoned. On the same day, at Lobatsi, he was served with a renewed banishment order. On Nov. 28 he arrived in London for talks with Lord Ismay, the new secretary of state for commonwealth relations. On Dec. 6, John Foster, parliamentary under secretary, Commonwealth Relations office, indicated that (contrary to the observers' recommendations, published on the same day) the government would allow Tshekedi to return to the reserve for progressively lengthening periods as a private citizen.

TUBERCULOSIS. Almost without exception, the countries of the world with fully organized health services continued to show a falling death-rate from tuberculosis in 1951. France, Ireland and Austria were hanging fire; Portugal's deathrate was still over 130 per 100,000 inhabitants and the figure of 262 for Lisbon was high for a European city. The United States looked like bettering the 1950 rate of 23: many individual states had already recorded less than 10. For the first three quarters of 1951, London's rate was down to 53, 36, and 27, from the 86, 73, and 57 of 1950. Denmark seemed to be out to beat its fine record of 14 in 1950, and the Netherlands was close behind, with Amsterdam down to 18 and 11 in the first two quarters.

Modern treatment was clearly saving thousands of lives, but the precipitous fall in deaths from tuberculosis had not been parallelled by a fall in incidence; on the contrary, notifications often showed a considerable rise. How much of this could be put down to better diagnosis, by mass-radiography and other intensive surveys, and more faithful notification it was hard to say. Moreover, tuberculosis notifications would never be so reliable as, say, those of diphtheria until some easily applied test for active disease was devised. Even the definition of a notifiable case was still a matter for the individual doctor. In 1951 the American Trudeau society drew up directions for notifying tuberculosis which should improve future statistics.

Full agreement on how best to protect the population from infection had not been reached by the authorities, either in the U.S. or in Great Britain. Both countries were providing vaccine made from the bacillus of Calmette and Guérin (B.C.G.) for nurses, students and people contacting infectious cases. But in Britain less than half the people entitled to the vaccine were applying for it so there was an understandable hesitation about extending its use generally. Meanwhile, the British Medical Research council were testing B.C.G. and the "vole bacillus" vaccine introduced by Dr. A. Q. Wells of Oxford in 30,000 children just leaving school in the counties near London and the Birmingham and Manchester areas; their progress would be followed for some years, but Dr. Marc Daniels, who had charge of the trial, hoped to get a definite verdict in three years.

The most important preventive measure—immediate isolation of infectious people—was carried some way forward in Great Britain by taking over some beds in general hospitals, reopening superfluous fever hospitals, shortening the stay in hospital of non-infectious patients and providing more active treatment for patients at home. The average wait for admission was reduced in some areas to a few weeks. Nevertheless thousands of people known to be infectious were still mixing freely with the healthy population.

The year was a bad one for "wonder drugs," those new compounds that had so often been hailed enthusiastically but prematurely as *the* cures for tuberculosis. None of the newer antibiotics showed themselves generally superior to their elders, though there were a few useful innovations for special types of tuberculosis.

Quite as valuable as a new drug was the clearer policy on well-tried remedies, based on 10,000 cases, established by the United States veterans' administration and the United States army and navy. Their analyses of results with various dosages and combinations of drugs revealed simple, though not complete, answers to the two worst problems of streptomycin therapy, its toxic side-effects, particularly on the inner ear, and the development of streptomycin-resistant strains of tubercle bacilli threatening to render the drug completely useless.

The giddiness (vertigo) that many thought worse than their disease affected about 80% of patients receiving the usual 120-day course of 2-3 gm. a day. But the reducing of the dose to 1 gm. twice a week lowered the risk of giddiness under 5%, apparently without loss of effectiveness. This discovery was doubly welcome because di-hydrostreptomycin, which had been widely adopted since 1948 as a non-toxic substitute for streptomycin, turned out to have a different but no less serious action on the inner ear, often delayed until weeks or months after treatment but producing a nerve-deafness likely to be permanent. The year saw a general return to streptomycin. The production of drug-resistant bacilli was greatly reduced by combining the lower dosage of streptomycin with a course of *para*-aminosalicylic acid (P.A.S.), the drug introduced by Professor Lehmann of Sweden. P.A.S. had been rather disappointing when used by itself; but as a supplement to streptomycin it proved invaluable. The United States could not confirm the claim of Professor Domagk and other central European authorities, that the thiosemi-carbarzones (T.B.1, etc.) also prevented streptomycin-resistance. Many British clinicians, however, found that combined treatment with streptomycin, P.A.S., and T.B.1 gave the best results. A hope for the future was that this American work would extend streptomycin and P.A.S. treatment to the very earliest cases of pulmonary tuberculosis, those diagnosed unexpectedly during routine surveys in factories, schools or the services. (E. C.-Js.)

TUNISIA. French protectorate in north Africa situated between Algeria (W.) and Tripolitania (E.), described from 1947 as potentially an associated state of the French Union.

Area: *c.* 48,300 sq.mi. Pop.: (1936 census) 2,608,313; (1946 census) 3,230,952. Arabs and Berbers constitute 87·6% of the population; they are Moslem and speak Arabic. In 1946 there were 239,249 Europeans, incl. 143,977 French citizens (many of them Italian-born) and 84,935 Italians. There were also 71,543 Jews. Chief towns (1946 census): Tunis (cap., 364,593, incl. 119,222 Europeans); Sfax (54,637); Bizerta (39,327); Sousse (36,566). Ruler, Bey Mohammed el-Amin; prime minister, Mohammed Shenik; French resident general, Louis Périllier.

History. Structural changes in the protectorate had begun when the Shenik ministry, including Neo-Destour representatives, was formed in 1950; they were continued, in agreement with the French government, in 1951. On Feb. 8 a corpus of reforms was promulgated: the council of ministers was henceforth to be under the chairmanship of the prime minister instead of that of the resident general; the certificate of the secretary general would no longer be necessary for ministerial decisions; and a proportion of the administrative offices, varying from three-quarters to one-third according to classification, would be reserved for Tunisians.

In May there were clashes between students of the Zitouna mosque-university who supported the ultra-Nationalist Old-Destour movement, and Neo-Destour elements. The bey made a speech expressing the hope that he would be able to give his people a constitution soon. The resident general Périllier advised ministers that an atmosphere of trust was required before progress could be made and that municipal reform was the first concern.

French settlers made known their fear that Tunisian emancipation would end in the eviction of the French. On the other hand the Neo-Destour leader Habib Bourguiba tried to stir world opinion and sharply criticized the slowness of French policy in various articles and speeches at Karachi, in New York and in London. In Paris, in October and November, Shenik and three of his ministers began conversations with a view to further reforms. In December the French government proposed that a mixed commission should be set up in 1952 to study reforms. Political parties and trade unions protested against the delay and against Tunisian Frenchmen's taking part in the country's government.

Rehabilitation of roads, railways and harbours was nearly completed. Land bought back from Italians was distributed to war veterans. Boring for petrol was continued to the south of Bizerta, at Cape Bon and in the region of Gabes.

Education. Schools (1950): primary and secondary, pupils: Moslem 113,300, French 37,600, Jewish 14,400, other 9,980.

Industry. Mineral production (1950, '000 metric tons): phosphate rock 1,530; iron ore 757; lead ore 30.

Foreign Trade. (1950, million francs) imports 51,210 (including 40,000 from France); exports 37,529 (including 16,380 to France).

Transport and Communications. (1950) Railways 2,174 km.; roads 14,000; motor vehicles 21,500. Ships entered (all ports): 2,928. Aircraft landed: 5,325.

Finance. Budget (1950 est.): balanced at Fr. 33,640 million. Monetary unit: Tunisian franc=metropolitan franc. (HU. DE.)

TUNNELS. During 1951 increasing use was made of tungsten carbide bits combined with light pneumatic rock drills for drilling the hardest rocks. British and, to some extent, United States rock drill manufacturers were widely adopting these methods, originating in Sweden, which resulted in the heavy drifter type of equipment becoming almost obsolete. Further advances in speeding the rate of progress in hard-rock tunnelling were shown in the increasing use of mechanical loading equipment at the tunnel faces, and driving speeds ranging up to 300 ft. a week in one face were reached. Progress continued with the placing of concrete lining by the use of long travelling shutters and pumped concrete. Further developments continued in the use of cutting shields with interlocking concrete segments designed particularly for use in London blue clay and similar plastic conditions and it was considered that this development would have very wide applications where the natural conditions were suitable.

In England the pilot tunnel was completed on the Woodhead tunnel through the Pennines and work was rapidly advancing in opening out this double railroad tunnel to its full size of 32 ft., using heavy steel arch supports and following with concrete lining. The 10-mi.-long Bowland Forest tunnel was holed through despite heavy inflows of water. The remainder of the Manchester-Haweswater aqueduct tunnels at Marl hill, Haslingden and Walmersley were proceeding according to schedule. The cities of Hull and Gloucester began large main drainage works in tunnels under bad ground conditions and made extensive use of reinforced concrete segments. The under-water tunnel under the River Tyne was completed and was in use. The under-water tunnels under the River Thames for the British Electricity authority which had been driven against considerable difficulties were completed. In Scotland, hydro-electric tunnelling schemes such as Affric, Fasnakyle and Errochty, and later developments at Sloy and Clunie, were coming into operation.

The speed, economy and advancement of tunnelling technique were leading to great developments of tunnelling work in all parts of the world and to their increasing use for carrying water for power and irrigation under and through mountain ranges, and for carrying traffic under rivers and through physical obstructions. There were under consideration in 1951 many tunnelling projects which were almost awe-inspiring in their magnitude, such as the Channel tunnel, which could be a combined road and rail tunnel, and the projected road tunnel through Mont Blanc, having a length of just over 8 mi. with a height of 40 ft. and width of 25 ft. The completion of the Dartford-Purfleet vehicular tunnel was under consideration, also the duplication of the Blackwall vehicular tunnel, both of them under the Thames. The construction of a vehicular tunnel under the Tyne in proximity to the already opened pedestrian and cyclist tunnel, was also contemplated. Several 50-ft.-diameter tunnels were being considered in connection with the Kariba gorge scheme in Africa for the purposes of passing the flow of the River Zambezi around the site of the proposed dam. In Australia, work had already begun on the Snowy mountains hydro-electric and irrigation scheme, and some large-diameter tunnels were expected to be shortly under construction.

(J. C. WN.)

TURKEY. Republic in the southeastern Balkans and Asia Minor, bounded W. by the Aegean sea, N.W. by Greece and Bulgaria, N. by the Black sea, N.E. by the U.S.S.R., E. by Persia and S. by Iraq, Syria and the Mediterranean. Area: 296,184 sq.mi. (including 9,256 sq.mi. in Europe). Pop.: (1945 census) 18,790,174; (1950 census) 20,934,670. According to 1945 census, European Turkey had 1,496,612 inhabitants (165 per sq.mi.) and Anatolia 17,293,563 (59 per sq.mi.). Foreign-born Turkish citizens (1935 census): 962,159, including 367,801 in Greece, 227,464 in Bulgaria, 158,145 in Yugoslavia, 69,798 in the U.S.S.R. and 61,649 in Rumania. Language (1935 census): Turkish 86·8%, Kurdish 9·3%, Arabic 0·9%, Greek 0·7%, Circassian 0·6%, Armenian 0·4%, Georgian 0·5%, other 8%. Religion: Moslem 97·7%. Other religions (1935 census): Christian 226,167 (Greek Orthodox 125,046, Gregorian Armenian 44,526, Roman Catholic 32,155, Catholic Armenian 11,229, Protestant 8,486, other Christian 4,725); Jewish 78,730. Chief towns (1950 census): Ankara (cap., 286,781); Istanbul (1,018,468); Izmir (362,340); Adana (117,799); Bursa (100,007); Eskişehir (88,459). President of the republic, Celâl Bayar; prime minister, Adnan Menderes.

History. *Home Affairs.* The year saw the consolidation of the Democratic régime in Turkey, confidence in the government being clearly expressed in 17 by-elections held in September, in which the Democratic candidates were returned with overwhelming majorities. The unusually low polling was regarded as evidence of the confidence in the country in the government. There were certain changes in the cabinet but no modification of policy. On March 29 a vote of confidence in the government was passed by 244 votes against 61.

There was a certain *détente* in inter-party relations, in spite of the resentment caused in the Popular party by the government's ruling that the *Halkevis*, or popular clubs, established when that party was in power, were not the property of that party but of the nation and that they were to be used as non-party cultural institutions. There were also strong expressions of opinion at the congress of the Democratic party that persons who had migrated from the opposition should not hold office. Nevertheless, at the Popular party's congress, the manner of Ismet Inönü, the leader and former president, was conciliatory and the party agreed to co-operate in foreign affairs.

Anger was roused throughout the country by an outbreak of violence against the busts and statues of Atatürk. It transpired that this was the work of a sect of religious fanatics called the Ticani, which was initiated 150 yr. before in Algeria and introduced into Turkey by an Egyptian in 1936. These held that statues were idolatrous and ought to be destroyed. It was considered that foreign influence was exploiting their ignorant fanaticism and it was pointed out that the phenomenon appeared to be a revival of the Iconoclast movement of the 8th century that arose in the neighbourhood of Konya.

The existence of attempts to start a Communist movement was revealed. Nazim Hikmet, known as a left-wing poet and released from prison under the previous year's amnesty, fled to Moscow, whence he was sent to preach Stalinism among the Turks in Bulgaria. A considerable number of arrests were made, the first being of a woman doctor by name Sevim Tari. She was caught by the police when leaving for France and found to be the bearer of documents revealing the existence of a secret organization in touch with foreign agents. It was reported that the police were seeking Zekerya Sertel, a well-known journalist who had been trained in the United States: he was believed to have escaped to Italy with his wife. Also associated were the Friends of Peace, led by a woman teacher, Behice Boran, owner of the periodical *Peace and the Road to Peace*. Her appeal against a sentence of 18 months' imprisonment for publicly protesting against the Korean expedition was rejected.

The National Assembly held secret sessions to discuss methods of dealing with Communism.

The programme of liberal legislation included a bill giving the right to strike, subject to clear safeguards. Another provided for the introduction of holidays with pay. It was estimated that this would cost the government £T 1,676,000 a year and quasi-government interests £T 20 million. A commission was engaged for a year upon the preparation of bills for the repeal or amendment of anti-democratic laws.

Foreign Relations. The logical outcome of Turkey's adherence to the ideals of the western democracies was its invitation, at the Ottawa session of the N.A.T.O. council (Sept. 15-20), to join the North Atlantic Treaty organization, which caused general satisfaction throughout the country. It led to a note of protest from Moscow (Nov. 3) which was accepted philosophically by the Turks who, in their reply ten days later, stressed the purely defensive aims of the treaty, pointing out how it contrasted favourably with the military preparations of the Soviet Union which were themselves the cause of the North Atlantic treaty. On Oct. 12-15 General Omar N. Bradley, chairman of the U.S. joint chiefs of staff, Field Marshal Sir William Slim, chief of the British imperial general staff, and General Charles François Lechères, chief of the French general staff, visited Ankara to discuss matters with the Turkish military authorities.

In opening the National Assembly on Nov. 1 President Bayar stated that the Turkish government had decided to take common measures with the other powers concerned to organize the defence of the middle east. It was a logical result that Turkey was invited to send observers to the N.A.T.O. council in Rome at the close of November. President Bayar pointed out the constantly increasing friendship with the United States, to whom Turkey was under so heavy a debt for immense financial, military and practical help.

With its old allies, Great Britain and France, Turkey retained the same old cordial relations. The unconcealed sympathy of the Turks with Great Britain during the Suez canal crisis in October provoked an outburst of abuse in the Egyptian press. The reply of the Turkish press was one of withering contempt. The report that in Syria the mob had burnt a Turkish flag roused indignation, which was somewhat appeased by the denial by the Syrian authorities of the truth of the report. Thus what might have been an ugly incident was avoided. With other Moslem countries Turkey remained on excellent terms. With Pakistan a pact of friendship was concluded. With Iraq and Persia relations were friendly and with Afghanistan bonds were strengthened by the visit to Turkey of Shah Mahmud Khan, prime minister of that country. Relations were tightened with Jordan by the visit of the late King Abdullah to Ankara and Istanbul, when the Turks were reminded that as a young man he had sat in the Turkish parliament.

The visit of the minister of education of India, Maulana Abulkalan Azad, was a reminder of the good will between the two countries. With Greece, regarded as an ally bound by common interests, relations remained cordial, in spite of the resentment felt in many quarters at the Greek demand for Cyprus. With Western Germany the state of war was terminated and the Turkish diplomatic mission in Bonn raised to the status of an embassy, as was the Turkish legation in Madrid. With Bulgaria relations were strained. On Nov. 8 the frontier was closed when it was discovered that 126 of the immigrants being admitted into Turkey were bearers of forged visas.

In November Brigadier General Namik Argüç succeeded Major General Tahsin Yazici as commander of the Turkish brigade in Korea.

Economic Position. After two consecutive disastrous harvests, Turkey was compensated with an excellent crop. Thanks to E.R.P. aid, the area under cultivation was greatly extended, with the result that the grain crop rose to 10,693,000 tons—a 50% increase. Much of this improvement was due to the greatly increased number of tractors upon the land. At the harvest of 1951 there were 115,000 at work. The total value of E.R.P. aid received by Turkey by Nov. 1, 1951 amounted to $252·2 million.

Of the immigrants from Bulgaria, whose arrival presented so grave a problem, 150,000 were working on the land by the autumn. Large sums of money for housing and settlement were raised by private initiative and £T 30 million was allocated from E.R.P. funds. The distribution of land to the peasants proceeded and by April 1951 over 1,200,000 ha. had been parcelled out thus. Payment was to be spread over 25 years.

In industry steady progress was being made with the modernization of the Eregli-Zonguldak coalfields and the ports of Trabzon, Zonguldak, Samsun, Izmir and Istanbul.

The equipment of many factories was extended and modernized. An important step in the policy of denationalization was the formation of the Maritime bank (Deniz Bankasi) to take over the State Shipping lines for administration on a purely commercial basis.

Miscellaneous. Istanbul was once more enjoying the benefit of its geographical position for international gatherings, admirable accommodation for which was available in the Yildiz palace. During the year there took place there, among other conferences, the congress of the Inter-Parliamentary union, in August, when 32 countries were represented.

Archaeological exploration continued. Excavations on the site of the ancient Harran, near Urfa, revealed a large building of the late Assyrian period, with an important cuneiform library.

The potentialities of Turkey for attracting tourist traffic were being realized. A new Turkish Travel association was formed, a non-profit making concern, to help and encourage tourism. Wide interest was aroused by the discovery of the house of the Virgin Mary near Ephesus, which was recognized as a site for religious pilgrimage. The authorities were taking steps to improve road and hotel accommodation to meet this new demand. Work began upon a new grand hotel with 300 rooms in Istanbul.

One of Turkey's serious problems was the provision of primary education in remote districts. Progress was being made and during the year 570 new primary schools were built in time for the academic season. Hospital accommodation, in spite of great progress, was also unable to meet the demand: 700 additional beds were provided during the year, and another 2,000 for tubercular patients.

Though there were no policewomen in Turkey, a woman, Feriha Sanerk, was promoted to the rank of director of security. (MA. BR.)

Education. Schools (1949-50): primary 17,029, teachers 34,036, pupils 1,625,499; secondary 383, teachers 4,063, pupils 69,226; *lycées* 88, teachers 1,837, pupils 21,945; farming and handicraft 21, teachers 667, pupils 12,439; professional 289, teachers 4,102, pupils 44,223; institutions of higher education 34 (including universities of Istanbul and Ankara which had 874 teachers and 20,182 students in 1948-49), teaching staff 1,567, students 26,625. Illiteracy (1945): male 49·2%; female 77·5%.

Agriculture. Main crops ('000 metric tons, 1950; 1951 est. in brackets): wheat 3,872 (5,616); barley 2,047 (2,639); oats 316 (352); maize 628 (842); rye 443 (655); potatoes 605; sugar, raw value 140; tobacco 85; cotton, ginned 146; grapes (1949) 1,681; olives (1949) 239; olive oil 45; linseed 28; cottonseed 192; sunflower seed 90 (100); sesame seed 29·9 (22·6); soya beans 2; dry beans 87; hemp fibre 7·7; oranges and tangerines 51. Wine production ('000 hectolitres, 1949; 1950 est. in brackets) 170 (144). Livestock ('000 head): cattle and buffaloes (Dec. 1950) 11,134; sheep (Dec. 1950) 22,128; horses (Dec. 1950) 1,140; camels (Dec. 1949) 105; mules (Dec. 1949) 103; asses (Dec. 1948) 1,711; goats (Dec. 1949) 17,323; turkeys (Dec. 1948) 1,145; chickens (Dec. 1950) 20,114. Wool, greasy basis ('000 metric tons, 1950; 1951 in brackets) 30 (34). Meat ('000 metric tons, 1949): total 80, of which beef and veal, 34.

Industry. Fuel and power (1950; 1951, six months, in brackets): coal ('000 metric tons) 4,356 (2,380); lignite 1,204 (622); crude oil 17 (8); electricity (million kwh.) 790 (378). Raw materials ('000 metric tons, 1950; 1951, six months, in brackets): iron ore, metal content 221 (119); pig iron 110 (75); steel ingots and castings 91·2 (65·3); copper smelter 11·8 (7·1); chrome 400; manganese ore 23·2; antimony ore, metal content 454; salt (1948) 263; sulphur (1949) 3·1; boracite 7·1. Lumber, sawn wood ('000 cu.m., 1949 est.): softwood 308, hardwood 154. Manufactured goods ('000 metric tons, 1950; 1951, six months, in brackets): cement 396 (186); cotton yarn 30·2 (14·2); wool yarn 7·44; paper and cardboard (1949) 19·2.

Foreign Trade. (£T million, 1950; 1951, six months, in brackets): imports 800·4 (488·2); exports 738·0 (439·8). Main sources of imports (1950): U.S. 24·5%; Germany 17·6%; U.K. 10·5%; France 5·0%. Main destinations of exports: Germany 21·2%; U.S. 16·9%; U.K. 14·0%; Italy 5·5%. Main imports: machines 23·1%; iron and steel 12·2%; petroleum products 7·3%; cereals and vegetables 7·2%. Main exports: cotton 26·5%; tobacco 23·2%; raisins 8·2%; hazelnuts, shelled, 6·9%.

Transport and Communications. Roads (1949): 13,530 mi., including 7,900 mi. all-weather roads. Licensed motor vehicles (Dec. 1950): cars 10,071, commercial 16,386. Railways (1949): 4,882 mi.; passenger-mi. (1950) 1,350 million; goods, ton-mi. (1950) 1,573 million; goods carried (1950) 7,332,000 in tons. Shipping (merchant vessels of 100 gross tons and over, July 1950): 217; total tonnage 387,830. Air transport (Turkish state airways, 1947): flights 6,712; mi. flown 1,188,109; passengers flown 78,844. Telephones (1949): subscribers 52,423. Radio receiving sets (1949): 250,000.

Finance and Banking. Budget (£T million): (1950 actual) revenue 1,313·3, expenditure 1,487·2; (1951 est.) revenue 1,345·0, expenditure 1,579·7. Currency circulation (Sept. 1950; Sept. 1951 in brackets): 1,027 (1,158). Bank deposits (Dec. 1949; Dec. 1950 in brackets): 835 (1,122). Gold and foreign exchange (million U.S. dollars, Sept. 1950; Sept. 1951 in brackets): 190 (190). Monetary unit: Turkish pound or *lira* with an exchange rate of £T 7·84 to the pound sterling and £T 2·80 to the U.S. dollar.

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UBANGUI-SHARI: *see* FRENCH EQUATORIAL AFRICA.

UGANDA. British protectorate in east Africa bounded N. by the Sudan, E. by Kenya, S. by Tanganyika and Ruanda Urundi trust territory and W. by the Belgian Congo. Area: 93,981 sq.mi. Pop. (1948 census): 4,955,176, incl. 3,448 Europeans and 35,215 Asians. Languages: Bantu (Luganda), Nilotic, Nilohamitic and Sudanian; Swahili. Religion: pagan, with Moslem and Christian minorities. Capital, Entebbe. Administration: governor; executive council; legislative council, 6 *ex-officio*, 10 nominated official and 16 unofficial members (4 European, 8 African and 4 Asian); in Buganda, native ruler (kabaka) with 3 ministers and council (lukiko). Governors (1951): Sir John Hathorn Hall and Andrew Benjamin Cohen.

History. In Jan. 1951 the lukiko, the "parliament" of the Buganda kingdom, underwent a measure of reform, the proportion of elected representatives being increased to 40 out of a total of 89. It was announced in April that the first cotton mill in east Africa was to be built in Uganda by a new company Nyanza Textile Industries, Ltd., with a capital of £1,500,000, of which £600,000 would be provided by the Uganda government and the balance by Lancashire interests. Of perhaps even greater importance to Uganda were the plans announced in September for the reorganization of the cotton growing industry itself. That drastic reorganization was needed had been clear for a long time, particularly in the ginning of the crop. The average crop was 350,000 bales and there were 193 ginneries, which meant an average of only 1,800 bales a ginnery. The result was that many ginneries were not used and some were operated only for a short and uneconomic period. Most were owned by Indians and the African peasants, who grew the cotton, frequently complained of unfair treatment by the Indians. The needs of the industry were generally agreed: better returns to the growers, better quality cotton, and a share for the Africans in the ginning. The co-operative movement had made considerable progress among the growers since World War II and by 1950 two ginneries had been made available to African co-operative societies. Early in the year there was talk of nationalizing the ginning industry but the scheme finally announced provided for the buying up and closing by the government of 35 redundant ginneries and the expansion of co-operative ginning by the growers. By 1956 up to 20 ginneries were to be operated in this way and in the five years 1956-61 new ginneries would be made available for co-operative use if production had meanwhile increased. All the lint would continue, as at present, to be sold by the ginneries to the Lint Marketing board. The latter had, by the end of the 1950-51 season, accumulated a stabilization fund of £22 million so that plenty of money was available for expanding the industry. The improvement in the quality of the cotton was to be the concern of a Cotton Development council which was to

include representatives of all sides of the industry and which would work in close co-operation with the British Cotton Growing association's research centre in Uganda.

Education. Grant-aided schools (1949): primary, 1,345 African (152,627 pupils), 74 Asian (6,577 pupils), 3 European (143 pupils); secondary, 48 African (4,597 pupils), 5 Asian (1,175 pupils); vocational, 50 African (2,147 pupils). Teacher training centres, 2 government, various missions, output 463. Makerere University college for East Africa.

Finance and Trade. Currency, East African shilling (20*s.* = £1 sterling). Budget (1951 est.): revenue £12,500,000; expenditure £11,600,000. Foreign trade (1950): imports £15,400,000; exports £29,000,000. Principal exports: raw cotton, sugar. Production (1950): Raw cotton 600,000 tons, sugar 55,000 tons, cigarettes 2,200 tons, gold 590 oz., tin 264 tons, wolfram 186 tons, amblygonite 265 tons. Livestock: cattle 2,500,000, sheep 1,100,000, goats 2,300,000. (K. G. B.)

See R. M. Bere, "Buganda," *Corona* (London, Oct. 1951).

UKRAINE. A republic whose independence was proclaimed at Kiev (Kiiv) on Jan. 22, 1918, but which on Dec. 30, 1922, was incorporated in the U.S.S.R. The Ukraine is bounded on the N. by Byelorussia, on the N.E. and E. by Russia, on the S. by the Crimea (incorporated in Russia in 1945) and the Black sea, and on the W. by the Moldavian S.S.R., Rumania, Hungary, Czechoslovakia and Poland. Area: (before Sept. 17, 1939) 171,930 sq.mi.; (after the treaty of Aug. 16, 1945, defining a new Soviet-Polish frontier) 222,625 sq.mi. Pop.: (1939 census) 30,960,221, including 20,772,000 Ukrainians, representing 74% of the Ukrainian population of the U.S.S.R. and 69% of the population of the Ukraine; (Dec. 1940 est., without Subcarpathian Ruthenia) 40,525,000, including 25,862,000 Ukrainians, or 64% of the population of the republic; (March 1950 est.) 40,800,000, including 22,100,000 Ukrainians (54% of the population of the republic, the reduction being explained by war losses and German and Soviet deportations). Language: Ukrainian, a Slavonic language akin to Russian and Polish. Religion: before World War II all Ukrainians in the U.S.S.R. were Greek Orthodox; in Poland they were Greek Orthodox in Volhynia and Greek Catholic in Eastern Galicia (about 2,800,000); in Rumania they were Greek Orthodox in Bessarabia and Greek Catholic in Bukovina (about 250,000); in Czechoslovakia they were mostly Greek Catholic (about 550,000); by 1947 all Greek Catholics were forced to renounce their religion in favour of the Orthodox Church. Chief towns (1939 census): Kiev (cap., 846,293); Kharkov (833,432); Odessa (604,223); Dnepropetrovsk (500,662); Stalino (462,369); Lwów or Lviv (1939 est., 318,000); Zaporozhye (289,188); Makeyevka (240,145); Zhdanov, formerly Mariupol (222,427). Chairman of the presidium of the Supreme Soviet, Mikhail Sergheyevich Grechukha; chairman of the council of ministers, Demyan Sergheyevich Korotchenko.

History. By 1951, restored from the effects of wartime destruction, the Ukraine was again economically the most important part of the Soviet Union. Although World War II hastened the decentralization of Soviet heavy industry, the Donets basin was the richest producer of coke and Krivoy Rog iron ore was superior to ores mined elsewhere in the Union. It was imperative, therefore, to rebuild and modernize the 50 blast-furnaces and more than 200 open-hearth furnaces which had been destroyed or damaged by the Germans, and to take similar action with regard to the coal mines.

In 1951 the Ukraine produced about 98 million metric tons of coal, or 34% of the Soviet total; over 20 million tons of iron ore, or about a half the Soviet total; 11 million tons of pig iron, also a half of the total Soviet production, and some 11 million tons of crude steel, or over a third of the total. Among the largest iron and steel centres were pre-1914 modernized plants at Stalino and Makeyevka in the Donbas, and new plants at Dnepropetrovsk, Dneprodzerzhinsk, Krivoy Rog, Zaporozhye and Zhdanov.

In agriculture wheat production was 1,489,100 metric tons higher than in 1950. The total Soviet wheat production for 1950 was estimated at 49 million tons, of which the Ukraine's contribution was about 13 million tons. Sugar-beet production was 2·3 million tons higher than in 1950 and 3·6 million tons higher than in 1940. As the Ukraine's share in the Soviet sugar-beet production was about two-thirds, the 1951 crop must, therefore, have been about 18 million tons. Ukrainian sugar production in 1951-52 would be some 344,000 tons higher than in 1950-51, and could be estimated at a total of 2·7 million tons.

Harrison Salisbury, Moscow correspondent of the *New York Times*, who in May was allowed to visit Kharkov, reported that there was little remaining evidence of war damage in this modern industrial city which was fought over four times. Reconstruction was also well advanced in all other Ukrainian towns. In Kiev, for instance, according to *Izvestia*, about 128,000 sq.m. of floor living-space were completed during the year, including 10 blocks of flats and 6 administrative buildings in the Kreshchatyk, the main thoroughfare. At the site of new power station on the Dnieper a new town, Novaya Kakhovka, was being built.

At the election of Feb. 25 to the Supreme Soviet of the Ukrainian S.S.R., 23,113,769 (99·99%) out of a possible 23,115,932 electors cast their vote, only 21,251 (0·09%) voting against the Communist and non-party bloc. Leading names among the new deputies were Leonid Gheorghyevich Melnikov, Russian secretary general of the Ukrainian Communist party, Korotchenko, Grechukha and the deputy premiers Vladimir Vladimirovich Matskevich and Dmitry Zakharovich Manuilsky. The membership of the Ukrainian Communist party was estimated at 684,000, or one-tenth of the total membership of the All-Union party, while the population of the Ukraine was one-fifth of the Union.

Celebrations of a decade of Ukrainian art and literature opened in Moscow on June 15 included a performance of the opera *Bohdan Khmelnitsky*, with music by K. Dankevich and libretto by Aleksander Korneychuk and his wife Wanda Wasilewska. To a severe criticism by *Pravda* on July 2 accusing the authors of minimizing the duel between the Ukrainian peasantry and Polish landlords, the librettists responded by undertaking to write a new libretto. In the same article *Pravda* attacked a Ukrainian poet, V. Sosyura, on the ground that his poem "Love the Ukraine," printed in the Leningrad *Zvezda*, was "openly nationalistic and might just as well have been signed by Semen Petlyura or Stefan Bandera." Petlyura, who fought against the Soviet army for Ukrainian independence in 1918-20 was assassinated in Paris in 1926, but Bandera was living in the U.S. zone of Germany and claiming to be the head of an underground Ukrainian Insurgent army (Ukrainska Povstanska Armia or U.P.A.).

Volodymir Kyrillovich Vinnichenko, a Ukrainian Socialist and first prime minister of the independent Ukraine (1917-18), died at Cannes in March 1951 at the age of 71.

Education. Schools (1951): elementary and secondary 30,400, pupils 6,500,000; vocational and technical 560; universities and institutions of higher education 157, total students 500,000.

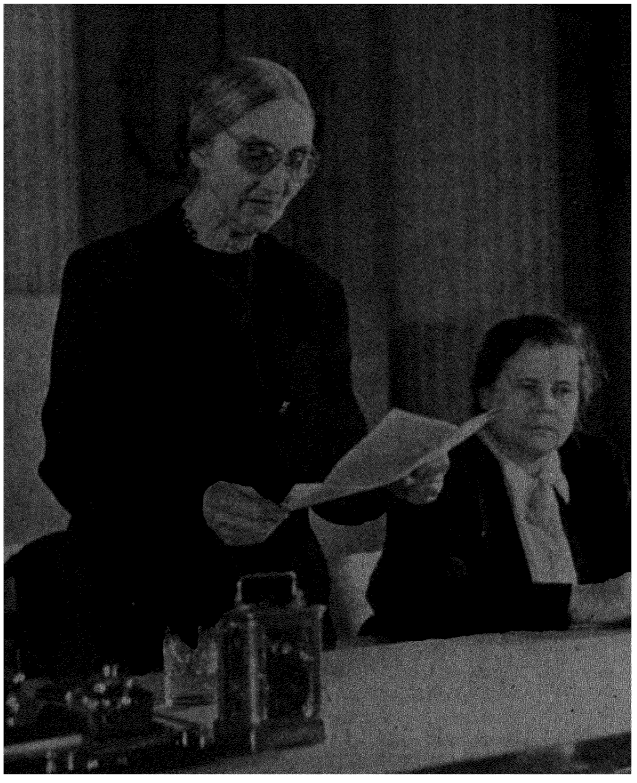
Finance. Budget (million roubles, 1950 est.; 1951 in brackets): revenue 17,240·3 (17,342·7), expenditure 17,194·5 (17,247·5).

See Clarence A. Manning, *Twentieth Century Ukraine* (New York, 1951); Oleh Martovych, *Ukrainian Liberation Movement in Modern Times* (Edinburgh, 1951). (K. Sm.)

UNEMPLOYMENT: *see* EMPLOYMENT.

UNION OF SOUTH AFRICA: *see* SOUTH AFRICA, THE UNION OF.

UNION OF SOVIET SOCIALIST REPUBLICS. Federation of Soviet Socialist republics, a state



Eugénie Cotton (left) in Sverdlov hall in the Kremlin on July 2, 1951, when she received the international Stalin prize "for the promotion of peace among nations."

covering parts of eastern Europe and of northern and central Asia. Area: (before Sept. 17, 1939) 8,173,557 sq.mi.; (after Sept. 2, 1945) 8,598,678 sq.mi., including 1,969,110 sq.mi. (23%) in Europe. Pop.: (1939 census) 170,467,186; (1940 est.) 192,357,000; (1950 est.) 201,300,000, including about 138,000,000 (68·6%) in Europe. The U.S.S.R. occupies 14·8% of the world's total land area and is the world's largest state; with a population representing 8·3% of the world total it is, after China and India, the third most populated country. (*See* Table I.)

In 1939 the union consisted of 11 republics of which the Russian Soviet Federated Socialist republic was by far the largest, occupying 78% of the whole territory. The Ukrainian Soviet Socialist republic, second largest, covered only 2·1% of the total area. The U.S.S.R. is inhabited by more than 110 nationalities speaking different languages. In 1939 Russians constituted 58·2% of the population, Ukrainians 16·5%, Byelorussians 3·1%, Poles 0·5%, Bulgars 0·07% and Czechoslovaks 0·02%. None of the other nationalities, all non-Slavonic and most of them non-European, reached 3% of the total. The most important were the Turkish-speaking Uzbeks 2·85%, Tartars 2·5%, Kazakhs 1·82%, Azerbaijanis 1·34%, Turkmens 0·45% and Kighiz 0·45%; there were also Jews 1·78%, Georgians 1·32% and Armenians 1·27%.

Between 1939 and 1945 the U.S.S.R. considerably expanded its territory. In Europe the independent states of Estonia, Latvia and Lithuania were annexed and made Soviet republics; 17,596 sq.mi. were annexed from Finland and, except the Viipuri area, which was incorporated with the R.S.F.S.R., were united with the Karelian autonomous territory to form a Karelo-Finnish S.S.R.; 68,667 sq.mi. were annexed from Poland and incorporated with the Soviet republics of Lithuania (3,843 sq.mi.), Byelorussia (32,267 sq.mi.) and the Ukraine (32,557 sq.mi.); 19,338 sq.mi. from Rumania were incorporated partly with the Ukraine (8,791 sq.mi.) and partly (10,547 sq.mi.) with the Moldavian autonomous territory to form a new Moldavian S.S.R.; 4,923 sq.mi. were ceded by Czechoslovakia and incorporated with the Ukraine; 5,096 sq.mi. were annexed from Germany (northeastern East Prussia) and incorporated with the R.S.F.S.R. In Europe the U.S.S.R. gained altogether 180,702 sq.mi. with a population which in 1940 was estimated at about 21·8 million. As a result of these territorial changes the proportion of Russians in the U.S.S.R. was reduced to 51·3%, while that of Ukrainians increased to 17·4% and of Byelorussians to 3·5% of the total population. In Asia the U.S.S.R. acquired from Japan southern Sakhalin and the Kurile islands (17,929 sq.mi.; pop., 422,000); it also annexed the formerly "independent" republic of Tuva (64,000 sq.mi.; pop., 65,000).

Religion: Russians, Ukrainians, Byelorussians and Moldavians are Greek Orthodox: in territories annexed in 1939-45 Greek Catholicism was compulsorily renounced in favour of the Orthodox Church. Lithuanians are Roman Catholic; Latvians, Estonians and Karelo-Finns mainly Lutheran; Georgians have their own autocephalous Greek Orthodox

TABLE I. UNION OF SOVIET SOCIALIST REPUBLICS

Republic	Capital	Area (sq.mi.)	Population (1940 est.)	Chairman of the Presidium of the Supreme Soviet	Chairman of the Council of Ministers
Russian S.F.S.R.	Moscow	6,533,584	108,800,000 *	Mikhail Petrovich Tarasov	Boris Nikolayevich Chernousov
Ukraine (*q.v.*)	Kiev	222,625	40,525,000 †	Mikhail Sergheyevich Grechukha	Demyan Sergheyevich Korotchenko
Byelorussia (*q.v.*)	Minsk	80,154	9,000,000	Vasily Ivanovich Kozlov	Aleksey Efimovich Kleshchev
Uzbekistan	Tashkent	157,336	6,282,400	Shafar Rashidov	Nuritdin Akramovich Mukhitdinov
Kazakhstan	Alma-Ata	1,063,242	6,146,000	Daniyal K. Kerimbayev	Nurtas Dandybayevich Undasynov
Georgia	Tbilisi (Tiflis)	29,421	3,542,300	Vasily Barnabovich Gogua	Zakhary Nikolayevich Chkhubianishvili
Azerbaijan	Baku	33,089	3,209,700	Nazar Gheydarogly Gheydarov	Teymur Imam Kuliogly Kuliyev
Lithuania (*q.v.*)	Vilnius (Wilno)	25,174	3,000,000 ‡	Justas Ignovič Paleckis	Mečislovas Aleksandrovič Gedvilas
Moldavia	Chişinau	13,050	2,700,000 §	Fedor Grigoryevich Brovko	Gherasim Yakovlevich Rud
Latvia (*q.v.*)	Riga	24,903	1,950,000	August Martynovich Kirchensteins	Vilis Tenisovič Lacis
Kirghizia	Frunze	76,023	1,459,300	Turabay Kulatov	Abdy Suyerkulov
Tadzhikistan	Stalinabad	55,058	1,485,100	Nazarsho Dodkhudoyev	Jabar Rasulov
Armenia	Erivan	11,506	1,281,600	Matsak Petrosovich Papian	Saak Karapetovich Karapetian
Turkmenistan	Ashkhabad	187,181	1,252,000	Akmamed Saryev	B. Ovyezov
Estonia (*q.v.*)	Tallinn (Reval)	17,413 ‖	1,117,300	August Mikhkelevich Jakobson	Aleksey A. Müürisepp
Karelo-Finnish	Petrozavodsk	68,919	606,300 §	Otto Willie Kuusinen	Pavel Stepanovich Prokkonen
		8,598,678	192,357,000		

SOURCE. Areas and populations are taken from the *Bolshaya Sovietskaya Entsiklopedia: Soyuz Sovietskikh Sotsialisticheskikh Respublik* (Moscow, 1948). While all the areas are postwar, that is, including territorial aggrandisements in the west and east, population figures are in general those of the 1939 census, except for republics which were either increased by the 1939-45 annexations or formed after 1940. The order, as in the original, is according to the number of population. The names of chairmen of the presidiums and of the councils of ministers are as at Dec. 31, 1951.

* According to the 1939 census the population of the Russian S.F.S.R. was 109,278,614. Its reduction was explained by the fact that the Karelian A.S.S.R. (469,145 inhabitants in 1939) formed with the areas ceded by Finland in 1940 a Karelo-Finnish S.S.R.

† Excluding the population of Subcarpathian Ruthenia (725,000) which was incorporated into the Ukrainian S.S.R. in 1945.

‡ Excluding the population of the Klaipeda (Memel) territory which was incorporated with the Lithuanian S.S.R. in 1945.

§ 1941 official Soviet estimate.

‖ Official Estonian sources before 1940 gave the area of Estonia as 18,358 sq. mi.

TABLE II. MEMBERS OF THE KEY BODIES, THE ALL-UNION COMMUNIST PARTY AND THE GOVERNMENT OF THE U.S.S.R.*

Secretariat	Orgburo	Politburo	Council of Ministers
Secretary General	*Chairman*	*Chairman*	*Chairman*
J. V. Stalin (1922)	J. V. Stalin (1922)	J. V. Stalin (1917)	J. V. Stalin (1941)
Secretaries	*Members*	*Members*	*Deputy Chairmen*
G. M. Malenkov (1939)	G. M. Malenkov (1939)	G. M. Malenkov (1946)	G. M. Malenkov (1946)
	N. A. Bulganin (1948)	N. A. Bulganin (1949)	N. A. Bulganin (1938)
M. A. Suslov† (1948)	M. A. Suslov (1948)	V. M. Molotov (1925)	V. M. Molotov‡ (1941)
P. K. Ponomarenko (1949)	P. K. Ponomarenko (1949)	L. P. Beria (1946)	L. P. Beria (1946)
M. F. Shkiryatov (1949)	M. F. Shkiryatov (1949)	K. E. Voroshilov (1925)	K. E. Voroshilov (1946)
	V. V. Kuznetsov§ (1948)	A. I. Mikoyan (1935)	A. I. Mikoyan (1940)
	N. A. Mikhailov‖ (1939)	L. M. Kaganovich (1934)	L. M. Kaganovich (1940)
	V. M. Andrianov (1948)	A. A. Andreyev¶ (1932)	A. A. Andreyev (1946)
	N. N. Shatalin (1948)	A. N. Kosyghin (1946)	A. N. Kosyghin (1946)
N. S. Khrushchev (1949)		N. S. Khrushchev (1939)	M. Z. Saburov (1947)
		N. M. Shvernik (1947)	A. D. Krutikov (1949)
			V. A. Malyshev (1949)
			I. F. Tevosian (1949)
			M. G. Pervukhin (1950)

* Years of appointment in brackets; in columns 1 and 2 dates are correct so far as ascertainable.
† Also chairman of the Agitprop (Board for Propaganda and Agitation) and director of the Foreign Secretariat providing a link with foreign Communist parties and supervising the activities of the Cominform.
‡ Molotov was chairman of the Council of People's Commissars from 1930 to 1941.
§ Also chairman of the V.Ts.S.P.S. (Vsesoyuzny Tsentralny Soviet Professionalnykh Soyuzov or All-Union Central Council of Trade Unions).
‖ Also secretary general of the V.L.K.S.M. (Vsesoyuzny Leninsky Kommunistichesky Soyuz Molodezhi or All-Union Lenin League of Communist Youth).
¶ Also chairman of the Party Control commission, with Shkiryatov as deputy chairman.

Church; Armenians are Christian; the indigenous inhabitants of Azerbaijan, the five central Asian republics and many autonomous territories (Tartar, Bashkir, Dagestan, etc.) are Moslem and their number was estimated in 1939 at over 24 million; Buryats and Kalmyks are lamaist Buddhist.

Chief towns (pop., 1939 census): Moscow (cap., 4,137,016; 1950 est., 7,000,000); Leningrad (3,191,304); Kiev (846,293); Kharkov (833,432); Baku (809,347); Gorki (644,116); Odessa (604,223); Tashkent (585,005); Tbilisi (519,175); Rostov-on-Don (510,253); Dnepropetrovsk (500,662). Eight towns had a population of more than 300,000, 20 had more than 200,000 and 43 had over 100,000.

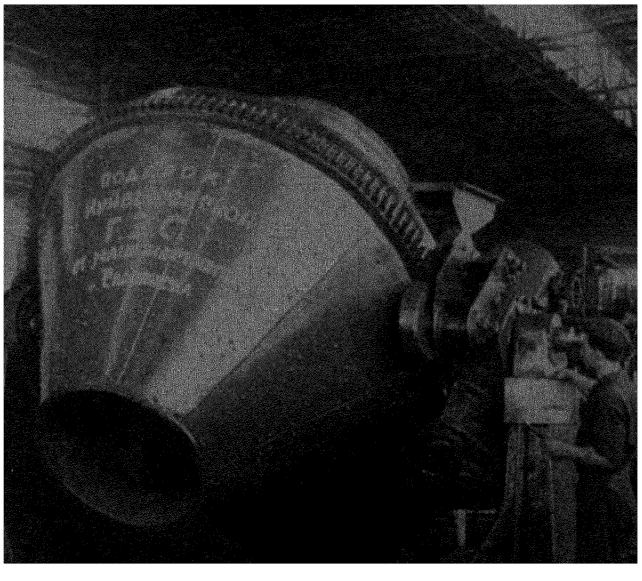
Chairman of the presidium of the Supreme Soviet of the U.S.S.R., Nikolay Mikhailovich Shvernik; chairman of the council of ministers, Joseph Vissarionovich Stalin (*q.v.*).

History. During the year the government of the Soviet Union, identical with the leadership of the world Communist movement, persisted in a " cold war " against the democratic world, with the United States singled out as the main enemy. In Europe, unremitting pressure was maintained to achieve German unity under a people's democracy and it was repeatedly prophesied that the Yugoslav peoples would find a way to free themselves from the Tito régime; in the middle east support was given to nationalisms as the most expedient short-term policy; in the far east a new programme for the national liberation of Japan under the aegis of its Communist party was made public. As well as inspiring a general international unrest, the Soviet leaders gave encouragement to aggression and revolt in Korea, Indo-china and Malaya. Simultaneously with the rearmament of the Soviet forces and the development of the satellites' armies, a " peace " campaign aimed at the moral and material disarmament of the alleged warmongers was in progress throughout the world. Unafraid of being challenged at home for their contradictory policies the Soviet government continued to speak with two voices: speeches and interviews directed to the world at large emphasized the possibility of peaceful co-existence, while the Soviet peoples were constantly reminded of the dangers of capitalist encirclement and enjoined to work harder, produce more and hate the imperialists responsible for such never-ending hardships. Although a year had passed since the completion of the postwar five-year plan no new plan had been made public.

Foreign Policy. " The Soviet Union bases its policy on the possibility of the peaceful co-existence of the two systems, socialist and capitalist," said Yakov A. Malik on June 23 when proposing an armistice in Korea. However, *Bolshevik*, organ of the All-Union Communist party, explained in August that although two major attempts of capitalist powers against the Soviet Union, in 1918-20 and in 1941-45, had failed, the danger of " capitalist encirclement " remained.

But this change in the correlation of the forces of two systems [wrote *Bolshevik*] does not by any means imply that there is no capitalist encirclement any more. Some comrades have erroneously conceived the establishment of a people's democratic order in a number of countries bordering on the U.S.S.R. as the liquidation of capitalist encirclement. Apparently these comrades look upon capitalist encirclement as a purely geographical conception which is, of course, entirely wrong. The present international situation clearly shows that the Soviet Union and the countries of people's democracy are not guaranteed against new imperialist interventions. The ruling circles of the capitalist countries, in the first place those of the United States and Great Britain, openly prepare a new war against peace-loving countries.

The United States had always been and always would be the main enemy of the " socialist " fatherland. P. N. Pospelov, director of the Marx-Engels-Lenin institute and chief editor of *Pravda*, asked to establish this fact, proclaimed the result of his research at the annual Lenin Memorial meeting in Moscow, on Jan. 21, attended by the leaders of the key bodies of the party, with Joseph Stalin at their head. Quoting Lenin and misquoting various U.S. politicians, army officers and diplomats, Pospelov endeavoured to indicate the long-standing coherence of U.S. policy, stemming from Woodrow Wilson, the " servant of capitalist sharks," and aimed at the destruction of the Soviet Union and dismemberment of Russia.



A large concrete mixer being made in Slavyansk in 1951 for use in the construction of the Kuibyshev hydro-electric station.

A message from President Harry S. Truman to N. M. Shvernik, chairman of the presidium of the Supreme Soviet, on July 7, transmitted a U.S. congressional resolution expressing regrets at the "artificial barriers" that separated the U.S. and Soviet peoples and assuring the latter that the U.S. people had no desire for war against the Soviet Union. In his letter of reply to President Truman on Aug. 6, Shvernik sought to distinguish between the U.S. people, about whom the Kremlin had no grounds for doubting that they did not want war, and certain forces who strove to unleash a new world war. He forwarded a long resolution of the presidium of the Supreme Soviet in which the responsibility for "artificial barriers" was laid at the door of the U.S. government. As a positive contribution to improvement of international relations, he proposed a peace pact between the United States, the U.S.S.R., Great Britain, France and Communist China, the limitation of armaments and the outlawing of atomic weapons.

Informed on Oct. 5 by Admiral Alan G. Kirk, U.S. ambassador to Moscow, on behalf of his government, that there could be no hope of better relations until the Korean war was ended, A. Y. Vyshinsky, ten days later, published a statement to the effect that the U.S. government was not genuinely interested in any improvement of Soviet-American relations. The *démarche* had been kept secret by the State Department in the hope that Moscow would use its influence over its Chinese and North Korean satellites, but Vyshinsky's reply compelled the United States to publish the full text of Admiral Kirk's remarks, so that world opinion might draw its own conclusions from the two statements.

On a complaint by Herbert Morrison, British foreign secretary, that declarations of British government spokesmen were not properly reported in the Soviet press, *Pravda* offered to publish a statement by Morrison, and on Aug. 1 gave space both to an article signed by the British foreign secretary and a reply. Whereas Morrison expressed his sincere wish for genuine co-operation between Great Britain and the U.S.S.R. in advancing peace and progress in the world, *Pravda* concluded that the Soviet peoples were right in regarding present-day Anglo-American politicians as instigators of a new world war. Such a conclusion was consistent with the exchange of notes which took place between the British and Soviet governments early in the year. On Jan. 20 the Soviet government had accused Great Britain of having violated its obligations under the Anglo-Soviet treaty of May 26, 1942. On Feb. 17 the British government refuted this accusation and adduced evidence to prove the Soviet government the real offender. In a further note on Feb. 24 the Soviet government restated its accusations: the government of Great Britain was guilty of pursuing "not a policy of preserving peace but a policy of aggression, a policy of unleashing war."

Similar notes addressed by the Soviet government to France on Jan. 20 and Sept. 11 accused the French government of fostering the restoration of a regular German army for purposes of aggression and so undermining the basis and significance of the Franco-Soviet treaty of Dec. 10, 1944. France replied on Sept. 26 refuting Soviet accusations and reaffirming "its determination to oppose any utilization of Germany as a base for aggression."

Two other series of diplomatic notes in similar terms, concerning their participation in the North Atlantic Treaty organization, were addressed to Norway and Turkey in October and November respectively and received the usual denials of aggressive intentions.

While A. Y. Vyshinsky and A. A. Gromyko were making speeches and writing notes, the Politburo-controlled World Peace council continued the propaganda activity initiated at the beginning of 1949. The council, reassembled in Berlin in Feb. 1951, appealed for a five-power pact and warned that refusal to join would be considered proof of aggressive intentions. By this means the Communist organizers sought to condemn in advance all who dared oppose Moscow's policies. According to *Izvestia*, the number of signatures to the Berlin appeal amounted by Dec. 31 to 596,302,298, including 117,669,320 signatures from the U.S.S.R. and from China 344,530,057.

In November Vyshinsky again submitted the peace proposals, at the U.N. general assembly in Paris. Western statesmen replied in effect that the creation of an undemocratic directorate of great powers made sense only as an attempt to by-pass the United Nations; the reduction of armaments alone was not enough to achieve real peace and no reduction was possible without revealing the existing levels of the armed forces of all major powers; to outlaw atomic weapons alone would be illusory, and, finally, that an effective system of international control was needed.

The Party and the Government. During 1951 congresses were held by the Communist parties of the republics of Armenia, Azerbaijan, Estonia, Kazakhstan, Latvia and Moldavia. As party congresses had already taken place in nine other republics during 1949 and 1950, it was to be assumed that the preparatory work for the long-overdue 19th congress of the All-Union Communist party (of the Bolsheviks), required by statute to meet triennially, which it had not done since March 1939, was nearing its end. No congress would be held in the Russian S.F.S.R. for there were no purely Russian central party organs.

Access to party membership having been somewhat eased during the Great Patriotic War, the All-Union Communist party had increased its following from 3,400,000 in 1940 to more than 6,300,000 in 1947. Since many who joined out of opportunism and expedience lacked the necessary political training and were not trusted, a general purge of party membership was started throughout the Soviet Union in 1948 and by 1951 had been almost completed. Although the combined party membership of the 15 non-Russian republics was no more than one-fifth of the total, compared with almost one-half of their combined population, the purge was particularly severe in these republics, where "nationalist deviation" was repeatedly rife. The purge also included Russian organizations where party ranks were flooded with careerists and "hostile elements." In comparison with the prewar purges, when Stalin was fighting influential enemies within the party leadership, the postwar purge proceeded with less obvious violence, signs that it was in progress merely being the disappearance of leading men in the party organization and in the government. At the beginning of December it was announced that Molotov, Beria, Malenkov and Bulganin, the big four of the Politburo, with Marshal A. M. Vasilevsky as the armed forces spokesman, had visited Stalin in his Caucasian retreat at Sochi. On Dec. 21 the leader entered his 73rd year.

Between congresses the central committee directs the party through three key bodies, the secretariat, the organizing bureau (Orgburo) and the political bureau (Politburo). By 1951 at least 24 out of 71 full members and 68 deputy members of the central committee elected by the 18th congress were dead and 34 had disappeared; study of the Soviet press disclosed that 16 new members of the central committee had been co-opted since 1945. (*See* Table II).

On Nov. 23 the deaths occurred of A. I. Yefremov, one of the 15 deputy premiers, and on Dec. 31 of Maxim Litvinov, former commissar of foreign affairs (*see* OBITUARIES). Of the deputy premiers, each responsible for a ministry or a group of ministries, 9 were members of the Politburo. Molotov was undoubtedly the superior of A. Y. Vyshinsky;



The corner of Sadovaya Street and Nevsky Prospect in Leningrad. This photograph was taken in 1950.

Bulganin was in control of the War, Navy and Armaments ministries as well as of a special office of satellite armies. Chief of the ministries of Internal Affairs, State Security and State Control was Beria. Although Malenkov had no ministerial responsibility, he was the only man other than Stalin who was simultaneously deputy premier and a member of the three key party bodies. Andreyev continued to look after agriculture. Mikoyan controlled foreign trade and was believed to have charge of the Council for Mutual Economic Aid. Marshal Voroshilov succeeded Zhdanov as chief of cultural activities and the supervision of various technical ministries was divided among the remaining deputy premiers. According to the Soviet constitution, government ministries were of two kinds: the all-union ministry common to all federal republics and the union-republican ministry functioning in Moscow and in the respective capitals of the federal republics. Both types were almost annually merged, divided and suppressed by decree of the presidium of the Supreme Soviet. The Supreme Soviet approved the changes and promulgated the necessary amendments to the constitution. The latest amendment in 1951, approved on March 10, fixed the composition of the central government at 32 all-union ministries and 21 union-republican ministries. With few exceptions the heads of both types of ministry were Russian. In Moscow, capital of the U.S.S.R. and of the R.S.F.S.R., many union-republican ministries existed in duplicate, one Soviet and one Russian. There were, however, no Russian ministries of state security, internal affairs, war or foreign affairs. From Feb. 1, 1944, each federal republic had the right to enter into direct relations with foreign states but by Dec. 1951 none had been allowed a legation abroad, and no foreign power, not even a people's democracy, had been permitted to open a legation in the capital of a federal republic.

The Federal Republics. During the year the citizens of the Soviet Union were called to the polls on Feb. 18 and 25, when elections took place of deputies to the Supreme Soviets of the 16 federal republics, and on Dec. 16 and 23, when members of republican, provincial and district tribunals were elected. At the so-called republican legislative elections the Russian S.F.S.R. elected 763 deputies (1 per 150,000 inhabitants), while in other republics the number of deputies varied from 120 (Karelo-Finnish S.S.R., 1 deputy per 5,000) to 412 (Uzbekistan, 1 deputy per 15,000). The members of the Politburo of the All-Union Communist party were, as usual, elected to the Supreme Soviet of every federal republic. About 60% of the deputies were high party functionaries, members of the respective central committees, or provincial, district and town party committee secretaries, together with the ministers of internal affairs and state security and their provincial representatives. During April the Supreme Soviets met in the respective capitals to elect their presidia, form the republican councils of ministers and adopt the budgets.

Moscow continued distrustful of native leaders in the federal republics and the key positions of ministers of internal affairs and state security remained everywhere in Russian hands. The secretariats of the national Communist parties were also under Russian control, although for propaganda purposes a man with a native name was often advertised as first secretary.

At the 25th anniversary celebrations of the Kirghiz S.S.R. on Feb. 1, at Frunze, the Kirghiz people were reminded that under the Soviet régime industrial output was 20 times greater than in 1913.

Writing in *Izvestia* on Feb. 3, S. K. Karapetian, chairman of the council of ministers of Armenia, stated that by the end of 1950 the industrial production of the republic was

three times greater than in 1940; under the Soviet regime the city of Erivan was 15 times larger and had a 10 times bigger population, and education had made great strides. However, in June Grigory Artemyevich Arutinov, the Russian first secretary of the Armenian Communist party, stated that furniture, shoes and clothing were short and of poor quality; Armenia had to import 70% of its grain requirements; the livestock situation was bad; school facilities were grossly inadequate, and many party members had been prosecuted on charges of stealing and squandering government funds.

The Economic Position. Selected for the first time to present the traditional annual report to the Soviet people, at the 34th anniversary celebrations of the Communist revolution on Nov. 6, Beria stated that the output of both heavy and light industry had substantially increased. Production of coal and lignite had risen by some 24 million metric tons, of crude oil by 4·5 million tons, of electric power by over 13,000 million kwh., of pig iron by 2·7 million tons and of crude steel by some 4 million tons. He affirmed that the national economic plan for 1951 would be fulfilled and overfulfilled. Industrial output expressed in comparable prices, whatever that meant, would be 15% higher than in 1950 and double that of 1940. As some industrial production figures were published for 1950, it was possible to estimate approximate totals for 1951 (*see* below). Coal production, which in 1940 was 0·8 ton per head, rose to 1·4 tons, but the Soviet Union was still far behind Great Britain, which in 1950 produced 4·3 tons per head, and the United States whose production was 3·2 tons per head. Steel output rose between 1940 and 1951 from 91 kg. a head to 158 kg., as compared with 330 kg. in Great Britain and 586 kg. in the United States in 1950.

While recording that further progress had been achieved in agriculture, Beria omitted to disclose the extent of the 1951 grain harvest, merely stating that the average annual grain crop for several years past had exceeded 114·6 million tons. As actual production in 1950 was published as 124·7 million tons, or 2·3 million tons less than the target fixed in the postwar five-year plan, these results were plainly unsatisfactory, and the deficit in grain production was the more serious in the light of Beria's revelations concerning vital statistics. Between 1940 and 1951 the death rate had been halved and infant mortality had been reduced even more, while for several years the annual population increase exceeded 3 million. According to these figures the population by the end of 1951 would be some 15 to 18 million more than in 1940, but grain production was 5 million tons less than in 1940 (*see* below).

In Beria's statement there was no reference to livestock progress in 1951, which was the last year of a special three-year plan for the development of animal husbandry, but from a report published by the Central Statistical administration on Jan. 27 it was known that by the end of 1950 the Soviet Union had fewer cattle than pre-revolutionary Russia, and fewer pigs, sheep and horses than in 1938 in a smaller territory (*see* below).

On housing Beria stated that during 1951 about 27 million sq.m. of floor living-space were to be made available in towns and industrial settlements. As, according to Bulganin, in the years 1946-50 more than 90 million sq.m. of floor living-space had been built or rebuilt in the towns, the total available was 117 million sq.m. The housing situation thus remained grave, for to restore prewar conditions in the war-damaged areas alone it was necessary, according to Voznesensky, to build more than 60 million sq.m. of housing floor-space.

Transport apparently was the Achilles heel of the economic system. During 1951 rail goods traffic, said Beria, had increased by 11% which was almost equal to the annual total of goods carried by the railways of Great Britain and France combined. As the French and British railways in 1950 transported 75,100 million ton-km., the percentage revealed by Beria would suggest that the total goods traffic on Soviet railways approached 758,000 million ton-km., but in the United States, whose area was about one-third of that of the Soviet Union, railway goods traffic amounted in 1950 to 859,224 million ton-km.

There seemed small probability in 1951 of any early publication of a new five-year plan. As far back as Jan. 9, 1948, the presidium of the Supreme Soviet decided to replace the State Planning commission, which had ministry status, by three committees attached to the council of ministers, namely, the State Planning committee, the Committee for Material and Technical Supplies and the Committee for Introducing Advanced Technology, the last of which was discontinued in March 1951.

In Beria's report to the nation no mention was made of "agrotowns," shortage of building materials and manpower no doubt having caused this project to be shelved.

Rearmament was the supreme preoccupation but induced a severe strain, the degree of which might be gauged from the curious initiative of the World Peace council which in its Berlin session in February called for an International Economic conference in Moscow from April 3 to 10, 1952.



Boris Efimov's cartoon which was published in "Izvestia" (Moscow), Jan. 1, 1951. It depicts the western leaders with their aggressive plans being startled by the new year slogan "for peace."

"Such a conference," stated the council, "would serve as a stimulus for the restoration of normal economic relations throughout the world. These are a *sine qua non* for peaceful and fruitful international collaboration." Self-sufficiency was always a basic principle of Soviet economic policy, but the Soviet Union was short of oil, rubber, cotton, wool, copper, tin, tungsten, molybdenum and was interested, according to the Moscow *News*, "in many classes of American machines and various novelties." In foreign trade as in foreign policy the approach was the same: without abandoning its grand strategy the Kremlin was ready to trade with the warmongers so long as it needed their machines and "various novelties."

Education. Schools (1951): primary, secondary and lower technical 220,000, pupils 37,000,000, teachers 1,200,000; universities 31 and institutions of higher education 849, students 840,000 and 407,000 taking correspondence courses. In the Russian S.F.S.R. there were 119,000 primary and secondary schools with a total enrolment of 18,000,000 pupils and a teaching staff of 760,000.

Agriculture. Main crops (million metric tons):

	1913	1938	1940	1950 Plan	1950 Actual	1951 Est.
Grain* . .	80·1	90·0	119·0	127·0	124·7	114·6
Sugar-beet .	10·9	16·7	21·8	26·0	24·3	—
Potatoes . .	23·3	65·6	84·2	115·3	—	—
Cotton . .	0·7	2·7	2·7	3·1	3·8	—

* From 1933 figures given for all Soviet grain crops represented not the actual amount harvested, but a "biological" estimate determined in the field prior to harvest. Crop available for use is probably 20% less than the "biological" yield.

Livestock (million head, including those on collective farms, state farms and privately owned):

	1913	1938	1940	1950 Plan	1950 Actual	1951 Actual
Cattle	60·6	63·2	71·0	65·3	57·2	58·8
Pigs	20·9	30·6	36·1	31·2	24·1	26·7
Sheep and goats	121·2	102·5	108·5	121·5	99·0	107·5
Horses	35·8	17·5	20·6	15·5	13·7	14·6

Industry. Heavy industry production (million metric tons, electricity in '000 million kwh.):

	1913	1940	1945	1950 Plan	1950 Actual	1951 Est.
Coal and lignite	29·1	166·0	150·0	250·0	264·0	288·0
Crude petroleum	9·2	31·0	19·5	35·4	37·6	42·1
Electric Power	1·9	48·2	45·0	82·0	86·7	104·0
Pig iron	4·2	14·9	8·8	19·5	19·2	21·9
Crude steel	4·2	18·3	12·4	25·4	27·6	31·6

Foreign Trade. Statistical data of the foreign trade of the Soviet Union are not published. Some idea of Soviet foreign trade in postwar years may be obtained from the statistical data of the 12 western European countries (Austria, Belgium-Luxembourg, Denmark, France, Western Germany, Italy, Norway, Netherlands, Sweden, Switzerland, Turkey and the United Kingdom; million U.S. $ at current prices, f.o.b.):

	1938	1948	1949	1950	1951 (est.)
Imports from the U.S.S.R.	265	223	120	138	224
Same, to the U.K. alone	119	105	47	86	129
Exports to the U.S.S.R.	174	113	140	110	87
Same, from the U.K. alone	55	21	32	32	13

Soviet-U.S. trade (million U.S. $ at current prices, 1949; 1950 in brackets): U.S. imports from the U.S.S.R. 42 (40), exports to the U.S.S.R. 6 (1).

Transport and Communications. Railway (1950 est.): 112,530 km.; the railways accounted for 83% of all goods traffic and 90% of all passenger traffic. Shipping (1950): 437 ships totalling 1,824,000 deadweight tons.

Finance. Budgets ('000 million roubles):

	1928	1938	1940	1949	1950	1951	1952
Revenue	8·8	127·5	180·2	436·9	422·1	458·7	509·9
Expenditure	8·7	124·0	174·4	412·3	412·7	451·5	476·9

The exchange rate of the rouble, high and fictitious: £1 = Rb. 11·20; U.S.$ 1 = Rb. 4·00. (K. SM.)

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UNITARIAN CHURCH. The year 1951 was one of steady progress and consolidation. Extensive restoration work was carried out on Unitarian Church buildings at Dover; Hamilton road, Liverpool; Chatham; and Wandsworth, all of which suffered damage from enemy action. Work was begun on the rebuilding of the destroyed church at Lewisham, and the destroyed hall at Hull. An extensive rehabilitation scheme was in progress at Edinburgh, and an even larger one was nearing completion at Glasgow. The church at Marple, Cheshire, was revived after a lapse of 30 years and re-admitted to the general assembly of the Unitarian Church in Great Britain. Several areas carried out development work in connection with one or more of their churches, and the results were encouraging.

A large number of one-day and weekend schools for Sunday school teachers were held and an increase in the number of scholars was shown for the third year in succession. The Rev. H. H. Cheetham, secretary of the Sunday School association and the youth department, spent three months on a lecture tour of the United States and also visited Canada.

In connection with the training of students for the ministry an interesting development took place in that the Unitarian college, Manchester, and Manchester college, Oxford, which had previously worked as entirely independent and separate institutions, would, for an experimental period of ten years, work together in a liaison scheme with a joint committee.

The executive committee of the International Association for Religious Freedom met in Boston, Massachusetts, to plan the 1952 congress which was to be held in Oxford. Opportunity was taken for the members to preach in several Unitarian pulpits and to attend two conferences on Star island. The International Religious fellowship held a conference at Schanf in Switzerland and over 30 young people from assembly churches went in a 'bus they had chartered, camping en route so as to keep down the expense. The venture was a great success. The Rev. Margaret Barr returned to the Khasi hills, India, after her furlough in England and visit to the United States and Australasia, where her reception was magnificent and much appreciation shown of her work. (J. KY.)

See Alfred Hall, ed., *James Martineau—Selections* (London, 1951); Alexander Gordon, *Philip Doddridge and the Catholicity of the Old Dissent* (London, 1951).

UNITED CHURCH OF CANADA. The United Church of Canada, which in 1925 united the Presbyterian Church in Canada, the Methodist Church (Canada) and the Congregational Churches in Canada, reported for 1950 a membership of 821,199 with 1,965,300 persons under pastoral oversight, a Sunday school enrolment of 537,387 and 6,368 preaching places. The church owned property worth $143,911,196. The missionary and maintenance givings of the church in 1950 totalled $3,009,979, an advance over the previous year of $303,865.

Among the important events in the life of the United Church during 1951 were special campaigns of personal, congregational and mass evangelism, which resulted in 31,265 conversions; a high-level increase of candidates for the ministry; the sending of $45,000 for relief of churches in Europe and Asia; the resumption of negotiations on reunion with representatives of the Church of England in Canada; the raising of the minimum salary scale for married ministers to $2,600, with provision for travel grants and free use of furnished parsonage.

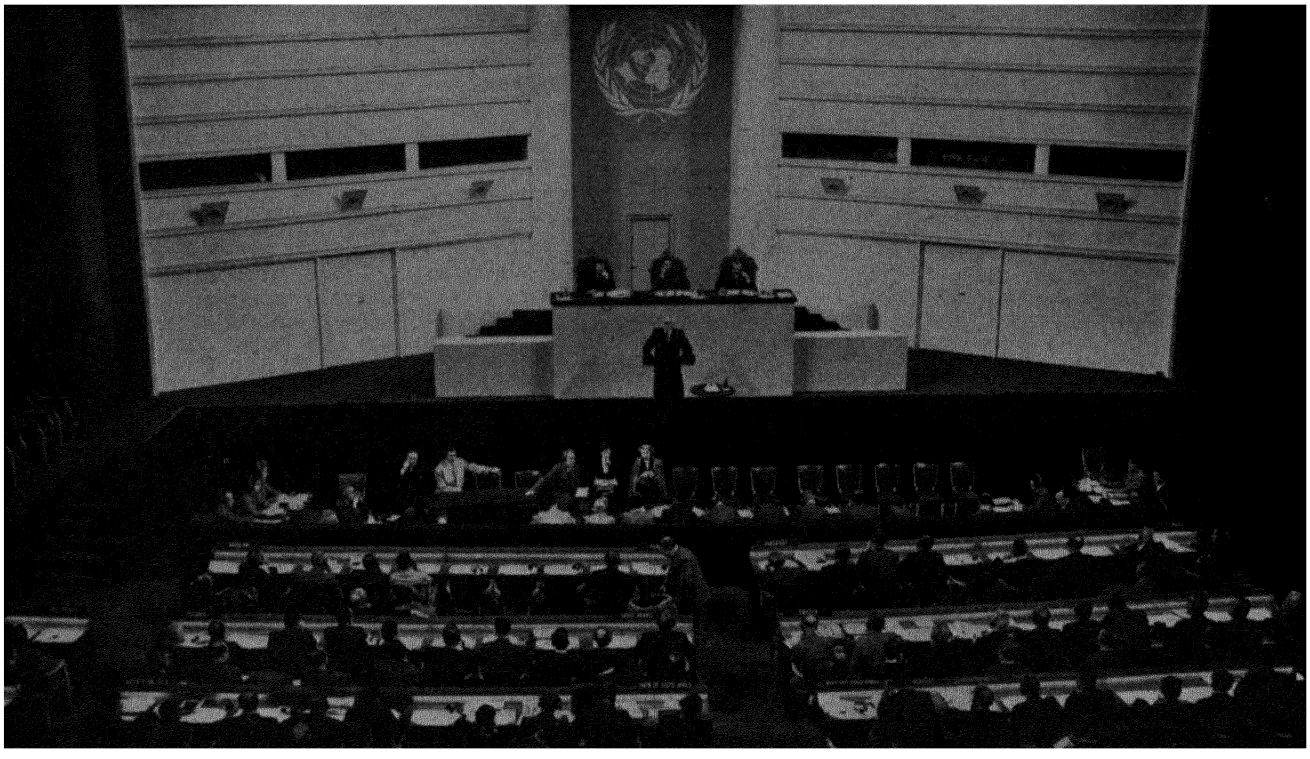
During 1951 the moderator, the Rt. Rev. C. M. Nicholson, visited the Canadian armed forces in Korea and some of the church's missionaries in Japan. (G. A. SI.)

UNITED KINGDOM: *see* GREAT BRITAIN AND NORTHERN IRELAND, UNITED KINGDOM OF.

UNITED NATIONS. Tension between the western powers and those states within the Soviet orbit continued during 1951 to impair the effectiveness of the U.N. as a global organization dedicated to the maintenance of international peace and security and to the solution of economic and social problems by methods of international co-operation. Nevertheless, it was in the process of denying the fruits of aggression in Korea and was successful in strengthening collective security and further developing and applying a programme of technical aid to underdeveloped countries.

Membership and Representation. There was no change in the membership during 1951.

Admission of new members continued to be a subject of discussion. The designation of Italy as administering authority for Somaliland raised the question of Italian membership. On Dec. 7, the general assembly passed a resolution expressing the opinion that Italy should be a member of the Trusteeship council to be in the position to carry out its responsibilities and to that end recommending that the Security council act favourably on the Italian application for membership of U.N. However, the Soviet veto prevented the council from doing this. The Soviet position continued to be that it would not support the application of states favoured by the western



Andrey Vyshinsky, foreign minister of the Soviet Union, addressing the general assembly on Nov. 8, 1951. The sixth general assembly was held in the Palais de Chaillot, Paris.

powers so long as they opposed applications supported by the Soviet Union.

Representation of the Republic of China (Nationalist) in the organs of the U.N. continued to be a controversial issue. At the end of the fifth session of the general assembly on Nov. 5, the Soviet delegation made an unsuccessful attempt to get a resolution adopted placing the question on the agenda of the sixth session. When the sixth session convened, this effort was repeated. The general assembly not only rejected the Soviet proposal but also recommended that for the duration of the Paris session it refuse further to consider the question.

Organization and Meetings. The fifth session of the general assembly continued until Nov. 5, 1951. It was the longest session in the history of the U.N. The length of the session resulted from the fact that it was considered desirable to have the First committee (political and security) continuously in session to deal with any new development in the Korean situation and the general assembly itself to take action on any recommendations that that committee might make. The First committee consequently assumed in practice one of the functions which the Interim committee, initially established in 1947, had been expected to perform.

The sixth session of the general assembly convened at the Palais de Chaillot in Paris, on Nov. 6. Luis Padilla Nervo (*q.v.*), Mexico, was elected president. Chairmen of the six main committees were elected as follows: First committee (political and security), Finn Moo, Norway; Second committee (economic and financial), Prince Wan Waithayakon, Thailand; Third committee (social, humanitarian and cultural), Señora Ana Figueroa, Chile; Fourth committee (trusteeship), Max Henriquez Urena, Dominican Republic; Fifth committee (administrative and budgetary), Thomas Archibald Stone, Canada; Sixth committee (legal), Manfred Lachs, Poland. The president, the chairmen of the six committees and seven elected vice presidents composed the General committee (steering) of the assembly.

Following the customary opening general debate, the assembly adopted an agenda of 68 items on Nov. 13, and allocated them to the main committees for consideration. Among the more important substantive items included were the following: the Korean question; the regulation of armaments; the report of the Collective Measures committee; Libya; Palestine; the treatment of people of Indian origin in the Union of South Africa; appointment of a commission to explore the possibilities of holding elections in eastern and western Germany; draft International Covenant on Human Rights; the refugee problem; technical assistance and economic development; problems of non-self-governing territories and trusteeship; co-ordination of specialized agencies; and the 1952 budget. The session was still in progress at the end of 1951.

The Security council was still suffering in 1951 from loss of prestige and effectiveness resulting from the continuing deadlock among its permanent members. In particular, it ceased to be the organ dealing with the complaint of aggression against the Republic of Korea, the issue having been removed from its agenda on Jan. 31 before the adoption of the general assembly resolution of Feb. 1. The membership of the council during the year included the five permanent members—China (represented by the Nationalist government), France, the U.S.S.R., the U.S. and the United Kingdom—and by six non-permanent members—Brazil, Ecuador, India, the Netherlands, Turkey and Yugoslavia. The general assembly elected Chile, Pakistan and Greece to replace Ecuador, India and Yugoslavia for two-year terms ending Dec. 31, 1953. The election of Greece was preceded by a long and bitter debate and 18 inconclusive ballots. Many delegations felt that the U.S. sponsorship of Greece violated a gentleman's agreement dating from early 1946, according to which the eastern European countries were to have the right in effect to select one non-permanent member of the council. Byelorussia was the candidate of this group and in the early voting had an advantage over Greece. On the 19th ballot, however, Greece received 39 votes against 16 for Byelorussia, with 5 abstentions, and was declared elected.

The Economic and Social council held two sessions in 1951. The 12th session was held in Santiago, Chile, from Feb. 20 to March 21, 1951, while the 13th session met at Geneva, from July 30 to Sept. 21. Hernan Santa Cruz served as president of the council during both sessions. During 1951, the council's membership was as follows: (with terms ending Dec. 31, 1951) Belgium, Chile, China, France, India and Peru; (with terms ending Dec. 31, 1952) Canada, Czechoslovakia, Mexico, Pakistan, Persia and the U.S.; and (with terms ending Dec. 31, 1953) the Philippines, Poland, Sweden, the U.S.S.R., the United Kingdom and Uruguay. During its sixth session, the general assembly elected the following to the council for three-year terms ending Dec. 31, 1954: Argentina, Belgium, China, Cuba, Egypt and France.

At its 13th session in Geneva, the council gave special consideration to its organization and functioning in the light of six years' experience. It decided to hold two sessions annually, the second to be opened before the annual session of the assembly and to be resumed towards the end of the session or soon thereafter. It also decided to plan its basic programme of work and calendar of conferences for each year in advance. It made some important changes in its subsidiary organization. It decided to continue its regional commissions indefinitely but to discontinue one functional commission—economic employment and development—and a number of sub-commissions. The following functional commissions were retained, in most cases with less frequent meetings: human rights, narcotic drugs, statistical, fiscal, transport and communications, social, population and status of women.

The Trusteeship council held two sessions during the year. The eighth session met at Lake Success, New York, from Jan. 30 to March 16, 1951, and the ninth session met at Flushing Meadow, New York, from June 5 to July 30. Max Henriquez Urena, Dominican Republic, served as president during the eighth session while Sir Alan Burns, United Kingdom, occupied the president's chair during the summer session. (*See* TRUST TERRITORIES.)

The terms of five members of the International Court of Justice (*q.v.*) expired on Feb. 5, 1952, and one vacancy in the court was caused by the death of Judge José Philadelpho de Barros e Azevedo, Brazil, whose term of office normally would have expired in Feb. 1955. To fill the vacancy, the general assembly and the Security council, voting concurrently, elected Levi Fernandes Carneiro, Brazil. For terms of nine years beginning Feb. 5, 1952, the assembly and the council elected Sergey A. Golunsky (U.S.S.R.), Green H. Hackworth (U.S.), Helge Klaestad (Norway), Sir Benegal N. Rau (India) and E. C. Armand Ugon (Uruguay).

Administration and Finance. On Sept. 24, Trygve Lie, U.N. Secretary General, announced the appointment of Guillaume Georges-Picot, France, as assistant secretary general in charge of the department of social affairs. On Aug. 25 and 30 the administrative tribunal announced decisions on appeals by staff members against termination of employment by the secretary general. These decisions laid down the principle that the secretary general's power, even with respect to staff members under temporary contracts, was subject to certain limitations in the interest of due process, including the right of appeal.

The transfer of the secretariat from Lake Success to the permanent headquarters in New York city was completed early in 1951. On March 28, a special postal agreement between the U.N. and the U.S. providing for the operation of a U.N. post office was signed; the first U.N. stamps were issued on Oct. 24. The U.N. field service, established in July 1950, developed to a force of 125 men representing 26 countries.

The assembly approved on Dec. 21 a budget for 1952 of $48,096,780 as against 1951 appropriations of $47,798,600.

The Committee on Contributions recommended to the general assembly changes in the assessment rates of 33 countries. It recommended an increase in the contribution of the Soviet Union from 6·98% to 9·85% and slight increases in the rates of other eastern European countries. It proposed the lowering of the U.S. contribution to 36·90%,



Eritrean boy scouts offer a bouquet of flowers to the United Nations commissioner in Eritrea, Eduardo Anze Matienzo (Bolivia), in May 1951.

a reduction of 2·02%. The recommendations of the committee were adopted.

Political Problems. Although the Korean question continued to dominate the political scene, the U.N. dealt with a number of other important questions during 1951, including Palestine, Kashmir (*q.v.*), the Persian oil dispute, the unification of Eastern and Western Germany and disarmament.

Korea. On Dec. 14, 1950, the general assembly had appointed a cease-fire committee to seek a basis for a cease-fire in Korea. After several unsuccessful efforts, the committee reported on Jan. 3, 1951, that it had thus far failed in its mission. On Jan. 11, the committee submitted a set of basic principles to guide the U.N. in its further attempts to achieve some agreement with the Chinese Communist government, and these were adopted by the Political and Security committee on Jan. 13. These principles envisaged an immediate cease-fire, consideration of further steps for the restoration of peace, the withdrawal by stages of all non-Korean armed forces, the creation of appropriate interim arrangements for the administration of Korea and the establishment by the assembly of a body consisting of the People's Republic of China, the United Kingdom, the U.S.S.R. and the U.S. to achieve a settlement of far eastern problems. These principles were conveyed to Communist China, which rejected them, repeating its demands that political negotiations must precede a cease-fire and should be based on an agreement to withdraw all foreign forces from Korea. Furthermore, it repeated its demands that the People's Central government replace the nationalist government as the representative of China in the U.N., and it insisted that the negotiations cover the removal of the U.S. 7th fleet from the waters surrounding Formosa and other far eastern problems.

While some delegations thought this reply from Communist China offered the basis for further negotiation, others led by the U.S., insisted that the Peking government left no alternative to the U.N. but to label them as aggressors and apply sanctions. The U.S. delegation introduced a resolution to this effect which, with minor modifications, the assembly approved on Feb. 1 by a vote of 44 to 7 with 9 abstentions, after its First committee had rejected a resolution, submitted by the Asian-Arab states, calling for a conference to seek further elucidation of the position of the Peking government.

The Feb. 1 resolution found that the People's Republic was guilty of aggression, called upon it to cease hostilities, affirmed the determination of the U.N. to continue military operations to restrain this aggression, called on all U.N. members to continue to assist U.N. action in Korea, set up an Additional Measures committee (membership of which was to include the members of the Collective Measures committee) to study ways and means of meeting the Chinese Communist aggression through the application of sanctions and proposed that the president of the assembly establish a Good Offices committee to continue the search for a peaceful solution. This committee was further to explore the possibilities of peaceful settlement before the Additional Measures committee made any report.

The Good Offices committee was established with the following members: Nasrollah Entezam (Persia), the president of the assembly, Luis Padilla Nervo (Mexico) and Sven H. Grafstrom (Sweden), but met with no success, it being apparent that the Communists were still committed to seeking a decisive military result. On May 14, the Additional Measures committee reported that many U.N. members had already imposed embargoes on war material to Communist China, and it recommended that all other members do likewise. The assembly on May 18 adopted these recommendations, called on each state to report to the Additional Measures committee on the measures it was taking to implement this resolution and requested that the committee continue to study ways of strengthening the measures being taken. (For an account of the progress of the war and of the peace negotiations during 1951, *see* KOREAN WAR.)

Palestine. Although armistice agreements had been in force between Israel and the Arab states with the exception of Iraq since 1949, the Palestine situation remained unresolved. On two occasions during 1951 continuing tension gave rise to disputes requiring the intervention of the Security council. The U.N. Conciliation Commission for Palestine made no progress in its effort to find a permanent solution.

The first dispute involving Israel and Syria resulted from operations undertaken by the government of Israel to drain the Hula marshes and to straighten and deepen parts of the Jordan river included in the demilitarized zone. The Syrian government claimed that these operations, involving some displacement of Arab inhabitants, were in violation of the armistice agreement. The Israeli government complained that Syria had illegally resorted to the use of armed force. The complaints were brought before the Mixed Armistice commission and the Security council in April. The commission was instrumental in getting agreement on a cease-fire for May 4 which was not effective, however, in bringing fighting to an end. The council adopted two resolutions, May 8 and 18 respectively, calling for a cease-fire, respect for the terms of the armistice agreement and acceptance of the authority of the Mixed Armistice commission. The terms of the resolutions were accepted by the parties.

The second dispute concerned Egypt's practice of imposing restrictions on ships going to Israel through the Suez canal. Egypt claimed that it had the right to stop neutral shipping since it was technically at war with Israel, despite the fact that an armistice agreement had been signed. After a series of meetings in July and August, the Security council on Sept. 1, by a vote of 8 to 0 with 3 abstentions, adopted a resolution, introduced by France, the United Kingdom and the U.S., asserting that under international law Egypt's claim was not valid and calling upon Egypt immediately to terminate the restrictions. The Egyptian representative stated that his government reserved its rights.

The U.N. Conciliation Commission for Palestine continued its efforts to bring Israel and the Arab states—Egypt, Jordan, Lebanon and Syria—into a peaceful agreement. Among the outstanding issues that remained unsettled were the refusal of Israel to repatriate more than a fraction of the many Arabs who were forced to vacate their homes in Palestine during the hostilities or to give them compensation, the status of Jerusalem, and control over the Jordan river which caused trouble in the spring of 1951. The commission attempted, in a series of meetings held in Paris beginning Sept. 13, to bring Israel and the Arab states together on a series of proposals which the commission submitted. These efforts were thwarted, however, by the refusal of the Arab representative to meet with Israeli representatives and by irreconcilable differences between the Israeli and Arab positions. The Arab states refused to negotiate unless Israel promised to accept all of the Arab refugees, and the Israeli delegation likewise remained adamant in its position of not being able to accept more than a few Arabs. On Nov. 21, the commission announced that it was terminating its conference.

Anglo-Iranian Oil Dispute. Following the nationalization of Anglo-Iranian Oil company properties by the Persian government in April and early May, the United Kingdom instituted proceedings before the International Court of Justice on May 26. On June 22, the United Kingdom asked the court to order provisional measures to preserve existing rights. The Persian government denied the court's jurisdiction. On July 5, the court indicated certain provisional measures to be observed by both parties pending further

consideration of the case. In view of Persia's disregard of the court's orders, the United Kingdom brought the question before the Security council. Consideration of the complaint was postponed until Oct. 15 to permit Mohammed Mossadegh, the Persian prime minister, to arrive. After six meetings the Security council adjourned debate until the court had ruled on its own competence.

Unification of Germany. Early in the sixth session of the general assembly, the United Kingdom, France and the U.S. introduced a resolution in the Ad Hoc Political committee calling for the establishment of a commission to explore the possibility of holding elections in Eastern and Western Germany with a view to eventual unification. The Soviet Union objected, not only to the proposal, but also to summoning representatives from Eastern and Western Germany to Paris for testimony. Representatives from both German governments, however, presented their views, the Bonn (Western) group advocating the establishment of such a commission and the German Democratic Republic (Eastern) arguing that this constituted unwarranted intervention in Germany's internal affairs. The assembly adopted a resolution on Dec. 20, by a vote of 45 to 6 with 8 abstentions, calling for the establishment of such a body, and naming Brazil, Iceland, the Netherlands, Pakistan and Poland to be members. Poland stated that it would not serve, and Eastern Germany announced that it would not permit the commission to investigate conditions there.

Regulation of Armaments. Once again in the sixth session of the general assembly, this subject was in the forefront of attention. In its fifth session, the assembly had decided on a new approach to the whole matter, by appointing a committee to study and report on the establishment of a new consolidated disarmament commission. Two days after the sixth session began, Dean Acheson (U.S.) invited a new approach to the question by submitting a proposal sponsored by the U.S., the United Kingdom and France. This proposal called for the disclosure and verification of existing armaments, the reduction of armaments by successive stages, agreement on criteria determining the size of armed forces, the acceptance of the U.N. plan for the control of atomic energy as a basis for further discussions and the concurrent consideration of political questions. The U.S.S.R. delegation rejected the three-power proposal and called for a world conference by June 1952 for the reduction of armaments and the prohibition of atomic bombs, with no apparent provision for effective inspection or control. Both of these proposals were embodied in draft resolutions submitted to the First committee. The committee established a sub-committee consisting of representatives of the United Kingdom, France, the U.S. and the U.S.S.R., together with the assembly president, Luis Padilla Nervo, to draft proposals which would meet with general approval. The sub-committee on Dec. 10 reported agreement on the establishment of a new 12-member U.N. disarmament commission but complete disagreement on other elements of an acceptable disarmament plan. On Dec. 19, the First committee approved the three-power draft substantially as introduced. On Jan. 11, 1952, by a vote of 42 to 5 with 7 abstentions, the assembly adopted the resolution.

The resolution called for the establishment of a disarmament commission (to replace the existing Atomic Energy and Conventional Armaments commissions) which was to be composed of the 11 members of the Security council and Canada. The new commission was directed to prepare proposals for regulation, limitation and balanced reduction of all armed forces and armaments, the elimination of major weapons of mass destruction and effective international control of atomic energy. Although the Soviet *bloc* voted against the resolution, the U.S.S.R. announced that it would serve on the new commission.

The Balkans. After four years of surveillance of Balkan affairs, the U.N. Special Committee on the Balkans was terminated by a general assembly vote of 48 to 5 on Dec. 7. It was replaced by a Balkan sub-commission of the Peace Observation commission, established under the Uniting for Peace resolution of Nov. 3, 1950.

Technical and Economic Assistance. The U.N. programme for technical assistance to underdeveloped states made considerable headway in 1951. The Technical Assistance administration was established as a branch of the U.N. secretariat. Some 252 agreements were signed with 45 governments providing for 741 experts and 551 fellowships to assist the underprivileged nations in their efforts to raise their standards of living and improve their basic industries and agriculture. Technical assistance programmes approved varied from short-range projects to broad changes in the basic economic foundation of underdeveloped countries. Of special significance was the agreement concluded with Bolivia by which Bolivia undertook to accept U.N. advisers in some departments of administration, their activities to be subject to co-ordination and supervision by a U.N. representative. The question of the continuation of the expanded technical assistance programme was considered by the general assembly in its sixth session. Funds for the first year and a half had been raised on the basis of pledges made by governments participating in the Technical Assistance conference of 1950. Roughly $20 million was initially pledged. The Second committee (economic) on Dec. 6, 1951, adopted recommendations to continue this method of financing the programme. It also recommended that such contributions be negotiated through the new Negotiating Committee for Extra-Budgetary Funds which the Fifth committee (administrative and budgetary) asked the assembly to establish.

With respect to economic assistance to underdeveloped states, the Economic and Social council, as well as several of its commissions, undertook studies which recommended methods to facilitate the flow of capital to these countries. It was recognized that unless capital was channelled toward them and unless their financial structure achieved some element of stability, the over-all assistance programme could not succeed. At the 13th session of the Economic and Social council, it was suggested that an international fund be established to supply grants and low-interest loans to underdeveloped countries, but the capital-exporting countries led by the U.S. insisted that these countries must first attempt to undertake basic economic and social reforms before substantial capital was directed to them.

The council, in its recommendations to the general assembly, asserted that both capital-exporting and capital-importing countries should take practical steps to facilitate the flow of money into the needy countries. In line with earlier discussions as well as the council's recommendations, the Second committee on Dec. 13 voted 28 to 20 with 9 abstentions to establish an international fund for economic development which would provide grants and loans. In the face of strong U.S. opposition, the proposal was approved by the assembly, by a vote of 30 to 16 with 11 abstentions. The council on Jan. 12, 1952, was directed to prepare a programme for the consideration of the assembly at its next session.

Human Rights. By the end of 1951, very little progress could be reported in the attempted formulation of an International Covenant of Human Rights. The Human Rights commission's spring session in Geneva prepared a draft of economic, social and cultural rights to be included in the covenant though many states insisted that the covenant should contain only political rights. The Economic and Social council decided to request the sixth session of the general assembly to review the entire human rights programme. The fifth session of the assembly had established a

15-nation committee to construct a new draft of the Convention on Freedom of Information, first prepared in 1948. The committee early in 1951 prepared a new draft; the Economic and Social council, however, decided against convening a special conference to consider the draft prepared by the committee. Instead, it recommended that the assembly take no further action for the present.

The question of the treatment by the Union of South Africa of nationals of Indian origin became more acute in 1951. The assembly in its fifth session had recommended further negotiations between India and the South African government; however, in the middle of these negotiations, in Feb. 1951, the South African government enacted further legislation designed to segregate the South African Indians, and the Indian government withdrew from the talks. Furthermore, in March, the South African government reiterated its previous assertion that this matter was one within the domestic jurisdiction of their government and that it could not accept the assembly's resolution calling for further conferences. India placed this matter before the sixth session.

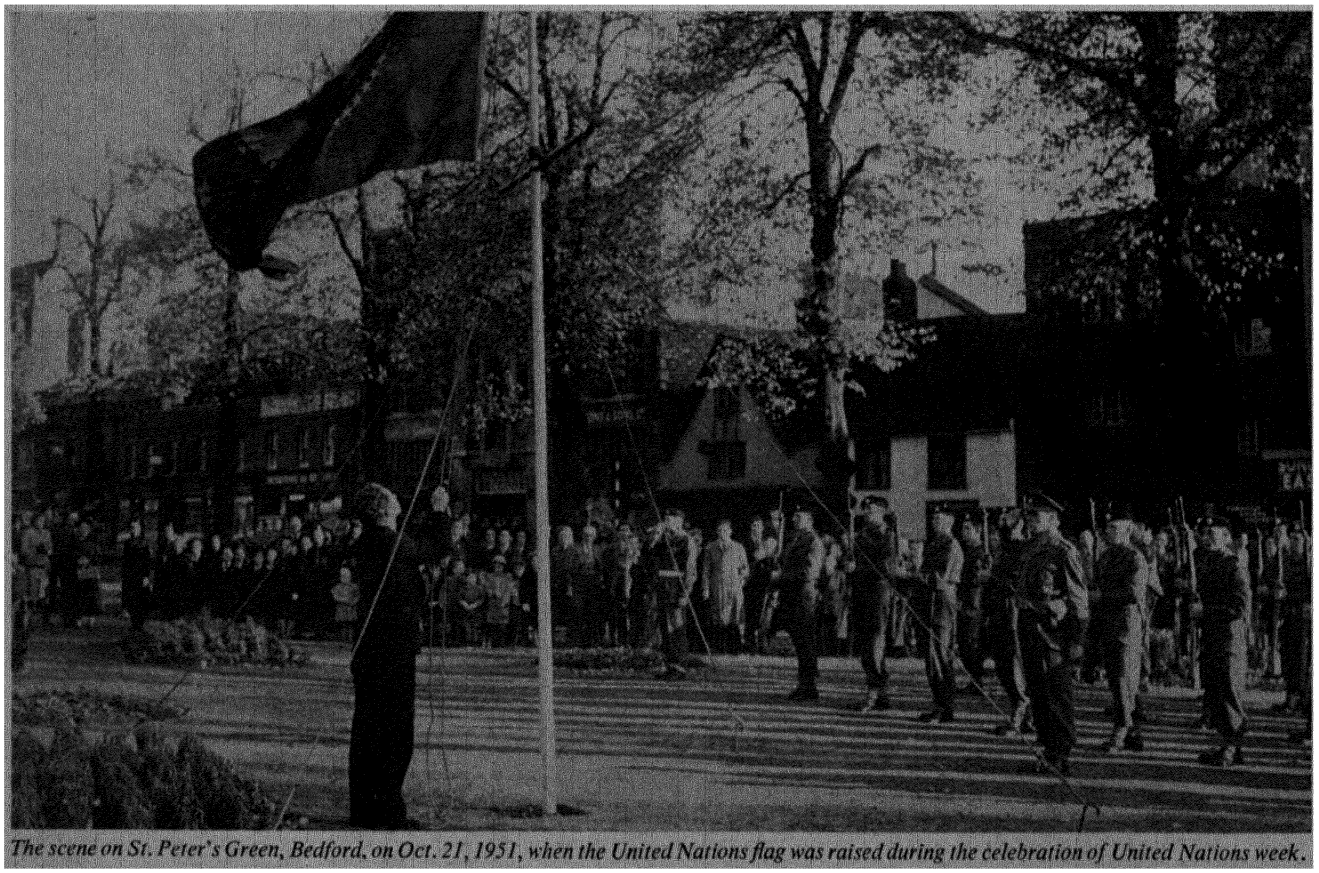
The assembly was asked to consider another difficult question when the Arab states requested it to consider their complaint that French actions in Morocco violated the U.N. charter and the Universal Declaration on Human Rights. Although the assembly decided by 28 votes to 23 on Dec. 13 not to place the matter on its agenda, the debate concerning the issue was marked with unusual bitterness.

Refugees and Migration. During 1951 the International Refugee organization (I.R.O.) was engaged in closing down its operations. Jan. 31, 1952, was the date set for final termination of its activities. On Feb. 1, the Provisional Intergovernmental Committee for the Movement of Migrants from Europe was scheduled to take over a segment of the organization's responsibility. It was not expected, however, that the committee and the U.N. High Commission for Refugees—G. J. van Heuven Goedhart took office Jan. 1, 1951—working together and with the full co-operation of governments would be able to do adequately what the I.R.O. had been able to achieve. A convention relating to the status of refugees was drafted in July which was designed to guarantee basic rights to refugees. It called on governments to facilitate the efforts of refugees either to repatriate themselves to their native lands or to settle in new areas.

Specialized Agencies. The constitutions of two additional specialized agencies had been signed by the end of 1951 but had not come into force by receiving the necessary ratifications. The convention establishing the Inter-Governmental Maritime Consultative organization (I.M.C.O.) had been ratified by eight states. Ratification by 21 states, including the principal maritime powers, was required. The constitution of the International Trade organization (I.T.O.) had not been ratified by any signatory. The Interim committee (52 members) continued to function. (*See* INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT; INTERNATIONAL LABOUR ORGANIZATION; INTERNATIONAL MONETARY FUND.)

Aid to Non-Self-Governing Peoples. The Special Committee on Information Transmitted under Article 73 (e) of the Charter, created by the general assembly to consider and report on information submitted to the secretary general, placed particular emphasis during the year on economic development, raising nutritional levels and land reform. The committee also undertook a study of methods to improve its machinery, especially the standard form which guides the administering countries in preparing their reports. Much discussion centred round the possibility of requesting that political information be supplied to the U.N. by the administering authorities (the charter requires only that technical information be submitted) and also the possibility of bringing some non-governmental organizations into the framework of assistance to the dependent territories.

On Dec. 24, 1951, the former Italian colony of Libya (*q.v.*) became the first dependent area to enter the ranks of statehood



The scene on St. Peter's Green, Bedford, on Oct. 21, 1951, when the United Nations flag was raised during the celebration of United Nations week.



Anthony Eden, British secretary of state for foreign affairs, addressing the U.N. general assembly in Paris, Nov. 12, 1951.

under the full auspices of the U.N. The two other former Italian colonies, Eritrea and Somaliland, remained under U.N. tutelage. A U.N. commissioner, Eduardo Anze Matienzo, Bolivia, assisted the United Kingdom as the administering authority in preparing Eritrea to become an autonomous unit federated with Ethiopia under the sovereignty of the Ethiopian emperor. (*See* also TRUST TERRITORIES.) (L. M. GH.)

UNITED STATES OF AMERICA. Federal republic in North America composed of 48 separate and (theoretically) sovereign states; fifth largest country of the world in area, fourth in population, but foremost in industrial production and financial resources; bounded N. by Canada, S. by Mexico, E. by the Atlantic ocean and W. by the Pacific ocean. Land area of continental U.S.: 2,977,128 sq.mi. Territories and outlying possessions are:

	Area (sq.mi.)	Population, 1950		Area (sq.mi.)	Population, 1950
Alaska	571,065	128,643	Panama Canal Zone	362	52,300
Samoa	76	18,602	Puerto Rico	3,423	2,210,703
Guam	203	58,754	Virgin Islands	132	26,654
Hawaii	6,420	499,794			

Pop. (continental U.S., 1950 census): 150,697,361, an increase of 19,028,086 (14·5%) over 1940; 89·7% white, 9·9% Negro and 0·4% other non-white; foreign-born white population 10,437,000 (decrease of 11·1% on 1940).

In 1948 there were in the U.S. 53 religious bodies of more than 50,000 members, with a total of 75,371,100 members. Though Protestants as a group outnumbered Roman Catholics by almost two to one, the Roman Catholic Church, with a total of 25,268,200 (35% of the total) was far ahead of any single denomination. The nine Baptist bodies numbered 15,230,000 (incl. *c.* 4,000,000 Negroes); four Methodist bodies 10,337,700 (incl. *c.* 1,770,000 Negroes); seven Lutheran bodies 5,098,500; four Presbyterian bodies 3,127,000; Protestant Episcopal Church 2,160,200. The largest non-Christian congregation was Jewish (4,641,000).

Chief towns (pop., 1950 census): Washington, D.C. (cap., 802,178); New York (*q.v.*; 7,841,023); Chicago (3,631,835); Philadelphia (2,057,210); Los Angeles (1,954,036); Detroit (1,837,613); Baltimore (939,865); Cleveland (909,546); St. Louis (852,253); Boston (788,552).

President of the United States, Harry S. Truman (*q.v.*); vice-president, Alben W. Barkley. At Dec. 31, 1951 the cabinet was as follows: secretary of state, Dean G. Acheson (*q.v.*); secretary of defence, Robert A. Lovett (*q.v.*); secretary of the treasury, John W. Snyder; attorney general, J. Howard McGrath; postmaster general, Jesse M. Donaldson; secretary of the interior, Oscar L. Chapman; secretary of agriculture, Charles F. Brannan; secretary of commerce, Charles Sawyer; and secretary of labour, Maurice J. Tobin.

THE STATES OF THE UNITED STATES OF AMERICA

State	Population 1950 Census	Increase* over 1940	Land Area (sq.mi.)	Capital City
Alabama (Ala.)	3,061,743	228,782	51,078	Montgomery
Arizona (Ariz.)	749,587	250,326	113,580	Phoenix
Arkansas (Ark.)	1,909,511	—39,876	52,725	Little Rock
California (Cal.)	10,586,223	3,678,836	156,803	Sacramento
Colorado (Colo.)	1,325,089	201,793	103,967	Denver
Connecticut (Conn.)	2,007,280	298,038	4,899	Hartford
Delaware (Del.)	318,085	51,580	1,978	Dover
Florida (Fla.)	2,771,305	873,891	54,262	Tallahassee
Georgia (Ga.)	3,444,578	320,855	58,515	Atlanta
Idaho (Ida.)	588,637	63,764	82,808	Boise
Illinois (Ill.)	8,712,176	814,935	55,947	Springfield
Indiana (Ind.)	3,934,224	506,428	36,205	Indianapolis
Iowa (Ia.)	2,621,073	82,805	55,986	Des Moines
Kansas (Kan.)	1,905,299	104,271	82,113	Topeka
Kentucky (Ky.)	2,944,806	99,179	40,109	Frankfort
Louisiana (La.)	2,683,516	319,636	45,177	Baton Rouge
Maine (Me.)	913,774	66,548	31,040	Augusta
Maryland (Md.)	2,343,001	521,757	9,887	Annapolis
Massachusetts (Mass.)	4,690,514	373,793	7,907	Boston
Michigan (Mich.)	6,371,766	1,115,660	57,022	Lansing
Minnesota (Min.)	2,982,483	190,183	80,009	St. Paul
Mississippi (Miss.)	2,178,914	—4,882	47,420	Jackson
Missouri (Mo.)	3,954,653	169,989	69,270	Jefferson City
Montana (Mont.)	591,024	31,568	146,316	Helena
Nebraska (Neb.)	1,325,510	9,676	76,653	Lincoln
Nevada (Nev.)	160,083	49,836	109,802	Carson City
New Hampshire (N.H.)	533,242	41,718	9,024	Concord
New Jersey (N.J.)	4,835,329	675,164	7,522	Trenton
New Mexico (N. Mex.)	681,187	149,369	121,511	Santa Fe
New York (N.Y.)	14,830,192	1,351,050	47,929	Albany
North Carolina (N.C.)	4,061,929	490,306	49,142	Raleigh
North Dakota (N.D.)	619,636	—22,299	70,054	Bismarck
Ohio (O.)	7,946,627	1,039,015	41,122	Columbus
Oklahoma (Okla.)	2,233,351	—103,083	69,283	Oklahoma City
Oregon (Oreg.)	1,521,341	431,657	96,350	Salem
Pennsylvania (Pa.)	10,498,012	597,832	45,045	Harrisburg
Rhode Island (R.I.)	791,896	78,550	1,058	Providence
South Carolina (S.C.)	2,117,027	217,223	30,594	Columbia
South Dakota (S.D.)	652,740	9,779	76,536	Pierre
Tennessee (Tenn.)	3,291,718	375,877	41,961	Nashville
Texas (Tex.)	7,711,194	1,296,370	263,644	Austin
Utah	688,862	138,552	82,346	Salt Lake City
Vermont (Vt.)	377,747	18,516	9,278	Montpelier
Virginia (Va.)	3,318,680	640,907	39,899	Richmond
Washington (Wash.)	2,378,963	642,772	66,977	Olympia
West Virginia (W. Va.)	2,005,552	103,578	24,090	Charleston
Wisconsin (Wis.)	3,434,575	296,988	54,715	Madison
Wyoming (Wyo.)	290,529	39,787	97,506	Cheyenne
District of Columbia (D.C.)	802,178	139,087	61	—

* A minus sign (—) denotes decrease.

History. The year 1951 opened in unusual uncertainty because of the tensions created by the international situation. On Dec. 16, 1950, President Harry S. Truman had declared a national emergency and outlined the plans for placing the United States on a war footing. Before the recall on April 11, 1951, of General Douglas MacArthur (*q.v.*), much of the debate on foreign policy centred on aid to Europe. In his inaugural address as governor of New York, Thomas E. Dewey on Jan. 1 called for a ring of bases around the world.

By mid-January the basic issues in the debate were clearly seen in the discussion in the Senate on sending additional U.S. troops to Europe. The solutions proposed were varied and conflicting. Much time was spent in discussing the constitutional power of the president (in use of troops) and the extent to which congress had been consulted on policies of the United Nations in Korea. On Feb. 9 Herbert Hoover re-entered the debate he had initiated in 1950, and in a radio broadcast outlined a ten-point programme, including full recognition of Japan and Germany and an increase in air and naval power. Later in the month, in testifying before a congressional committee, he advocated a limitation upon sending U.S. troops to Europe. The debate widened; Dewey asked that Greece and Turkey be included in the North Atlantic Treaty organization (N.A.T.O.), and Joseph W. Martin, representative of Massachusetts, minority leader in the House, asked that forces of Chiang Kai-shek be permitted to open a second front against the Communists in China.

From MacArthur's recall until after the end of congressional hearings on the circumstances surrounding the action taken by President Truman, debate was on far eastern policy. Indeed, the report on the hearings was entitled, " An Inquiry into the Military Situation in the Far East and the Facts surrounding the Relief of General of Army Douglas MacArthur." A full summary is included in the article MACARTHUR, DOUGLAS.

War as an instrument of national policy was the constant concern of the American people. Their eyes were fixed on Korea (*see* KOREAN WAR). By the year's end U.S. casualties had exceeded 100,000. The steady flow of news as to the prospect of war in Europe gave much attention to the shipping of men and supplies to support the European allies. On June 19 President Truman signed a bill extending selective service to July 1, 1955, lowering the draft age to 18½ years and lengthening service to two years. This was accepted as universal military service preliminary to the planned universal military training programme. A stream of rumours of Soviet production of atomic weapons increased public apprehension. Civil defence measures were pushed on, particularly in some of the larger cities in the east.

Truman's Leadership. The extent to which all domestic problems were embedded in the problems of international relations was evident in the utterances and actions of President Truman in the first six weeks of 1951. In the " state of the union " address on Jan. 8 he pointed out that the only realistic road to peace was to face the Soviet Union with force; the defence of Europe was the defence of the U.S.; and in Korea the Russians were fighting a civil war by proxy. Congress was to be asked for huge increases in taxes, the greatest portion of which was for military preparation (estimated at 69%). Universal military training was to be pushed forward. Four days later the president reported that the cost of mobilization would probably be $140,000 million by June 30, 1952. He pointed out a month later that rigid controls would be necessary and restated the need for increased protection of civil rights of minorities.

It was apparent that the president would not have a party majority in support of his programme. Although some emergency power had been granted him, the new congress (82nd) had, in the Senate, elected Ernest W. McFarland (Dem., Arizona) as leader, and in the House of Representatives the southern Democrats, in coalition with Republicans, controlled the rules committee. But, as in the previous year, the president maintained his hold upon the party machinery in the House with a somewhat limited control in the Senate.

Ratification of the 22nd amendment to the constitution in late February emphasized the possibility that President Truman would be a candidate for re-election, because he was definitely excluded from the operation of that two-term restriction*. He refused, however, to commit himself definitely. The lack of at least one powerful Democratic candidate, other than the president, was a striking feature of the Truman administration on the eve of the election year of 1952. The extent of southern revolt and the continuance of a southern protest vote were uncertain. The year chronicled slight Republican gains in by-elections. As the year ended, 18 states were in the control of the Republican party and an equal number was controlled by the Democratic party.

The westward shift of population reported in the census returns of 1950 meant that the far west would gain eight votes in the electoral college. This new distribution would be apparent in the assignment of delegates in national conventions of 1952. President Truman in a special message to congress on Jan. 9 listed seven states that would gain congressmen (California seven, Florida two, Maryland one, Michigan one, Texas one, Virginia one, and Washington one) and nine states that would lose (Pennsylvania three, Missouri two, New York two, Oklahoma two, Arkansas one, Illinois one, Kentucky one, Mississippi one and Tennessee one).

Three lines of attack upon the administration of President Truman developed during 1951. In the field of domestic politics it was opposition to the tax programme; in foreign affairs it was opposition to policies in Europe and in Asia. Overshadowing these as the year ended was widespread condemnation of corruption in government. For the time being, division of opinion on labour relations, on loyalty checks and upon military expenditures did not follow party lines. Senator Robert A. Taft took the leadership in condemning administration foreign policies, as he had earlier—and still did—administration domestic policies. His denunciation of the president was continuous and increased after he formally entered his candidacy for the presidency.

The action of President Truman, particularly when attacked for protection of suspected Communists or for harbouring in the government men accused of graft and corruption, was to denounce those Republicans who, he said, sought to destroy the trust and confidence of the people in their government by spreading fear and slander and lies. (*See* also POLITICAL PARTIES, U.S.)

Eisenhower's Candidature. U.S. interest in Europe was symbolized by the leadership of General Dwight D. Eisenhower. As supreme allied commander, Europe, he toured Europe early in the year and reported to the president and defence chiefs. In speaking to congress, he urged setting no limits on troops. Addressing the nation, he urged a wall of security against " Communist imperialism." Nevertheless, there was widespread disapproval of unlimited commitment of military aid to Europe. The concentration of national attention on the far east from April to August seemed to lessen the tensions prevalent in relations with Europe. These tensions were renewed in the autumn, partly as a result of the attempt by the Soviet Union to affect adversely the conclusion of the treaty of peace with Japan (*see* JAPANESE PEACE TREATY CONFERENCE). The North Atlantic council met in Ottawa in September and reiterated previous policies. General Eisenhower again visited the U.S. and reported to the president on his mission in Europe. Headquarters in the campaign to nominate the general for president were opened in Washington at this time, and speculation centred on the effect of developments in Europe upon his consent to become a candidate.

* The text of the 22nd amendment is as follows: " No person shall be elected to the office of the President more than twice, and no person who has held the office of President, or acted as President, for more than two years of a term to which some other person was elected President shall be elected to the office of the President more than once. But this Article shall not apply to any person holding the office of President when this Article was proposed by the Congress, and shall not prevent any person who may be holding the office of President, or acting as President, during the term within which this Article becomes operative, from holding the office of President or acting as President during the remainder of such term."

First Session of the 82nd Congress. Congress met for ten months with both Senate and House of Representatives under nominal Democratic party control. Actual power rested quite often, however, in the hands of an informal coalition of Republicans and southern Democrats. In more normal times this control might have led to economy in governmental expenditures. With war being waged in Korea and the threat of a global conflict hanging over it, however, congress allotted vast sums to satisfy the special needs of critical times. National defence appropriations totalled $56,940 million, mutual security gained $7,329 million and $4,146 million went to military construction.

Congress was in no mood to debate older domestic issues at length in 1951. Little civil rights legislation emerged from committee, and such long-range planning bills as those for the St. Lawrence waterway and a Missouri Valley authority remained buried. Sharp tax increases were voted on both individual and corporation incomes. Numerous bills provided for the real—and sometimes exaggerated—needs of veterans, and three were passed despite presidential vetoes. Statehood for Hawaii and Alaska failed to come to a vote in the Senate.

Despite the headlines given to the Kefauver committee's hearings on organized crime and even the wide publicity given to the MacArthur hearings, the vital work of the 82nd congress in 1951, in the long view, was its attention to the obligations of the United States in the world. The war with Germany was officially terminated, the provisions of the Displaced Persons act were extended to Dec. 31 and 24 destroyers were transferred to six different countries. The president's power to negotiate reciprocal trade agreements was extended. Fourteen congressmen were authorized to participate in "public discussion of common problems" with representatives of the consultative assembly of the Council of Europe.

Internal Security. Late in January President Truman appointed the Commission on Internal Security and Individual Rights, composed of outstanding citizens and headed by Admiral Chester Nimitz. It was hoped that by this means there would be erected an effective correction to movements and committees (some of extra-legal character) that were proposing to deal with problems of loyalty. The hopes were short-lived, and late in the autumn the commission disbanded. One of the government committees that continued the activities was the sub-committee of the Senate judiciary committee, headed by Senator Patrick McCarran (Dem., Nevada). This committee was particularly concerned with Communist infiltration of the press, educational institutions and trade unions. It held hearings throughout the year and was actively engaged at the year's end.



Princess Elizabeth with President Truman in the Canadian embassy, Washington, Nov. 1, 1951, during her brief visit with the Duke of Edinburgh to the United States.

The State Department in mid-January was planning a "reinvigorated offensive" against Communism by calling a conference of leaders of American thought. Apparently this was dropped. The Voice of America was under constant attack in the course of the year. As in the previous year, Dean Acheson and several of his subordinates in the State Department were the object of violent attack. The Loyalty Review board headed by Senator Hiram Bingham received from the president a new interpretation of its function and was active in reviewing cases previously cleared. One of these, the case of John S. Service, came to public attention in the closing weeks of the year, and review led to his dismissal from the State Department.

On June 4 the Supreme court had affirmed the conviction of 11 Communists, and upheld the constitutionality of the Smith act. Later in the month, 21 Communist leaders in New York city were indicted.

Trade Unions. February was a month of acrimonious controversy. Although there was no declaration of strike on the part of railway unions, there was a widespread epidemic of "sickness" among union men that affected 17 eastern railways, hit traffic hard in 20 eastern cities and led to the charge that such "unofficial" action by the workers was directly interfering with national security. Mails were held up and the National Mediation board seemed unable to deal with the situation. As the epidemic spread, both American Federation of Labour (A.F.L.) and Congress of Industrial Organizations (C.I.O.) officials shifted the discussions to the charge that labour had been ignored in planning defence programmes. Negotiations continued, and there was general denunciation of the strikes. President Truman finally directed that the army be used to restore normal train service. The strike was broken when it became clear that those who did not return to work would face dismissal. As an aftermath, the Brotherhood of Railroad Trainmen (B.R.T.) was adjudged in contempt of court and later in the month, having pleaded guilty, was fined $75,000.

The A.F.L. and C.I.O. were no nearer organic union at the end of the year than at its beginning, especially since few important changes in leadership took place at the top. At a time of national defence conversion with its accompanying rising prices, union leaders insisted that their voices were not being heeded by those guiding the nation's economy. To ensure greater future influence in Washington, union leaders placed major emphasis on preparations to help the election of additional political friends in 1952. (*See* also TRADE UNIONS.)

Social and Economic Trends. Employment of women reached the highest point in history, passing early in 1951 the peak of World War II years. On the whole, wages increased and employment continued at high levels, but the rise of the cost of living more than kept up and there were dislocations of employment, not only because of war production changes but also because of falling production of less essential items.

A programme of production, price and wage controls was attempted by the administration in late Jan. 1951. An attempt was made to freeze price and wage figures, but it failed almost

at once because of modification and readjustment. Price ceilings were placed on 200,000 consumer items. By mid-June President Truman was impelled to say that controls would be necessary for a period of years to prevent inflation, and he urged also a strong anti-inflation bill; but congress refused to act.

In agriculture, the problem of surplus had disappeared because of demands in both domestic and foreign markets. Despite restrictions and costs, the building of homes reached a record level; yet federal housing projects were considerably fewer than in 1950. The military training programme added more than a million men in 1951, bringing the total number under arms to about 3·5 million.

A nation-wide survey at the end of 1951 revealed that 12 million persons, or one-thirteenth of the nation, were receiving monthly income payments through governmental sources other than salaries as federal employees. Four per cent of the population, or 5·5 million were needy persons getting public assistance. Yet the government was helping fewer needy persons than ten years before, and was spending less money for each needy person, even in view of the decreased purchasing power of the dollar. For, although those receiving benefits under the Federal old age and survivors insurance programme had increased by one million, the transfer of thousands of needy persons from public assistance supported by general revenue to the social insurances meant that each person thus assisted had contributed toward his benefits.

(E. E. R.)

Education. Each of the 48 states of the union has a system of free, secular and public education comprising elementary schools, junior high schools and high schools, with courses covering 12 years. Attendance is compulsory, generally up to the age of 16. There are also private (mainly Roman Catholic) elementary and secondary schools. Data in Tables I and II relate to the continental U.S.

TABLE I. ELEMENTARY AND SECONDARY SCHOOL ENROLMENT

	1939-40	Sept. 1950	Sept. 1951*
Elementary . . .	20,995,469	23,686,000	24,468,000
Secondary . . .	7,059,212	6,142,000	6,168,000

* U.S. Office of Education estimates.

In 1946 there were 160,227 public elementary and 24,314 public secondary schools and 13,296 private elementary and secondary schools. (In 1949 there were 7,777 Roman Catholic elementary and 1,596 secondary schools). The total number of teachers in public schools decreased in the years 1940-46 from 875,477 to 831,026 (the latter figure including 541,528 teachers in elementary and 289,498 secondary schools). In 1946 there were 64,495 teachers in private elementary and 36,370 teachers in private secondary schools. There was a general shortage of teachers estimated in 1951 by the National Education association at 48,000. Vocational schools had a total enrolment of 2,508,618 in 1947 and a teaching staff of 48,311.

TABLE II. INSTITUTIONS OF HIGHER EDUCATION

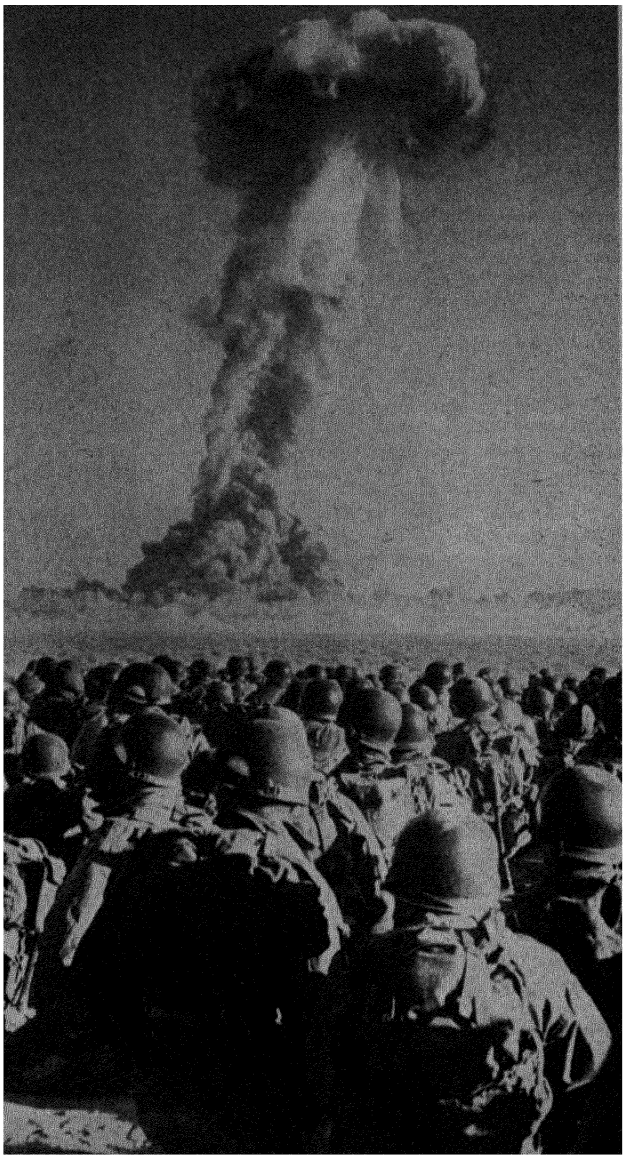
	1939-40	1945-46	1950-51	1951-52
Total resident students	1,494,203	1,676,851	2,295,000*	2,116,000*
Teaching staff . .	131,552	136,032	...	...

* U.S. Office of Education estimates.

The above figures cover 1,609 institutions (public and private) in 1939, 1,768 in 1945, 1,836 in 1950 and 1,806 in 1951. Of 164 universities the oldest are Harvard (Cambridge, Massachusetts, 1636), Yale (New Haven, Connecticut, 1701) and Pennsylvania (Philadelphia, 1740). The largest are the universities of New York (47,936 students in 1949-50), of California (Berkeley and Los Angeles, 43,426), of Minnesota (Minneapolis, 34,091), of Boston, Massachusetts (31,638), of Columbia (New York, 29,153) and of Illinois (Urbana, 28,592). Six other universities had over 20,000 students each in 1950.

Education in the U.S. is financed by the member-states privately and only to a small extent by the federal government. In 1945-46, for example, the total expenditure on education amounted to $4,140·1 million, including $2,906·9 million on public elementary and secondary schools, $341·5 million on private elementary and secondary schools, $425·5 million on public institutions of higher education and $466·2 million on private institutions of higher education. Illiteracy dropped to 2·7% in 1949 compared with 4·3% in 1930.

Agriculture. Data in Tables III, IV and V are taken from *Food and Agricultural Statistics, F.A.O. Monthly Bulletin.*



Men of the United States 11th Airborne division watch an atomic explosion near Las Vegas, Nevada, Nov. 1951. This was the first atomic test at which troops were present.

TABLE III. AGRICULTURAL PRODUCTION ('000 metric tons)

	1934-38	1948	1949	1950	1951
Wheat . .	19,476	35,749	31,202	27,490	27,042
Barley . .	4,495	6,878	5,184	6,531	5,539
Rye . .	1,028	672	475	572	638
Oats . .	13,973	21,675	19,202	21,540	19,918
Rice . .	956	1,736	1,820	1,725	2,021
Maize (Corn) .	53,066	93,521	85,799	78,881	78,441
Potatoes . .	10,024	12,374	10,940	11,719	9,135
Cotton, ginned	2,755	3,225	3,476	2,143	...
Tobacco . .	590	899	895	922	...

TABLE IV. LIVESTOCK ('000 head, on farms)

	1939	1945	1948	1950	1951
Cattle . .	66,029	85,573	78,298	80,052	84,179
Pigs . .	50,012	59,331	55,028	60,502	65,028
Sheep . .	51,595	39,609	34,827	30,743	31,505
Horses . .	10,629	8,715	6,589	5,274	4,763
Mules . .	4,163	3,010	2,541	2,149	1,990
Poultry (hens) .	418,591	433,111	461,550	480,834	466,686

The average yearly egg production in 1943-46 was 54,623 million; in 1948 it reached 55,168 million, that is, 367 eggs per inhabitant. Fisheries (1947, including Alaska): total catch, 4,378 million lb. valued at $303 million (1939: 4,443 million lb. valued at $96·5 million). (*See* also AGRICULTURE).

TABLE V. MAIN FOODSTUFFS PRODUCTION ('000 metric tons)

	1937	1947	1948	1949	1950
Meat (total)	7,340*	10,628	9,727	9,848	9,756
Milk (total)	46,223	54,007	52,403	54,040	54,683
Factory butter	736·8	602·4	548·4	638·4	632·8
Factory cheese†	294·0	536·4	496·8	541·2	531·6
Sugar, raw value‡	1,807§	2,006	1,676	1,897	2,334

* 1935-39 av. † Excluding cottage and full-skim cheddar cheese. ‡ Including beet sugar, of which the U.S. produced an average of 1,377,000 tons in 1937-38, 1,243,000 tons in 1948 and 1,822,000 in 1950. § 1935-39 av.

Industry. Employment in non-agriculture establishments in Aug. 1951 was 46,670,000 compared with 45,080,000 in Aug. 1950; the index numbers (1948=100) were 106 and 102 respectively. Unemployment in Aug. 1951 was 1,578,000, which was 922,000 fewer than in Aug. 1950. The data in Tables VI, VII and VIII are taken from the United Nations *Statistical Year Book* and *Monthly Bulletin of Statistics*.

TABLE VI. PRODUCTION OF FUEL AND POWER

	1940	1949	1950	1951*
Coal ('000 metric tons)	464,711	435,966	508,380	521,880
Gas† (million cu.m.) natural	75,322	88,008	105,132	120,500
Gas† (million cu.m.) m'factured	12,048	15,948	15,948	15,391
Electricity‡ (million kwh.)	141,837	291,099	329,136	370,236
Crude Petroleum ('000 m.tons)	182,867	252,096	270,120	307,467

* Estimates based on 10 months. † Gas sold by public utilities. ‡ Public utilities only.

TABLE VII. PRODUCTION OF METALS ('000 metric tons)

	1940	1948	1949	1950	1951*
Pig iron	43,027	55,200	49,176	59,340	63,948
Steel	60,765	80,412	70,740	87,720	95,376
Copper†	830·4	771·6	700·8	853·2	878·1
Zinc†	613·2	715·2	739·2	769·2	799·3
Lead‡	531·6	464·4	492·0	518·4	465·1
Aluminium†	187·1	565·5	547·4	651·6	744·2

* Estimates based on 10 months. † Primary (virgin) metal only. ‡ Some secondary metal included.

The U.S. share in world production of metals in 1950 was approximately as follows: pig iron 50%, steel 53%, copper 38%, zinc 41%, lead 30% and aluminium 43%.

TABLE VIII. MANUFACTURING INDUSTRIES

	1940	1949	1950	1951*
Cement ('000 metric tons)	22,575	35,424	38,004	41,819
Building bricks (million units)	4,079	5,520	6,324	6,677
Rubber ('000 m.t.) synthetic (production)	3·6	399·6	483·6	860·6
Rubber ('000 m.t.) natural (consumption)	582·6	567·5	759·5	468·8
Woven cotton fabrics (million m.)	7,578†	7,692	9,036	9,510
Wool yarn ('000 metric tons)	269·6†	312·0	363·3	335·9
Rayon ('000 m.t.) filament yarn	176·9	362·4	433·2	453·6
Rayon ('000 m.t.) staple fibre	36·8	87·6	139·2	149·4
Motor vehicles ('000 units) cars	3,717·4	5,119·4	6,666	5,336
Motor vehicles ('000 units) commercial	754·9	1,134·1	1,337	1,430

* Estimates based on 10 months. † 1939.

PRODUCTION INDEX. (1948=100): (1950; Oct. 1950 and Oct. 1951 in brackets) general 104 (115; 114); mines 95 (109; 110); manufacturing 106 (116; 115).

Foreign Trade. The geographic area covered by data in Table IX is the U.S. customs area, which includes Alaska, Hawaii and Puerto Rico (Virgin Islands only from 1935 to 1939).

TABLE IX. FOREIGN TRADE (million dollars)

	1936-40	1941-45	1949	1950	1951
Exports (incl. re-exports)	3,219·6	10,051·2	12,048	10,275·1	15,020·4
Imports	2,482·0	3,507·5	6,624	8,852·2	10,961·6
Excess of exports	737·6	6,543·7	5,424	1,422·9	4,058·8

Main destinations of exports (1951): Europe 27%, Latin America 25%, Canada 17%, Asia 15%. Main sources of imports (1951): Latin America 32%, Canada 21%, Asia 19%, Europe 18%. Index numbers of quantum of the external trade (1948=100), showing the changes after allowing for variations in prices, stood in 1950 at 119 for imports and at 90 for exports; in Oct. 1951 the index numbers were 115 and 109 respectively. Index numbers of unit value (1948=100), stood in 1950 at 103 for imports and 90 for exports; in Oct. 1951 the index numbers were 128 and 101. (*See* also INTERNATIONAL TRADE.)

Transport and Communications. Railways (1947): number of operating companies 502; total first track 225,806 mi. Rolling stock (1947): locomotives 44,344; goods waggons 1,759,758; passenger coaches 39,057. Rail transport (millions; monthly average 1950 and, in brackets, Sept. 1951): passenger-km. 4,261 (Aug. 4,696); goods metric ton-km. 71,602 (80,612); goods carried (in metric tons) 195 (214). Roads (1945): 3,012,271 mi., incl. 1,494,851 mi. surfaced. Motor vehicles registered (1951, in brackets 1937): cars 43,000,000 (25,391,000), commercial 9,000,000 (4,315,000).

Air transport (monthly averages, 1950, in brackets Sept. 1951): 1,370 (1,975) million passenger-km. and 43·5 (47·1) million ton-km. of goods. (*See* also AVIATION, CIVIL.)

Merchant marine: 1,951 seagoing vessels of 1,000 gross tons or over on Nov. 1, 1951 (550 more than at Dec. 31, 1950); of these 650 were owned by the U.S. government. Reserve fleet, 1,430. (*See* also SHIPPING, MERCHANT MARINE.)

Number of telephones (Jan. 1, 1951): 43,003,232 (28·1 per 100 population and more than half the world's total); (1937) 19,450,000. Broadcasting (Dec. 31, 1951): transmitting stations 3,161 (1950, 3,104) incl. 2,295 A.M., 648 F.M. and 108 television; receiving sets 104 million est. (1950, 90 million) in 42,427,000 homes.

Finance and Banking. Fiscal year ends on June 30. (*See* also BUDGET, NATIONAL.)

TABLE X. U.S. FEDERAL REVENUE AND EXPENDITURE ($ million)

	1939-40*	1949-50*	1950-51*	1951-52†	1952-53†
Revenue	5,387·1	37,045	48,143	62,680	70,998
Expenditure	9,127·4	40,156	44,633	70,881	85,444
Surplus (+) or deficit (—)	—3,740·3	—3,111	+3,510	—8,201	—14,446

*Actual. † Estimates.

(In this paragraph all figures are $ million.) Total gross direct debt: (Dec. 1951) 259,461, (Dec. 1939) 41,961. Currency circulation: (Dec. 1951) 29,403, (Dec. 1939) 7,598. Gold stock: (Dec. 1951) 22,621, (Dec. 1950) 22,795, (Dec. 1939) 17,644. Deposit money: (Oct. 1951) 95,000, (Dec. 1939) 29,800. National income at factor cost in current prices: (1951) 275,700; (1949) 216,700; (1939) 72,500. Consumers' expenditure on goods and services: (1951) 204,500, (1939) 67,466. Government foreign credits (June 30, 1951): outstanding 10,117 (incl. U.K. 4,784; France 2,038·7; Netherlands 413·0; Italy 343·0; U.S.S.R. 222·5).

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(K. SM.)

UNITED STATES TERRITORIES AND POSSESSIONS: *see* ALASKA; HAWAII; PACIFIC ISLANDS, U.S.; PUERTO RICO; VIRGIN ISLANDS.

UNIVERSITIES AND COLLEGES. Great Britain.

The Ministry of Education announced in March that the number of state scholarships to be awarded annually would be increased from 1,050 to 2,000. At the same time the system of four-year grants to university students on condition that they became teachers was abolished. Details of the initial allocations from the Lord Mayor of London's National Thanksgiving fund, launched in March 1950 in gratitude for gifts of food from the Commonwealth and the United States, were published in August. They were: £600,000 for establishing collegiate halls of residence for women students, married students, and men students from the U.S.; £100,000 to London house for maintenance; and £35,000 to The Burn, the Edinburgh equivalent of London house. London house and The Burn were trust-governed residences mainly for university students, principally those from the commonwealth.

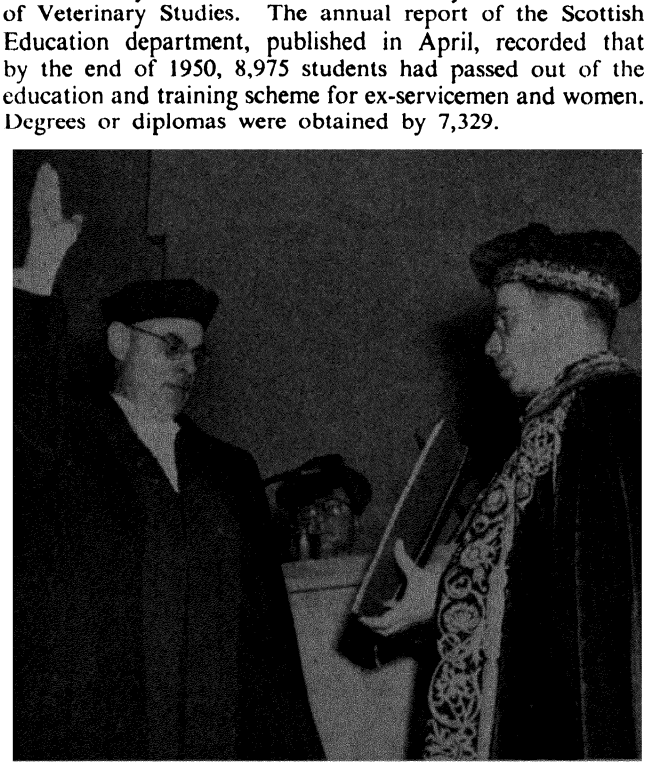
In the House of Commons, the under secretary of state for the colonies stated that the British Council had provided hostel accommodation in London for 167 men and 33 women colonial students; these figures would be increased to 197 and 60 in the autumn. Later the colonial secretary set up a small consultative committee to advise him on the welfare of colonial students in the United Kingdom. The

British Council announced that the committee for commonwealth university interchange had earmarked £9,000 for interchange purposes in 1951-52, as compared with £5,000 in 1949-50.

The University College of North Staffordshire at Keele near Stoke-on-Trent was formally opened by the queen in April. Academic work began there in Oct. 1950. In January, Manchester university celebrated the centenary of the foundation of its forerunner, Owens college. A further step towards the establishment of a university at York was foreshadowed when the York Civic trust announced the conversion of King's Manor house, then occupied by the Yorkshire School for the Blind, into a permanent college; it was also announced that the York summer schools of architecture and historical research would become permanent institutions as the Institute of Historical Research and the Institute of Architectural History. John Murray retired as principal of the University College of the South West of England after 25 years at Exeter. Changes in the vice chancellorships and college headships at Cambridge, London and Oxford universities are noted in the articles dealing with those universities.

In January, the National Union of Students withdrew from the International Union of Students. The decision followed a referendum giving a majority for disaffiliation.

Scotland. Glasgow university celebrated its quincentenary —the students in January and the authorities in June. In January the Edinburgh Town council approved proposals by Edinburgh university for developments extending over 41 ac. including George square, one of the finest examples of Georgian architecture in the city. In May a royal commission was appointed to inquire into the organization of university education in Dundee and its relationship with St. Andrews university. In June the Royal (Dick) Veterinary college (founded in 1823 by William Dick, a farrier) was embodied in Edinburgh university; the famous college now lost its identity in becoming the veterinary department of the university under the name of the Royal (Dick) School of Veterinary Studies. The annual report of the Scottish Education department, published in April, recorded that by the end of 1950, 8,975 students had passed out of the education and training scheme for ex-servicemen and women. Degrees or diplomas were obtained by 7,329.



Werner Richter (left) being sworn in as the new rector of Bonn university, Germany, by the retiring rector Ernst Friesenhahn, in Nov. 1951.

Commonwealth. *Australia.* It was announced in January that the commonwealth government was prepared to grant £A 803,000 yearly to Australian universities and residential colleges for the next three years, these sums to supersede research grants and subsidies made under the commonwealth reconstruction scheme; and that in certain conditions the government would also make "second level" grants to universities up to a maximum of £A 300,000 annually during the same period. In February the New South Wales government approved a proposal by the Roman Catholic church to establish a university at Sydney, despite strong opposition from Protestant leaders. In April it was announced that the existing Sydney university had received an anonymous gift of £A 100,000. It would be used to build the first wing of a new chemistry school. Lord Bruce of Melbourne, former high commissioner in London, became the first chancellor of the Australian National university, Canberra, in August.

Canada. The report of the Royal Commission on National Development in Arts, Letters and Sciences, published in June, recommended federal aid to the universities.

India. In January the first Convocation of Gauhati university, Assam, was held. On Dec. 30, 1950, the Sri Shivaji Loka *Vidyapitha* (People's university) was inaugurated at Amraoti, Berar; it had been established on the lines of the scheme for rural universities and people's colleges recommended by the recent Universities commission. Its course was divided into two stages, preliminary and final, the latter being of university standard. In March a bill to reform Calcutta university was referred by the West Bengal assembly to a select committee.

Jamaica. Though it escaped comparatively lightly, the partially completed University College of the West Indies suffered damage to the extent of £106,000 in the disastrous hurricane that swept the island on Aug. 17. It was later agreed that repairs and replacements should be met out of the £4·5 million grant and loan made by the British government.

Nigeria. In August the Nigerian legislative council approved expenditure of £1·5 million on building a teaching hospital to serve the medical school of Ibadan University college.

Pakistan. A Punjab University commission set up by the governor of the province to suggest ways and means of reforming the educational system began work in February.

South Africa. In March Rhodes university college, Grahamstown, Cape Province, became a university. Founded in 1855 as St. Andrew's college, it was re-founded in 1904 and was later affiliated with the federal University of South Africa when this was created in 1916; the affiliation of the South African Native college, Fort Hare, Cape Province, formerly an "external institution" of the University of South Africa, was transferred to the new university. In the same month, Potchefstroom University college, Transvaal, also received university status. Founded in 1869 as the theological college of Burghersdorp, it remained essentially clerical in character and became the centre of the Afrikaner movement called Christian-National Education. Wentworth college, a medical school for non-Europeans in the University of Natal, opened in September. It was emphasized that its instruction and degrees would be precisely the same as those of the European colleges.

Discontent with the government's policy of race segregation called forth a complaint from the minister of justice that some universities were "allowing a degree of inter-mingling of Europeans and non-Europeans which the South African people could not allow to continue much longer." At one university, he said, 480 out of 1,100 students had voted against a proposal for social *apartheid.* Later the minister



John MacCormick, chairman of the Scottish Covenant Association, during his installation in Jan. 1951 as rector of the University of Glasgow. The traditional bombardment of the platform was unusually heavy.

of education stated publicly that the principles of *apartheid* should be observed in the universities but he would not introduce legislation to enforce them. The appointment of a government commission in August to recommend a basis on which the state could subsidize universities was widely interpreted as heralding a counter-measure to opposition to *apartheid.*

Europe. *Austria.* In June rebuilding of the library of Vienna university after severe war damage was completed. With 1·3 million volumes this now claimed to be the largest library in German-speaking countries.

Czechoslovakia. In February J. Pavlik, deputy minister of education and chairman of the state commission for universities, told a national conference of university students at Prague that whereas in 1938 there were nine universities in Czech lands and an incomplete one in Slovakia, there were in 1951 21 universities and 10 detached faculties. The number of students had risen from 19,800 to 38,700, and state expenditure from 163 million Czech crowns to 1,076·2 million crowns. Forty-five per cent of all university students came from the families of workers and small farmers.

New regulations were introduced in the autumn to strengthen still further the direct state control imposed 18 months previously. Curricula were to be unified by the state universities commission and be closely linked with " the practical needs and problems of production and Socialist construction in general."

Finland. In March the Finnish Students association decided to retain membership of the International Union of Students, but to dissociate itself from all union matters not purely of interest to students.

France. On March 15 the National Union of French Students (U.N.E.F.) went on strike against the proposed reduction in social security grants to students. The strike was almost total throughout France.

Germany. In July the Bavarian government offered ten fellowships to U.S. students, tenable for six months from October. It was announced in July that the Ford foundation had given $1,309,500 (£568,700) to the Free University of Berlin. The revival of duelling among university students, prohibited both by law and university regulations, was seen by many as an incitement by the old student associations to resurrect the Prussian military spirit. In September, the Office of All-German Student Affairs, a section of the West German Student organization, issued a list of 200 students and lecturers alleged to have disappeared or been arrested for political reasons in Eastern Germany since 1948.

Hungary. In January a presidential council decree established a higher degree called " candidate of science " available to graduates and others who had attained outstanding results in science. The research undertaken would be for three years. Students would receive throughout the three years 1,000 forints (£30), or exceptionally 1,500 forints (£45) a month. By cabinet decision the medical faculties of the universities became on Feb. 1 independent universities of medical science at Budapest, Szeged, Debrecen and Pécs.

Norway. The University of Oslo celebrated its 140th anniversary in September, and marked the occasion by instituting a sabbatical year for research.

Poland. In January the Vatican stated that the Catholic University of Lublin, which had previously been deprived of its faculty of civil law, was faced with considerable difficulties due to Communist pressure and intimidation. The first Polish students to attend courses at Bulgarian universities left home in January. In February the disciplinary commission of the law faculty of Warsaw university expelled 14 first-year students for failing to comply with the rules of " Socialist discipline " in studying. Nineteen students in higher years were reprimanded. In January an exhibition, the first of its kind, was opened to show the achievements of the Copernicus university at Torun during the five years since its foundation.

Yugoslavia. The first congress of Serbian philosophers opened in Belgrade on March 23, its main purpose being to

(*Continued on page 643.*

Universities and University Colleges of the British Isles, Academic Year 1951-52

University or University college	*Founded*	*Principal Officers (with Academic Title[1])*	*Full-time Students Men*	*Women*
		ENGLAND		
Birmingham, Univ. of	1900	Anthony Eden, *Ch.* Sir Raymond Priestley, *V.Ch. & Pr.*	2,507	661
Bristol, University of	1909	Winston Churchill, *Ch.* Sir Philip Morris, *V.Ch.*	1,759	790
Cambridge, Univ. of	12th c.	Lord Tedder, *Ch.* Prof. Sir L. Whitby, *V.Ch.*	7,260	711[2]
Christ's college	1506	Prof. B. W. Downs, *M.*	450	
Clare college	1326	Sir Henry Thirkill, *M.*	408	
Corpus Christi college	1352	Sir Will Spens, *M.*	233	
Downing college	1800	Prof. Sir L. Whitby, *M.*	354	
Emmanuel college	1584	E. Welbourne, *M.*	469	
Fitzwilliam house	1869	W. S. Thatcher, *C.*	410	
Girton college	1869	Mary Cartwright, *Mi.*		339
Gonville & Caius coll.	1348	Sir James Chadwick, *M.*	407	
Jesus college	1496	E. M. W. Tillyard, *M.*	321	
King's college	1441	Sir John Sheppard, *Pv.*	367	
Magdalene college	1542	H. U. Willink, *M.*	269	
Newnham college	1871	Dame Myra Curtis, *Pr.*		308
Pembroke college	1347	S. C. Roberts, *M.*	371	
Peterhouse	1284	P. C. Vellacott, *M.*	215	
Queens' college	1448	J. A. Venn, *P.*	427	
St. Catharine's college	1473	D. Portway, *M.*	405	
St. John's college	1511	(vacant), *M.*	636	
Selwyn college	1882	Rev. W. Telfer, *M.*	292	
Sidney Sussex college	1596	T. Knox-Shaw, *M.*	226	
Trinity college	1546	E. D. Adrian, *M.*	700	
Trinity hall	1350	Prof. H. R. Dean, *M.*	300	
Durham, University of	1832	G. M. Trevelyan, *Ch.* Lord Eustace Percy, *V.Ch.*	3,455	865
Durham colleges	—	Sir James Duff, *W.*	895	261
Bede college	1841	Canon G. Brigstocke, *Pr.*	204[3]	
Hatfield college	1846	E. B. Birley, *M.*	182	
Neville's Cross coll.	1921	Netty Lunan, *Pr.*		113[4]
St. Aidan's society	1947	Ethleen Scott, *Pr.*		93
St. Chad's college	1904	Rev. T. S. Wetherall, *Pr.*	61	
St. Cuthbert's soc.	1947	Clifford Leech, *Pr.*	225	
St. Hild's college	1858	Nina Joachim, *Pr.*		133[5]
St. John's college	1909	Rev. R. R. Williams, *Pr.*	107	
St. Mary's college	1899	Margaret Fergusson, *Pr.*		98
University college	1833	A. Macfarlane-Grieve, *M.*	220	
King's coll., Newcastle	1937	Lord Eustace Percy, *R.*	2,560	604
Exeter, Univ. Coll. of the S.W. of England[6]	1901	Prof. F. H. Newman, *Acting Pr.*	572	357
Hull, Univ. Coll. of[6]	1928	J. H. Nicholson, *Pr.*	568	272
Leeds, University of	1904	Princess Royal, *Ch.* C. R. Morris, *V. Ch.*	2,488	694
Leicester, Univ. Coll.[6]	1918	C. H. Wilson, *Pr.*	499	264
Liverpool, University of	1903	Marquess of Salisbury, *Ch.*	2,413	682
London, University of	1836	Earl of Athlone, *Ch.* Prof. H. H. Bellot, *V.Ch.* D. W. Logan, *Pr.*	13,506[7]	4,906[7]
Incorporated Colleges:				
University college	1826	B. Ifor Evans, *Pv.*	1,943	613
King's college	1829	Sir Wm. Halliday, *Pr.*	1,293	373
Senate Institutions:				
Brown Animal Sanatory institution	1871	(*destroyed in World War II and not yet re-opened*)		
Courtauld Inst. of Art	1932	Prof. A. F. Blunt, *Di.*	36	41
Institute of Advanced Legal Studies	1947	Prof. Sir David Hughes Parry, *Di.*		—[8]
Inst. of Archaeology	1934	Prof. V. G. Childe, *Di.*	19[9]	8[9]
Institute of Commonwealth Studies	1949	Prof. W. K. Hancock, *Di.*	*c.*60[8]	
Institute of Education	1902	G. B. Jeffrey, *Di.*	389	360
Inst. of Germanic Languages & Literatures	1950	Prof. L. A. Willoughby, *Di.*	17[8]	6[8]
Institute of Historical Research	1920	Prof. J. G. Edwards, *Di.*	127[8]	41[8]
Sch. of Slav. & East European Studies	1932	G. H. Bolsover, *Di.*	49	25
Warburg institute	1944	Prof. H. Frankfort, *Di.*	2[9]	1[9]
Schools of the University:				
Bedford college	1849	Norah Penston, *Pr.*	30[10]	712
Birkbeck college[11]	1823	J. F. Lockwood, *M.*	1,076[11]	547[11]
Imperial college	1907	Sir Roderic Hill, *R.*	1,583	44
City & Guilds coll.	1885	Prof. W. Jackson, *D.*	789	3
R. Coll. of Science	1845	Prof. H. Levy, *D.*	620	41
R. Sch. of Mines	1851	Prof. D. Williams, *D.*	174	
London, University of (*continued*)				
King's College Theological department[12]	1829	Canon E. S. Abbott, *D.*	232	42
King's Coll. of Household & Social Science	1908	Margaret Sargeaunt, *Pr.*		242
London College of Divinity	1863	Rev. F. D. Coggan, *Pr.*	48	
London Sch. of Econ. & Political Science	1895	Sir A. Carr-Saunders, *Di.*	1,284	420
New college	1673	Rev. Sydney Cave, *Pr.*	40	1
Queen Mary college	1887	Sir Thomas Creed, *Pr.*	702	243
Richmond college	1843	Rev. Prof. F. B. Clogg, *Pr.*	67	
Royal Holloway coll.	1883	Edith Batho, *Pr.*	17[10]	341
St. John's hall, *alternative name for* London Coll. of Divinity, *v. supra.*				
School of Oriental & African Studies	1916	Prof. Sir Ralph Turner, *Di.*	150	32
Westfield college	1882	Kathleen Chesney, *Pr.*	3[10]	268
Wye college	1894	D. Skilbeck, *Pr.*	130	67
British Postgraduate Medical Federation	1945	Prof. Sir Francis Fraser, *Di.*	900[13]	
Institute of Cancer Research	1951	(vacant), *D.*		(paid researchers)
Institute of Child Health	1946	G. H. Newns, *D.*		80[13]
Inst. of Dental Surgery	1947	F. C. Wilkinson, *D.*		67[13]
Institute of Laryngology & Otology	1946	C. Gill-Carey, *D.*		58[13]
Inst. of Neurology	1947	M. Critchley, *D.*		50[13]
Inst. of Obstetrics & Gynaecology	1948	C. D. Read, *Di. and D.*		64[13]
Institute of Ophthalmology	1947	R. C. Davenport, *D.*		45[13]
Inst. of Orthopaedics	1946	H. J. Burrows, *D.*		26[13]
Inst. of Psychiatry	1924	D. L. Davies, *D.*		120[13]
Postgraduate Med. Sch. of London	1931	C. E. Newman, *D.*		146[13]
Charing Cross Hosp. Medical school	1834	E. C. Warner, *D.*	185	43
Guy's Hosp. Med. sch.	1769	E. R. Boland, *D.*	881	89
King's Coll. Hosp. Medical school	1831	V. F. Hall, *D.*	243	39
Lister Institute of Preventive Medicine	1891	Sir Alan Drury, *Di.*	8	5
London Hospital Medical college	1781	A. E. Clark Kennedy, *D.*	551	56
London Sch. of Hygiene & Tropical Med.	1924	A. Topping, *D.*	176	30
Middlesex Hospital Medical school	1835	Sir Harold Boldero, *D.*	402	62
Royal Cancer hosp.	1851	*Med. Sch. etc., transferred to* Brit. Postgrad. Med. Fed. *as* Inst. of Cancer Research, 1951; *v. supra.*		
Royal Dental Hosp. Sch. of Dent. Surgery	1858	H. L. Hardwick, *D.*	232	31
Royal Free Hospital School of Medicine	1874	Katharine Lloyd-Williams, *D.*	29	415
Royal Veterinary coll.	1791	Prof. J. B. Buxton, *Pr. & D.*	359	21
St. Bartholomew's pre-Hosp. Med. coll.	1662	C. F. Harris, *D.*	539	128
St. George's Hosp. Medical school	*c.* 1770	M. F. Nicholls, *D.*	142	15
St. Mary's Hospital Medical school	1854	A. G. Cross, *D.*	416	59
St. Thomas's Hosp. Medical school	1553	Prof. W. G. Barnard, *D.*	447	53
School of Pharmacy	1842	Prof. H. Berry, *D.*	72	34
University College Hosp. Med. school	1828	J. C. Hawksley, *D.*	280	50
Westminster Med. sch.	1834	H. E. Harding, *D.*	180	20
Goldsmiths' college[14]	1905	A. J. Price, *W.*	292[14]	456[14]
Manchester, Victoria University of	1880	Lord Woolton, *Ch.* Sir John Stopford, *V.Ch.*	3,524	1,025
Municipal College of Technology[15]	1824	(vacant), *Pr.*	712	15
Nottingham, University of	1948	Lord Trent, *Ch.* B. L. Hallward, *V.Ch.*	1,472	589
Oxford, University of	12th c.	Earl of Halifax, *Ch.* Sir Maurice Bowra, *V.Ch.*	6,045	1,061
All Souls college	1438	(vacant), *W.*	(50 fellows)	

Universities and University Colleges of the British Isles, Academic Year 1951-52 (continued)

University or University college	*Founded*	*Principal Officers (with Academic Title[1])*	*Full-time Students Men*	*Women*
Oxford, University of *(continued)*				
Balliol college	1263-68	Sir David Keir, *M.*	329	
Brasenose college	1509	H. M. Last, *Pr.*	321	
Campion hall	1896	Rev. T. Corbishley, *M.*	32	
Christ Church	1546	V. Rev. John Lowe, *D.*	340	
Corpus Christi college	1517	W. F. R. Hardie, *P.*	132	
Exeter college	1314	E. A. Barber, *R.*	280	
Hertford college	1874	N. R. Murphy, *Pr.*	174	
Jesus college	1571	J. T. Christie, *Pr.*	243	
Keble college	1870	Rev. H. J. Carpenter, *W.*	303	
Lady Margaret hall	1878	Lucy Sutherland, *Pr.*		216
Lincoln college	1427	K. A. H. Murray, *R.*	290	
Magdalen college	1458	T. S. R. Boase, *P.*	299	
Merton college	1264	G. R. G. Mure, *W.*	212	
New college	1379	A. H. Smith, *W.*	335	
Nuffield college	1937	A. Loveday, *W.*	17	2
Oriel college	1326	G. N. Clark, *Pv.*	225	
Pembroke college	1624	Rev. F. H. Dudden, *M.*	178	
The Queen's college	1340	J. W. Jones, *Pv.*	251	
St. Anne's society	1879	Hon. Eleanor Plumer, *Pr.*		278
St. Antony's college	1950	F. W. Deakin, *W.*	24	
St. Benet's hall	1897	Rev. F. G. Sitwell, *M.*	16	
St. Catherine's society	1868	Rev. V. J. K. Brook. *C.*	380	
St. Edmund hall	pre-1238	Canon J. Kelly, *Pr.*	234	
St. Hilda's college	1893	Julia Mann, *Pr.*		188
St. Hugh's college	1886	Evelyn Proctor, *Pr.*		163
St. John's college	1555	A. L. Poole, *P.*	231	
St. Peter's hall	1928	Canon R.W. Howard, *M.*	172	
Somerville college	1879	Janet Vaughan, *Pr.*		214
Trinity college	1555	J. R. H. Weaver, *P.*	220	
University college	1249	A. L. Goodhart, *M.*	278	
Wadham college	1612	Sir Maurice Bowra, *W.*	295	
Worcester college	1714	J. C. Masterman, *Pv.*	234	
Reading, University of	1926	Viscount Templewood, *Ch.* 601 J. F. Wolfenden, *V.Ch.*		486
Sheffield, University of	1905	Earl of Halifax, *Ch.* 1,621 J. M. Whittaker, *V.Ch.*		390
Southampton, Hartley University College[6]	1850	Sir Robert Wood, *Pr.*	695	285
Stoke-on-Trent, University College of N. Staffs.[16]	1949	Lord Lindsay of Birker, *Pr.* 203		100
SCOTLAND				
Aberdeen, University of	1494	Thomas Johnston, *Ch.* 1,467 T. M. Taylor, *V.Ch. & Pr.* J. K. O'N Edwards, *R.*		545
Edinburgh, University of	1582	(vacant), *Ch.* 3,807 Sir Edward Appleton, *V.Ch. & Pr.* Sir Alexander Fleming *R.*		1,403
New college[17]	1846	V. Rev. J. Baillie, *Pr.* 169		8
Glasgow, University of	1451	Lord Boyd-Orr, *Ch.* 4,536 Sir Hector Hetherington, *V.Ch. & Pr.* J. MacCormick, *R.*		1,544
Royal Tech. college[18]	1796	D. S. Anderson, *Di.* 1,142[18]		93[18]
St. Andrews, University of	1411	Duke of Hamilton, *Ch.* 1,265 Sir James Irvine, *V.Ch. & Pr.* Lord Burghley, *R.*		700
St. Mary's college	1537	V. Rev. G. S. Duncan, *Pr.* 42		2
United college	1747	Sir James Irvine, *Pr.* 657		520
Univ. coll., Dundee	1881	D. N. Wimberley, *Pr.* 406		120
Advanced Med. and Dent. Schs., Dundee	1898	Prof. W. J. Tulloch, *D.* 160		58
WALES				
Lampeter, St. David's College[19]	1822	Canon H. K. Archdall, *Pr.* 160		
Wales, University of	1893	Duke of Edinburgh, *Ch.* 3,623 Ifor L. Evans, *V.Ch.*		1,251
Aberystwyth, Univ. Coll. of Wales	1872	Ifor L. Evans, *Pr.* 808		315
Bangor, Univ. Coll. of North Wales	1884	D. E. Evans, *Pr.* 665		244
Cardiff, Univ. Coll. of S. Wales and Monmouth	1883	A. Steel, *Pr.* 1,134		473
Cardiff, Welsh National Sch. of Med.	1931	R. M. F. Picken, *Pv.* 257		110
Swansea, Univ. Coll.	1920	J. S. Fulton, *Pr.* 759		109
NORTHERN IRELAND				
Belfast, The Queen's University of	1908	Viscount Alanbrooke, *Ch.* 1,691 E. Ashby, *P. & V.Ch.*		586
REPUBLIC OF IRELAND				
Dublin, University of, Trinity College	1592	Earl of Iveagh, *Ch.* 1,698 Earl of Rosse, *V.Ch.* (vacant), *Pv.*		669
National University of Ireland	1909	Eamon de Valera, *Ch.* 4,032[20] A. O'Rahilly, *V.Ch.*		1,242
Cork, Univ. college	1845	A. O'Rahilly, *P.* 712		271
Dublin, Univ. college	1909	Michael Tierney, *P.* 2,217		680
Galway, Univ. college	1849	Rt. Rev. P. de Brún, *P.* 617		291

Notes. [1] *C.* censor; *Ch.* chancellor; *D.* dean; *Di.* director; *M.* master; *Mi.* mistress; *P.* president; *Pr.* principal; *Pv.* provost; *R.* rector; *V. Ch.* vice chancellor; *W.* warden. [2] Includes 64 students at Hughes hall (founded 1885; Eleanor M. Verini, *Pr.*), a recognized instn. [3] Includes 104 students of training college status. [4] Includes 83 students of training college status. [5] Includes 93 students of training college status. [6] Prepares students for London univ. external degrees. [7] 1950-51 (1951-52 est., 13,550 m. and 4,925 w.); also 2,645 m. and 227 w. students of univ. status at non-univ. instns. having recognized teachers (music colls. 3, medical and scientific research instns. 5, polytechnics and tech. colls., 7, teachers training colls. [incl. Goldsmith's coll.] 2, others 2) and 30,540 home and overseas external students, incl. those at Exeter, Hull, Leicester and Southampton univ. colls. [8] Part-time researchers. [9] Also varying numbers of pt.-time researchers. [10] Men postgraduates working under specialist advisers at women's colls. [11] Coll. for evening students; totals include 44 m. and 17 w. full-time postgraduates. [12] Autonomous instn. united with King's coll. for some purposes. [13] Students (incl. registrars, house officers, etc.) attending for research, seminars or short courses, first term, 1951-52; federation total includes 235 students at associated instns. (Insts. of Basic Medical Sciences, Cardiology, Dermatology, Diseases of the Chest, Urology); there were also 699 pt.-time students. [14] Administered by delegacy of London univ. senate, but only 48 m. and 65 w. of univ. status; remainder included 162 m. and 288 w. training coll. students and 82 m. and 103 w. art students. [15] Autonomous coll. providing Manchester univ. technol. faculty. [16] Confers B.A. [17] Autonomous coll. providing Edinburgh univ. theol. faculty. [18] Autonomous coll. associated with Glasgow univ. in applied chemistry, architecture, engineering, pharmacy (610 m. and 49 w. were Glasgow univ. students); also confers its own diplomas and prepares students for London degrees; 1950-51 figures. [19] Confers B.A. and B.D. [20] Includes 486 students at St. Patrick's coll. Maynooth, Co. Kildare (founded 1795; Mgr. E. J. Kissane, *P.*), a recognized coll.

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found a Society of Serbian Philosophers. The leading speakers were from Belgrade university.

United States. In January Princeton university took over the property of the Rockefeller Institute for Medical Research to expand its work in "helicopter research, flight control, supersonics and rocket development, chemical kinetics, metallurgy and other sciences." The institute was renamed the James Forrestal Research centre. Late in Dec. 1950 R. M. Hutchins resigned the chancellorship of Chicago university, of which he had been president and chancellor for 21 years, and was succeeded as chancellor by Lawrence A. Kimpton. On General Eisenhower's appointment as supreme commander of the North Atlantic forces, Grayson L. Kirk, vice president, became acting president of Columbia university. In late Dec. 1950 Alfred P. Sloan, Jr., chairman of General Motors, gave $5·25 million to the Massachusetts Institute of Technology for a school of industrial management. The school was to have about 500 undergraduate and graduate students, and would offer courses in economics, history, applied psychology and industrial technology. In March Santa Clara university, California, celebrated its centenary, and in October Yale university celebrated its 250th anniversary. In March John D. Rockefeller, Jr., gave $5 million to the United Negro College fund, established to raise $25 million to improve 32 private Negro colleges.

In August a sensation was caused by the expulsion of 91 cadets from the U.S. military academy at West Point, New York, for cheating and breaches of the West Point code of honour. It was later reported that all had been offered places at Notre Dame university, Indiana, their fees and expenses being guaranteed by an anonymous donor. In 1950, for the first time since World War II, enrolments in U.S. universities declined. Approximately 2,295,000 were enrolled in Dec. 1950, a decrease of 6·6% on the 1949 enrolment. The figure was expected to drop to 2,045,000 in Sept. 1951.

Other Countries. *China.* In January the government decided to take over all U.S.-subsidized educational, medical

and relief institutes, including the twelve Protestant colleges run by the United Board of Christian Colleges in China, the Peiping and Changsha medical colleges and all Roman Catholic schools and colleges. In February Yenching university was taken over by the government. In Shanghai the government took over the Roman Catholic Aurora university and the Baptist university.

Egypt. In January hundreds of university students and secondary schoolboys demonstrated before the Foreign Ministry to demand that negotiations with Great Britain be discontinued immediately, that British forces in the canal zone be considered hostile, that the principle of joint defence be rejected and that the international peace movement be supported. The foreign minister, Salah ed-Din refused to accept dictation from the gathering, said to be the first in Egypt obviously influenced by Communist propaganda. In the same month El Azhar university, Cairo, was closed because of a strike of all its 1,400 teachers for higher pay.

Mexico. The 400th anniversary of the foundation of the University of Mexico City was celebrated in September by the dedication of new buildings that would become one of the largest university centres in the world.

Persia. In July the University of Tehran offered, for the first time, a fellowship for a year to a U.S. student.

Peru. On May 12 the University of San Marcos, Lima, celebrated its 400th anniversary. Founded under royal decree by the Emperor Charles V (confirmed by papal bull in 1571) it was under Dominican control for 20 years, after which the Viceroy Toledo reconstituted it as an autonomous university under a lay rector. It was again reconstituted in 1874.

Turkey. In August President Celâl Bayar toured the eastern provinces in search of an appropriate site for a new university in fulfilment of a project initiated by Kemâl Atatürk. It was expected that the town of Van would be chosen, but only after past neglect of elementary and secondary education had been remedied.

U.S.S.R. In January Serghey Kaftanov, minister of higher education, stated that there were 880 higher educational establishments in the Soviet Union, of which 112 had been established after World War II. The number of students was 1,247,000, which was 115,000 more than in 1949. (*See* also CAMBRIDGE UNIVERSITY; LONDON UNIVERSITY; OXFORD UNIVERSITY.) (H. C. D.; L. WN.)

URUGUAY. Republic in southeastern South America, bounded N. by Brazil; S. by Rio de la Plata; E. by the Atlantic ocean and W. by Argentina. Area: 72,172 sq.mi. Pop. (1950 est.): 2,365,000, mostly of European extraction. Language: Spanish. Religion: mostly Roman Catholic. Chief towns (pop., 1950 est.): Montevideo (cap., 850,000); Paysandú (50,000); Salto (48,000); Mercedes (33,000); Minas (32,000). Presidents in 1951: Luis Batlle Berres and (from March 1) Andres Martinez Trueba.

History. In his inaugural address Martínez Trueba expressed solidarity with the western democracies and the desire of the new government to maintain its civil liberties. He welcomed refugee capital, but warned that he would take care that it did not disrupt the country's economy.

Martínez Trueba sponsored a reform of the constitution which was approved by the two leading political parties to institute a form of executive similar to that in Switzerland. A federal council of nine charged with executive power would be made up of six representatives from the majority party and three from the minority. This system had been in effect in Uruguay from 1919 to 1933, when it was abolished by President Gabriel Terra. It was expected to become effective on March 1, 1952, with Martínez Trueba as the new head of the council.

Uruguay faced economic and financial difficulties during 1951. On June 30 the trade agreement with Britain, regulating the price of meat, expired and was not renewed. The export trade in wool was booming in view of the demand for it in the United States. A strike in the National Administration of Fuel, Alcohol and Cement extended to other sections of the country's economy, tying up transport and closing newspapers and theatres. It was settled when some of labour's demands were met. (J. McA.)

Education. Schools (1950): 546 urban, 157,033 pupils; 1,176 rural, 55,476 pupils: total teachers 6,744; also 191 private schools with 36,884 pupils. The University of Montevideo had 11,948 students.

Agriculture. Main crops (1950-51, short tons): wheat 479,202; linseed 99,210; oats 37,658; malt barley 15,669; ordinary barley 11,486. Livestock (1949 est.) 8,700,000 cattle and 23,000,000 sheep.

Foreign Trade. Exports (1950, U.S. $) 254,281,366; imports, 201,694,860. Chief exports were wool (60%), beef and mutton (14%) and hides, skins and leather (11%); leading imports, raw materials (28%), machinery and vehicles (27%) and building materials (9%). Leading customers were the U.S. (51%), the United Kingdom (13%) and Belgium and France (each 6%); leading suppliers, the United Kingdom (22%), the U.S. (20%), Brazil (9%) and France (7%).

Communications. Railways (1948): 1,874 mi. Roads (1948): 26,000 mi., incl. 3,051 mi. paved. On Dec. 31, 1949, there were 56,500 cars and 20,000 lorries. Merchant marine (June 30, 1950): 47 steamers and motor ships (100 tons and over) aggregating 84,607 gross tons.

Finance. Budget (1950 actual in millions of pesos): revenue 280; expenditure 306. Monetary unit: *peso*, with an official exchange rate of 4·80 to the pound sterling and 1·71 to the U.S. $.

(J. W. MW.)

U.S.S.R.: *see* UNION OF SOVIET SOCIALIST REPUBLICS.

VAN FLEET, JAMES ALWARD, U.S. army officer (b. Coytesville, New Jersey, March 19, 1892). He graduated from the Military academy, West Point, in June 1915. In World War I he served in France, took part in the action near Gérardmer, Vosges, and in the Meuse-Argonne offensive and was wounded near Sedan seven days before the armistice. He returned to the U.S. in June 1919 as major and had many assignments as teacher and commanding officer. In Jan. 1944 he arrived in Great Britain as colonel commanding the 8th infantry regiment of the 4th division. It was his regiment which was chosen to spearhead the landing operation on the " Utah beach " in Normandy (June 6, 1944). He lead his troops to Cherbourg and was soon in command of the 4th division heading east towards Alsace, and was then transferred to the command of the 90th division which liberated Metz. Van Fleet assumed command in March 1945 of the 3rd corps at the Remagen bridgehead on the Rhine, took part in the encirclement of the Ruhr pocket and later advanced across Germany to the foot of the Austrian Alps. In summer 1945 he returned with his corps to the U.S. on the way to the Pacific theatre. In Dec. 1947 he became assistant chief of staff for operation and training to the United States command in Europe. On Feb. 6, 1948, President Truman promoted him lieutenant general and appointed him to direct the U.S. army and navy mission in Greece. Van Fleet returned to the U.S. in May 1950 to become commander of the U.S. 2nd army and on April 11, 1951, was appointed commander of the U.S. 8th army in Korea. He was promoted general on July 9, 1951.

VARNISHES: *see* PAINTS AND VARNISHES.

VATICAN CITY STATE. Sovereign independent state, situated upon the Vatican hill in the city of Rome, established by the Lateran treaty between the Holy See and Italy on Feb. 11, 1929. The Pope is the sovereign. Area: 0·5 sq.mi., excluding the papal estate of Castel Gandolfo and the basilicas of St. John Lateran, St. Paul-Outside-the-Walls and St. Mary Major which belong to the Vatican

City state. Pop. (1948 census): 890. Governor, Marchese Camillo Serafini.

The year 1951 was memorable at the Vatican for the beatification on June 3 of Pope Pius X (1903-14); for the celebration at Whitsun of the 60th anniversary of the encyclical *Rerum Novarum* ("The Workers' Charter"), when some 40,000 workers from many countries were present; for the World Congress of the Lay Apostolate, attended by more than a thousand delegates in the second week of October; and for the commemoration of the 15th centenary of the Council of Chalcedon, in the last week of October, when Cardinal Clemente Micara, as vicar general of Rome, laid the foundation stone of a church to be dedicated to Pope St. Leo the Great. Pope Pius XII marked the Chalcedon commemoration with a major encyclical letter, historical and theological in content, entitled *Sempiternus Rex*. On June 2 the Pope published an encyclical letter, *Evangelii Praecones*, on the recent development and present condition of the foreign missions and on Sept. 15 another, *Ingruentium Malorum*, on the Holy Rosary.

Cardinal Adeodato Piazza, secretary of the Consistorial congregation, visited Great Britain, Canada, the United States and Mexico in July, and Mgr. Giovanni-Battista Montini, *sostituto* at the Secretariat of State, visited the United States, Canada and Ireland in September.

In October came the proposal by President Harry S. Truman that the United States should establish diplomatic relations with the Holy See; but the matter was postponed until the U.S. Senate could meet again in Jan., 1952. It was announced in October that the Holy See and Pakistan had agreed to establish diplomatic relations. Sir Victor Perowne, British minister to the Holy See, died on Jan. 8; Sir Walter Roberts was appointed on March 22 to succeed him, and presented his credentials to the Pope on June 23. Princess Elizabeth and the Duke of Edinburgh were received by the Pope on April 13.

The Palazzo di San Callisto, in Trastevere, recognized in the Lateran treaty as the property of the Holy See, was sold to the Italian state, and the four congregations which it had housed—the Consistorial congregation and those of the Affairs of Religious, of Rites and of the Seminaries and Universities—were moved to the Piazza Pio XII, just outside St. Peter's. An agreement with Italy was signed in October to provide for the erection of a new wireless transmitting station to which extra-territorial rights would be given outside the Vatican City state.

Cardinal Francesco Marchetti-Selvaggiani, dean of the College of Cardinals, died on Jan. 13; he was succeeded as dean and as prefect of the Congregation of Ceremonial by Cardinal Eugène Tisserant, as secretary of the Holy office by Cardinal Giuseppe Pizzardo, as vicar general of Rome by Cardinal Micara, and as cardinal bishop of Frascati by Cardinal Federico Tedeschini. Cardinal Nicolà Canali relinquished the office of *camerlengo* of the College of Cardinals in June and was succeeded by Cardinal Giovanni Mercati. Other members of the Sacred college who died during the year were Cardinal Dennis Dougherty, archbishop of Philadelphia, on May 31, and Cardinal Adam Sapieha, archbishop of Cracow, on July 23. (*See* OBITUARIES.)

(M. DK.)

VEGETABLE OILS AND ANIMAL FATS.

Preliminary reports suggested that, while western European production of animal fats in 1951 remained roughly as in 1950, output of vegetable oils from domestically grown material fell, due largely to a decrease in olive oil production in 1950-51. Butter production in both the Netherlands and Denmark fell considerably, but French and German output increased; lard production in western Europe, as a whole, increased, but the decline in pig numbers, except in the United Kingdom, pointed to a decline in 1952. The Mediterranean 1951-52 olive crop was excellent.

Purchases from the dollar area remained below the 1949 level, but imports of Manchurian soya beans and Argentine linseed and linseed oil were greater than in 1950. Stocks at the end of 1950 had tended to be somewhat higher than previously, due to the heavier buying after the outbreak of the Korean war. Western European *per capita* consumption of oils and fats probably rose slightly in 1951.

West African groundnut production was again reduced by unfavourable weather. In Nigeria purchases amounted to only 140,000 tons of shelled nuts in 1950-51, compared with 188,000 tons in 1949-50 and 323,000 tons in 1948-49. Imports of Nigerian groundnuts into the United Kingdom during 1951 were less than half those of 1949 and 1950. Production of groundnuts in French West Africa was also well below the postwar average. In Southern Rhodesia the 1950-51 groundnut crop was slightly below 1949-50, but in South Africa production reached a new high level for both groundnuts and sunflower seed; South Africa was now a net exporter of these products.

In Tanganyika, 33,000 ac. of groundnuts were planted in the areas farmed by the Overseas Food corporation in 1950-51; there were also experimental planting of soya beans, safflower, cotton and castor seed. In both Nigeria and the Belgian Congo efforts were being made to increase the production of palm oil; preliminary data for 1951 suggested that exports of this commodity from African sources increased over 1950.

Cottonseed production in Egypt in both 1950 and 1951 was below the 1949 level. The Sudan, Uganda and Mozambique again exported fairly large quantities of cottonseed, while Nigeria increased in importance as a source of United Kingdom supplies.

Indian production of groundnuts, castor seed, linseed and sesame in the 1950-51 season fell below the 1949-50 level, but the output of rape and mustard seed increased. It was believed that the acreage planted to groundnuts in 1951-52 was comparable to that of the previous season. Indian vegetable oil and oilseed exports continued to be controlled; a trade agreement, concluded in Sept. 1951, stipulated that India would export to Burma 8,000 tons of groundnut oil a year from 1952 to 1955.

Exports of coconut oil from Ceylon were considerably above the 1950 volume, but there was increased anxiety over the high average age of palms. Malayan output of palm oil fell, as compared with 1950, and exports were also less; coconut oil production rose further and shipments of the oil increased to a record postwar level. Philippine production and exports of copra and coconut oil showed a marked advance over the levels of 1948-50. In Indonesia the output and exports of oil palm products were below the relatively low levels of 1950, but copra purchases and exports were much higher than in previous postwar years.

Drought affected dairy farming in Australia and butter production in 1950-51 fell by 5% compared with 1949-50; in New Zealand, however, butter production was the highest on record. Output of whale oil in the 1950-51 Antarctic season was 385,000 tons, slightly more than in 1949-50. (H. F. C. G.)

United States. The U.S. 1951 production of fats and oils, including the oil equivalent of exported seeds, was forecast for the year beginning Oct. 1951 at a new high record level of about 12,750 million lb., substantially more than the 1950 record of 12,308 million lb. In spite of a large supply, it was indicated that civilian consumption would average only 43·2 lb. a head of edible fats and oils in 1951, 5% less than in 1950. Butter production in 1951, declined to about 1,460 million lb. Lard and pork fat production increased by more than 100 million lb. to 2,950 million lb.

Of the 8,562 million lb. of edible fats and oils, including butter, distributed in 1950-51, 12·3% or 1,054 million lb. were exported—somewhat less than the record 1,147 million lb. of the previous year. Of that amount about 638 million lb. went to Europe, 452 million lb. going to countries participating in the European Recovery programme. (J. K. R.)

VEGETABLES. The weather played a big part in the direction of the horticultural industry during the first half of 1951. The wettest spring for more than 50 years held back preparation and planting of the land for annual crops, and also delayed the maturing of the over-wintered crops. This effect exaggerated the withdrawal from production of fresh vegetables which growers had planned for 1951 as a result of a succession of disappointing prices. Economic progress in western Europe sustained demand, but there was evidence that, in the United Kingdom, the popularity of fresh vegetables had begun to decline.

United Kingdom. The recorded area of vegetable crops growing in the open in England and Wales as at June 4, 1951, was 402,500 ac., or 87% of the 1950 total, but still 62% above the 1939 level. All crops shared in the reduction, although much larger areas of spring cabbage remained unpicked. Sowings of peas reflected the increasing tendency towards processing of this crop. Acreages of major crops (1950 acreages in parenthesis) were: brussels sprouts, 40,400 (43,900); leaf brassicae (excluding spring cabbage), 45,300 (60,700); cauliflower and broccoli, 23,700 (24,600); carrots, 24,100 (30,800); fresh green peas, 40,200 (54,600); canning peas, 23,000 (24,700); dry peas, 117,000 (154,000); celery, 4,200 (5,100); lettuce, 8,200 (8,500); onions, (dry bulb) 3,600, (5,400).

Prices were generally higher and more stable than in 1950, partly because summer imports of many items were down on the year. United Kingdom imports of selected crops to Aug. 31, 1951, are given in the table.

UNITED KINGDOM IMPORTS OF SELECTED CROPS TO AUG. 31
(thousands of cwt.)

	1949	1950	1951
Broccoli, cauliflower	508	976	748
Carrots	56	140	90
Lettuce, chicory, endive	128	138	152
Onions	3,171	3,079	3,373
Tomatoes	3,423	2,861	2,679

The area under glass (houses, frames and cloches) increased by 52 ac. to a new total of 5,120 ac. (houses, 4,581; frames, etc., 569). Winter use of glass was largely for lettuce: at 491 ac. in houses, and 149 ac. in frames and cloches, the total lettuce area was down by 13%. Tomato and cucumber seedlings accounted for 12% less area than in 1950. As from June 4, the acreage of growing crops under glass repeated the trend evident by Jan. 1. The combined area of tomatoes and cucumbers was down by 193 ac. with an uncropped area 20% above 1950 level.

Caught between the two fires of consumers' dissatisfaction with high retail prices of vegetables (in relation to prices of other foodstuffs) and growers' dissatisfaction with low net returns, the government, following up growers' own initiative in turning to auction selling as an alternative to private treaty sales, announced its intention of setting up new auction markets in a few specially suitable provincial towns, so as to relieve the congestion in the London central markets.

United States. Both acreage and production of truck crops for the fresh market were lower than in 1950. The most marked fall was in winter season production areas and spring season areas. As compared with 1950 figures, acreage was 11% down in the former areas and 7% down in the latter, the respective declines for production being 16% and 8%. Sowings in the summer areas too were down on the year, but yields were expected to be above average, so that the aggregate area of winter, spring and summer areas, at 1,650,680 ac. was expected to produce almost the same commercial crop as in 1950 when 1,757,040 ac. (July estimates in both years) were sown and the markets had an excess of some crops, notably cabbage.

By contrast, acreages of vegetable crops for processing were higher in 1951 in nearly all categories. Anticipating an increased demand for both canned and frozen vegetables, the Department of Agriculture had recommended, before the start of the season, specific percentage increases, amounting to 17% in all, over 1950 levels for nine major crops. Bolstered by defence expenditure, civilian demand remained strong while military needs increased—not only were there more men under arms, but supplies were needed for stockpiling. Frozen vegetables were taken up in increased quantities for military use. Rates of increase recommended for individual crops were: sweet corn, 30%; cucumbers, spinach, tomatoes, 20%; green peas, 8%. Snap beans and lima beans were officially required at their 1950 level, and beet and cabbage requirements were substantially reduced. Processers supported these adjustments in the terms they offered to growers.

In the event, acreages of tomatoes and sweet corn for processing were 25%-30% up on 1950, and green peas were 21% up—an excessive increase which lifted acreage to 30% above its recent ten-year average. The increased supply of crops for canning was expected to make the 1951 production some 15%-20% above that for 1950, and almost equal to the record 1946 figure. (*See* also AGRICULTURE; MARKET GARDENING; ROOT CROPS.) (R. R. W. F.)

See C. H. Oldham, *The Vegetable Grower's Guide* (London, 1950).

VENEREAL DISEASES. Once again, as had been the case since the peak year of 1946, there was a sharp fall in the figures for early syphilis in England and Wales, from 10,637 in 1948 to 6,812 (4,392 men and 2,420 women) in 1949 and to 3,228 in 1950. The total syphilis figure in 1950 was 10,967. This decline was more marked than in any comparable period between the two wars and was no doubt due to the more general and early use of penicillin in treatment. By this means the patient became non-infectious in a matter of hours and, as the injections of procaine penicillin were painless, the defaulter rate was extremely low. The fall in the incidence of syphilis in Great Britain was as marked in seaports as in inland towns.

The incidence of chancroid (soft sore) also lessened, the previous annual rate of 562 cases, of which all but 19 were males, declining to 450 in 1950. As usual the majority of cases occurred in seaports, indicating that the disease had been contracted abroad. In Sweden the incidence was 64 (58 men and 6 women) and in France 262.

The number of those attending public clinics for diseases other than syphilis, chancroid or gonorrhoea fell from 83,897 to 77,327 in 1949, of whom 31,237 required treatment for disease (usually non-gonococcal urethritis) of the urogenital tract, in most cases venereally acquired. In 1950 the fall was even more marked, to 32,534. Non-gonococcal urethritis was, in fact, the venereal disease showing the highest incidence and in one large London clinic was responsible for 80% of the total attendances in Jan.-Sept. 1951.

Most of these cases were abacterial, being usually due to a virus or the virus-like pleuropneumonia-like organism, both insensitive to penicillin and the sulphonamides. The drugs of choice in treatment were found to be aureomycin, terramycin and dihydrostreptomycin, in that order. The oral administration of sandal-wood oil was also found to be effective in acute abacterial urethritis, though ineffective in the more prevalent sub-acute variety of the disease. Cases of non-gonococcal urethritis reacting favourably to penicillin or the

sulphonamides were usually non-venereal in origin and due to infections (commonly *Bacillus coli* and *Staphylococcus aureus*) descending from more serious lesions of the upper urinary tract. Such infections were often mistakenly diagnosed as venereal in origin as the patient, obsessed by the possibility of venereal infection, was apt to overlook symptoms of gradual onset and longer duration.

It was established that the rapidity with which syphilis was controlled after World War II as compared with the period after World War I was due to penicillin treatment. In the Scandinavian countries 20 to 25 years had been required for the incidence to reach its lowest level after World War I, whereas almost the same level was achieved only five years after the end of World War II.

The incidence of gonorrhoea in England and Wales, as shown by the numbers attending public clinics, fell from 24,487 in 1949 to 20,504 in 1950. In Berlin, however, the fall was not so rapid: there were 15,604 cases in 1948, 13,986 in 1949, 11,986 in 1950, and 3,373 in the first three months of 1951. In Belgium the incidence fell from 3,074 in 1948 to 542 in 1950; in France it was 21,324 in 1949 and 13,580 in the first nine months of 1950; in Sweden 9,876 in 1950 and 3,529 in the first four months of 1951; in Denmark it was 11,170 in 1949 and 8,474 in 1950.

Among the native populations of Africa and elsewhere in the Commonwealth the incidence of syphilis and gonorrhoea remained alarmingly high. Millions were incapacitated by "endemic" syphilis and other allied diseases such as yaws, bejel and pinta. The numbers of patients attending clinics in the Union of South Africa indicated that the incidence of syphilis had increased since 1935 in both the European and non-European populations (in 1947 there were 31,450 cases in Europeans, 313,123 in non-Europeans). To meet this situation hospital accommodation was increased, the largest being that under the Department of Health at Rietfontein near Johannesburg.

D. H. McKay, in making a survey of the Masai natives of East Africa, revealed an alarmingly high incidence of both syphilis and gonorrhoea: one in every five of 777 natives examined was infected with syphilis ("Venereal Disease in Masai, a Field Survey," *East African Med. J.*, 451, Nairobi, Nov. 1950). C. H. O'Malley also carried out serological examinations for syphilis on 822 Bantu natives attending a South African native hospital and found 140 (17%) gave positive reactions, the number in the "married" group far exceeding the "single" ("A Wassermann Survey on an Unselected Group of Bantu Hospital Out-patients," *South African Med. J.*, 1060, Capetown, Dec. 1950).

Mass campaigns against syphilis and yaws were in operation and showing encouraging results in various parts of the world and it was planned to carry this work to many parts of Africa. The use of procaine penicillin G. in oil with 2% aluminium monostearate aided this type of work as one injection was found to maintain an effective blood level for several days and was found extremely helpful in treating large numbers.

The increasing awareness of the dangers of infection among the public was indicated by the fact that in 1950 45,674 persons free from any venereal disease attended clinics in Great Britain. (A. H. H.)

United States. Less syphilis was reported in the United States in 1951 than in any previous year since 1929 and less gonorrhoea than in any year since 1942. The U.S. public health service's estimate of the annual minimum incidence of syphilis (civilian population only) was as follows: 1947, 214,000 cases; 1948, 178,000; 1949, 139,000; 1950, 98,000; 1951, 71,000.

Among the problems under study were: immunity in syphilis; the artificial cultivation of the syphilis organism, *Treponema pallidum*; and certain variations in the response of the organism in syphilis therapy and in host reactions. Much work was in progress on the treponemal immobilization test and on the standardization of serological tests. The Venereal Disease Research laboratory at Chamblee, Georgia, provided serological analysis for about 14,000 blood specimens obtained in the Virgin Islands and 228,000 specimens tested in the Atlanta (Georgia) health screening programme.

Diagnostic tests completed by state and local clinics, numbering more than 2·4 million observations, resulted in the admission to the clinics for treatment of more than 388,000 cases of venereal disease. Admissions to in-patient centres numbered 110,000 in 1951, a decline of about 17% from the previous year's record.

Declines in morbidity reporting and in mental disability and deaths from syphilis amply demonstrated the striking progress of venereal disease control during the decade 1941-51. However, it was estimated that there were 3 million people in the U.S. in 1951 who would have positive serologies for syphilis if the entire population were tested. Actual reports from the states showed more than 198,000 cases of syphilis among civilians in 1951—more than 18,000 in the early infectious stages, about 52,000 in the early latent stage and more than 107,000 in the later stages. In addition, more than 12,000 cases of congenital syphilis were reported. More than 270,000 cases of gonorrhoea were reported in 1951.

(T. J. B.)

VENEZUELA. Federal republic of 20 states, 2 territories, a federal district and island dependencies, on the north coast of South America. Area: 352,143 sq.mi. Pop. (1950 census): 4,986,000 excl. indigenous tribes; population mostly *mestizo*, Negro and mulatto. Language: Spanish. Religion: mainly Roman Catholic. Chief towns (pop., 1950 census): Caracas (cap., 487,000 with 662,000 in its metropolitan area); Maracaibo (232,000); Barquisimeto (105,000); Valencia (88,000); Maracay (66,000); San Cristóbal (56,000); Cumaná (46,000); Puerto Cabello (34,000); Ciudad Bolivar (36,000); Puerto La Cruz (28,000). President of the governing junta: Germán Suárez Flámerich.

History. The year was one of reasonably full employment but economic activity slowed down somewhat except in the mining and petroleum industries. The average daily petroleum production exceeded 1,700,000 bbl. The first cargo of iron ore was shipped by the Bethlehem Steel company to Baltimore early in 1951. Building of major highways, urban and statewide, and many schools, hospitals and other public structures continued through the year; and the expansion of the capital continued to sustain land values and speculative building.

The first national petroleum convention met in Caracas, Sept. 9-18, under the presidency of Santiago E. Vera, minister of mines and petroleum. It was attended by cabinet officers and functionaries of virtually all petroleum-producing countries in the world, except the U.S.S.R. and its satellites, and by representatives of virtually all private oil-producing enterprises in the world. Late in 1951 steps were taken toward the revision of the trade treaty between the United States and Venezuela, but no decisive action had occurred before the end of the year.

Sporadic disorders occurred late in the year in several areas. The universities were closed in consequence of continued controversy between the Ministry of Education and the faculties on the subject of official intervention; student rioting also had some part in bringing about the cessation of classes. Toward the end of the year, a movement to establish a non-official university in the capital was begun.

(C. McG.)

Education. Schools (Oct. 1949): 5,300 primary, 464,697 pupils; (April 1951) secondary and special, public and private, 151, 24,925

pupils, 1,869 teachers; 31 normal, 2,860 pupils, 342 teachers. In 1950-51 the Central university had 4,747 students, Los Andes 866, Zulia 840, and the Instituto Pedagógico 448.

Agriculture. Production (1950-51 crop year): coffee 550,000 bags of 132 lb.; cacao 19,000 short tons; sugar (1950) 55,572 short tons. Livestock (1950 census) 5,359,654 cattle and 1,292,808 pigs.

Industry. Production (1950): cement 552,258 short tons; soap 16,428 short tons; cigarettes 1,943,716,000 units; beer 82,040,000 l.; electric energy 520,341,000 kwh.; natural gas 15,775,571,000 cu.m.; crude petroleum (1950) 546,764,525 bbl.; refinery output 90,099,847 bbl., an increase of 70% over 1949; gold 34,460 oz., diamonds 60,389 carats. Bethlehem Steel's subsidiary mined 1,241,151 short tons of iron ore in the first 11 months of 1951; production increased from 76,442 tons in Jan. 1951 to 163,241 tons in Nov. 1951.

Foreign Trade. (Million bolivares, 1950) exports 3,888; imports 1,798. Chief exports: crude petroleum and petroleum products (97%); coffee (1%); cacao (1%). Leading imports: machinery and equipment (29%); foodstuffs and beverages (21%); metals and manufactures (13%). Leading suppliers: the U.S. (68%); the United Kingdom (7%); Canada (4%); Germany (3%). Leading customers: the Netherlands Antilles and the U.S.

Communications. Railways (1950): 700 mi. Roads: 3,750 mi. all-weather; 1,600 mi. unimproved dry-weather. Merchant marine (June 30, 1950): 93 steamers and motor ships (100 tons and over) aggregating 156,910 gross tons.

Finance. Budget: (1950-51 actual, million bolivares) revenue 2,112; expenditure 2,134; (1951-52 est.) balanced at 1,951. Currency in circulation (Sept. 30, 1951): 722 million bolivares. Monetary unit: *bolivar*, official rate 9·38 to the pound sterling and 3·35 to the U.S. $.

(J. W. Mw.)

VETERINARY MEDICINE. The scheme for the eradication of tuberculosis of cattle in Great Britain was begun in 1951. The campaign to control the northward spread of foot-and-mouth disease into North America from Mexico was continued with most encouraging results, while the incidence of the disease in the non-endemic area of Great Britain was very low. The chronic enteritis known as Johne's disease was found to be more widespread than was realized. The control of such a chronic and insidious disease is very difficult. Sheep were found to be affected, but less frequently than cattle. The parasitic broncho-pneumonia of cattle known as "husk" was very prevalent in Great Britain, and adult animals were affected severely as well as growing stock. The adult worms could be controlled by phenothiazine but the treatment of acute cases was still far from satisfactory. Further work on an infectious skin disease of cattle, known as "lumpy skin," in South Africa and the United States established the fact that it is caused by a virus. A virus pneumonia of calves reported from North America was identified as a cause of pneumonia of young calves in England.

The artificial insemination (A.I.) of dairy cattle continued to expand but the average number of inseminations required per conception (the so-called conception rate) was not reduced appreciably. This low conception rate interfered with the general rise in the annual milk production per cow which it was hoped A.I. would effect. Further work on infertility supported the idea that nutritional factors, especially the minerals calcium and phosphorus, might be important on certain farms. Poor milk quality, due chiefly to a reduced solids-not-fat content, occurred widely in various breeds and was thought to be associated with dietetic factors, especially the quality and the nature of the roughage.

Pregnancy toxaemia was very prevalent in the hill sheep flocks of Great Britain owing to the cold wet winter and spring. Successful preliminary trials of the control by vaccination of the infectious enzootic abortion, prevalent in parts of Scotland, were reported. In Australia, work on toxaemic jaundice continued; the accumulation of unusually large amounts of copper in the livers of sheep on pastures in enzootic areas was confirmed and clinical illness occurred when this high liver copper concentration was suddenly discharged into the blood stream.

The addition of certain antibiotics, such as aureomycin, to the mash fed to pigs was shown to increase the rate of growth and to reduce the incidence of bacterial enteric disorders. Swine fever (hog cholera) was rampant in parts of England, where it became endemic in East Anglia; the American crystal violet vaccine was used extensively. Bowel oedema of growing pigs became more prevalent in parts of England; a virus was reported to be responsible, but this work required confirmation. Further studies on the causes of deaths of newborn pigs showed that hypoglycaemia was not responsible for as many deaths in Europe as workers in North America had reported there.

Reports from many parts of Europe and America indicated that *virus hepatitis* of dogs (Rubarth's disease) was widespread. Experimental work carried out in England and America showed that the disease was often clinically inapparent but that once infected a dog might harbour the virus and excrete it from time to time for some months. Such carrier animals are apparently fit and well, but if they become pregnant, some of the puppies die at or soon after birth. The control of a disease in which recovered animals harbour the infection for so long was likely to prove difficult, but fortunately the attack rate of clinical cases was low. The nervous form of para-distemper ("hard pad" disease) was less prevalent in northern Europe; no satisfactory treatment of the disease was reported.

Fowl pest continued to be a serious problem of the poultry industry in many parts of the world. In countries recently infected, such as Great Britain, the acute killing form of the disease became less prevalent, but a chronic form associated with decrease in egg production was common. The large-scale poultry industry scheme in the Gambia territory of west Africa had to be curtailed because of the difficulties of controlling disease and maintaining production. Infra-red electric lamps were introduced as a heat source in brooders with encouraging results. A deformity of the feet known as "crooked toes" was reported from several countries; the cause of the condition was not determined. Work on coccidiosis continued; several new drugs showed much promise as prophylactics.

The horse population continued to decline in many parts of the world, particularly in North America and northern Europe where the mechanization of family farms proceeded rapidly. With the decline in the economic importance of the horse in agriculture and transportation, the emphasis passed to the racehorse. Work at Newmarket, England, showed the importance of bacterial infections as a cause of deaths in newborn thoroughbreds and the value of the new antibiotics in treatment. Several racehorses, affected with severe haemolytic disease as foals and whose lives were saved by blood transfusions, were in training.

In Africa a disquieting development was the spread of Rift Valley fever, an infectious *virus hepatitis* of sheep, from Kenya southwards to the Union of South Africa, where there is a large merino sheep population. In the field of protozoal disease the control of bovine trypanosomiasis with the drug "antrycide" did not prove as effective as in the earlier trials. It was useful as a curative but as a prophylactic it tended to cause prolonged incubation and masked the disease. Some strains of *T. congolense* and *T. vivax* acquired resistance to the drug quite readily. The elimination of foci of chronic tsetse fly infestation by the use of insecticides, such as gammexane smokes, during the dry season gave encouraging results, but the reports stressed the importance of tackling the whole problem of trypanosomiasis and tsetse fly control by as many methods as possible simultaneously. Rinderpest vaccines in Africa and southeast Asia continued to prove satisfactory. (W. R. W.; H. B. P.)

VIETNAM: *see* INDOCHINA.

VIRGIN ISLANDS. An organized but unincorporated territory of the United States, 40 mi. E. of Puerto Rico. The three largest islands, with a total area of 133 sq.mi., are St. Croix (pop. 12,096, preliminary census of 1950); St. Thomas (13,811) and St. John (747). Language: mainly English. Religion: Christian. Chief towns: Charlotte Amalie, the capital, on St. Thomas (11,463), Christiansted (4,110) and Frederiksted (1,925) on St. Croix. Governor, Morris F. de Castro.

History. Progress was made in 1951 on important projects under the $10 million federal public works programme for the islands. Contracts were awarded for the construction of a 116-bed hospital at Charlotte Amalie, St. Thomas; a 60-bed hospital at Christiansted, St. Croix; a 12-bed clinic and public health facility at Frederiksted, St. Croix; and a 4-bed public health facility at Cruz Bay, St. John. The waterfront improvement project in St. Thomas was begun. Drinking water supply facilities were completed. Telephone communication facilities were expected to be completed in 1952. Preliminary plans for high school and elementary schools in St. Thomas and St. Croix were being prepared.

Education. School enrolment 1951: total 4,944, incl. 2,196 elementary and 984 high school in St. Thomas and 1,352 elementary and 412 high school in St. Croix.

Agriculture and Industry. About 7,400 tons of sugar were produced in 1951. A total of 459,544 proof gal. of alcoholic beverages was exported from St. Thomas. In St. Croix 70,250 proof gal. of alcoholic beverages were exported.

Foreign Trade. Imports (1950): $11,036,282; exports $3,106,282.

Finance. Budgets (actual, 1950-51): St. Thomas and St. John, revenue $927,434, expenditure $1,257,801, federal grant $279,200; St. Croix, revenue $431,777, expenditure $901,199, federal grant $465,800. (M. F. DE C.)

VIRGIN ISLANDS, BRITISH: *see* LEEWARD ISLANDS.

VITAL STATISTICS. Births. In most countries of western Europe, 1951 saw a continuation of the downward trend in the birth rate from the 1947 peak. Such figures as were available by the end of the year showed a small falling-off compared with the similar period of 1950, except in Spain and Portugal. With an annual rate of 23·5 live births a thousand inhabitants during the first nine months of 1951, Portugal continued to hold the lead among the western European countries for birth rate. This was still not as high, however, as that in the immediate prewar years in Portugal. In the United Kingdom 617,300 live births were recorded in the first three quarters of 1951 compared with 624,300 in the same period of 1950 but, in spite of this small decline, the rate was higher than in 1935-39. In France, which had seen the greatest increase over the prewar level, there was also some decline; for the years 1946 to 1949, the rate varied only between 20·9 and 21·3 but for the full year of 1950 it was 20·4 and in the first six months of 1951 it fell to 20·2 compared with 21·4 in the corresponding period of 1950.

In Canada, the rate in the first nine months was greater in 1951 than in 1950 and at a level some 35% above the 1935-39 average. The figures were not quite so high in Australia or New Zealand, but again in these countries rates in 1951 promised to show an increase over 1950 and were substantially above their prewar levels. In South Africa the rate was steady at about 26 and in 1951 was above that of India, which had been declining almost without interruption since the beginning of the century.

United States data to 1950 showed that the highest number of births recorded was in the 12 months to July 1, 1947, when they totalled 3,986,000. The annual number of births remained high, at 3,701,000, 3,699,000 and 3,703,000 for the three succeeding 12-month periods. (These figures are adjusted for the normal incomplete registration). Preliminary figures for 1951 suggested a further increase; the annual birth rate in the first nine months of 1951 was 24·6 compared with 23·3 in the corresponding period of 1950.

TABLE I. BIRTH RATES (Number of Live Births per 1,000 Inhabitants)

	1911-13	1925-29	1935-39	1946-50	1951 (9 mo., annual rate)
Austria	24·9	—	14·7	16·7	14·4
Belgium	22·7	18·7	15·6	17·5	16·5
Czechoslovakia	29·6	23·7	17·0	23·1*	—
Denmark	26·3	19·9	17·9	20·7	—
France	18·1	18·4	14·9	20·9	20·2†
Germany	27·0‡	19·0	19·4	16·5†	16·2§‖
Ireland	22·6	20·2	19·4	22·1	21·7†
Italy	31·7	26·7	23·2	21·2	18·5
Netherlands	28·1	23·4	20·3	25·9	22·8
Norway	25·4	18·7	15·1	20·7	19·3
Portugal	35·1	—	27·2	25·0	23·5
Spain	31·2	29·1	22·0	21·4	20·5
Sweden	23·6	16·4	14·5	18·2	16·8†
Switzerland	23·8	17·7	15·4	19·0	18·0
United Kingdom	24·3	17·6	15·3	18·3	16·3
Argentina	37·4	—	25·1	—	—
Canada	—	24·0	20·3	27·2	27·4
Mexico	—	—	43·5	45·1	44·8†
United States	25·1¶	20·2	17·1	24·1	24·6
India	38·6**	—	33·8	26·6	24·9§
Japan	34·9	34.1	29.2	30.9	28.1†
South Africa	31·9	26·2	24·7	26·4	25·8
Australia	28·0	21·6	17·2	23·4	23·7†
New Zealand	—	20·2	17·3	25·3	24·3

* 1946-49 † first 6 months ‡ 1913 § first 8 months ‖ Western Germany ¶ 1915 ** incl. Burma.

Marriages. The beginning of a war usually tends to make people marry younger. This was true in most belligerent countries in the early years of World War II and the rates of marriages a thousand inhabitants were high. Rates were also high immediately after the end of the war but later, as was to be expected, there was a decline since the earlier marriages had been borrowed, in a sense, from the future. By 1951 this decline seemed to have been arrested in most countries and in some there was even a slight upward movement. Rates had changed rapidly in the United States, reaching the exceptionally high figure of 16·2 a thousand inhabitants in 1946 and falling to 10·6 in 1949 with a slight increase in 1950.

From 1932 to the end of the decade the number of marriages in the United Kingdom rose year by year. The first three years of World War II accelerated the trend and after the end of the war the rate remained high. In 1947 and 1948 marriages registered averaged 443,000 a year compared with

TABLE II. MARRIAGE RATES (Number of Marriages per 1,000 Inhabitants)

	1926-30	1935-39	1940-44	1946-50	1951 (9 mo., annual rate)
Austria	7·5	10·3	8·2	9·9	9·2
Belgium	9·1	7·4	6·0	9·4	8·4
Czechoslovakia	9·3	8·5	8·5	10·6*	—
Denmark	7·8	9·2	9·2	9·3	—
France	8·2	6·5	5·5	9·7	7·0†
Germany	8·7	9·8	—	10·0§	9·8‡§
Ireland	4·6	5·0	5·5	5·5	4·8†
Italy	7·3	7·5	5·9	8·4	6·5
Netherlands	7·7	7·9	7·5	9·4	8·9
Norway	6·1	8·1	—	9·0	8·1
Portugal	6·9	6·5	7·1	7·8	6·9
Spain	7·3	5·5	7·3	7·5	6·7
Sweden	6·7	9·0	9·6	8·4	7·3†
Switzerland	7·5	7·3	8·2	8·4	8·0
United Kingdom	7·5	8·9	8·7	8·7	8·6
Argentine	7·5	7·0	7·5	—	—
Canada	7·3	7·9	10·1	9·8	9·0
Mexico	—	6·8	7·5	5·8	6·9†
United States	9·9	10·7	12.0	12·5	10·7
Japan	8·0	8·1	9·8‖	—	—
South Africa	9·3	10·9	10·9	11·2¶	—
Australia	7·5	8·8	10·5	9·8	9·9†
New Zealand	7·7	9·6	8·8	10·4	8·9

* 1946-49 † first 6 months ‡ first 8 months § Western Germany ‖ 1940-43 ¶ 1946-49

394,500 in the years 1935-38. By 1950 the number had fallen to 399,000 which, in view of the larger population, meant that the rate was lower than before the war. In the first three quarters of 1951, however, there were more marriages than in the same period of 1950. Divorces in England and Wales in 1947 were nearly ten times as many as in 1938. But this was a peak year and by 1950 this number had been nearly halved.

TABLE III. MARRIAGES AND DIVORCES, ENGLAND AND WALES

	Marriages	Decrees Absolute		Marriages	Decrees Absolute
1937	359,200	4,886	1947	401,200	60,254
1938	361,800	6,250	1948	396,900	43,698
1939	439,700	8,254	1949	375,000	34,856
1940-44	365,700	8,813	1950	358,500	30,870
1945	397,600	11,496	1951 (9 mo.)	286,200	—
1946	385,600	29,829			

Deaths. In most European countries death rates in 1950 were lower than in 1949 and in Belgium, Italy, Portugal and Switzerland new low levels were set. The lowest European rate on record continued to be the 1948 figure of 7·4 a thousand inhabitants for the Netherlands. Striking improvements had been seen in Italy where the rate had been reduced from 13·9 in the late 1930s to 9·8 in 1950 and in Spain where it had declined from 17·9 to 10·8 over the same period. The United Kingdom had a death rate of 11·7 in each of the years 1949 and 1950 as compared with its lowest rate of 10·9 in 1948 and, according to the figures for the first nine months of the year, 1951 promised a further small rise.

The death rate in Japan continued to improve astonishingly. In 1935-39 it averaged 17·4 a thousand inhabitants (for Japanese nationals only in four main islands), whereas in 1950 it was 11·0 and a still further decline was expected in 1951. The Indian rate was rather higher in 1950 than in 1949 but was nevertheless a quarter less than the 1935-39 average. Rates were relatively low in the United States, Canada, Australia, New Zealand and South Africa, where they had remained fairly steady since the end of World War II at levels around 9 or 10.

TABLE IV. DEATH RATES (Number of Deaths a 1,000 Inhabitants)

	1911-13	1925-29	1935-39	1946-50	1951 (9 mo., annual rate)
Austria	18·8	—	14·0	12·7	13·4
Belgium	15·3	13·6	13·2	13·0	12·9
Czechoslovakia	20·4	15·5	13·2	12·4*	—
Denmark	13·0	11·1	10·6	9·3	—
France	19·0	17·2	15·3	13·1	15·0†
Germany	14·8	12·0	11·9	10·9§	11·0‡§
Ireland	16·4	14·4	14·3	13·2	17·8†
Italy	19·3	16·3	13·9	10·8	10·3
Netherlands	13·1	10·0	8·7	7·9	7·6
Norway	13·3	11·0	10·3	9·1	8·4
Portugal	20·7	—	15·9	13·4	12·4
Spain	22·2	18·6	17·9	11·6	12·1
Sweden	13·9	12·1	11·7	10·2	10·8†
Switzerland	14·8	12·1	11·6	10·8	10·7
United Kingdom	14·2	—	12·2	11·8	13·0
Argentina	16·8	—	12·3	—	—
Canada	—	11·0	9·8	9·3	9·1
Mexico	—	—	23·3	17·3	17·3†
United States	13·9‖	11·8	11·0	9·9	9·7
India	29·9¶	—	22·5	17·7	15·1‡
Japan	20·7	19·8	17·4	13·3	10·8†
South Africa	10·3	9·7	9·8	8·9	9·3
Australia	10·9	9·4	9·6	9·8	9·1†
New Zealand	—	8·6	9·0	9·3	9·8

* 1946-49 † first 6 months ‡ first 8 months § Western Germany ‖ 1910-14 ¶ incl. Burma.

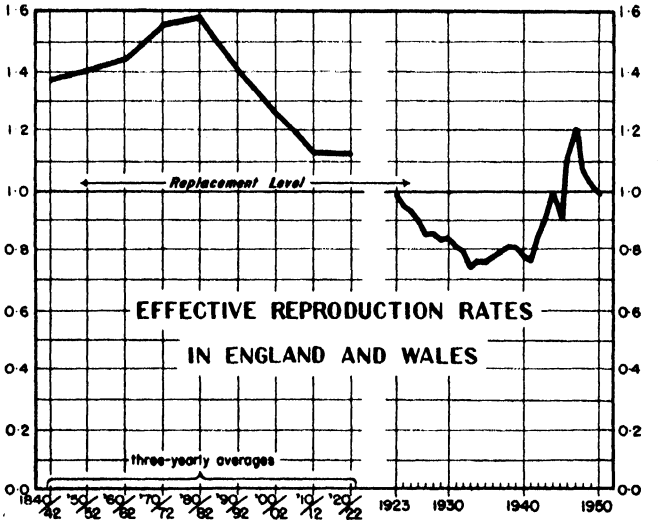
Infant Mortality. Sweden continued to hold the record for low infant mortality with a rate of 20 deaths of infants under one year per 1,000 live births in 1949 and 1950, exactly a third of the rate for the years following World War I. Other countries with rates below 30 in 1950 were Ireland, New Zealand, Australia, the Netherlands and the United States. High rates are recorded in the countries of eastern Europe, South America, India and Portugal. But the latest available figures for eastern Europe related to 1947 so that an improvement might have taken place there. The rate for the U.S.S.R. was 140 a thousand in 1940, the latest year for which figures were available.

Improvement continued in the United Kingdom but for 1950 the rate was still over 30. The lowest figure recorded in England and Wales was 23·5 for the third quarter of 1951; the third quarter is usually lower than the average, but the 1951 figure of infant deaths was 0·7 a thousand below that for the third quarter of 1950.

TABLE V. INFANT MORTALITY (Deaths under One Year a 1,000 Live Births)

	1921-25 av.	1950		1921-25 av.	1950
Austria	136*	64	Spain	143	69
Belgium	100	59	Sweden	60	20
Bulgaria	156	130†	Switzerland	65	31
Czechoslovakia	155	82‡	United Kingdom	78	31
Denmark	82	31	Yugoslavia	151¶	132**
Finland	96	44	Argentina	116	79††
France	95	47	Canada	98	41
Germany	122	55§	Mexico	223*	107‡
Hungary	187	100‖	United States	74	29
Ireland	70	22	India	182	123‡
Italy	126	63	Japan	159	60
Netherlands	64	25	South Africa	73	36
Norway	52	28‡	Australia	58	24
Portugal	145	94	New Zealand	43	23
Rumania	201	199†			

* 1922-25 † 1947 ‡ 1949 § Western Germany ‖ 1948 ¶ 1926-30 ** 1939 †† 1946.



Reproduction Rates. Much research had been carried out on population prospects but the study of fertility, especially in western countries practising birth control, was very speculative. The most frequently used guide to future population trends was the net reproduction rate which set out to show the extent to which one generation of mothers of child-bearing age was reproducing itself. A net reproduction rate of unity indicated that births were occurring at a

TABLE VI. NET REPRODUCTION RATES

	Year	Rate		Year	Rate
England and Wales	1935-39	0·788*	Belgium	1939	0·859
	1950†	0·980*		1948	0·996
Scotland	1935-39	0·918	Denmark	1935-39	0·950
	1947	1·346		1947	1·269
Canada	1935-39	1·154	France	1935-39	0·896
	1945	1·330		1947	1·310
United States	1935-39	0·978	Netherlands	1935-39	1·146
	1948	1·462		1949	1·429
Chile	1935-39	1·164	Norway	1935-39	0·789
	1943	1·175		1948	1·126
Australia	1935-39	0·978	Sweden	1935-39	0·782
	1948	1·326		1947	1·133
New Zealand	1936-39	1·018	Switzerland	1936-39	0·779
	1948	1·537		1946	1·158

* Effective reproduction rates † provisional.

rate just sufficient to replace the previous generation. In the countries shown in Table VI, except Belgium and England and Wales, recent figures were above unity compared with a deficiency in most of them before World War II. In England and Wales, the effective reproduction rate was a more common measure than the net reproduction rate, making allowance for the fact that mortality rates would probably continue to decline. This rate exceeded unity for the first time in a generation in 1946 and continued to do so for the next three years but a slight deficiency occurred in 1950.

Migration. At the end of each decade between 1871 and 1931, the United Kingdom had a net loss through migration and for these 60 years the total net loss was nearly four million persons. But from 1931-39 it gained 507,000 and from 1939 to 1949 a further 195,000. In the postwar years 1946 to 1950, however, the trend of the 1930s was reversed and there was a net loss. There was a striking decline after 1948 in the numbers going from the United Kingdom to South Africa with corresponding increases to Australia and New Zealand. In 1950 less than half as many people emigrated to Canada as in 1948 but in the first half of 1951 there was an 85% increase over the first half of 1950.

TABLE VII. BRITISH EMIGRANTS FROM THE UNITED KINGDOM BY SEA (by countries of destination)

	Canada	Australia	New Zealand	South Africa	Southern Rhodesia	United States
1919-21*	88,618	23,090	10,274	10,939	—	63,692
1934-38*	2,568	4,563	1,500	4,995	—	1,934
1946	52,479	9,592	5,428	11,127	—	45,751
1947	22,960	13,012	5,918	26,142	—	18,555
1948	34,487	34,445	6,927	32,232	4,506	19,600
1949	22,848	53,107	9,324	11,463	3,916	16,237
1950	15,113	54,651	10,608	6,622	1,345	4,447
1951 (6 mo.)	14,818	33,162	4,238	3,655	2,380	10,151

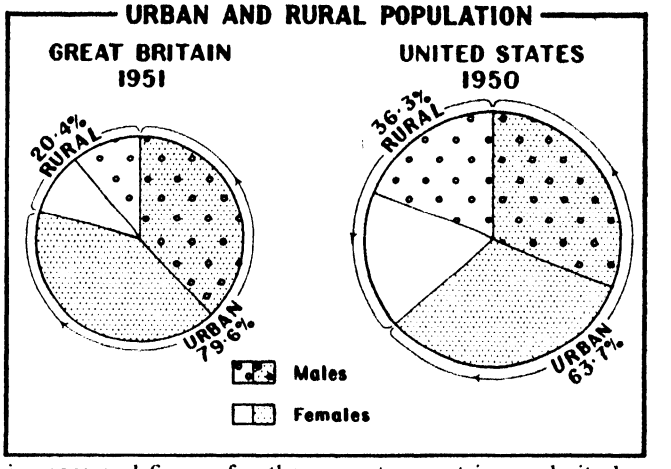
* annual average.

Population Trends. Estimates of world population put the total at 2,400 million in 1950 compared with 1,608 million at the turn of the century and 1,171 million 100 years ago. In nearly all western European countries the rate of growth of population declined considerably after 1900, the Netherlands being the only one in which rapid growth continued. In most of southern and eastern Europe the rate of expansion had not slackened much and in Asiatic countries it had accelerated. The United States was by the 1950s in a period of great growth; on April 1, 1950, the total was 151,132,000 while less than two years later, on Dec. 31, 1951, it was 155,800,000.

In April 1951 censuses of the population of the United Kingdom and the Republic of Ireland were taken for the first time for 20 years and preliminary reports were published a few months later. Increase of population in the 20 years 1931-51 was 9·0% for Great Britain and 9·1% for the United Kingdom. This rate was not uniform, however, among the different regions of the country, ranging from as little as 0·1% in Wales to 27·2% in the eastern regions of England. The southern regions also showed a high rate of

TABLE VIII. POPULATIONS, UNITED KINGDOM AND REPUBLIC OF IRELAND (thousands)

	1851	1901	1921	1931	1951
England	16,765	30,509	35,230	37,359	41,148
Wales	1,163	2,019	2,656	2,593	2,597
Scotland	2,889	4,472	4,882	4,843	5,096
Great Britain	20,816	37,000	42,769	44,795	48,841
Northern Ireland	1,443	1,237	1,258	1,243	1,370
Great Britain and Northern Ireland	22,259	38,237	44,027	46,038	50,210
Isle of Man and Channel Islands	143	150	151	143	158
Republic of Ireland	5,112	3,222	3,096	2,933	2,959
Total	27,514	41,609	47,274	49,114	53,327



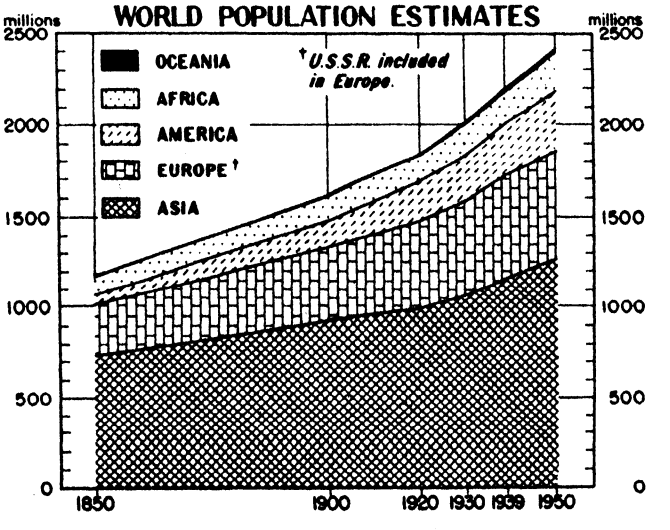
increase and figures for the separate countries made it clear that it was in the outermost fringes of London that the big expansion had taken place.

The most striking disclosure by the 1951 census was that, for the first time for more than 100 years, the proportion of the population of England and Wales living in rural areas had grown at the expense of the urban areas; in 1939, 82·4% of the population lived in urban areas while in 1951 the proportion had fallen to 80·7%. The report on the census commented that it was too soon to say whether this represented the beginning of a movement back on to the land or was a temporary phenomenon resulting from the war.

TABLE IX. NUMBER OF FEMALES TO 1,000 MALES, 1951

Counties with highest proportion of females		Counties with lowest proportion of females	
Sussex, East	1,280	Wiltshire	898
Sussex, West	1,234	Rutlandshire	916
Caernarvonshire	1,167	Lincolnshire (parts of Kesteven)	920
Surrey	1,157	Huntingdonshire	926
Isle of Wight	1,146	Shropshire	937
London	1,135	Suffolk, West	946
Cardiganshire	1,130	Brecknockshire	976
Somersetshire	1,125	Radnorshire	979
All urban areas	1,106		
All rural areas	983		
England and Wales	1,081		

From 1931 to 1939, Greater London grew from 8,216,000 to 8,728,000; by 1951 it had fallen to 8,346,000. The next largest British city in 1951 was Birmingham with a population of 1,112,000, taking precedence over Glasgow which had been the largest provincial city in 1931. Another interesting conclusion drawn from the census was that the ratio of females to males in England and Wales declined from 1,088 females to 1,000 males in 1931 to 1,081 in 1951. This ratio,



however, was still higher than at any census before 1921. Counties where men outnumbered women were almost wholly rural.

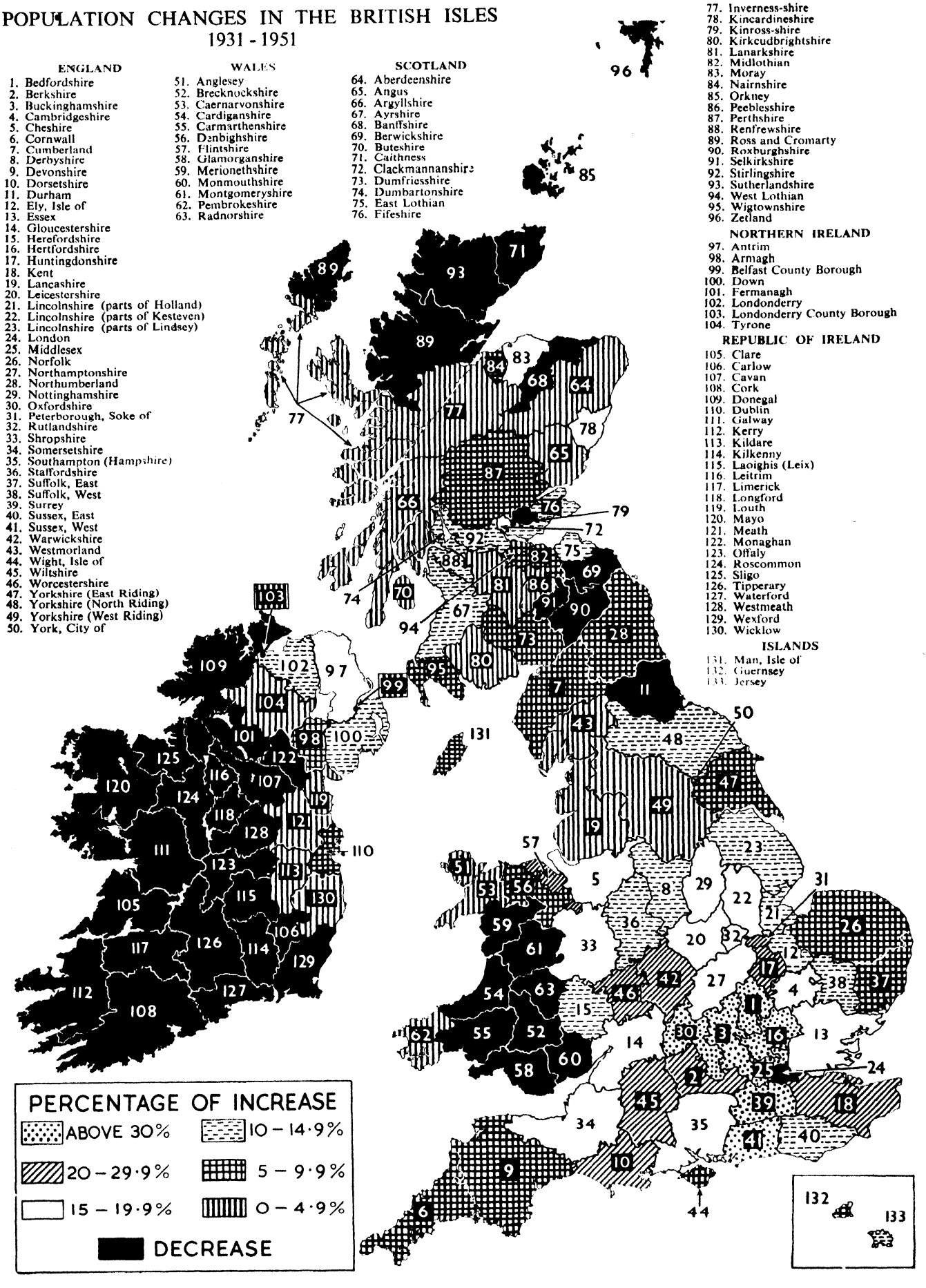
In contrast to the United Kingdom, the growth of rural population in the United States had been less than that of the urban population, and there had been a definite movement away from the farm. Between 1940 and 1950 when numbers in the United States increased by nearly 19 million, the rural population rose by 7·4%, the population inside cities by 11% and the population in the suburbs by 37%. By 1950, nearly two-thirds of the entire population was urban, still, of course, a much smaller proportion than in the United Kingdom. But there were 106 cities with more than 100,000 residents. It was Florida and the states west of the Rockies that had shown great gains. In giving out the 1950 census results, the United States Census bureau said that the centre of population of the country had moved 42 miles westward since 1940 to a point near the town of Olney, in Illinois. The first census estimate of the centre of population was in 1790 when it was 23 miles east of Baltimore. Since then there had been a consistent westward movement. (*See* also MARRIAGE AND DIVORCE.) (E. I. U.)

TABLE X. POPULATION OF COUNTIES AND URBAN AREAS WITH MORE THAN 15,000 PERSONS, UNITED KINGDOM AND REPUBLIC OF IRELAND

England

	1931	1951
Bedfordshire	220,525	311,844
Bedford	42,606	53,065
Dunstable	9,809	17,108
Luton	70,486	110,370
Berkshire	311,453	402,939
Maidenhead	22,588	27,125
Newbury	14,242	17,772
New Windsor	20,287	23,181
Reading	97,149	114,176
Buckingham-shire	271,423	386,164
Aylesbury	13,387	21,054
High Wycombe	29,626	40,692
Slough	33,612	66,439
Cambridgeshire	140,004	166,863
Cambridge	70,169	81,463
Cheshire	1,087,558	1,258,050
Altrincham	29,353	39,787
Bebington	31,877	47,742
Birkenhead	151,513	142,392
Bredbury and Romiley	11,690	17,810
Cheadle and Gatley	18,535	31,508
Chester	45,747	48,229
Congleton	14,666	15,492
Crewe	48,321	52,415
Dukinfield	19,385	18,445
Ellesmere Port	23,057	32,594
Hazel Grove and Bramhall	13,178	19,659
Hoylake	19,745	30,920
Hyde	32,313	31,498
Macclesfield	35,552	35,981
Northwich	20,827	17,480
Runcorn	22,587	23,933
Sale	28,071	43,167
Stalybridge	24,978	22,544
Stockport	126,362	141,662
Wallasey	98,361	101,331
Wilmslow	11,956	19,531
Wirral	9,599	17,362
Cornwall	317,968	345,612
Camborne-Redruth	36,151	35,829
Falmouth	15,220	17,036
Penzance	19,827	20,648
St. Austell	22,160	23,634
Cumberland	263,151	285,347
Carlisle	57,304	67,894
Whitehaven	23,254	24,624
Workington	28,263	28,882
Derbyshire	750,211	826,336
Alfreton	22,262	23,388
Belper	14,205	15,716
Buxton	16,884	19,556
Chesterfield	64,160	68,540
Derby	142,520	141,264
Glossop	20,001	18,014
Heanor	22,482	24,395
Ilkeston	33,164	33,674
Long Eaton	23,321	28,638
Matlock	16,596	17,770
Ripley	17,713	18,194
Staveley	17,845	17,941
Swadlincote District	20,604	20,909
Devonshire	732,968	798,283
Barnstaple	14,700	16,302
Exeter	67,607	75,479
Exmouth	14,591	17,232
Newton Abbot	15,010	16,392
Paignton	18,414	25,369
Plymouth	213,038	208,985
Torquay	46,352	53,216
Dorsetshire	239,352	291,157
Poole	60,196	82,958
Weymouth and Melcombe Regis	29,511	37,097
Durham	1,486,175	1,463,416
Billingham	19,282	23,944
Bishop Auckland	38,935	36,350
Blaydon	32,248	30,791
Bolden	16,900	16,692
Brandon and Byshottles	22,002	19,751
Chester-le-Street	16,633	18,539
Consett	37,961	39,456
Crook and Willington	31,098	27,606
Darlington	72,086	84,861
Durham	18,147	19,283
Felling	27,267	25,286
Gateshead	124,545	115,017
Hartlepool	20,638	17,217
Hebburn	24,119	23,163
Hetton	20,560	18,511
Houghton-le-Spring	30,241	30,676
Jarrow	35,747	28,541
Seaham	27,325	26,138
South Shields	113,185	106,605
Spennymoor	20,675	19,784
Stanley	55,287	48,123
Stockton on Tees	67,722	74,024
Sunderland	185,903	181,515
Washington	17,704	17,795
West Hartlepool	69,450	72,597
Whickham	21,529	23,116
Ely, Isle of	80,864	89,038
Wisbech	15,129	17,430
Essex	1,755,459	2,043,574
Barking	51,270	78,197
Benfleet	12,091	19,881
Billericay	27,454	43,352
Braintree and Bocking	13,497	17,480
Brentwood	23,694	29,898
Chelmsford	27,457	37,888
Chigwell	16,338	51,775
Chingford	22,076	48,330
Clacton	16,737	24,065
Colchester	49,131	57,436
Dagenham	89,362	114,588
East Ham	142,394	120,873
Hornchurch	39,389	104,128
Ilford	131,061	184,707
Leyton	128,313	105,183
Romford	37,840	87,991
Southend-on-Sea	129,783	151,830
Thurrock	61,898	81,634
Walthamstow	132,972	121,069
Wanstead and Woodford	43,129	61,620
West Ham	294,278	170,987
Gloucestershire	790,533	938,618
Bristol	403,948	442,281
Cheltenham	50,168	62,823
Gloucester	55,886	67,268
Kingswood	13,286	18,921
Mangotsfield	11,393	17,871
Stroud	13,253	15,977
Herefordshire	111,767	127,092
Hereford	24,163	32,490
Hertfordshire	401,206	609,735
Barnet	15,064	25,017
Cheshunt	14,656	23,016
East Barnet	18,549	40,414
Hemel Hempstead	16,151	23,523
Hitchin	14,374	19,959
Letchworth	14,722	20,321
Rickmansworth	11,529	24,518
St. Albans	30,726	44,106
Watford	58,533	73,072
Welwyn Garden City	8,712	18,296
Huntingdonshire	56,206	69,273
Kent	1,219,273	1,563,286
Ashford	22,099	24,777
Beckenham	50,429	74,834
Bexley	32,652	88,767
Broadstairs and St. Peter's	12,727	15,082
Bromley	47,698	64,178
Canterbury	25,109	27,778
Chatham	42,999	46,940
Chislehurst and Sidcup	27,156	83,837
Crayford	16,229	27,951
Dartford	28,871	40,544
Deal	19,665	24,276
Dover	41,281	35,217
Erith	32,779	46,263
Faversham	12,760	12,294
Folkestone	46,170	45,200
Gillingham	61,651	68,099
Gravesend	37,670	45,043
Herne Bay	14,533	18,298
Maidstone	44,877	54,026
Margate	40,307	42,487
Northfleet	16,223	18,803
Orpington	25,858	63,344
Penge	27,771	25,009
Ramsgate	34,422	35,748
Rochester	32,377	43,899
Royal Tunbridge Wells	35,839	38,397
Sheerness	16,833	15,727
Sittingbourne and Milton	20,177	21,904
Tonbridge	16,832	19,239
Whitstable	13,557	17,467
Lancashire	5,040,172	5,116,013
Accrington	42,991	40,671
Ashton in Makerfield	20,546	19,053
Ashton under Lyne	52,175	46,490
Atherton	19,989	20,591
Bacup	20,590	18,374
Barrow-in-Furness	66,202	67,473
Blackburn	122,791	111,217
Blackpool	106,095	147,131
Bolton	177,250	167,162
Bootle	76,800	74,302
Burnley	98,258	84,950
Bury	58,345	58,829
Chadderton	27,514	31,114
Chorley	30,951	32,626
Colne	23,918	20,674
Crosby	50,569	58,362
Darwen	36,012	30,827
Denton	17,384	25,612
Droylsden	13,340	26,365
Eccles	44,838	43,927
Failsworth	15,712	18,033
Farnworth	28,717	28,614
Fleetwood	23,001	27,525
Golborne	13,760	16,876
Heywood	26,727	25,193
Hindley	21,632	19,414
Horwich	15,680	15,552
Huyton with Roby	5,199	55,783
Ince in Makerfield	21,761	20,144
Irlam	12,901	15,063
Lancaster	43,649	51,650
Leigh	45,317	48,714
Litherland	15,959	22,197
Liverpool	856,072	789,532
Lytham St. Annes	25,764	30,298
Manchester	766,311	703,175
Middleton	29,183	32,602
Morecambe and Heysham	24,542	37,000
Nelson	38,277	34,368
Newton le Willows	20,152	21,862
Oldham	140,314	121,212
Ormskirk	17,118	20,554
Preston	119,665	119,243
Prestwich	23,881	34,387
Radcliffe	27,317	27,551
Rawtenstall	28,587	25,426
Rochdale	95,527	87,734
St. Helens	107,452	110,276

POPULATION CHANGES IN THE BRITISH ISLES
1931 - 1951



	1931	1951
Lancashire (cont.)		
Salford	223,438	178,036
Southport	78,925	84,057
Stretford	56,817	61,532
Swinton and Pendlebury	35,545	41,294
Thornton Cleveleys	10,292	15,437
Tyldesley	19,430	18,096
Urmston	21,875	39,233
Warrington	81,561	80,681
Westhoughton	16,018	15,002
Widnes	40,619	48,795
Wigan	85,357	84,546
Worsley	22,121	27,363
Leicestershire	541,635	630,893
Coalville	24,474	25,739
Hinckley	29,031	39,088
Leicester	257,718	285,061
Loughborough	29,194	34,731
Wigston	10,905	15,452
Lincolnshire (Parts of Holland)	92,126	101,545
Boston	22,109	24,453
Lincolnshire (Parts of Kesteven)	110,148	131,566
Grantham	19,711	23,405
Lincolnshire (Parts of Lindsey)	422,179	473,463
Cleethorpes	28,621	29,558
Gainsborough	18,689	17,509
Grimsby	92,458	94,527
Lincoln	66,243	69,412
Scunthorpe	33,761	54,245
London	4,397,003	3,348,336
Battersea	159,552	117,130
Bermondsey	111,542	60,661
Bethnal Green	108,194	58,374
Camberwell	251,294	179,727
Chelsea	59,031	50,912
City of London	10,999	5,268
Deptford	106,891	75,694
Finsbury	69,888	35,347
Fulham	150,928	122,047
Greenwich	100,924	91,492
Hackney	215,333	171,337
Hammersmith	135,523	119,317
Hampstead	88,947	95,073
Holborn	38,860	24,806
Islington	321,795	235,645
Kensington	180,677	168,054
Lambeth	296,147	230,105
Lewisham	219,953	227,551
Paddington	144,923	125,281
Poplar	155,089	73,544
St. Marylebone	97,627	75,764
St. Pancras	198,133	138,364
Shoreditch	97,042	44,885
Southwark	171,695	97,191
Stepney	225,238	98,581
Stoke Newington	51,208	49,137
Wandsworth	353,110	330,328
Westminster	129,579	98,895
Woolwich	146,881	147,824
Middlesex	1,638,728	2,268,776
Acton	70,008	67,424
Brentford and Chiswick	63,217	59,354
Ealing	116,771	187,306
Edmonton	77,658	104,244
Enfield	67,752	110,458
Feltham	16,066	44,830
Finchley	59,113	69,990
Friern Barnet	22,715	29,164
Harrow	96,656	219,463
Hayes and Harlington	22,969	65,608
Hendon	115,640	155,835
Heston and Isleworth	76,254	106,636
Hornsey	95,416	98,134
Potters Bar	5,720	17,163
Ruislip Northwood	16,035	68,274
Southall	38,839	55,900
Southgate	56,063	73,376
Staines	21,336	39,983
Sunbury on Thames	13,449	23,396
Tottenham	157,667	126,921
Twickenham	79,299	105,645
Uxbridge	31,887	55,944
Wembley	65,799	131,369
Willesden	185,025	179,647
Wood Green	54,308	52,224
Yiewsley and West Drayton	13,066	20,488
Norfolk	501,910	546,550
Great Yarmouth	56,771	51,105
King's Lynn	23,528	26,173
Norwich	126,236	121,226
Northamptonshire	309,474	359,550
Corby	1,596	16,704
Kettering	31,661	36,799
Northampton	96,546	104,429
Rushden	14,248	16,321
Wellingborough	25,417	28,220
Northumberland	756,782	798,175
Ashington	29,847	28,723
Bedlingtonshire	27,461	28,836
Blyth	32,026	34,742
Gosforth	18,239	24,424
Longbenton	20,674	28,071
Newburn	19,130	21,940
Newcastle upon Tyne	286,255	291,723
Seaton Valley	28,260	26,435
Tynemouth	65,919	66,544
Wallsend	44,587	48,645
Whitley Bay	25,890	32,257
Nottinghamshire	712,731	841,083
Arnold	14,325	21,474
Beeston and Stapleford	27,812	49,849
Carlton	26,425	34,248
East Retford	14,229	16,312
Hucknall	17,839	23,213
Kirby in Ashfield	17,866	20,131
Mansfield	46,068	51,343
Mansfield Woodhouse	13,721	17,819
Newark	19,535	22,909
Nottingham	276,189	306,008
Sutton in Ashfield	37,725	40,521
Worksop	26,285	31,038
Oxfordshire	209,784	275,765
Banbury	13,998	18,917
Oxford	80,539	98,675
Peterborough, Soke of	51,839	63,784
Peterborough	43,551	53,412
Rutlandshire	17,401	20,510
Shropshire	244,156	289,844
Shrewsbury	36,732	44,926
Wenlock	14,149	15,093
Somersetshire	470,292	551,188
Bath	68,815	79,275
Bridgewater	17,567	22,221
Taunton	25,417	33,613
Weston super Mare	31,706	40,165
Yeovil	19,077	23,337
Southampton (Hampshire)	1,014,316	1,196,617
Aldershot	34,280	36,184
Basingstoke	14,217	16,979
Bournemouth	116,803	144,726
Christchurch	11,444	20,506
Eastleigh	23,434	30,557
Fareham	21,817	42,470
Farnborough	19,532	27,702
Gosport	38,443	58,246
Havant and Waterloo	20,991	32,453
Lymington	15,430	22,674
Portsmouth	252,421	233,464
Southampton	176,007	178,326
Winchester	23,523	25,710
Staffordshire	1,433,919	1,621,013
Aldridge	14,446	29,167
Bilston	31,221	33,464
Brierley Hill	44,651	48,943
Brownhills	18,368	21,482
Burton upon Trent	49,529	49,169
Cannock	35,300	40,927
Coseley	25,137	34,414
Darlastan	20,053	22,024
Kidsgrove	14,940	16,231
Leek	19,442	19,358
Newcastle under Lyme	54,739	70,028
Rowley Regis	41,235	49,409
Sedgley	19,262	23,104
Smethwick	84,406	76,397
Stafford	30,851	40,275
Stoke on Trent	276,639	275,095
Tipton	35,814	39,382
Walsall	103,059	114,514
Wednesbury	31,531	34,758
Wednesfield	9,106	17,422
West Bromwich	81,303	87,985
Willenhall	26,421	30,695
Wolverhampton	138,631	162,669
Suffolk, East	294,977	321,849
Felixstowe	12,067	15,080
Ipswich	87,569	104,788
Lowestoft	44,049	42,837
Suffolk, West	106,137	120,590
Bury St. Edmunds	16,922	20,045
Surrey	1,180,878	1,601,555
Banstead	18,734	33,526
Barnes	42,440	40,558
Beddington and Wallington	26,328	32,751
Carshalton	28,586	62,804
Caterham and Warlingham	21,774	31,290
Chertsey	16,988	31,029
Coulsdon and Purley	39,795	63,770
Croydon	233,108	249,592
Dorking	15,204	20,252
Egham	17,196	24,515
Epsom and Ewell	35,231	68,049
Esher	32,407	51,217
Farnham	19,005	23,911
Frimley and Camberley	16,532	20,376
Guildford	34,237	47,484
Kingston upon Thames	39,825	40,168
Leatherhead	16,483	27,203
Malden and Coombe	23,350	45,559
Merton and Morden	41,227	74,602
Mitcham	56,872	67,273
Reigate	34,547	42,234
Richmond	39,276	41,945
Surbiton	30,178	60,675
Sutton and Cheam	48,363	80,664
Walton and Weybridge	25,658	38,091
Wimbledon	59,515	58,158
Woking	36,000	47,612
Sussex, East	546,864	618,083
Bexhill	21,229	25,668
Brighton	147,427	156,440
Cuckfield	11,812	16,481
Eastbourne	58,542	57,801
Hastings	66,191	65,506
Hove	54,993	69,435
Sussex, West	222,995	318,661
Bognor Regis	17,859	25,624
Chichester	14,902	19,110
Horsham	13,580	16,682
Worthing	46,552	69,375
Warwickshire	1,533,213	1,860,874
Bedworth	19,394	24,866
Birmingham	1,002,603	1,112,340
Coventry	178,126	258,211
Nuneaton	46,521	54,408
Royal Leamington Spa	29,669	36,345
Rugby	34,433	45,418
Solihull	25,372	67,977
Sutton Coldfield	29,928	47,590
Warwick	13,459	15,350
Westmorland	65,408	67,383
Kendal	16,316	18,543
Wight, Isle of	88,454	95,594
Cowes	16,022	17,154
Newport	18,864	20,426
Ryde	18,472	20,084
Wiltshire	303,193	387,379
Salisbury	26,460	32,910
Swindon	62,414	68,932
Worcestershire	420,056	522,974
Bromsgrove	21,465	27,924
Dudley	59,583	62,536
Halesowen	30,350	39,884
Kidderminster	29,521	37,423
Malvern	16,665	21,681
Oldbury	36,642	53,895
Redditch	22,207	29,184
Stourbridge	33,140	37,247
Worcester	51,686	59,700
Yorkshire (East Riding)	482,936	510,800
Beverley	14,012	15,499
Bridlington	20,194	24,767
Haltemprice	16,757	35,649
Kingston upon Hull	313,649	299,068
Yorkshire (North Riding)	466,766	525,496
Eston	31,341	33,315
Middlesbrough	138,960	147,336
Redcar	20,243	27,512
Scarborough	42,384	43,983
Thornaby on Tees	21,233	23,413
Yorkshire (West Riding)	3,352,411	3,480,066
Adwick le Street	20,257	18,808
Aireborough	20,432	27,533
Barnsley	73,877	75,625
Batley	41,777	40,192
Bentley with Arksey	16,451	19,826

	1931	1951
Yorkshire (cont.)		
Bingley	20,499	21,566
Bradford	298,692	292,394
Brighouse	30,404	30,587
Castleford	43,990	43,116
Colne Valley	24,395	22,184
Conisbrough	18,174	16,412
Dearne	24,981	24,253
Dewsbury	54,302	53,476
Doncaster	64,708	81,896
Elland	19,433	19,273
Goole	20,239	19,227
Halifax	98,115	98,376
Harrogate	43,758	50,454
Holmfirth	20,214	19,073
Hoyland Nether	15,296	15,707
Huddersfield	123,048	129,021
Ilkley	15,829	17,265
Keighley	56,537	56,938
Kirkburton	17,979	17,961
Leeds	482,827	504,954
Mexborough	19,083	18,965
Morley	39,625	39,783
Normanton	20,665	19,087
Pontefract	19,868	23,173
Pudsey	24,574	30,276
Rawmarsh	18,939	18,793
Rotherham	75,223	82,334
Rothwell	24,537	24,283
Saddleworth	17,408	16,762
Sheffield	518,257	512,834
Shipley	30,238	32,585
Sowerby Bridge	20,558	18,770
Spenborough	36,239	36,977
Stanley	15,799	16,672
Todmorden	22,266	19,072
Wakefield	59,305	60,380
Wombwell	18,345	18,837
York, City of	94,066	105,336
Wales (incl. Monmouthshire)		
Anglesey	49,029	50,637
Brecknockshire	57,775	56,484
Caernarvonshire	120,829	124,074
Llandudno	15,703	16,712
Cardiganshire	55,184	53,267
Carmarthenshire	179,100	171,742
Llanelly	38,416	34,329
Denbighshire	157,648	170,699
Colwyn Bay	20,823	22,276
Wrexham	23,639	30,962
Flintshire	112,889	145,108
Rhyl	13,485	18,745
Glamorganshire	1,229,065	1,201,989
Aberdare	48,746	40,916
Barry	38,925	40,979
Caerphilly	35,024	35,194
Cardiff	226,937	243,627
Gelligaer	41,043	36,159
Llwchwr	26,626	25,737
Maesteg	25,570	23,124
Merthyr Tydfil	71,108	61,093
Mountain Ash	38,386	31,528
Neath	33,340	32,305
Ogmore and Garw	26,981	22,638
Penarth	17,719	18,528
Pontypridd	42,717	38,622
Port Talbot	40,678	44,024
Rhondda	141,346	111,357
Swansea	164,797	160,832
Merionethshire	43,201	41,456
Monmouthshire	431,610	424,647
Abercarn	20,726	18,757
Abertillery	31,755	27,617
Bedwellty	30,970	28,826
Ebbw Vale	31,686	29,205
Newport	98,447	105,285
Pontypool	43,910	42,683
Tredegar	23,192	20,375
Montgomeryshire	48,473	45,989
Pembrokeshire	87,206	90,896
Radnorshire	21,323	19,998
Scotland		
Aberdeenshire	300,436	308,055
Aberdeen	169,803	182,714
Angus	270,190	274,870
Arbroath	17,701	19,503
Dundee	177,179	177,333
Argyllshire	63,050	63,270
Ayrshire	285,217	321,184
Ayr	38,905	43,011
Kilmarnock	38,681	42,120
Banffshire	54,907	50,135
Berwickshire	26,612	25,060
Buteshire	18,823	19,285
Caithness	25,656	22,705
Clackmannanshire	31,948	37,528
Dumfriesshire	81,220	85,656
Dumfries	23,013	26,320
Dumbartonshire	146,723	164,263
Clydebank	47,033	44,625
Dumbarton	21,764	23,703
East Lothian	47,338	52,240
Fife County	276,368	306,855
Buckhaven and Methil	18,150	20,154
Dunfermline	35,058	44,710
Kirkcaldy	44,745	49,037
Inverness-shire	82,108	84,924
Inverness	23,550	28,115
Kincardineshire	39,865	47,341
Kinross-shire	7,454	7,418
Kirkcudbrightshire	30,168	30,742
Lanarkshire	1,587,663	1,614,125
Airdrie	26,734	30,308
Coatbridge	43,513	47,538
Glasgow	1,093,337	1,089,555
Hamilton	38,112	40,173
Motherwell and Wishaw	65,611	68,137
Rutherglen	25,182	24,225
Midlothian	526,296	565,746
Edinburgh	439,010	466,770
Musselburgh	17,007	17,012
Moray	40,806	48,211
Nairnshire	8,294	8,719
Orkney	22,077	21,258
Peebleshire	15,051	15,226
Perthshire	120,793	128,072
Perth	35,060	40,466
Renfrewshire	287,991	324,652
Greenock	79,012	76,299
Johnstone	13,182	15,661
Paisley	88,384	93,704
Port Glasgow	21,612	19,826
Renfrew	17,093	15,012
Ross and Cromarty	62,799	60,503
Roxburghshire	45,685	45,562
Hawick	17,109	16,718
Selkirkshire	22,711	21,724
Stirlingshire	166,447	187,432
Falkirk	36,566	37,528
Grangemouth	12,282	15,305
Stirling	24,547	26,960
Sutherlandshire	16,101	13,664
West Lothian	81,431	88,576
Wigtownshire	29,331	31,625
Zetland (Shetland)	21,421	19,343
Channel Islands and Isle of Man		
Guernsey and Dependencies	42,743	45,480
Guernsey	40,588	43,547
St. Peter Port	16,720	16,799
Jersey	50,455	57,296
St. Helier	25,820	25,360
Isle of Man	49,308	55,499
Douglas	19,328	20,288

Northern Ireland	1937	1951
Antrim	197,266	231,099
Armagh	108,815	114,226
Belfast Co. Borough	438,086	443,670
Down	210,687	241,105
Fermanagh	54,569	53,040
Londonderry (excl. Co. Borough)	94,923	105,421
Londonderry Co. Borough	47,813	50,099
Tyrone	127,586	132,049

Republic of Ireland (Provinces, counties and urban areas)	1946	1951
Leinster	1,280,219	1,334,754
Carlow	34,452	34,168
Dublin (incl. Co. Borough)	635,876	691,428
Co. Borough	506,635	521,322
Dun Laoghaire	44,689	47,963
Kildare	64,834	66,426
Kilkenny	66,683	65,133
Laoighis (Leix)	49,634	48,423
Longford	36,221	34,567
Louth	66,135	68,747
Drogheda	15,709	16,773
Dundalk	18,546	19,661
Meath	66,220	66,343
Offaly	53,644	52,555
Westmeath	54,880	54,471
Wexford	91,704	89,993
Wicklow	60,340	62,500
Munster	916,750	898,861
Clare	85,071	81,350
Cork (incl. Co. Borough)	343,243	341,229
Co. Borough	75,361	74,577
Kerry	133,818	126,622
Limerick (incl. Co. Borough)	142,480	141,251
Co. Borough	42,987	50,823
Tipperary	135,981	133,347
Waterford incl. Co. Borough)	76,157	75,062
Co. Borough	28,332	28,689
Connacht (Connaught)	492,816	471,978
Galway	165,196	160,124
Galway	20,437	21,271
Leitrim	44,578	41,309
Mayo	148,200	141,896
Roscommon	72,511	68,128
Sligo	62,331	60,521
Ulster (part of)	263,667	253,285
Cavan	70,323	66,412
Donegal	136,136	131,511
Monaghan	57,208	55,362

VITAMINS: *see* NUTRITION.

VOCATIONAL EDUCATION. Exchange schemes for the broadening of experience continued to increase in 1951 under the impact of the universal demand for better qualified technicians and technologists. Two notable developments were the award of the first 38 Athlone fellowships enabling outstanding Canadian engineering students to study for two years in British universities and industrial concerns, and the offer of certain West German industries to train 250 Indian apprentices. West German technological institutes also placed 50 free studentships at the disposal of the Indian government. The International Association for the Exchange of Students for Technical Experience announced that 22 British universities and colleges were co-operating in its work, and that 2,433 students were exchanged during the year compared with 1,672 in 1950.

In September a white paper on "Higher Technological Education" announced the British government's decisions on the recommendations made ten months earlier by the National Advisory Council on Education for Industry and Commerce. They included the establishment by royal charter of a college of technologists to grant awards of associateship and approve courses for this purpose, and a gradual increase in postgraduate courses at universities in engineering, metallurgy, mining and textiles. Decision was deferred on proposals for a full-size technological university. A serious scarcity of properly trained apprentices was foreshadowed in a report of the Building Apprenticeship and Training council issued in August.

Notwithstanding the country's stringent financial situation,

work began on new technical colleges, notably at Dartford, Kent, and at Epsom and Ewell, Surrey, where plans provided for a combined technical college, school of art and county college at a cost of £900,000. The Ministry of Education announced the allocation of £200,000 for 1952-53 for the proposed College of Ceramics and Pottery in north Staffordshire, and the nationalized railways decided to build an apprentices' training school at Crewe to supply 270 apprentices a year. Royal interest in technical education was typified in May by Princess Margaret's laying the foundation stone of new buildings for the Birmingham College of Technology, Commerce and Art, and by the election of the Duke of Edinburgh in September as president of the City and Guilds institute, a pioneer in the promotion of technical education since 1878. In Northern Ireland, the ministry's report for 1948-49 commented that instruction for agriculture and the linen industry was inadequate.

It was announced in May that the Colonial Development Welfare fund was contributing £150,000 and the government of Uganda £100,000 towards a technical college in Nairobi for training young men of all races in engineering and commercial subjects and girls in domestic science. The Kumasi (Gold Coast) College of Technology opened in October with accommodation for 300 students.

In January the first college for Slovak miners opened at Piestany, Czechoslovakia. The Hungarian Institute for Higher Training of Engineers began, in February, its courses geared to the five-year plan, and Polish state schools for industrial training started courses in March to enable trainees, even without primary education, to work in coal mines after only six months' instruction. In many Rumanian towns, vocational schools were set up giving a year's residential course for disabled persons aged 16-40. The number of Yugoslav secondary technical schools was given as 400 in January, and the organization "Popular Mechanics," training people for industry and the army, claimed a membership of 400,000. (H. C. D.; L. WN.)

WAGES AND HOURS. The rises in retail prices during 1951, caused mainly by the sharp increase in world prices of raw materials and certain foodstuffs and by the inflationary effects of rearmament superimposed on conditions of full employment, led to widespread demands for higher wages in many countries. By the middle of 1951 general consumer prices in France were 29% above those of 1949, in Norway 24%, in Sweden 19% and in Great Britain 13%. These increases hit especially persons living on fixed incomes and workers paid by time who were unable to increase their earnings by working longer hours. Average hours worked showed some tendency to rise: in France from 44½ a week in 1949 to 45 in 1950 and to 45·2 in the early months of 1951; in Great Britain from 45½ in 1949 to well over 46. In most of the countries affected, the trade unions made special claims for increases in the wages paid to the lowest-paid groups of workers, including those in the public services, whose earnings had tended to lag seriously behind. But these increases also provoked protests from the more skilled workers, who complained, especially in time-week occupations, that their differentials were being reduced to a point seriously prejudicial to recruitment and training for skilled trades. There was a drift of juvenile and even of adult skilled labour from such industries as the railways to the engineering and electrical trades, where piecework and other incentive payments were more generally to be had. In France, governments faced by huge budget deficits and by a threatening inflationary situation were forced to grant wage advances by the combined pressure of all sections of the trade union movement; but real wages continued to lag and considerable hardships were experienced. Italy suffered from the same problem and so to a smaller extent did Western Germany. In Great Britain the policy of wage restraint, which had been repudiated by the Trades Union congress in 1950, definitely came to an end, and substantial increases were given to a number of trades. Compulsory arbitration, however, remained in force up to Aug. 1951 when it was given up (*see* TRADE UNIONS); and the National Arbitration tribunal was able to exert a moderating influence. It was still too soon to say what would be the effects of restoring the freedom to strike; but the Trades Union congress of Sept. 1951 made clear the feeling of the majority of the trade union leaders that the government should be pressed to take measures to counteract the rise in prices and that only moderate wage demands should be put forward until there had been time for the effects of such a policy to be seen.

For Great Britain, the general figures of earnings for April 1951, which exclude coal-mining, railways, agriculture and most non-manual occupations, showed average weekly earnings of 160*s.* 2*d.* for men, 87*s.* 4*d.* for women, 66*s.* 11*d.* for boys and youths under 21 and 55*s.* 11*d.* for girls under 18. A year previously the comparable averages had been 145*s.* 9*d.*, 80*s.* 6*d.*, 61*s.* 5*d.* and 51*s.* 10*d.* The overall average for all workers covered by the returns was 136*s.* 2*d.* in April 1951, and 124*s.* 1*d.* a year previously. For 1938 the averages were: men 69*s.*, women 32*s.* 6*d.*, youths and boys 26*s.* 1*d.* and girls 18*s.* 6*d.* The percentage increases over these figures in April 1951 were 132, 169, 157 and 202. Adult men's earnings had risen much less than any of the others. Average hours worked were as follows:

TABLE I. AVERAGE HOURS WORKED IN GREAT BRITAIN

	Men	Women	Youths	Girls
1938	47·7	43·5	46·2	44·6
1950	47·0	41·9	44·2	42·5
1951	47·9	42·0	44·5	42·7

The highest average earnings for men in April 1951 were in metal manufacture (179*s.* 3*d.*), vehicle trades (172*s.* 3*d.*), paper and printing (171*s.* 3*d.*) and engineering and other metal trades (about 166*s.*). The lowest were in national and local government industrial services (126*s.* 2*d.*), food, drink and tobacco (144*s.* 10*d.*), transport, excluding railways (151*s.* 2*d.*) and public utility services (151*s.* 6*d.*). For women, the highest earnings were in transport (110*s.* 11*d.*), vehicles (95*s.* 7*d.*) and textiles (91*s.* 10*d.*); and the lowest in government industrial services (76*s.* 8*d.*) and food, drink and tobacco (80*s.* 3*d.*)—excluding building, in which few women were employed. For coal mines the average earnings (including juveniles) were 33*s.* 7*d.* a shift, and the average weekly wage for men only was 209*s.* 8*d.*, as against 186*s.* 10*d.* a year previously. In agriculture the average for the half-year from Oct. 1950 to March 1951 was 115*s.* 7½*d.* for men, 77*s.* 11*d.* for women and girls and 74*s.* 10*d.* for youths under 21.

In France, average hourly rates of wages (not earnings) in March 1951 were, for men Fr. 97·20, for women Fr. 85·50 and for both sexes Fr. 93·90. In Australia, at the same date, adult men earned on an average £11 6*s.* 8*d.* a week, and the weekly rate for women averaged 144*s.* 1*d.* In Western Germany weekly earnings in manufacturing industries averaged for men DM. 73·80 and for women DM. 43·50. In Sweden, the hourly earnings averaged Kr. 2·60 for men and Kr. 1·85 for women. In Norway the men's hourly average was Kr. 3·50. Comparable figures distinguishing the sexes were not available for other countries. For men and women together, weekly earnings in manufacturing trades averaged $64·6 in the United States and $50 in Canada. The figures for June 1951 were higher—for the United States $65·30 and for Canada $51·60.

Figures for average weekly hours worked were as follows:

TABLE II. AVERAGE WEEKLY HOURS IN NINE COUNTRIES

	Men and Women	Date
United States	41·1	March 1951
Japan	49·5	" "
France	45·2	" "
Australia	40·0	Dec. 1950
Canada	42·2	March 1951
Finland	45·2	Sept. 1950
Germany (Western)	49·1	" "
Switzerland	47·8	March 1951
Great Britain	46·3	April 1951

The white paper on the *National Income and Expenditure of the United Kingdom, 1946 to 1950* (Cmd. 8203, H.M.S.O., London, April 1951) showed for 1950 a total wages bill of £4,470 million and a salaries bill of £2,500 million, out of a gross national income of £11,196 million. The comparative figures for 1949 were £4,230 million, £2,350 million and £10,439 million. For 1938 the comparative figures were £1,735 million, £1,110 million and £4,553 million. The share going to wages was 38% in 1938, 40·5% in 1949 and 40·2% in 1950.

The question of equal pay for men and women was much discussed in 1951. The International Confederation of Free Trade Unions pronounced in favour of the principle and pressed the matter before the International Labour organization. In Great Britain, the Trades Union congress, which had demanded action by the government in 1950, reiterated its demand in 1951, after the government had declared that it was favourable in principle but considered the time inopportune for immediate action. The civil service unions strongly pressed for equal pay in the public services, or at the least for an approach to it by stages; but the government argued that, in view of the danger of inflation, action would have to be deferred. The French minimum wage provisions introduced late in 1950 laid down a common series of minimum rates for regional areas irrespective of sex; but these applied only to the lowest-paid groups. (G. D. H. C.)

United States. Manufacturing industries' pay rolls in the U.S. during Sept. 1951 reached a dollar level 4·4 times that of 1939. This represented a gain of 14% over 1950, and compared with an increase in manufacturing employment of 2·5% for the year. The postwar upward progress in real wages continued during 1951, although the peak of 148·8 (based on 1939 averages) was reached in Dec. 1950. Average real wages for the first 10 months of 1951 exceeded the 1950 figures by 1·7%.

The building construction industry continued to enjoy the highest average weekly earnings ($85·52). The greatest comparative increase in average weekly earnings was one of 13·3% in both metalliferous mining and bituminous coal mining. The lowest average pay was made to hotel employees ($35·90), not including tips, board, room or uniforms. For manufacturing as a whole, average weekly earnings increased by 8·1% over 1950, as compared with a 10·3% gain in the previous year.

In Sept. 1951, 71% of the industries shown in Table III paid average weekly earnings of over $60. This compared with 67·7% in 1950. About 42% of the industries paid average weekly earnings exceeding $70, as compared with 19·4% in Sept. 1950. The highest average hourly earnings occurred in bituminous coal mining ($2·239), followed closely by a rate of $2·233 in building construction. Proportionately, the greatest gain in hourly rates was one of 12·7% in the telegraph industry, followed by an 11·7% average hourly increase in anthracite coal mining. The lowest dollar rate paid was $·831 in hotels. For manufacturing as a whole, average hourly earnings were 9·0% above those for Sept. 1950. The Sept. 1951 average hourly rate for common labour was $1·637, as compared with $1·561 in 1950 and $·47 in 1941. There was a strengthening in farm wages from $·66 per hour (not including room and board) in 1950 to $·73 in Sept. 1951.

The steady increase in average weekly earnings throughout the postwar period continued in 1951 as did the steady upward trend in the cost of living. These two factors, as well as the observed rise in hourly wage rates, clearly indicate the strong inflationary pressures which remained in the economy. (*See* also PRICES; WEALTH AND INCOME, DISTRIBUTION OF.) (D. J. H.)

TABLE III. AVERAGE WEEKLY EARNINGS AND HOURS WORKED IN THE UNITED STATES, SEPT. 1951, AS COMPARED WITH SEPT. 1950

Industry	Av. weekly earnings September		Av. weekly hours September		Av. earnings per hour September	
	1951	1950	1951	1950	1951	1950
All Manufacturing	$65·45	$60·54	40·6	41·0	$1·612	$1·479
Durable goods	70·84	65·14	41·6	41·7	1·703	1·562
Non-durable goods	58·75	55·30	39·4	40·1	1·491	1·379
Iron and Steel	78·30	69·30	40·8	40·2	1·919	1·724
Electrical machinery	68·35	61·48	41·6	41·4	1·643	1·485
Non-electrical machinery	77·29	68·94	43·3	42·4	1·785	1·626
Transportation equipment	77·62	72·39	41·2	40·9	1·884	1·770
Automobiles	77·92	73·81	40·0	40·6	1·948	1·818
Non-ferrous metals	69·49	64·44	40·9	41·2	1·699	1·564
Lumber and wood products	60·56	57·84	40·4	41·2	1·499	1·404
Furniture and fixtures	58·46	55·42	41·2	42·6	1·419	1·301
Stone, clay and glass	65·13	60·88	41·3	41·5	1·577	1·467
Textile-mill products	48·89	49·98	36·9	40·7	1·325	1·228
Apparel, etc.	46·05	43·09	35·7	35·7	1·290	1·207
Leather and leather products	45·99	45·72	35·9	38·1	1·281	1·200
Food and food products	61·94	56·36	42·6	42·0	1·454	1·342
Tobacco manufactures	44·60	42·02	39·4	39·2	1·132	1·072
Paper and allied products	65·40	63·10	42·8	44·0	1·528	1·434
Printing and publishing	77·85	74·48	39·3	39·2	1·981	1·900
Chemicals and allied products	68·39	64·16	41·7	41·8	1·640	1·535
Products of coal and petroleum	83·21	76·77	41·5	41·7	2·005	1·841
Rubber products	70·36	66·58	41·0	41·9	1·716	1·589
Miscellaneous manufacturing industries	57·51	64·04	40·5	41·2	1·420	1·331
Non-Manufacturing						
Coal mining						
Anthracite	60·72	68·45	27·4	34·5	2·216	1·984
Bituminous	81·50	71·92	36·4	35·5	2·239	2·026
Metalliferous mining	75·25	66·38	43·6	42·2	1·726	1·573
Street railways and buses	72·96	67·42	46·0	45·1	1·586	1·495
Telephone	59·97	55·80	39·4	39·6	1·522	1·409
Telegraph	72·33	64·49	44·4	44·6	1·629	1·446
Gas and electric utilities	73·13	67·35	42·2	41·6	1·733	1·619
Wholesale trade	65·56	60·93	41·0	40·7	1·599	1·497
General merchandise stores	37·02	36·11	35·8	36·4	1·034	·992
Hotels	35·90	34·30	43·2	43·8	·831	·783
Building construction	85·52	75·86	38·3	36·7	2·233	2·067

SOURCE. *Survey of Current Business*, U.S. Department of Commerce.

WAKE ISLAND: *see* PACIFIC ISLANDS, U.S.

WALES. Principality forming part of Great Britain. Area (including Monmouthshire): 8,012 sq.mi. Pop.:(1931 census) 2,032,043; (1951 census) 2,026,149; decrease 5,894 (0·3%).

When forming his new Conservative government after the October election, Winston Churchill selected a member of his cabinet, Sir David Maxwell Fyfe, the home secretary, as minister to be specially responsible for Welsh affairs. The appointment of a Scot to answer for Wales in parliament aroused considerable Welsh criticism even from Conservatives; but this was mollified when David Llewellyn, member of parliament for Cardiff North, was selected as under secretary to the Home Office specifically to help the minister in Welsh matters, and E. H. Garner Evans, National Liberal

member of parliament for Denbighshire, was appointed parliamentary private secretary to the Home Office.

In a special message to Wales Sir David Maxwell Fyfe said that the aim of the new administration would be to maintain full employment in Wales, to improve rural conditions, to foster Welsh culture and to loosen control of Wales from London.

Features of the election in Wales were the eclipse of the Liberals and the defeat of Lady Megan Lloyd George in Anglesey which she had represented in parliament for 22 years; the capture by the Conservatives of two seats from Socialists at Conway and Barry; and the forfeiture of their deposits by all four Welsh Nationalist candidates.

Polling in Wales resulted in the Socialists totalling 926,118 votes, Conservatives 451,000, Liberals 116,826, National Liberals 20,269, Welsh Nationalists 10,290 and Communists 2,948. The distribution of Welsh seats was: Socialists 27, Conservatives 5, Liberal 3, National Liberal 1.

During the year the non-party New Wales union launched a campaign in favour of a parliament for Wales within the British constitution. Public meetings were held at Caernarvon, Rhyl, Swansea and Cardiff and also at Llanrwst during the National Eisteddfod. Later county committees began to organize door-to-door campaigns to secure signatures for a petition to the government.

Having examined the claims of Cardiff, Caernarvon, Aberystwyth and Llandrindod, the Council for Wales, through its chairman, H. T. Edwards, declared it was satisfied that Cardiff was worthy to be regarded as the capital and should be so recognized. The government was informed of this opinion but no government statement or action resulted.

During the year unemployment in Wales fell to its lowest level since records had been kept, a total of less than 20,000. In the coal-mining industry there was again a small increase in total output compared with the previous year, though after a slight fillip at the beginning of 1951 manpower declined despite recruitment of foreign workers.

In July the climax of four years' constructional work by thousands of men was reached when the chancellor of the exchequer, Hugh Gaitskell, opened the £70 million steel-strip plant, then the most up-to-date works of its kind in the world, at Port Talbot (Glamorgan).

Four leading companies pooled their plans and resources and formed the Steel Company of Wales to make this enterprise possible. The plant when in full production would employ 8,400 men and turn out 3,500 tons of rails and 22,800 tons of steel strip and plate each week. The development was expected to restore the supremacy of Welsh tinplates in the world markets. Early in 1952 a modern cold-rolling plant at Llanelly would begin to convert 7,000 tons a week of Port Talbot strip into tinplates.

Over 100 firms from Wales, a record number, exhibited their products at the British Industries Fair. An example of the expansion of new industries in Wales since the war was that 35 toy-making firms in south Wales employed 3,000 workers and exported toys to all parts of the world.

Although the total number of workers on the land had declined by about 4%, advances were still made in some branches of agriculture in Wales. There was a large increase in the number of pigs, the highest total since 1940 being attained. Sheep population increased slightly. Acreage of crops was reduced.

Welsh hill farmers continued to avail themselves of government grants to improve their land and building and a total of 904 schemes had now been approved. In Merioneth a farmer's co-operative creamery returned over £40,000 to its shareholders in dividends in four years and dealt with 6,000 gal. of milk daily. The rural population of that county increased in recent years because of such schemes.

Forestry developments continued, south Wales alone providing 20,000 tons of pit props for its own coalfield. But both the forestry commissioners and the War Office met increasing opposition to their claims on agricultural land in Merioneth, south Caernarvonshire and Breconshire.

Wales was prominent in Festival of Britain celebrations. Its established festivals, the National Eisteddfod, at Llanrwst, and the International Music Eisteddfod at Llangollen, attracted record attendances and special festivals at the ancient St. David's cathedral and the Welsh Folk museum at St. Fagans (Glamorgan) appealed to a new public. A festival challenge to rural Wales was a special improvements scheme for three farmhouses and land at Dolhendre, Merioneth. The Olympic games festival of the Welsh National League of Youth was revived at Cardiff after 12 years.

The Honourable Society of Cymmrodorion, launched in London in 1751, was granted a royal charter. Princess Elizabeth attended the bicentenary banquet of the society in London on Dec. 13 and presented the charter.

(J. C. G. J.)

WALTON, ERNEST THOMAS SINTON, Irish physicist (b. Dungarran, County Waterford, Ireland, Oct. 6, 1903), was educated at Banbridge (Co. Down) and Cookstown (Co. Tyrone) academies and at the Methodist college, Belfast. In 1922 he entered Trinity college, Dublin (of which he was later a fellow from 1934), and in 1927 went on to Trinity college, Cambridge, where he worked with Sir John Douglas Cockcroft (*q.v.*) under Lord Rutherford at the Cavendish laboratory. He held successively an 1851 Overseas Research scholarship (1927-30), the senior research award of the Department of Scientific and Industrial Research (1930-34) and the Clark Maxwell scholarship (1932-34). From 1946 he was Erasmus Smith's professor of natural and experimental philosophy in the University of Dublin. On Nov. 15, 1951, the Royal Swedish Academy of Sciences announced that the Nobel prize for physics had been awarded jointly to Walton and Cockcroft for their fundamental work on "the transmutation of atomic nuclei by artificially accelerated atomic particles."

WALTON, SIR WILLIAM TURNER, British composer (b. Oldham, Lancashire, March 29, 1902), was educated at the Cathedral Choir school and at Christ Church, Oxford, of which he was elected an honorary student (fellow) in 1947. At first he was instructed in music by his father but from the age of 16 was mainly self-taught, apart from a period of study under Sir Hugh Allen and help from Ernest Ansermet and Ferruccio Busoni. Walton first emerged as an important composer in 1923 when the International Society for Contemporary Music chose his *String Quartet* (1922) for performance at the Salzburg festival. In 1923 he also wrote the music for Edith Sitwell's *Façade*, a cycle of poems intended for declamation with a megaphone through a curtain painted to represent a mask; this music, scored for trumpet, flute, clarinet, saxophone, violoncello and percussion, was later arranged by Walton as an orchestral suite, in which form it was used as an interlude by the Diaghilev ballet in 1926. In 1924 Walton received the Carnegie trust's publication award for his early *String Quartet* (1918). The overture *Portsmouth Point* (1925) was the first of his works to achieve wide popularity; it, too, was chosen for the I.S.C.M. award and was performed at the 1926 Zürich festival. Like *Façade*, *Portsmouth Point* was made into a ballet. However, it was the *Viola Concerto* of 1929 which established him as a composer of the rank of Elgar and Vaughan Williams. Other works of this early period were *Siesta* (1926), written for chamber orchestra in a consciously Spanish style, and *Sinfonia Concertante* for piano and orchestra (1928). Among

his more important later works were the cantata *Belshazzar's Feast* (1931), the *Symphony* (1935), the *Violin Concerto* (commissioned by Jascha Heifitz, 1939), the *Quartet* of 1947 and the *Sonata for Violin and Pianoforte* (1949). Walton also composed a march, *Crown Imperial* (1937), for the coronation of King George VI, and music for several films, including Sir Laurence Olivier's *Henry V* (1945) and *Hamlet* (1948). In 1947 the British Broadcasting corporation commissioned an opera from him; this was still unfinished at the end of 1951. In the 1951 New Year Honours he was knighted. During the 1951 Henry Wood Promenade season, several of Walton's works, including *Belshazzar's Feast*, the *Violin Concerto* and the *Symphony* were performed. William Primrose played the *Viola Concerto* at a concert at the Manchester Free Trade hall on Nov. 17, celebrating the hall's restoration, and *Belshazzar's Feast* was repeated at the Royal Festival hall, London, on Nov. 22. Walton's music is characterized by dynamically forceful orchestration with an underlying element of romantic melancholy.

WAR PENSIONS. Great Britain. It was estimated that by the end of 1951 there were in Great Britain some 706,000 war-disabled ex-servicemen, including mercantile marine personnel, civil defence workers and civilians wounded in war operations. The proportion of war disabled of World War I to those of World War II was 3 to 4 and the total expenditure in 1950-51 was £85,564,460. The basic pension for a totally disabled ex-serviceman remained at 45*s.* a week, only 5*s.* more than in 1919. In view of the decreased purchasing value of the pound and the corresponding increases of wages and salaries, the readjustment of war pensions was long overdue. In mid-November 1951 the British Legion launched a campaign to secure an increase in the basic rate for 100% disability from 45*s.* to 90*s.* with *pro rata* increases for lower assessments. It was estimated that the cost of such an adjustment would amount to £32 million a year.

Commonwealth. Increases for disabled ex-servicemen of the world wars announced in the Canadian House of Commons on Nov. 16 by Hugues Lapointe, minister of veterans' affairs, were to come into force on Jan. 1, 1952. The new rates were higher than those elsewhere in the British Commonwealth and, except for single ex-servicemen, higher than in the United States. The basic pension for 100% disability for a private was C.$ 125 a month (or £9 6*s.* 8*d.* a week).

In New Zealand Thomas Lachlan Macdonald, minister of defence and war pensions, announced on June 1, 1951 an increase of 5*s.* a week in the basic rate of war pensions. The new rate, payable from Feb. 15, 1951, amounted to £2 17*s.* 6*d.* and followed the recommendations of an inquiry commission set up in 1950 at the request of the Returned Services association and other bodies.

France. The National Assembly approved in May 1951 a budget of Fr. 45,300 million (£46·2 million) for some 1,120,000 war pensioners, including 835,000 disabled of World War I, and increased war pensions in three stages during the year: compared with its amount on Dec. 31, 1950, a pension was increased by 5% from March 1, by 12·5% from July 1 and another 12·5% from Dec. 25. The Finance act of May 24, 1951, also stipulated that in future war pensions would be increased proportionately to increases in salaries of civil servants. Accordingly, by a decree of Nov. 13, the government increased all war pensions by 13%. The basic yearly pension of a 100% disabled private was Fr. 2,400 (£68 12*s.* or 26*s.* 3*d.* a week) in 1919 and Fr. 170,392 (£173 16*s.* or 63*s.* 5*d.* a week) in Dec. 1951.

The ex-serviceman's gratuity or *retraite du combattant* remained at the 1930 basis of Fr. 525 a year from the age of 50, Fr. 1,272 a year from the age of 55 and Fr. 2,544 from the age of 60, but was increased to Fr. 3,816 for all over 65.

Germany. In the Western German budget for 1951-52 a sum of DM. 3,080 million was allocated for war pensions. According to official estimates, the German losses in World War II amounted to about 5 million, including 3,200,000 servicemen. In Western Germany alone there were 2,011,000 disabled ex-servicemen of the two world wars. (X.)

United States. In the budget estimates for 1952-53 a total of $4,197 million was earmarked for veterans' services and benefits. In the fiscal year 1951-52 about $5,165 million was spent, and in 1950-51 the cost of veterans' services was $5,330 million. By the end of 1951, living U.S. veterans of all wars numbered about 18,828,000, of whom 80% had served in World War II.

Wartime rates of compensation for disabilities connected with service ranged from $15 to $150 a month, depending on the degree of disability, which, with statutory awards for certain disabilities, might bring total payments up to as much as $360 a month. Peacetime rates were 80% of wartime sums. Veterans disabled as a result of service after June 27, 1950, were entitled to the wartime rates.

Pensions, on the other hand, were payable to veterans of either World War I or World War II and to those who served after June 27, 1950, under the following basic conditions: (1) the veteran had to be totally and permanently disabled for reasons not traceable to his military service; and (2) his income could not exceed $1,000 a year if he was single, or $2,500 if he was married or had a minor child. The monthly pension rate was $60, which was increased to $72 after ten years or when the veteran reached the age of 65. On Nov. 1, 1951, more than 3,000,000 veterans and dependants of deceased veterans were on the Veterans' Administration pension and compensation lists. (C. R. GY.)

WAR PRISONERS: *see* PRISONERS OF WAR.

WATER SUPPLY. The year 1951 in Great Britain, following upon the wet year of 1950, when the rainfall over the country exceeded the long period average by 5·2 in., or 15%, was also generally wet for most of the year, and consequently there were no shortages attributable to drought conditions. Nevertheless a considerable amount of new waterworks construction was in progress for increasing the available resources and for improving the distribution systems of waterworks undertakings. Several large schemes were begun, among them the Weir Wood reservoir works for the supply to the new town of Crawley and other areas in east Sussex and the Hanningfield reservoir scheme designed to produce a further 17 million gal. a day to meet the growing needs of Southend and southeast Essex. Substantial progress was made in the construction of the Usk reservoir for Swansea, Digley reservoir for Huddersfield, Blithfield reservoir for South Staffordshire and the Daer valley scheme for Lanarkshire. The reservoir in connection with this scheme would be formed by an earth embankment about ½ mi. in length and 135 ft. high, and when completed it would be the largest of its kind in the British Isles.

The Chingford reservoir for the Metropolitan Water board was opened in September, having cost £2,334,000. It had a perimeter of 3·5 mi., a water surface area of 334 ac., and a capacity of some 3,400 million gal., and would be available for storing the water of the River Lee and maintaining the supply to east London. The supply to the metropolis continued to be a matter of serious consideration, and a report issued by the Metropolitan Water board on "Waste Water Detection and Suppression" stated that £113,000 had been expended since the end of World War II with the object of eliminating improper use of water. The results had been successful, but it was essential that the work should be continued. The adoption of a new method of manufacturing

pipes in the form of prestressed concrete tubes was decided upon by Coventry and the Metropolitan Water board. The former authority would incorporate 27-in. dia. tubes in a section of the River Severn scheme, and the latter would use 48-in. dia. tubes in connection with the Ashford common works. A new water softening process was introduced by a filter plant manufacturer, and instead of the large open sedimentation tanks required with the older lime softeners, the " Spiractor " embodied a small closed tank, and by use of a calcium carbonate coated silica-sand catalyst very rapid reaction was achieved with elimination of sludge disposal problems.

In January the Fourth Congress on Large Dams was held in Delhi, and in August the International Association of Scientific Hydrology, being part of the International Union of Geodesy and Geophysics, convened a conference in Brussels, in August, where numerous papers, dealing with subjects having a bearing on the design and construction of waterworks, were presented and discussed.

From the administrative aspect it was decided by the government early in the year that water supply should no longer come under the jurisdiction of the Ministry of Health, but should be transferred to a new department known as the Ministry of Local Government and Planning and renamed the Ministry of Housing and Local Government by the new Conservative government after the general election in October. The Public Utilities Street Works Act, 1950, came into operation in April 1951 and established a uniform code of practice regulating the breaking up of streets by those who were empowered to do so in performance of their statutory duties.

The Rivers (Prevention of Pollution) act, 1951, was a measure for strengthening the law regarding the prevention of polluting rivers and streams. The consent of the river board was required before any new discharge of trade or sewage effluent was made into such watercourses, and it was expected that the effect of the act would be of great benefit to those water undertakers who were dependent on abstracting their supply direct from rivers.

Commonwealth. Considerable works were either in progress or projected in 1951 in Australia. In Melbourne the daily consumption of water fluctuated considerably, ranging from about 50 million gal. on a wet Sunday to 200 million gal. on a very hot summer day. A large rolled-earth and rock-fill dam was under construction on the Upper Yarra river, some 70 mi. distant from the city, and when completed would form a reservoir with a capacity of 30,000 million gal. The estimated cost of the dam, pipeline and tunnel was about £5 million. For Sydney, work was begun on the Warrajamba dam, 40 mi. away, which would be the largest of its kind in the southern hemisphere. The reservoir would have a capacity of 460,000 million gal. and the works would cost over £12·5 million including the pipeline. Construction continued on the Snowy mountain scheme which, although primarily a hydro-electric undertaking, would provide additional water supply for the further development of the Murray, Tumut and Murrumbidgee valleys.

The construction of many new schemes was begun for a number of urban and rural areas in Nigeria, including Lagos. A dam on the Klip river, 6 mi. from the town, was approved for the supply of Ladysmith, Natal, at a cost of £250,000.

In South Africa the East London Laing dam was put into commission in January, and new works were begun for Kimberley, Pinetown and Umzinto.

The planning of a large expansion of the supply to Singapore was announced, and work was begun for increasing the yield temporarily by 7·5 million gal. a day by 1952. Other projects under consideration included the construction of works to abstract up to 100 million gal. a day from the Johore river. The construction of a new scheme for Hong Kong was announced, comprising a reservoir to hold 1,150 million gal., filters and pipelines, at an estimated cost of HK$ 40 million. (J. Kd.)

United States. The practice of water fluoridation continued to expand in 1951. By controlling the fluorine concentration of potable water, it had been found possible to reduce dental caries in children by 60% to 65% at the relatively low annual cost of 5 to 15 cents a head. More than 6 million people in the United States were now using artificially fluoridated water and 3 million more were drinking water with a natural fluoride content sufficient to reduce dental caries.

Progress was made in studies on the removal of radioactive contaminants from water by coagulation with alum and sodium hydroxide and with other orthodox coagulants. The efficiency of removal, however, depended upon the particular radioactive elements involved. With some, phosphate coagulation appeared to be particularly effective, as in the removal of mixed fission products and strontium 89.

New equipment for water purification, originally developed in Great Britain, involved the use of finely divided woven fabrics of stainless steel as filtering media. The finest wires used were about 0·0022 in. in diameter; the number of apertures to a square inch in some of the fabrics was 80,000, the apertures having a nominal size of about 35 microns. The fabric was used either for preliminary filtration of water or for the final clarification of sewage effluent from purification works. (A. Wo.)

See P. L. Boucher, " Micro-straining," *J. Inst. Water Engineers*, vol. v, no. 6 (London, Oct. 1951); C. P. Straub, R. J. Morton and O. R. Placak, " Studies on the Removal of Radioactive Contaminants from Water," *J. Am. Water Works Assn.*, vol. 43, no. 10 (New York, Oct. 1951).

WEALTH AND INCOME, DISTRIBUTION OF.

United Kingdom. The white paper on national income published in April 1951 gave the distribution of incomes for 1949. To supplement the figures given there, the total number of income recipients had to be estimated and from that the number with incomes under £250 was deduced. As in previous years, no details were available for the distribution of incomes within the lowest group, which still comprised over 40% of the income recipients.

Table I. Distribution of Incomes in the United Kingdom, 1949

Range of incomes (in £)	Number of incomes (in thousands)	Amount of income before tax (in £ million)	Amount of income after income tax and surtax (in £ million)
Under 250	(10,200)*	2,209	2,185
250-500	10,310	3,546	3,360
500-1,000	2,443	1,614	1,375
1,000-2,000	545	728	539
2,000-10,000	219	760	436
10,000 and over	11	190	44
Total	(23,700)*	9,047	7,939
Unallocated private income†		1,664	997
	Total	10,711	8,936

* Figures in brackets are private estimates. Figures will not add owing to rounding.

† Including undistributed profits, interest on savings certificates, dividends of co-operative societies, income in kind, income of non-profit-making bodies, etc.

Source: *National Income and Expenditure of the United Kingdom, 1946 to 1950* (Cmd. 8203, H.M.S.O., London, 1951).

As a result of rising wage rates, a further shift took place from the lower to middle income groups. The number with incomes under £250 fell by almost 2 million compared with 1948, but only about 150,000 crossed the £500 limit. In the higher ranges of income the numbers remained almost unchanged. Hardly any change was recorded in the relative incidence of income taxation. Taxes remained very low

(under 5% of income) up to an income of £500, but they reduced incomes by one-quarter in the range £1,000—£2,000, by nearly one-half in the range £2,000—£10,000 and by more than three-quarters in the range over £10,000. Compared with 1948, receipts from indirect taxes and expenditure on price subsidies were diminished in approximately equal amounts. Tax liabilities, both direct and indirect, offset by price subsidies, were still at their postwar peak of 28% of personal incomes. Comparing the distribution for 1949 with that for the prewar year 1938, it appeared that the share of the richest 11%-12% in taxable personal incomes was reduced from 41% to 33% and that of the richest 3½% from 26% to 19%; taking incomes after taxation, these reductions were from 36% to 27% for the former class and from 21% to 13% for the latter.

The first postwar study of the distribution of capital in private hands was published by Kathleen M. Langley in the *Bulletin of the Oxford University Institute of Statistics* (Dec. 1950 and Feb. 1951). Although the results were subject to caution, it was shown that, whereas in 1936-38 the richest 0·9% of persons aged over 25 possessed 56% of the aggregate capital in private hands, by 1946-47 their share was reduced to 44%. (*See* also BUDGET, NATIONAL; NATIONAL INCOME; PRICES; TAXATION.) (T. BAR.)

United States. The 1951 *Survey of Consumer Finances* in the United States, published by the board of governors of the Federal Reserve System, supplied information on the U.S. distribution of income in 1950 and liquid assets in early 1951. The surveys were based on small field canvasses of consumer spending units, defined as all persons living in the same dwelling and related by blood, marriage or adoption who pooled their incomes for their major items of expense.

Survey data on the percentage distribution of spending units according to size of holdings of liquid assets—U.S. government bonds, savings accounts and checking accounts—are provided in Table II. It may be seen that from 1950 to 1951 the proportion of spending units with medium-sized holdings ($200-$1,999) showed a marked increase—from 31% to 37%. On the other hand, the percentage with large holdings ($2,000 or more) declined from 22 to 19. The proportion of spending units having no liquid assets showed a decline (from 31% in 1950 to 28% in 1951) which reversed an increase in evidence since the end of World War II.

Table III summarizes data provided by the surveys on the distributions of spending units and total money income according to size of income. The 1950 data revealed a resumption of the upward movement in the post-World War II income distribution which had been arrested during 1949, a year of slight economic recession. The postwar expansion of total money income resulted in a shifting of many consumers to higher income levels. This shifting pervaded the entire income distribution. It was found that when the nation's spending units were ranked into tenths by size of income the proportionate shares of total money income received by each tenth were almost the same in 1950 as in 1945. Within the period, however, the percentage of income received by the highest tenth rose to a peak of 33 in 1947 and then decreased steadily to 29 in 1950.

TABLE II. DISTRIBUTION OF SPENDING UNITS IN THE UNITED STATES BY SIZE OF LIQUID ASSET HOLDINGS

Amounts of liquid assets held*	1947	1948	1949	1950	1951
None	24%	27%	29%	31%	28%
$1 — $199	14	15	16	16	16
$200 — $499	12	13	13	11	14
$500 — $999	14	12	11	10	11
$ 1,000 — $1,999	14	12	11	10	12
$ 2,000 — $4,999	14	12	12	13	11
$ 5,000 — $9,999	5	5	5	6	5
$10,000 and over	3	4	3	3	3
Median holdings of all units	$470	$350	$300	$250	$300
Median holdings of those with assets	$890	$820	$790	$810	$710

*Includes all types of U.S. government bonds, checking accounts and savings accounts in banks, postal savings and shares in savings and loan associations and credit unions. Excludes currency holdings.

SOURCE. Board of governors of the Federal Reserve system.

TABLE III. DISTRIBUTION IN THE U.S. OF SPENDING UNITS AND MONEY INCOME RECEIVED, BY INCOME GROUPS

Annual income (money income before taxes)	1946 Spending units	1946 Total money income	1949 Spending units	1949 Total money income	1950 Spending units	1950 Total money income
Under $1,000	17%	3%	14%	2%	13%	2%
$1,000 — $1,999	23	12	19	9	17	7
$2,000 — $2,999	25	21	21	16	19	13
$3,000 — $3,999	17	20	19	19	19	18
$4,000 — $4,999	8	13	11	15	12	16
$5,000 — $7,499	6	11	11	19	14	23
$7,500 and over	4	20	5	20	6	21

SOURCE. Board of governors of the Federal Reserve system.

A longer-term comparison of changes in the distribution of income is afforded by Table IV. From 1935-36 to 1950 there was a redistribution of income in the United States away from the highest income bracket. The second, third and fourth income brackets significantly improved their relative positions, whereas the percentage of total money income received by the highest bracket declined from 53 to 46. Income payments to individuals were enlarged in every state in 1950, the latest year for which Department of Commerce estimates were available in 1951. Against the setting of a generally expansionary economic situation, total income moved up in most areas of the country at rates similar to the 11% national rise. For the country as a whole, *per capita* income payments (total income divided by total population) were $1,436 in 1950. (*See* also BUDGET, NATIONAL; NATIONAL INCOME; PRICES; TAXATION.) (C. F. SZ.)

TABLE IV. PERCENTAGE OF MONEY RECEIVED BY EACH FIFTH OF FAMILIES AND SINGLE PERSONS IN THE U.S.

Families and single persons ranked from lowest to highest income	1935-36	1941	1944	1950
Lowest fifth	4·0%	3·5%	3·6%	4·1%
Second fifth	8·7	9·1	10·1	10·7
Third fifth	13·6	15·3	16·3	16·4
Fourth fifth	20·5	22·5	23·0	22·7
Highest fifth	53·2	49·6	47·0	46·1

SOURCE. Council of Economic Advisers, based on survey data from National Resources Planning board (1935-36), Department of Labour (1941), National Bureau of Economic Research (1944) and board of governors of the Federal Reserve system (1950).

WEATHER: *see* METEOROLOGY.

WEBB, THOMAS CLIFTON, New Zealand lawyer and politician (b. Te Kopuru, New Zealand, March 3, 1889), was educated at Te Kopuru, Auckland Grammar school and at Auckland University college. He practised as a barrister and solicitor and from 1921 to 1923 was a member of Dargaville Borough council. A member of the National party he was elected member of parliament for Kaipara in the general election of Sept. 1943. From Nov. 1946 he sat for Rodney and was re-elected on Sept. 1, 1950, with a majority of 4,452 votes. When S. G. Holland (*q.v.*) formed his first administration on Dec. 13, 1949, Webb was appointed attorney general and minister of justice. In Sept. 1951, he succeeded F. W. Doidge as minister for external affairs and minister for island territories, retaining his other portfolios.

WELENSKY, ROY, Northern Rhodesian politician (b. Salisbury, Southern Rhodesia, Jan. 20, 1907), son of a Polish immigrant who had walked from the Cape to Southern

Rhodesia in the 1880s. He became an engine driver and won attention as a champion boxer. Later he was elected a member of the council of the Rhodesia Railway Workers' union, and, from 1933, was leader of the Northern Rhodesia Labour party. Welensky became director of manpower during World War II. He was elected chairman of the unofficial members of the legislative council and virtually became "prime minister" of the colony. After World War II he was in almost continuous consultation with the Colonial Office on the constitutional development of Northern Rhodesia and won many concessions to the point of view of the European settlers. His native policy was called "two pyramid": he desired to see the parallel development within the constitution of the two communities, the European settlers and the Africans. Early in 1951 he described this as lying between the policy of Malan's Nationalists in South Africa and that of the British Labour government. He favoured, with reservations, the project for federating the two Rhodesias and Nyasaland and in Sept. 1951 attended the Victoria Falls conference on this proposal.

WESTERN UNION (BRUSSELS TREATY ORGANIZATION), the defensive, economic, social and cultural association of Belgium, France, Luxembourg, the Netherlands and the United Kingdom under the treaty of Brussels, signed on March 17, 1948. After the merging of its military organization with the North Atlantic Treaty organization, which had been agreed on Dec. 20, 1950, was carried out in the early months of 1951, the Brussels Treaty organization became inoperative in the field of defence, except for civil defence matters, about which experts from the five countries held frequent meetings during the year to combine experience and study methods.

The question arose during 1951 whether the organization should, after it had been practically reduced to an instrument of co-operation in non-defence matters, be merged in the Council of Europe, which pursued similar aims and of which the five Brussels treaty countries were all members. This question was discussed at the only council meeting held during 1951, at Paris on Nov. 13, under the chairmanship of the French foreign minister, Robert Schuman. It was decided to maintain the separate identity of the Brussels Treaty organization, but to work in close liaison with the Council of Europe.

Activities in the economic, social and cultural fields during 1951 were on the whole restricted to routine business, the most important new measure being the inauguration of a scheme for co-operation between the five countries' employment services so as to give wider opportunities to workers in any of the five countries for taking employment in the four others and to employers to obtain labour from them. Lists of vacant jobs which could be suitably filled by workers from abroad were to be exchanged between the five countries. An agreement for each of the five to treat nationals of the other four on a basis of equality with its own nationals as regards social security had already come into force in the previous year. (S. HR.)

WHEAT. The overall world production of wheat in 1951 was very roughly equivalent to that in 1950. The figures for individual countries, however, were often markedly different because of climatic conditions. In northern Europe, including Great Britain, France, Germany and Scandinavia, a long and very wet winter had an adverse effect on the winter crop and delayed spring sowing. The weather improved in late spring and yield reductions were not as serious as had been expected. Some local damage was caused by heavy rainfall and thunderstorms at harvest time. In Spain and Portugal and eastern Europe, the crop did well and was also believed to have done well in the U.S.S.R. where the acreage exceeded the prewar average.

ESTIMATED AREA AND PRODUCTION OF WHEAT

	Area Sown ('000 ha.)		Production ('000 metric tons)	
	1950	1951	1950	1951
France	4,319	4,221	7,701	7,028
Germany, Western	1,014	1,030	2,614	2,949
Germany, Eastern	510	—	815	—
Great Britain	1,003	866	2,648	2,131
Italy	4,719	4,724	7,625	6,744
Poland	1,595*	—	1,854	2,281*
Spain	4,000*	4,200	3,380	4,400*
Yugoslavia	1,782	1,760	1,827	2,277
Other west European	2,927	—	4,637	—
Canada	10,935	10,413	12,566	15,306
Mexico	610*	600*	544*	490*
United States	24,985	25,323	27,944	27,042
Argentina	5,535	4,450*	5,500	3,946*
Other South American	2,365	—	2,200	—
India	9,723	9,505	6,320	6,496
Pakistan	4,336	4,383	4,022	4,016
Persia	2,490	—	2,263	1,800*
Turkey	4,477	4,867	3,872	5,616
North Africa	4,535	4,144	3,591	3,142
Union of South Africa	1,258*	—	680	—
Australia	4,735	4,290*	4,991	3,878*
New Zealand	59	55	161	162

* Est.
Figures based on the *F.A.O. Monthly Bulletin;* data not available from the U.S.S.R., eastern Europe or China. Figures for the southern hemisphere relate to the 1949-50 and 1950-51 crops respectively.

Among the Mediterranean countries, the crop was average to poor. Drought caused serious losses in parts of north Africa, especially in Tunisia, and Israel. Wheat was believed to have done well in China, as it did in India and Pakistan, though earlier in the year drought gave trouble in India.

In the United States the autumn-sown crop suffered from a rather hard winter in which lack of moisture caused drying out of the topsoil. Spring rains did much to rectify this and the spring-sown crop did well, but the final crop was considerably below that of the previous year. In Canada climatic conditions were highly favourable and the crop there was expected to be the highest ever harvested. The crops gathered at the beginning of the year in Australia and Argentina were rather below average. Compared with previous years, the area sown was not greatly altered, except possibly in the U.S.S.R. where it gained at the expense of rye.

Many new or comparatively new varieties of wheat were grown in 1951, most of which were bred for resistance to rust strains. Breeding for rust resistance was actively pursued in Canada and the U.S., Brazil, central Europe, Kenya, India and Australia. Exchange of breeding material, as between the U.S. and Kenya, and between Canada and Australia, proved a valuable adjunct in breeding for rust resistance. The new strain 15B of stem rust spread considerably in the U.S., and though efforts were made to develop new varieties resistant to this strain, no satisfactory resistant varieties were available by 1951. In Australia, a new stem rust race appeared that was able to attack varieties such as Gabo, resistant to the older strains. Rust also proved troublesome in South Africa, where breeding for resistance was pursued. Other breeding aims in the U.S. included resistance to smut, mildew and Hessian fly. In Canada, breeding was chiefly concerned with rust resistance, but also with resistance to sawfly which had proved a major pest. Attention was also paid, in Canada, to the production of new varieties of durum wheat with better macaroni-making qualities.

Special attention was devoted in Italy to breeding new wheat varieties adapted to hilly and mountainous districts. New varieties, combining the hardiness of the old land varieties with the productivity of more highly bred types, were introduced.

In the U.S.S.R., interest in perennial wheat was seldom shown, but much attention was paid to forms of wheat with branched ears. Very high yields per ha. were claimed for

these wheats but it is doubtful if these were obtained under normal agronomic conditions. Even in the U.S.S.R., later claims for this type of wheat were much more qualified than the earlier. Another interesting development in the U.S.S.R. was the exploitation and selection of local central Asiatic wheats. (*See* also BREAD AND BAKERY PRODUCTS.)

(R. H. RI.)

WILD LIFE CONSERVATION. The International Union for the Protection of Nature held a meeting at The Hague from Sept. 19 to 22, 1951. A hundred and thirty people of many nationalities but with a common interest in nature protection took part. The main theme was nature conservation in thickly populated countries and this was illustrated practically, after the conference, by an excursion through Holland ending at the Island of Terschelling. Among other subjects considered at the conference were the management of nature reserves, the function of zoological gardens and the protection of whales.

During the 1950-51 whaling season, experiments with the electric harpoon were continued. The considerable success achieved gave reason for hope that, on grounds of economy alone, this humane method of killing whales would be adopted universally in the not far distant future.

Great Britain. The Nature Conservancy progressed steadily with their work during 1951. The survey of sites of special scientific importance, with the valuable help of specialists both professional and amateur, made substantial advances; satisfactory local arrangements were made for the safeguarding of several threatened sites. Close liaison was established with the work of voluntary bodies and societies, as well as with the departments of governments most concerned and with local authorities.

Negotiations were well advanced for the acquisition or management of a number of reserves; preliminary ecological surveys were being made of some of them, and more detailed work by grant-aided workers and students was already being done in others. Two large areas of varied moorland, one in Scotland and one in northern England, were shortly to pass into the conservancy's hands and the plans laid for a moorland research programme, designed to yield knowledge of practical as well as theoretical importance, were to be put into operation. Plans for the establishment of two research stations were proceeding. Grants were made in aid of researches on the ecology of birds, invertebrates and plants, and the post-graduate research training of selected students supported at universities by maintenance grants continued.

Commonwealth. In Uganda, legislation was prepared for the establishment of the four national parks recommended by the National Parks committee. The importance of the preservation of the gorilla was recognized by the inclusion among the parks of the existing gorilla sanctuary adjoining the Parc National Albert in the Belgian Congo. Game in the reserves held its own, but, outside them, fared very badly from excessive tribal hunting and poaching. Antelope of all kinds were the worst sufferers.

In Tanganyika, the boundaries of the Serengeti national park were fixed to include an area of 5,670 sq.mi., making a reserve for the last great congregation of east African wild animals. A new and greatly improved Game ordinance was drawn up.

In Northern Rhodesia, the controlled area system under which hunting parties were allowed into certain areas under licence, and part of the fees paid allotted to the local native authorities, continued to be successfully applied. But it became increasingly obvious that the value of the system depended upon its understanding by African residents, so that they should, in their own interests, limit their demands on the game population.

In Cape Province, South Africa, a new ordinance to protect wild life came into effect. The keeping of wild animals by private persons was brought more fully under control. The export of all kinds of tortoises, other than water tortoises, and all kinds of lizards and chameleons, except under permit, was prohibited.

In the Kruger national park, the public appeal for money to provide water for the animals having been markedly successful, 50 boreholes were established.

In Natal, the Kamberg nature reserve was established. The status of the square-lipped or white rhinoceros remained satisfactory.

The Wild Life Conservation committee, appointed by the government of India, held its first meeting at Delhi in July 1951. The Bombay state legislature passed the Bombay Wild Animals and Wild Birds Protection act.

In spite of bandit activity in Malaya, work on the re-establishment of the King George V national park proceeded. Preparations for visitors, including habitations and boats, continued. The animal population of the park was satisfactory. Definite signs of the existence of rhinoceros were seen for the first time since the Japanese occupation.

The government of Singapore set aside six nature reserves, with a total of 14 sq.mi., to preserve the indigenous fauna and flora of the colony. Included were two mangrove areas in the hope that many species of orchids which had disappeared might reappear in the process of regeneration of the mangrove.

In Tasmania, the Animals and Birds Protection board acquired the leases of a number of islands in the Bass strait. These would provide sanctuary for many forms of bird life including the Cape Barren goose. The brush opossum and the ringtail opossum were given complete protection.

In New Zealand, the need for the protection of the native fauna and flora continued to make reduction of introduced mammals necessary. A campaign was waged particularly against the Australian silver-grey opossum and against red deer, both of which had become a dangerous menace by defoliation of forests. Investigations were carried out into the life history of the recently re-discovered native rail-like bird the takahe (*Notornis hochstetteri*). The discovery of further valleys in which these birds existed greatly increased hopes for their survival. Special protective measures were taken to protect other native birds by establishing threatened species on islands free of introduced pests. Twenty thousand acres of Waipoua forest, the last substantial kauri forest, were proclaimed a forest sanctuary. (For CANADA *see* below.)

Indonesia. A report was received by the Fauna Preservation society that there still existed in a reserve in Java some 30 specimens of the Javan rhinoceros (*Rhinoceros sondaicus*), probably the world's rarest large animal. (C. L. BE.)

North America. *Canada.* The federal government amended the Migratory Birds Convention act to extend the powers of game officers to seize motor vehicles or aircraft used in violation of the act, or of regulations based on the act. Discovering that bounties for the killing of harbour seals and sea lions, which destroy commercial salmon, were not the answer to the problem of controlling those predators, the federal government moved towards direct action. The Fisheries Research board reported, after detailed investigations, that lumber operations and water power development were decreasing the spawning beds for British Columbia salmon. The board suggested raising the level of egg production, increasing the growth rate and shortening the period which salmon spend in fresh water before going to sea.

The Ontario Department of Lands and Forests convened a conference of its senior conservation officers and departmental biologists, who discussed 116 different wild life topics. The conference was so successful it was to be an annual

event. The $500,000 southern research station at Maple was completed, and became one of the most complete centres of its kind in North America devoted to fish, wild life, tree insects and related studies. (C. CY.)

United States. Problems of wild life conservation in the United States during 1951 included the plight of the diminutive key deer, not more than 50 of which still survived on the Florida keys (coral islands extending from the Florida mainland to Key West). Victims of poachers, motorists and fire, these tiny deer could be saved only by a federal refuge. Legislation to this end failed to obtain passage during 1951, and conservation organizations stepped in to seek protection of the animals temporarily, through contributions to the key deer fund established by the National Wildlife federation.

Migratory waterfowl, as always, held an important position in wild life management and conservation. A good breeding season in 1951 resulted in a slight relaxation of the waterfowl hunting regulations. The length of the open season was increased by five days in the Atlantic, central and Pacific states, and by ten days in the Mississippi states. Bag limits and possession limits remained the same. Important in waterfowl management was the enactment of a law authorizing expenditure for law enforcement of 15% of the annual income from the sale of the federal stamp required on all water fowl hunting licences. The fish and wild life service estimated that the illegal kill of ducks and geese amounted to about 20% of the legal kill. The new law was expected to make available about $200,000 more, enabling the enforcement staff to be increased to 120 men.

Emphasis on restoration and improvement of habitat was prominent in the Federal Aid in Wildlife Restoration programme under the Pittman-Robertson act, which provided for the use, for wild life conservation purposes, of income from the federal excise tax on sporting guns and ammunition. The fiscal year ended June 30, 1951, showed that $17,846,423 was available for this work. This had to be matched by a 25% contribution from the states to carry out approved projects. Enactment of the Dingell-Johnson act provided for the use of a similar formula for fisheries restoration, the excise tax on angling equipment being earmarked for this purpose.

Among the research programmes aiming at sounder management of wild life were continued studies of migratory waterfowl as a basis for hunting regulations; investigation of the possibilities of introducing certain foreign species of game birds into depleted areas in the United States; study of the problem of trichomoniasis, a disease of the throat of mourning doves that had caused extensive losses in the southeast; and investigation of the effects of repellent chemicals on birds, mammals, fishes and other wild life.

The national wild life refuge system, a major factor in protecting the adequate breeding stock of migratory waterfowl and certain big game animals, was threatened by demands for the use of these areas for other purposes, principally national defence. Two important additions to the refuge programme were made, one in Palm Beach county, Florida, and the other in the San Joaquin valley of California. (*See* also NATIONAL PARKS.) (H. Z.)

WINDWARD ISLANDS. British colonies of Grenada, St. Vincent, St. Lucia and Dominica forming the southern part of the Lesser Antilles in the Caribbean.

	Area (sq.mi.)	Population (1946 census)	(1950 est.)
Grenada	133*	72,374	75,913
St. Vincent	150*	61,647	67,544
St. Lucia	233	70,113	79,511
Dominica	305	47,624	53,964

* Excl. the Grenadines (8 sq.mi.) attached in part to Grenada and in part to St. Vincent.

Pop.: 95% Negro; some Caribs on Dominica. Language: English; on Dominica and St. Lucia also French patois. Religion: Christian. Capital towns (pop., 1946 census): St. George's (Grenada, seat of governor, 5,774); Roseau (Dominica, 9,751); Castries (St. Lucia, 7,056); Kingstown (St. Vincent, 4,831). Administration: governor and (in each colony) administrator; executive council, 1 official, 3 *ex-officio*, 4 members from the legislative council; legislative council, 2 *ex-officio*, 3 nominated and 8 elected members. Governor, Sir Robert Arundell.

History. New constitutions came into operation during 1951 and elections on full adult suffrage were held in October. Elected members had a clear majority over the *ex-officio* and nominated members in the legislative council; and the beginnings of responsible government were seen in the power of the legislative councils to select three of their elected members for the executive councils. There were serious disturbances in Grenada in February and March arising from a strike called by a newly formed trade union. The elections, however, passed off quietly. They resulted in the return of candidates who supported the leader of the new trade union to six out of the eight available seats in the legislative council. In St. Vincent, all eight seats were captured by members of another newly established union.

In Grenada the cocoa rehabilitation scheme financed by colonial development funds made good progress; as did the superfine sea island cotton industry in St. Vincent. A coconut oil processing factory was set up in St. Vincent; in Dominica, the least developed of the four colonies, both the banana-growing and fruit-canning industries took useful steps forward. The rebuilding of Castries, capital of St. Lucia, which was practically destroyed by fire in 1948, proceeded steadily after delays caused by a shortage of steel.

Education. Average attendance (1950): Grenada 12,638; St. Vincent 9,414; St. Lucia 8,391; Dominica 6,729.

Finance and Trade. Currency, British Caribbean dollar ($4·80=£1).

	Budget (1951 est.)		Foreign Trade (1950)	
	Revenue*	Expenditure*	Imports	Exports
Grenada	$2,848,000	$2,827,000	$6,024,321	$7,020,826
St. Vincent	1,945,613	2,264,740	3,941,997	2,114,134
St. Lucia	2,080,221	1,936,995	4,746,784	2,088,835
Dominica	1,398,000	1,516,063	4,205,854	2,183,732

* Excl. grants in aid and colonial development expenditure.

Principal exports: arrowroot, bananas, citrus products, cocoa, copra, sea island cotton, mace and nutmegs, sugar. (P. H.-M.)

WINES. World production of wine was estimated in 1951 at 195·7 million hectolitres (hl.), as compared with 197,237,000 hl. in 1950 (corrected figure). The reduction in 1951 of about 1·4 million hl. was mainly the result of smaller yields in France, Algeria and Portugal, which were not balanced by the increased output recorded, in particular, in Spain and Italy. The wine production in Europe as a whole and in North Africa totalled 168 million hl. in 1951, as compared with 169·4 million hl. in 1950. In U.S. production was about 300,000 hl. higher than in 1950. (B. A. S.)

WORLD PRODUCTION OF WINES
('000 hectolitres)

	1938	1949	1950	1951*
Algeria	22,390	14,467	14,296	13,743
Argentina	9,262	7,000	12,503	12,500
Australia	928	1,554	1,539	1,136
Austria	1,171	971	1,162	867
Brazil	756	737	1,200	1,100
Bulgaria	2,373	426	426	426
Canada	178	230	267	270
Chile	3,595	3,282	3,603	3,517
Cyprus	225	240	288	228
Czechoslovakia	150	424	312	409
France	57,908	42,935	61,334	50,509
Germany	2,445	1,363	3,237	3,112
Greece	4,045	5,240	4,130	4,280

	1938	1949	1950	1951*
Hungary	3,259	3,173	3,678	3,678
Israel	30	47	54	54
Italy	41,780	35,776	39,558	45,258
Japan	6	51	51	51
Lebanon	10	29	29	29
Luxembourg	82	22	151	95
Malta	32	36	40	40
Mexico	—	172	171	171
Morocco	782	499	713	950
New Zealand	7	23	27	27
Peru	100	190	149	149
Portugal	10,955	7,893	8,865	7,700
Rumania	9,924	4,136	4,000	4,000
Spain	16,000	14,300	15,680	13,053
Switzerland	345	551	715	1,040
Tunisia	1,976	885	775	644
Turkey	123	170	140	140
Union of South Africa	1,631	2,609	2,657	2,908
United States	2,692	3,789	4,730	5,000
U.S.S.R.	5,000	8,000	8,000	8,000
Uruguay	705	720	730	730
Yugoslavia	4,663	4,150	5,160	5,160
Total†	205,561	166,124	200,461	191,072

*Estimated. †Including certain countries with insignificant production.

WOOL. The year 1951 was remarkable in the wool-textile industry. Wool values reached a record high level, followed by a slump proportionately more severe than that of 1920; instead of a shortage of wool supplies there was a surplus, partly disguised by stockpiling, and a sharp reaction from the boom conditions of 1950.

In the first quarter of the year, the upward trend of values was given artificial impetus by stockpiling in the United States. The U.S. government announced its intention to stockpile to the extent of 100 million lb. clean, of which 30 million lb. was to be kept in raw material form and 70 million lb. converted into fabric. In addition, there were rumours of further stockpiling to the extent of 350 million lb. clean. Led by U.S. buying, the demand forced up values to a record level, averaging (in sterling) 12 times the prewar level based on 1934-38. For instance, a standard 64's warp top at Bradford, quoted at 26½*d.* in Sept. 1939, reached 355*d.* at the end of March 1951. Price-freezing was then imposed on civilian trade in the United States and, at the end of March, U.S. purchases for stockpiling suddenly ceased. This started a slump which, in six months, reduced prices to only four times their prewar level and after some extraordinary fluctuations (including one sharp burst which added 100*d.* to fine wool values in a period of ten days) values steadied for a time at about four times the prewar level.

A temporary spurt was caused by the announcement in October that the British government intended to accumulate a stockpile of raw wool up to a maximum of 40,000,000 lb. clean by purchases at the dominion auctions during the season 1951-52, but the purchases were conducted through trade channels so circumspectly that the market was quickly reassured.

In Oct. 1950, figures prepared for the International Wool Study group showed a deficit in the world balance sheet for wool in 1951 of some 12%-15%. This, however, was based on a continuance of a high rate of consumption. In fact, consumption decreased sharply, mainly because the postwar process of filling pipe-lines and wardrobes had been completed, and because high prices were being resisted and values were falling. In the latter half of the year consumption in the principal consuming countries was 25%-30% lower than in 1950. In 1951 world production of wool (from season 1950-51) was estimated at 2,285 million lb. clean, plus 89 million lb. from joint organization stocks, making 2,374 million lb. available. It seemed unlikely that consumption would exceed 2,200 million lb., and the surplus exceeded the quantity likely to be put into stockpiles. The main visible accumulation of stock was in the Argentine. A small increase in the production of wool was forecast for the 1951-52 season.

The slump in wool values caused a sharp recession in machinery activity in most of the principal countries. Stocks of cloth and clothing accumulated, and represented an effective counterbalance to low stocks of wool in the consuming countries. Nevertheless, the demand for wool on the lower level was generally good, and except in South America there were no large visible accumulations.

The Melbourne conference, towards the end of 1950, called to consider ways and means of providing for U.S. needs either by means of allocations or pre-emptive buying, proved abortive. A wool committee was then appointed under the International Materials conference to continue the discussions, but here also there was failure to agree, the British dominions adopting the view that, except in wartime, they could not agree to any interference with the system of free auctions.

The post-joint organization or reserve-price scheme, put forward by Australia, New Zealand and South Africa, failed to fructify. The scheme was agreed between the three dominions and Great Britain, and envisaged an original fund of £66 million, £12 million to be provided by the United Kingdom, and the remainder by the three dominions. The object was to prevent unduly sharp declines in wool values by fixing reserve prices each season and buying-in wool which failed to reach the reserve price. A referendum of wool growers in Australia, however, rejected the scheme by a four to one majority. There was a good deal of disappointment in the dominions, and New Zealand decided—subject to the government providing the necessary legislation—to institute a scheme for New Zealand wool on more modest lines. Instead of wool being bought in if it failed to reach the reserve price, the idea was to allow wool values to reach their true market level but to compensate individual wool growers if their wool failed to sell at or above the reserve price. (*See* also TEXTILE INDUSTRY.) (C. F. MT.)

WOOLTON, FREDERICK JAMES MARQUIS, 1st Baron, of Liverpool, British businessman and politician (b. Manchester, Aug. 24, 1883), was educated at Manchester Grammar school and the Victoria university, Manchester. By 1951 his business career had brought him to be chairman and senior managing director of Lewis's Investment trust, controlling an important group of retail stores, and chairman of Reece's Ltd., Liverpool, and Selfridge's Holding company, London. At one time he served as warden of Liverpool university settlement, and continued to take an interest in many philanthropic and cultural bodies; he had been chairman of the British Red Cross society executive from 1943 and was president of the Central Council for Health Education, chancellor of Manchester university from 1944 and a former treasurer of Liverpool university. In World War I he served in the raw materials section of the Allied command and was secretary of the Leather Control board and controller of civilian boots. He was honorary adviser to the secretary of state for war, April-Sept. 1939; director-general of equipment and stores, 1939-40; minister of food, 1940-43; minister for reconstruction (in the war cabinet), 1943-45; and lord president of the council, May-July 1945. He was chairman of the Conservative and Unionist party organization from 1946. In Winston Churchill's government of 1951 Woolton became lord president, responsible for co-ordinating food and agricultural policy. He had been knighted in 1935, and made a peer in 1939. In 1942 he was created a Companion of Honour.

WORDS AND MEANINGS, NEW. The words and phrases listed below became prominent or seemed to be used for the first time in 1950 and 1951. The date of the first use of the word or meaning recorded by the compilers is given in brackets after the definition. A minus sign before a date means that the word or meaning is suspected to be older than the date given. If no date is given the first record is 1951.

absenteeism, *n. specif.* The act of staying away from school with parental consent.

accommodator, *n. specif.* (U.S.). A part-time female help.

aeropause, *n.* That part of the atmosphere above 75,000 ft.

agro-city, *n.* A Communist term for a collective settlement-town farming a very large area.

ailurophile, *n.* (Gk. *ailouros*, cat + *-phile*). A lover of cats.

airstop, *n.* A landing place for helicopters.

antrycide, *n.* A drug used to cure trypanosomiasis or fly disease in cattle.

architect, *v.* To plan the layout and construction of (a building).

back-breed, *v.* To produce (an extinct species) by breeding.

backlog, *n.* The amount by which a thing is behindhand; arrear (—1950).

bikini, *n.* A type of very exiguous bathing-dress, that for women being in two pieces.

bird, *n.* (U.S. milit. slang). A guided missile (1948).

bogey, *n.* (U.S., golf). One more than par (par being the perfect score for a hole). *v.* To take this score at a hole. **double-bogey,** *v.* To take two more than par at a hole (1950).

brain washing, *n.* Systematic indoctrination used in some totalitarian countries.

brigade system. A system of work on Communist collective farms by which workers labour in large groups of 100 or 150 farmers under a supervisor.

character assassination. The depreciation of character by unsubstantiated charges (1949); hence **character assassin** (1950).

commandism, *n.* A Communist term for the fault of running public affairs by giving orders instead of by organizing and educating.

contaminate, *v.* To cause disaffection among troops or others.

convertiplane, *n.* (U.S.). A type of aircraft that takes off and lands like a helicopter and flies like a fixed-wing aeroplane.

cook, *v.t. specif.* To make " hot " or radioactive (1950).

cuddling, *n.* (U.S.). Broadcasting on a wave-length very close to another wave-length.

cybernetics, *n.* (Gk. *kubernan*, to steer). The science of communication and control devices.

de-trunk, *v.* To remove the class I rating of a motor road.

depurgee, *n.* One restored to acceptable political or other standing.

discography, *n.* The systematic study of gramophone records.

dump, *v.t.* (U.S.). To cause a game to be lost by foul play. **dumping,** *n.*

end money, (U.S.). Funds held in reserve in case the cost of a production (usu. of a film) exceeds its budget.

escalation, *n.* The condition in which prices are allowed to rise as costs rise (1944).

field, *v.* (U.S.). To equip and train (a soldier) (—1950).

force-land, *v.* To make a forced landing (with).

fording kit, (U.S.). Device for waterproofing a tank to enable it to operate in water.

Gibraltarism, *n.* The view that the western hemisphere should be made as strong defensively as Gibraltar.

grey mobilization, (U.S.). Partial mobilization (1950).

ground zero. That point on the ground which lies directly under a bomb explosion, such as that of an atomic bomb, and which is used as a focal point for calculations (1946).

helidrome, *n.* A helicopter landing station.

hot, *adj.* (U.S.). Said of an aeroplane which must land at high speed (1944); radioactive (*see* **cook** above) (—1950).

hoverplane, *n.* A helicopter (1950).

hydroflap, *n.* A hinged flap on a seaplane which can be lowered into the water to keep up the nose, act as a brake and to serve as a rudder, for a plane on landing. (1948)

Hypo, *n.* High-power atomic boiler, a form of nuclear reactor; also **Lopo,** for similar lower-power apparatus (1950).

influence peddlar, (U.S.). One who seeks privileges from the government for his clients (1949).

krotoscope, *n.* (Gk. *krotos* handclapping + *-scope*). An instrument for determining the amount of applause for, and hence the popularity of, a variety act, etc. (1950).

lampshade (or **radiation lampshade**), *n.* A device, shaped something like a lampshade, which can determine the height of an atomic airburst and **ground zero** (*q.v.* above).

link system. A system of work on Communist collective farms by which a small group of people, often members of the same family, do the same job for the whole agricultural season.

looker-in, *n.* A person using television (—1951).

nationalizationist, *n.* One who supports the policy of nationalizing a country's resources.

neo-isolationism, *n.* (U.S.). An isolationism in which military preparedness plays a part (1950).

neo-orthodoxy, *n.* (theol.). Certain new interpretations, especially on original sin, the righteousness of God, and the Bible as a source of revealed religious truth to which man must respond in every situation by a decision involving obedience or disobedience (—1948).

omniphibious, *a.* (Of aircraft) able to land on any surface—earth, water, ice, snow, etc.

paramedic, *n.* (U.S.). A doctor in the parachute service.

petrochemistry, *n.* Petroleum chemistry; **petro-chemical,** *adj.* (1950).

pod plane. An experimental aeroplane with a detachable fuselage called a pod (1950).

power net (U.S.). Knitted nylon elastic (1950).

primaquine, *n.* A synthetic chemical which, especially when administered with quinine, was claimed to be an effective anti-malarial drug (1950).

protonsynchroton, *n.* A large atomic accelerator (1949).

quarterback, *v.* (extension of *n.* in U.S. football terminology). To direct (1945).

redwash, *v.* To represent as having Communist sympathies.

roadblock, *n. fig.* A blockage, stopping (1945).

rocketry, *n.* The scientific study of rockets.

roll-forwards, *n. pl.* (U.S.). (Analogy of *rollback.*) Price increases.

semi-works, *n.* (U.S.). Industrial or other pilot plant (1949).

SHAPE, *n.* Supreme Headquarters, Allied Powers in Europe.

Skylon, *n.* The sky-pointing, spindle-shaped " vertical feature " which formed a prominent feature of the Festival of Britain South Bank exhibition, London, in 1951.

skyman, *n.* A member of a force landing by parachute [term borrowed from popular " science " fiction].

solar house (U.S.). A house which derives most of its heat from the sun (1948).

space station. A platform to be constructed in space, revolving in an orbit round the earth, and used as a base for scientific observation and a taking-off place for space ships [serious use of term already employed in " science " fiction] (—1950).

spot wobble (television). A system by which the scanning spot is made to trace wavy instead of straight lines, a streaky effect being thus prevented.

stationman, -woman, *n.* A platform attendant on the London Transport (Underground) railways (1950).

sweptwing, *adj.* (Aeronautics). Said of an aircraft with swept-back wings (—1950).

synoptophore, *n.* Instrument for correcting eye-muscle defects (1946).

tailism, *n.* A Communist term for the fault of accommodating policy to satisfy the "tail" of society, the least politically aware workers and peasants.

telecon, *n.* (radio-teletype conference). 1. A device which transmits and receives teletype (teleprinter) messages over long distances by means of radio or submarine cable and flashes them on a screen. 2. A radio-teletype conference (1950).

telescribe, *n.* An electronic device by which markings on one screen are reproduced at a distance on another.

telefilm, *n.* A televised cinematograph film.

veepee, *n.* (U.S.). A vice-president (1950).

whirlybird, *n.* (slang). A helicopter.

whomp, *v. t.* (U.S.). To defeat decisively.

wormery, *n.* A place for breeding worms.

(D. C. B.; I. W. R.)

WORLD COUNCIL OF CHURCHES. The World Council of Churches is composed of some 160 Christian bodies throughout the world, being "a fellowship of churches which accept our Lord Jesus Christ as God and Saviour." The council was formally inaugurated at the first assembly held at Amsterdam, the Netherlands, from Aug. 22 to Sept. 4, 1948. The Roman Catholic church does not participate in the Council, nor do the churches of the U.S.S.R. and most of eastern Europe.

The central committee met at Rolle, Switzerland, from Aug. 4 to 11, 1951. This body is the governing committee of the World Council of Churches between the meetings of the assembly, which is the sovereign organ composed of officially elected representatives of all the participating churches and normally meets every five years. The central committee consists of 90 members chosen by the assembly, and meets annually. Its officers for the period of 1948-54 were: chairman, Dr. George K. A. Bell, bishop of Chichester; vice chairman, Dr. Franklin C. Fry of the Lutheran Church in the U.S.; secretary general, Dr. W. A. Visser 't Hooft (Netherlands).

The 1951 meeting of the central committee gave considerable time to preliminary plans for the second assembly, which it was hoped would meet at Evanston, Illinois, U.S., in the latter half of Aug. 1954. International committees of theologians and leading churchmen were commissioned to prepare the main themes for it. The central subject would be the meaning of the Christian hope, and the central committee issued for study and comment in the churches a preliminary document composed by a group of well-known Christian figures including, among others, Professor Karl Barth, Dr. Reinhold Niebuhr and T. S. Eliot. Other important items included: (1) continued planning for the third World Conference on Faith and Order to be held at Lund, Sweden, in Aug. 1952; (2) a memorandum for study and comment in the churches entitled "The Church's Call to Mission and to Unity" (an examination of the two aspects of the oecumenical movement formally embodied in the World Council of Churches and the International Missionary council with a view to inaugurating a long-term reconsideration of their relationships); (3) an important statement read by the bishop of Chichester on behalf of the executive committee, dealing with international affairs and defining the attitude of the council towards Communist-sponsored peace campaigns. These and other issues were dealt with more fully in the reports issued by the Commission of the Churches on International Affairs. (O. S. T.)

X-RAY AND RADIOLOGY. The advantages of motion-picture photography of the fluorescent screen image had been recognized from the earliest days of the use of the X-ray in medical diagnosis, but the danger of prolonged X-ray exposure and the limited capacity of X-ray tubes had delayed full use of this method. Apparatus devised by R. F. Rushmer, R. S. Bark and J. A. Hendron was designed to overcome these difficulties. Their apparatus relies upon interrupting the generation of X-rays while the film is being advanced in order to avoid the necessity of closing the shutter on the camera. The time of X-ray exposure is thus shortened by about half. The cinefluorographic apparatus was used to: (1) study changes in the outline of the heart during cardiac contractions; (2) make permanent records of the fluoroscopic appearance of the heart in congenital and acquired heart disease; (3) record movements of normal and abnormal joints; (4) study the impact of the left auricle on the oesophagus during a barium swallow; (5) prepare films for training students showing the fluoroscopic appearance of the heart; and (6) study the heart and vessels during cardio-angiography following injection of diodrast.

The photofluorographic method—photography of the image on the fluorescent screen—was greatly advanced by the use of photofluorographic cameras constructed according to the principles of Schmidt, that is, reflector-type optics. A. Bouwers, in the Netherlands, produced a reflector-type camera with a resolution of five lines per millimetre, which was twice that provided by previously available cameras. This improved the clarity of photofluorographic images and made it more nearly equal to that of those produced by conventional roentgenography.

The relatively new method of aniocardiography—X-ray of heart and blood vessels—was used to determine operability of lung cancer. C. T. Dotter, I. Steinberg and C. W. Holman reported 53 consecutive cases of lung cancer studied by this method. Their study furnished evidence that angiocardiography is a useful addition to other methods to determine operability of lung cancer.

Investigations were made during 1951 to determine the suitability of cobalt 60 as a substitute for radium in the treatment of cancer. Co^{60} is a radioactive isomer with a 5·3-yr. half life. Since it can be produced at a much lower cost than that of X-ray machines with a comparable output of radiation, it was suggested as a substitute for such machines. I. Meschan and others at the University of Arkansas reported during 1951 that a cheap, stable, readily available method for encasing pure cobalt wire had been devised, capable of filtering out the weak beta-rays from cobalt 60 without lessening the gamma-ray intensity. These cobalt 60 needles may be constructed at a fraction of the cost of equivalent radium needles. The authors also presented a method of standardization of cobalt needles against a national bureau of standards ampule of cobalt 60. They warned that until cobalt 60 radiation had been biologically standardized against radium it should be used only experimentally.

Evidence confirmed the conclusions of Carroll E. Palmer of the U.S. Public Health Service concerning the origin of multiple pulmonary calcifications. A study of 114 cases was made by F. C. White and H. E. Hill at the Ray Brook, N.Y., state tuberculosis hospital. Palmer had concluded that the small, multiple, disseminated calcifications often disclosed on roentgenograms were not usually of tuberculous origin and that in most cases they were due to infection by *Histoplasma capsulatum*. The present authors offered proof that the pulmonary calcifications found in their cases were due to an air-borne infection, probably *Histoplasma capsulatum* or a fungus antigenically related to it. (*See* also CANCER; PHOTOGRAPHY; TUBERCULOSIS.) (A. C. CH.)

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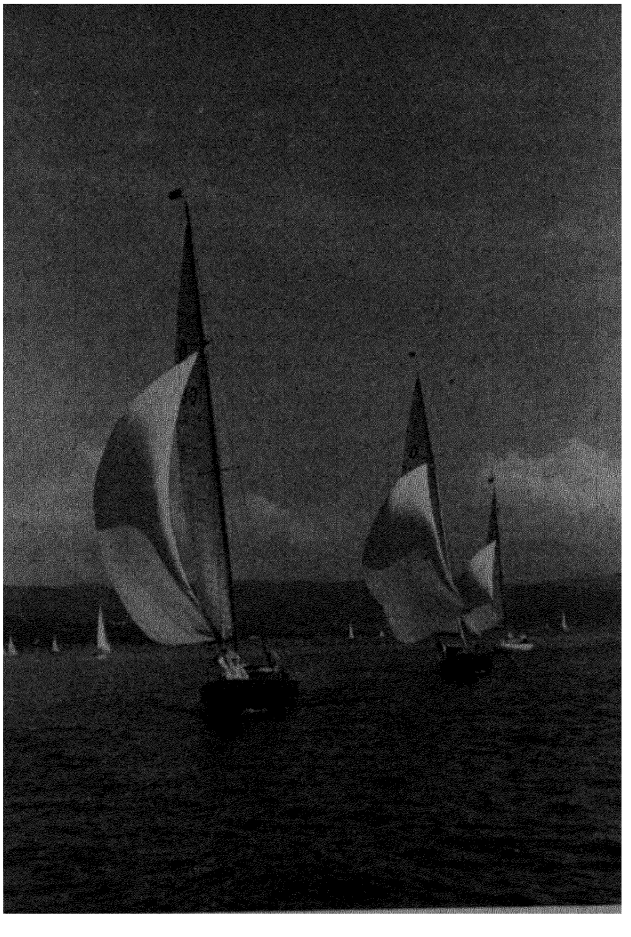
YACHTING. A special programme of regatta fixtures was arranged by the Yacht Racing Association for 1951 as Festival of Britain year, in the hope of attracting international competition, but in this the organizers were somewhat disappointed.

The season opened in Scotland. The main event, the Clyde fortnight, attracted only two boats from abroad, Thorkil Warrer's "Lil" from Denmark and Torleiv S. Corneliussen's "Spadilje VIII" from Norway, both of the Dragon class. "Spadilje VIII" was the only foreigner to do what the organizers of the regatta intended; he started in Scotland and followed the festival regattas round the coast and, in the process, won many prizes. "Lil," however, stayed only for the Clyde fortnight when she proved to be unbeatable, winning both the international gold cup and the Duke of Edinburgh's cup, the two principal Dragon class awards.

At Cowes, in July, in the six-metre class, the British-American cup, previously won outright by U.S., was revived and, after a close series of races, the American team won.

A new trophy, the Britannia cup, presented by King George VI to the Royal Yacht squadron, was raced for. The course was the circumnavigation of the Isle of Wight. The winner was Gp. Capt. R. J. F. Barton's "Taiseer IV."



Dragon class yachts taking part in a race on the River Clyde during the 1951 Clyde fortnight.

Ocean racing increased in popularity and the 14th Fastnet race, from Cowes round the Fasnet rock and back to Plymouth (about 650 mi.), drew a strong overseas entry, including among others "Malabar XIII" (U.S.), "Zeevalk" (Netherlands) and "Waltzing Matilda" (Australia). "Circe," American-designed and Norwegian built and owned, proved a difficult boat to beat. The race started in heavy weather and was noteworthy for hard-fought duels between "Circe" and "Bloodhound" (U.K.), the yachts finishing within 11 minutes of one another. "Yeoman" (Owen Aisher, U.K.) and "Zeevalk" (C. Brunzel) fought the greatest battle of all, "Yeoman" winning the cup by only an hour from the latter. There were also entries from Ireland and Germany. In Class III (the smaller yachts), the Wolf rock race was won by "Rum Runner" (R. Lowein) with "Joliette" (F. W. Morgan) second.

There was a full offshore programme organized by the Royal Ocean Racing club as well as many passage races put on by other clubs.

Enthusiasm in the dinghy classes was greater than ever and the number of boats built increased during the year. The 14-ft. international class Prince of Wales cup was won by Bruce Banks sailing "Windsprite," in the Merlin-Rocket class the *Yachting World* trophy was won by "Dally" (K. A. Mollart), the 12-ft. national class Sir William Burton cup was won by "Yoshiko" (Geoffrey Cowap), while the Firefly Sir Ralph Gore championship was won by "Javelin" (A. and S. Jardine). In the juvenile class, cadet week reached new heights and the *Yachting World* cadet trophy, the principal award, was won by Ralph Ellis sailing "Dial."

Two notable transatlantic voyages were made. Edward Allcard sailed his 11-ton "Temptress" single-handed for a greater part of the way back from New York to Britain. Stanley Smith and Charles Violet sailed in the 20-ft. "Nova Espero" from west to east. "Nova Espero" was sailed from east to west in 1950.

In early November, the permanent committee of the international Yacht Racing union met in London. For the first time U.S. observers attended the meeting, which concerned itself mainly with tidying up the union's racing rules and the class rules governing the Dragon, 5·5-metre and cruiser racer classes and confirming the organization for the Olympic games at Helsinki in 1952. (E. F. HK.)

YAP ISLAND: *see* PACIFIC ISLANDS, U.S.

YEMEN. Independent state in the southwestern tip of the Arabian peninsula, between Saudi Arabia, the British Aden protectorate and the Red sea. Area: *c.* 75,000 sq.mi. Pop. (1948 est.): 1,600,000.* Language: Arabic. Religion: Moslem. Capital: San'a (pop. est. 25,000). Ruler: Imam Ahmed ibn Yahya Nasir li-Din Allah.

History. On Jan. 20, 1951, was published the Anglo-Yemeni agreement which had been negotiated in 1950. By it diplomatic relations were to be established between Great Britain and the Yemen and a joint committee was to demarcate the frontier between the Yemen and the Aden protectorate and to settle past disputes. Both countries undertook to curb propaganda likely to impair mutual good relations, and the British government would assist the Yemeni government in its economic and social development schemes.

Previously, on Jan. 5, Talaat Ghossein, the director of publicity in the Yemeni Foreign Ministry, had announced in Cairo on his return from Lake Success that the Yemeni government proposed building a state hospital and had

* The estimate of 4,500,000 given by the *Demographic Yearbook 1949-50* published by the U.N. Statistical office appears too high, as compared with other generally accepted estimates.

bought a powerful wireless transmitter and a printing press to combat illiteracy and to organize education by wireless, and had approached the United Nations and the United States (under Point Four) for technical and other assistance.

Later in the year the government discussed the prospects of the granting of a concession for oil exploration in the kingdom with an Anglo-American group and introduced a scheme for government marketing of the coffee crop which had hitherto been solely handled by Aden merchants.

During the summer the American Foundation for the Study of Man published a report on its two years of exploration of the ruins of Marib which had been the capital of the country up to A.D. 120. (O. Tw.)

Agriculture. Main crops: wheat, barley, millet and coffee.

Foreign Trade. Trade with the U.K. (1950; 1951, six months, in brackets): imports £4,657 (£2,110); exports £801 (£4,720). Trade with the U.S. (1950): imports $62,674; exports $2,273,982. Main imports from the U.S.: machinery, cars and accessories, books, maps, etc. Main exports to the U.S.: cocoa, coffee and tea, hides and skins, petroleum and products.

Finance. Monetary unit: Maria Theresa dollar, called the *riyal*, nominally equal to 1 Indian rupee with an exchange rate of R. 13·33 to the pound and R. 4·76 to the U.S. dollar.

YOSHIDA, SHIGERU, Japanese statesman (b. Tokyo, Sept. 22, 1878), was educated at the Tokyo Imperial university and graduated in law in 1906. He held many minor diplomatic posts in the far east and Europe and was second secretary at the Japanese embassy in Washington, 1916-17. He was minister to Sweden, Norway, Denmark and Finland in 1928, vice foreign minister, 1928-30, ambassador to Italy, 1930-32, and ambassador to London, 1936-38. Yoshida was arrested in June 1945 on allegations that he headed a "defeatist" peace faction. He was freed after Japan's surrender and became foreign minister in the Kijuro Shidehara cabinet on Oct. 6, 1945. In 1946 he accepted the presidency of the Japanese Liberal party and on May 22 succeeded as premier. On July 4, 1951, Emperor Hirohito installed a new Japanese cabinet, but Yoshida remained premier. In the reorganization he had sought to strengthen the economic elements of his regime preparatory to the forthcoming peace settlement between Japan and her erstwhile western enemies of World War II. While signing this treaty at the peace conference in San Francisco in September, Yoshida pointed out that it stripped Japan of 45% of its prewar territory and of vast overseas assets. He assured the conference that Japan would eventually assume full responsibility for safeguarding itself.

YOUNG MEN'S CHRISTIAN ASSOCIATION. In 1951, the Y.M.C.As. of Canada and the U.S. celebrated their centenary; 6,700 delegates from 40 countries attended the centennial convention at Cleveland, Ohio, during June. Meetings of the executive committee of the World's Alliance of Y.M.C.As. and a world consultation on young men's work followed. An international boys' camp held in Great Britain was attended by representatives of 11 nations. Substantial work for displaced persons continued in Germany, Austria and the middle east. World Y.M.C.A. membership increased to 3,750,000 in nearly 10,000 centres throughout 77 countries. John Forrester Paton (Great Britain) continued as president, and Dr. Tracy Strong (U.S.) as general secretary of the World's alliance.

In Britain the Y.M.C.As., with a membership of over 98,000, maintained their activities in some 460 local centres, while similar programmes served the forces in 270 centres and hostels at home and in 14 overseas countries. With the British Army of the Rhine the Y.M.C.A. continued to sponsor and share international gatherings, festivals, exhibitions and Anglo-German groups.

In Nairobi, Kenya, two new Y.M.C.A. buildings for Africans and Europeans were completed. Y.M.C.A. community services still housed and served some thousands of British and European workers, as well as engineering apprentices and horticultural students, in over 100 special hostels, besides running 70 volunteer agricultural camps and harvest hostels.

In September the 10,000th town boy passed through the "British Boys for British Farms" training scheme, and the "Warfleet" sea training centre continued its work at Botley, Hampshire. More than 1,000 voluntary leaders carried on their part-time training. During the Festival of Britain, many Y.M.C.As. offered special services to thousands of young visitors from overseas. Commemoration of the 107th anniversary of the founding of the movement in London on June 6 included a service in the crypt of St. Paul's cathedral and a large meeting at the Mansion house. (R. W. J. K.)

YOUNG WOMEN'S CHRISTIAN ASSOCIATION. In 1951 the Y.W.C.A. of Great Britain, as a national movement, participated in the Festival of Britain. The international work of the association gained impetus during the year; six centres were established in Nigeria, and club activities in Iraq received official recognition. The association's work for displaced persons was accelerated, and special attention was given to children and old people awaiting resettlement. Twelve hundred parcels were dispatched in one day from Hong Kong to British troops serving in Korea, and the Y.W.C.A.'s centre in Jamaica was placed at the disposal of those made homeless by the recent hurricane.

The maintenance and extension of hostels and clubs in Great Britain and overseas increased the financial problems of the association, and those administering funds had to find new ways of raising money, while at the same time drawing the attention of the public to the necessity for continuing work which was vital to the needs and welfare of young people both at home and abroad. Interest was aroused in a model hostel which was designed and constructed with the assistance of the *News Chronicle*. It incorporated the standards of amenity laid down in the *Y.W.C.A. Hostels Handbook* which was published during the year. (R. Wr.)

YOUTH EMPLOYMENT. Industry had by 1951 become accustomed to the scarcity of juvenile labour, but during the year the shortage was felt more acutely than ever. In its annual report the House of Commons committee on estimates emphasized the serious effect of manpower difficulties on the rearmament programme and *The Times*, commenting on this, drew special attention to the decline in the supply of young workers. No improvement could be expected until 1957, when the wartime increase in the birth-rate would begin to show results at the school-leaving stage. This grave shortage of juvenile employees continued to focus attention on their recruitment and training.

It was the responsible task of the 1,200 youth employment officers in the United Kingdom "to give vocational guidance; to help young people to find suitable occupations; and to review their progress." On the quality of the advice given to school-leavers by these officers much depends; they can not only assist them to find satisfying work but they can also minimize the wastage by "misfits" and consequent lack of interest in the job. It was gratifying, therefore, to notice a growing tendency to provide training courses for these officers, designed to supply them with up-to-date information about industrial trends and acquaint them with new methods of vocational guidance. Short courses were arranged in a number of centres on the work of the youth employment service in general, and something more ambitious was attempted in certain areas, *e.g.*, London and Glasgow. The

Kent Education committee arranged residential courses of this nature of several months duration. The National Youth Employment council had the whole question of training facilities under active consideration, and the National Association of Youth Employment Officers instituted a diploma in vocational guidance.

While it was generally true that boys and girls no longer went " unwillingly to school," it must be admitted that the great majority left as soon as they had fulfilled the statutory obligation of compulsory attendance; out of the whole 15-18 age-group only about 18% were 16 or more when they entered employment. In 1951 the Ministry of Labour gave some interesting statistics to illustrate the development of apprenticeship and similar schemes; they showed that of the total of 273,000 boys who entered employment during the year 97,000 were apprenticed to a skilled craft or articled to a profession. The metal and metal-using industries were foremost in such developments, providing for 39,000 apprentices, and they were followed by the building and contracting trades with a total of 21,000. These were encouraging figures especially when considered in conjunction with the Ministry of Education's returns of the number of youths released for part-time technical training. (W. O. L. S.)

United States. According to estimates of the U.S. Bureau of the Census, an average of 2·5 million minors between 14 and 17 years of age were employed full-time or part-time during the first ten months of 1951, an increase of about 200,000 over the same period in 1950. Of these, 900,000 were 14 or 15 years of age, and 1,600,000 were 16 or 17 years of age. One out of three of all young workers was employed in agriculture; the other two were concentrated mainly in trade and service occupations.

The programme of the U.S. Department of Labour for the administration of the child-labour provisions of the Fair Labour Standards act was extended further to give protection to children brought under the child-labour coverage by the amendments which became effective in Jan. 1950.

Delaware passed a law requiring that age certificates be obtained for employed minors of 16 and 17 years of age. New Hampshire extended the 14-yr. minimum age standard to include all occupations except agriculture and domestic service. California provided 50% additional compensation under the workmen's compensation act for minors injured while illegally employed. Compulsory school-attendance provisions were strengthened or clarified in Illinois, Indiana, Wisconsin and Oregon.

A significant trend in the U.S. was the continued increase in the number of minors enrolled in school who worked outside school hours. In Oct. 1950, 83% of the population between 14 and 17 years of age were enrolled in school. About 25% of these were working outside school hours.

International Labour Organization Standards. During 1951, Ceylon ratified Convention 5, fixing the minimum age at 14 for industrial employment; Convention 15, fixing the minimum age for the admission of young persons to employment as trimmers or stokers; and Convention 16, concerning compulsory medical examinations of children and young persons employed at sea. Pakistan ratified Convention 90, prohibiting night work for young persons in industrial undertakings. France ratified Convention 10, establishing a 14-yr. minimum age for employment in public or private agricultural undertakings during hours fixed for school attendance; and Convention 78, concerning medical examinations of children and young persons for employment in non-industrial occupations. Iraq and France ratified Convention 77, concerning medical examinations for fitness for employment in industry of children and young persons. (*See* also CHILD WELFARE; JUVENILE DELINQUENCY.) (E. S. J.)

YOUTH ORGANIZATIONS. King George's Jubilee trust held a conference at Ashridge, Hertfordshire (April 27-30, 1951), attended by more than 130 representatives of national youth movements in the British Isles and of the Nuffield foundation, the Carnegie United Kingdom trust, government departments and other organizations. The theme of the meeting was " the principles on which the youth service is being built up; how these principles are being applied in practice; and what improvements, if any, can be made." The discussions produced much agreement on basic principles; this was clearly brought out in *Youth Service To-morrow*, the report of the conference. The trust announced that grants of £62,610 had been made to 34 youth organizations in 1951. The youth department of British Council of Churches held a conference at Bangor, Wales (Aug. 24-31).

Many youth organizations held special events in connection with the Festival of Britain: the Boys' Brigade, the Boy Scouts and the Young Methodists held displays at the Albert hall, London; the Welsh League of Youth organized a national eisteddfod at Fishguard, Pembrokeshire; and the Army Cadets' national athletics championship took place at Chelsea, London. Pageants organized in the festival year included: the " Landing of the Vikings " by sea scouts in Swansea bay, Glamorganshire; the history of Ipswich by the youth of the Salvation Army; and " Sussex by the Sea " by the young people of Sussex in the grounds of Arundel castle (May 19), which was attended by Princess Elizabeth. Youth organizations in Manchester and Liverpool held a " festival of youth " week. The National Association of Boys' Clubs held regional arts festivals throughout the country. With the support of King George's Jubilee trust and the *News Chronicle* (London), the Standing Conference of National Voluntary Youth Organizations opened a festival centre of youth in central London.

In February the Air Training corps celebrated its tenth anniversary; its strength was 43,654 cadets. A parade of nearly 1,000 A.T.C. officers and cadets was held in London on Jan. 28. In the same month it was announced that the Navy League had spent £100,000 on the Sea Cadet corps in the years 1949-50.

The British Schools Exploring society's 1951 expedition of 64 boys was made to central Iceland. A survey party completed the detailed mapping of the southern and southwestern edges of the Hofsjokull ice-cap. The Outward Bound trust held an experimental course for girls in October at its mountain school in Cumberland. The Boy Scouts' seventh World Jamboree was held at Bad Ischl, Austria.

The National Union of Students sent a delegation to the U.S.S.R. (May 13-June 2) which visited educational and youth activities in Leningrad, Moscow, Tbilisi, Gori and Kiev. An N.U.S. congress was held at Leeds (April 2-7) on the theme " students and international understanding." Among the overseas observers were A. Shelyepin and V. Vdovin of the U.S.S.R. Another N.U.S. congress was held at Nottingham (Dec. 28-Jan. 4, 1952). The first congress of the Scottish Union of Students was held during 1951. In Jan. 1951 the N.U.S. decided to withdraw from the International Union of students.

The largest event of the year in the Communist countries was the third World Festival of Youth and Students for Peace (Aug. 5-19) organized in eastern Berlin by the World Federation of Democratic Youth and the International Union of Students; this was attended by 2 million Germans and more than 26,000 delegates from 104 countries. The rally was used for large-scale Communist " peace " demonstrations. The International Union of Students held the 11th World University summer games in the Walter Ulbricht stadium in Berlin (Aug. 6-15). Students from the Soviet Union won 158 gold medals; 2,052 athletes from 42 countries took part.



The British delegation at the opening ceremony of the World Festival of Youth held in Berlin in Aug. 1951.

The International Union of Students held meetings of its executive committee in Berlin (Jan. 13-18), attended by delegates from 30 countries, and in Peking (April 26-30) where delegates from Japan, the Philippines and Thailand were present for the first time. The council met in Warsaw (Aug. 31-Sept. 7). Joseph Grohman (Czechoslovakia), president since 1946, was re-elected. With the admission of the new members, the number of organizations affiliated to the I.U.S. increased to 89, representing 71 countries and embracing more than 5,336,000 students.

In January the French government declared the World Federations of Democratic Youth illegal and the W.F.D.Y. later moved its new headquarters from Paris to Budapest. The first meeting of the executive committee in 1951 was to be held in Stockholm, but the Swedish government refused to allow the meeting to take place. It was held, instead, in Prague (Feb. 7-10). Twenty-four countries were represented. The first executive committee held at the new headquarters took place on May 24-26. The seventh council meeting of the W.F.D.Y. was held in Berlin (Aug. 21-24); Enrico Berlinguer (secretary general of the Italian Communist Youth federation) was re-elected president and Jacques Denis (France) general secretary. Applications for affiliation were accepted from 36 organizations bringing the total membership to 72 million from 84 countries.

The non-Communist international youth organization, the World Assembly of Youth, continued to expand its activities. Its second general assembly was held at Cornell university, Ithaca, New York, Aug. 6-17. The council of W.A.Y. met immediately after the assembly and admitted ten new countries to membership—Austria, Ceylon, India, Luxembourg, Niger (French West Africa), Middle Congo, Ubangui-Shari (French Equatorial Africa), Pakistan, Philippines and Togoland. Maurice Sauvé (Canada) was re-elected president. W.A.Y. helped to organize an international youth camp at the Lorelei, Germany (July 20-Sept. 6), attended by over 12,000 people, and a European youth conference at Strasbourg in June. The British national committee for W.A.Y. held an international youth camp at Chigwell, Essex (July 7-21). Princess Elizabeth visited the camp on July 12 when she opened the Grange Farm open-air camping and recreational centre. A conference of the International Union of Socialist Youth was held in Hamburg (Aug. 18-22); delegates from 35 different organizations in 20 countries were present.

A conference of international youth organizations and youth-serving agencies was convened in Paris by U.N.E.S.C.O. (Nov. 21-27) and representatives of 22 youth movements met in Paris (Nov. 19-20) to discuss their experiences of youth exchange programmes. A United Nations youth welfare seminar was held at Simla, India (Nov. 1-21); representatives were present from Burma, Ceylon, India, Pakistan, the Philippines, Indonesia, Thailand and the British territories in the far east.

The Lenin Young Communist league (Komsomol) in the Soviet Union announced in May that its membership exceeded 12 million. During the year the league welcomed many youth delegations to the Soviet Union including delegations from Canada and the United States. Delegations from the far east—China, Korea and Indochina—visited the country en route to or from Berlin. A British group was in the Soviet Union in December. A youth conference of Czechoslovakia, Poland and Eastern Germany was held at Liberec, Czechoslovakia, in March. The Communist Union of Free German Youth was banned in June in Western Germany. (*See* also BOY SCOUTS; GIRL GUIDES; YOUNG MEN'S CHRISTIAN ASSOCIATION; YOUNG WOMEN'S CHRISTIAN ASSOCIATION.)

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YUGOSLAVIA. Federal people's republic of south-eastern Europe, bounded N. by Austria, N. and N.E. by Hungary and Rumania, E. by Bulgaria, S. by Greece and W. by Albania, the Adriatic sea and Italy. Area: (1940) 95,983

sq.mi.; (1947, incl. newly acquired territory of Julian march, Zara and the islands) 98,826 sq.mi. Pop. (1940 est.): 15,703,000. Federal republics (pop., 1948 census):

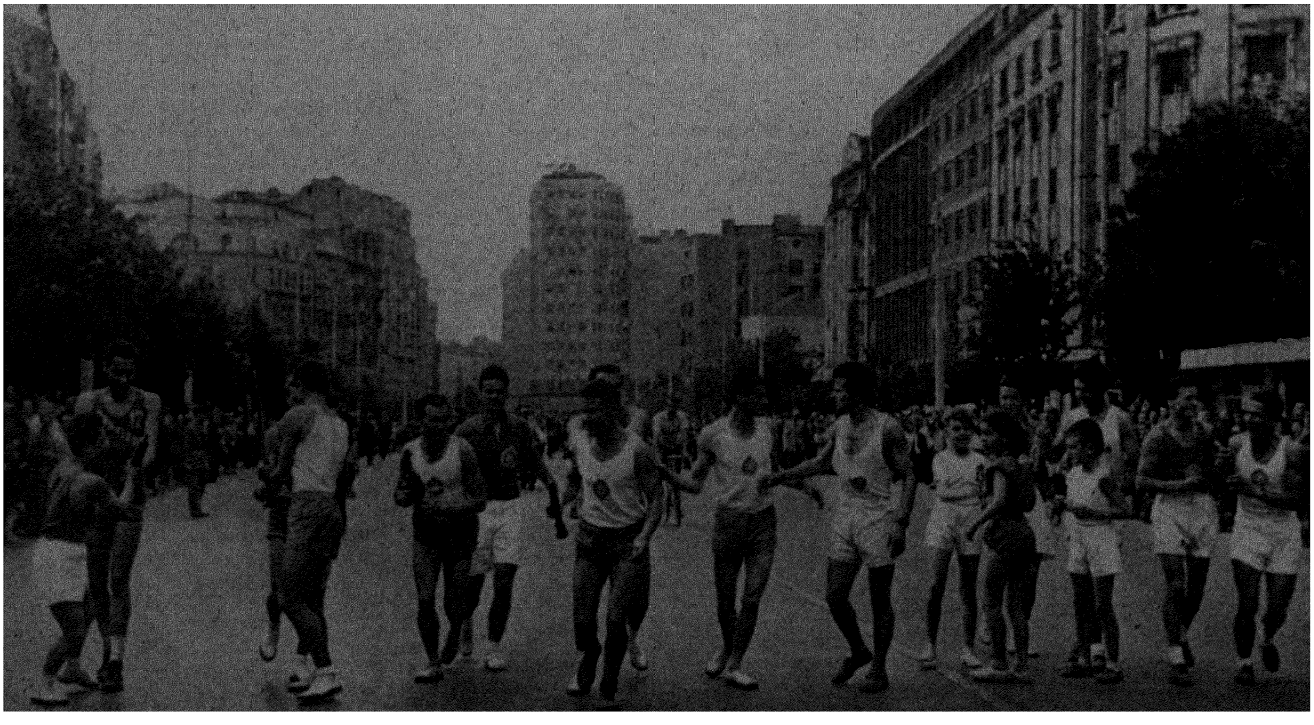
	Population	Capital	
Serbia	6,523,224	Belgrade	(388,246)
Croatia	3,749,039	Zagreb	(290,417)
Slovenia	1,389,084	Ljubljana	(120,944)
Bosnia and Hercegovina	2,561,961	Sarajevo	(118,158)
Crnagora (Montenegro)	376,573	Titograd	(12,206)
Macedonia	1,152,054	Skoplje	(91,557)
Total	15,751,935		

By mid-1950 the total population was estimated at 16,250,000. Other towns (pop., 1948 census): Subotica (112,551); Novi Sad (77,127); Rijeka, formerly Fiume (72,130). Language: Serbo-Croat, Slovene and Macedonian; Albanian, Hungarian and Italian spoken by minorities. Religion (1931 census): Greek Orthodox 48·7%, Roman Catholic 37·5%, Moslem 11·2%. President of the presidium of the people's assembly (*Skupština*), Ivan Ribar; vice presidents, Moša Pijade (Serbia), Filip Lakuš (Croatia), Josip Rus (Slovenia), Djuro Pucar (Bosnia and Hercegovina), Marko Vujačić (Crnagora) and Dimitar Vlahov (Macedonia); prime minister, Marshal Tito (Josip Broz) (*q.v.*); prime ministers of the republican governments: Petar Stambolić (Serbia), Vladimir Bakarić (Croatia), Miha Marinko (Slovenia), Djuro Pucar (Bosnia and Hercegovina), Blažo Jovanović (Crnagora) and Lazar Koliševski (Macedonia).

History. During 1951 Yugoslavia's relations with the Soviet Union and the people's democratic satellites continued to be bad, and this hostility was reflected from time to time in frontier incidents. During the same period relations with the western countries steadily improved. Up to April 1951 Yugoslavia had received credits and grants from the United States to the amount of $190 million and from Great Britain to the amount of £22 million. In June 1951 the United States, British and French governments agreed to make a joint grant of $50 million. The Yugoslav government hoped to obtain further economic aid before the end of the year. Yugoslavia's relations with Italy were somewhat better than in previous years. Agreement on the future of Trieste, of the Yugoslav-occupied Zone B of Trieste Free Territory and of the national minorities on each side of the frontier had not been reached by the end of 1951. Yugoslav opinion was alarmed by evidence of irredentism in Italy, and Italian opinion continued to be concerned for the fate of Italians under Yugoslav rule. On Nov. 14 an agreement was signed between the Yugoslav and U.S. governments by which the United States would grant military aid and would have the right to keep a small military mission, with limited freedom of movement in the country. In general the tone of the Yugoslav press became considerably more friendly towards the west, and speeches by Marshal Tito and other leaders expressed appreciation of western help.

Economic Planning. The first officially published figures on Yugoslavia's foreign trade since World War II showed some interesting changes in its structure and its direction. The share of timber and timber products in Yugoslav exports rose from 21% in 1939 to 32% in 1950, of ores and metals from 10% to 23%, while the share of vegetable and animal products and foodstuffs fell in the same period from 46% to 23%. In imports the share of goods for industrial investment rose from 29% to 46%. In 1947 Yugoslavia's largest customers were the Soviet Union (16% of exports and 21% of imports) and Czechoslovakia (18% of both). In 1950 trade with these countries had ceased, and their place had been taken by the United States (13% of exports and 21% of imports), Great Britain (18% and 17%), and Western Germany (12% and 16%).

On Dec. 28, 1950, the chief economic planner Boris Kidrič told the Yugoslav parliament that the government had decided to postpone until the end of 1952 the completion of the five-year plan. After that date there would be no more long-term plans. The aims of the plan were also considerably modified. Certain branches of engineering—for instance, the production in Yugoslavia of locomotives—were abandoned. It was admitted by officials that the planned output and refinement of oil could not be achieved. On the other hand electrification projects were increased even beyond the original aims. Kidrič



Athletes taking part in a relay race held in Belgrade on May 25, 1951, in honour of Marshal Tito's birthday.

told the Trade Union council in October that the main purposes of the plan, as modified, were to increase electric power resources and to expand the textile, mining and steel industries. Yugoslav industry still suffered from severe labour shortage during 1951. The measures of decentralization, undertaken already in 1950, aimed not only to give greater initiative to managers, who were made responsible for finding their own raw materials, machines and spare parts inside Yugoslavia or abroad, and were given greater freedom of choice both as to what their factories should produce and where they should sell it, but also to reduce administrative personnel and increase the numbers working at the factory bench or on the land. It was hoped to transfer the central planners and some members of superfluous regional planning staffs to administrative jobs in factories, to send skilled workers who had become clerks or administrators back to skilled jobs in the workshops, and to send some of the unskilled workers back to the land, where more labour was needed in certain regions.

In April several central economic ministries had been abolished, advisory central councils had been created in their place and operational control over heavy industry, public utilities and social welfare had been transferred to the governments of the six constituent republics. In October another reorganization took place. The Ministry of Foreign Trade was abolished, its functions divided between the Ministries of Foreign Affairs and Finance, and its chief, Melentije Popović, was made central minister of finance. Four of the advisory councils were abolished and replaced by a Council of Industry and Building, whose chairman was to be the veteran guerrilla leader General Svetozar Vukmanović-Tempo. The Economic council attached to the central government was also reshuffled so as to include leading economic, financial and military figures. Kidrić remained its chairman.

Peasantry and the Regions. Relations with the peasantry remained difficult. During 1950 the pace of collectivization had been slow except in Macedonia, where the number of peasant households in collective farms increased by about one-third, and by 1951 60% of the peasants and 63% of the arable land were held by collectives. In the rest of the country the average share of arable land held by the socialist sector (collective farms and state farms together) was 26% at the beginning of 1951. In the most fertile grain-growing province of Vojvodina, however, it was as high as 50%. It was however clear both that the peasants were unwilling to be collectivized and that the collective farms were inefficient units. In particular, they were strangled by bureaucratic formalities, excessive clerical and administrative staffs and had little incentive to increase their output. The country's food supplies, and its much-needed export surplus, thus depended on the 74% of private farmers. In the summer of 1951 the government attempted to grant incentives both to the collective farms and to the individual producers. On July 1 the compulsory deliveries to the government at low prices were abolished for meat, milk, potatoes and fodder, but not for cereals, fats, wool and industrial plants. On Aug. 9 all debts to the state incurred by collective farms for capital investment were cancelled. Pressure on peasants to enter collectives virtually ceased. This milder policy however encouraged the peasants to ask for more. Families who had been in a collective farm for three years began to claim their legal right to secede. Soon the demand for the break-up of collectives was strong enough to alarm the government. Official spokesmen, including Marshal Tito himself, while repeating that collectivization must be voluntary, attributed requests for secession to agitation by " the class enemy," and stressed that abandonment of " socialist agriculture " would not be tolerated. During September the formation of new collective farms in Vojvodina and Slavonia was reported. In November a published directive of the Communist party announced that collectivization would continue, but that mistakes and abuses hitherto committed would be avoided.

The general effect of the proposed changes in collective farm organization was to place the peasants in a position approximating to that of employed wage earners, obliged to buy from the farms the food that they had produced. At the end of October railway fares were substantially increased, in order to make it more difficult for individual farmers to travel to markets to dispose of their produce. During the preceding months this produce had been selling sometimes at very high prices, and the urban population felt themselves exploited by that section of the peasantry which lived in the fertile plains near cities. The new measure was intended to bring down food prices. It was bound to affect different categories of peasants in different areas in different ways—but would in general be interpreted as an anti-peasant act.

It was significant that reports from Yugoslavia during the second half of 1951 showed that the strongest peasant discontent was expressed in Croatia and in Macedonia. Croatia was the region in which a non-Communist democratic peasant movement had the strongest and oldest roots. Macedonia was a region in which distrust of all things that came from Belgrade was a powerful tradition. The danger that by antagonizing the peasantry the government would strengthen Croatian and Macedonian nationalism and separatism was not to be ignored. It was also important that the Yugoslav army was an army of peasant soldiers. On the other hand as long as the government maintained its high priority for heavy industrial construction it was not able either to pay better prices to the peasants or to produce or import the consumers' goods so sorely needed by both peasants and workers. A policy of economic incentives required a much greater reduction in the pace of industrialization, while a policy that insisted both on national defence and on rapid industrial construction could hardly be realized without coercion.

The government made serious attempts to improve political administration and to end the abuses of power from which the peoples of Yugoslavia had suffered since 1944. In February the State Control commission, an institution copied from Soviet practice, was abolished. A new civil code was introduced which contained specific provisions against arbitrary arrest and stressed the necessity for evidence other than confessions in the law courts. That these reforms were urgently needed and that the government intended to have them really carried out was shown by an astonishingly frank speech made by the minister of interior, Alexander Ranković, in June to the central committee of the Communist party. The minister described in detail the abuses committed and admitted that in 1949 no less than 47% of all arrests made by the police had been unlawful. During the summer the official press conducted a campaign for the destruction of local power cliques and urged the local government authorities (people's committees) to be more active and to prevent individual bosses from setting up little tyrannies of their own.

During the year some political prisoners, condemned in the period when association with west Europeans was a crime, were released. The Serbian peasant leader Dragoljub Jovanović was however still in gaol. On Dec. 5 Archbishop Aloysius Stepinac, head of the Catholic hierarchy in Yugoslavia, was released after serving 5 of the 16 years' prison sentence to which he had been condemned in 1946. His status was not clear, as both the Vatican and he himself maintained that he was still archbishop while the government denied this. (H. S.-W.)

Education. Schools (1949-50): elementary 12,742, pupils 1,640,954, teachers 24,256; secondary 1,242, pupils 434,202, teachers 9,892; teachers' training colleges 69, students 21,917, teachers 787; technical schools 1,249, students 176,631, teachers 14,866; art, musical and dramatic schools 134, students 17,481, teachers 1,585; workers' educational colleges 81, pupils 5,854. Institutions of higher education: 79 faculties, academies and high schools, students 60,566, professors and lecturers 4,354. In addition, the national minorities were provided with 1,264 elementary, 151 secondary and 9 teachers' training schools.

Agriculture. Main crops ('000 metric tons, 1950; 1951 in brackets): wheat 1,827 (2,358); barley 266 (377); oats 194 (315); (1949; 1950 in brackets) rye 269 (219); maize 3,718 (2,081); potatoes 2,060 (1,019); sugar, raw value 97 (100); tobacco 31·0 (17·0); dry beans 158 (97); cotton 5 (2); hemp fibre 70·0 (30·0); flax fibre 4·8 (2·5); cottonseed 9 (7); linseed 2 (4); rapeseed 4 (5); sunflower seed 130 (121). Livestock ('000 head, Jan.): cattle (1951) 5,236; sheep (1950) 10,042; pigs (1950) 4,287; horses (1951) 1,090; goats (1950) 786; mules (1951) 33; chickens (1951) 15,020; ducks (1950) 1,043. Wool production, greasy basis ('000 metric tons, 1949; 1950 in brackets) 16 (16). Wine production ('000 hl., 1949; 1950 in brackets) 4,150 (3,300).

Industry. Manufacturing establishments (1948): 1,042, persons employed, 254,000 wage-earners and 74,300 salaried staff. Fuel and power ('000 metric tons, 1950): coal 1,152; lignite 11,124; crude petroleum (1949) 62·6; electricity (million kwh., 1949) 2,186; manufactured gas (million cu. m., 1949) 27·0; natural gas consumption (million cu. m., 1949) 8·0. Raw materials ('000 metric tons, 1949): manganese ore 4·3; pig iron 191; crude steel 399; copper 48·5; lead 56·8; zinc 8·8; bauxite 368; aluminium 2·4; chrome ore 41·9; molybdenum ore 0·2; antimony ore 2·8; magnesite 87·2; salt 108·9. Timber production (1949; 1950 in brackets): sawn softwood ('000 standards) 542·3 (453·7); sawn hardwood ('000 cu. m.) 677·9 (635·9). Manufactured goods (1949): cotton yarn ('000 metric tons) 29·0; cotton and mixed piece-goods (million sq. m.) 169·6; wool yarn ('000 metric tons) 12·9; woven woollen fabrics (million sq. m.) 27·9; cement ('000 metric tons) 1,300.

Foreign Trade. (Million dinars, 1950): imports 11,791; exports 7,930. Main sources of imports (1950): U.S. 22%; U.K. 17%; Western Germany 17%; Italy 10%. Main destinations of exports: U.K. 19%; U.S. 14%; Western Germany 12%; Italy 12%. Main imports: textiles 25%; ores, metals and products 14%; machinery and equipment 12%. Main exports: wool and products 33%; ores, metals and products 23%; vegetable products 15%.

Transport and Communications. Roads (1950): 30,184 mi. Licensed motor vehicles (Dec. 1950): cars 12,000, commercial 20,000. Railways (1949): 7,223 mi. Shipping (merchant vessels owned over 100 gross tons, July 1950): 107; total tonnage 216,789. Air transport (1949): mi. flown 490,769; passengers carried 33,998. Telephones (1949): 74,994 subscribers. Wireless licences (Dec. 1949): 299,055.

Finance and Banking. Budget estimates (million dinars): (1950) balanced at 173,746; (1951) balanced at 172,662. Currency circulation (June, 1950; June 1951 in brackets): 44,990 (37,380). Bank deposits (June 1950; June 1951 in brackets): 43,610 (91,770). Monetary unit: *dinar*, with an official exchange rate devalued on Dec. 28 from D. 140 to D. 840 to the pound and from D. 50 to D. 300 to the U.S. dollar.

BIBLIOGRAPHY. H. F. Armstrong, *Tito and Goliath* (London, 1951); Vladimir Dedijer, *With Tito Through the War* (London, 1951); Josef Korbel, *Tito's Communism* (Denver, Colorado, 1951); Leigh White, *Balkan Ceasar* (New York, 1951).

ZANZIBAR. British protectorate off the east coast of Africa comprising the islands of Zanzibar (640 sq.mi.) and Pemba (380 sq.mi.). Pop. (1948 census): 264,162 incl. 44,560 Arabs, 15,892 Indians and 296 Europeans. Religion: Moslem. Capital, Zanzibar (pop. 1948, 45,275). Administration: Sultan; British resident; executive council presided over by the Sultan; legislative council. Ruler, Sultan Khalifa bin Harub; residents (1951): Sir Vincent Glenday and John Dalzell Rankine.

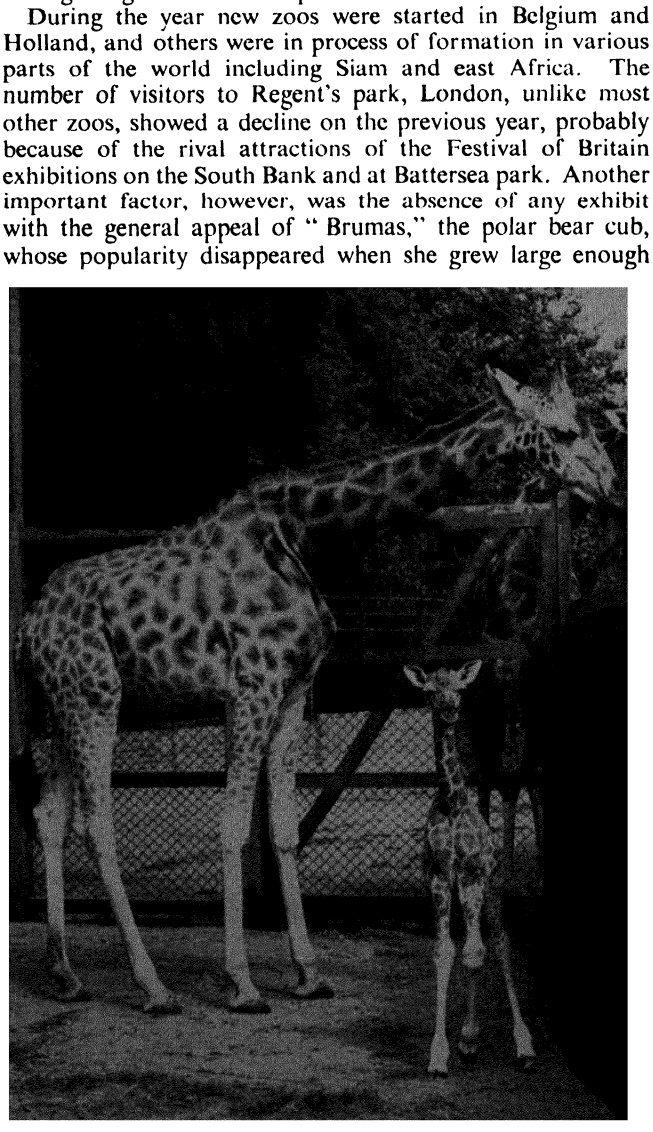
History. " Sudden death " disease in cloves remained the protectorate's chief problem in 1951. It had been decided in 1950 not to proceed with wholesale cutting-out of affected trees partly because of the inevitable political repercussions and partly because it would have cost £1 million. During 1951, however, scientists diagnosed the cause of the disease and it was hoped that as a result alternative methods of control might be developed. In spite of the disease a bumper crop was harvested: in very good years it was not possible to pick the whole crop and the effect of " sudden death " was felt only when crops were normal or sub-normal. Proposals for elections in the Arab and Indian communities were still under consideration at the end of the year. Three people were killed in police firing after a riot occurred on July 30 which followed the conviction of 19 Africans for refusing to allow their cattle to be inoculated against anthrax.

Education. Schools (1948): 55 primary, 8,639 pupils; 3 secondary, 397 pupils; 2 teacher training centres.

Finance and Trade. Currency: East African shilling (20*s.* = £1 sterling). Budget (1950 act): revenue £1,470,000; expenditure £1,030,000. Foreign trade (1950): imports £3,900,000; exports £5,100,000. Principal exports: cloves, coconut oil, oil cake. (K. G. B.)

ZOOLOGICAL GARDENS. Delegates from all parts of the world attended the annual meeting of the International Union of Directors of Zoological gardens, held in June 1951 at Amsterdam under the presidency of Professor H. Hediger (Basle). Various problems were discussed, including the value of supplementary vitamins in the breeding of animals in captivity. Another meeting, confined to British representatives, was held at Chester, in September, at the invitation of the council of the North of England Zoological society and included not only senior members of the staffs of all kinds of zoological gardens in the British Isles, but also others interested in the supply and care of wild animals. At this gathering, the necessity of keeping exact records of the history of all animals in zoological gardens was emphasized.

During the year new zoos were started in Belgium and Holland, and others were in process of formation in various parts of the world including Siam and east Africa. The number of visitors to Regent's park, London, unlike most other zoos, showed a decline on the previous year, probably because of the rival attractions of the Festival of Britain exhibitions on the South Bank and at Battersea park. Another important factor, however, was the absence of any exhibit with the general appeal of " Brumas," the polar bear cub, whose popularity disappeared when she grew large enough



A baby giraffe, a fortnight old, with its mother at Whipsnade zoo, July, 1951.

to be separated from her mother. A family of tiger cubs with their collie foster mother provided a minor attraction, but nothing seemed to arouse so much interest as the arrival of two new riding elephants from Ceylon. These were marched through the streets of London from the Royal Albert docks to Regent's park, and at each pedestrian crossing both elephants stopped until one of them had tested the white bands and the other the dark bands.

There were many interesting additions to collections, but the most striking was a pair of white rhinoceros acquired by the Antwerp zoo, the first living specimens ever shown in Europe. The walrus at the Copenhagen zoo was another rare exhibit, and the birth of a second Asiatic elephant at the Rome zoo another notable occurrence. The Regent's park zoo continued to maintain an outstanding variety of Primates and during the year Dusky Langurs, various species of colobus, a talapoin and a yellow-headed marmoset were added to the collection. In addition, a red-handed marmoset bred in captivity for the first time on record. The use of penicillin and other antibiotics was partly responsible for the control of respiratory infections, and the addition to the diet of supplementary vitamins, especially D2, helped to maintain the general well-being of the animals. Other mammals exhibited for the first time included a pair of almost hairless rodents from Somaliland with the somewhat misleading name of naked mole rat (*Heterocephalus glaber*). Among birds, the arrival of a third specimen of the ne-ne or Hawaiian goose at the new grounds of the Severn Wildfowl trust was a notable event, as the world stock of this species is only between 24 and 40 individuals. (E. HIN.)

ZOOLOGY. The only international meetings during 1951 of interest to zoologists were concerned with special aspects of the subject. The most important of these was the ninth International Congress of Entomology (*q.v.*), held from Aug. 17 to 24 at Amsterdam, where a symposium on symbionts in insects was held during the same month. The International Congress of the Sea met at Ostend, July 4, and the Joint Commission on Oceanography in Brussels, during September. The second International Veterinary and Zoological congress met at Madrid, Oct. 21-28, and the (British) Society for the Study of Fertility of Mammals, at Cambridge, June 21-22. There was also a technical meeting of the International Union for the Protection of Nature at The Hague, Sept. 19-22.

Publication and Research. The number of zoological journals continued to increase, among the more important additions being *Experimental Parasitology* (New York), and the *Deutsche Zoologische Zeitschrift*. The textbooks included vol. x, issued in two parts, of the French *Traité de Zoologie* (Paris). This volume dealt with the higher insects and Hemipteroides. There were two more volumes of Libbie H. Hyman's *The Invertebrates* (New York) and a book by H. W. Rand on *The Chordates* (New York). There was a long-needed work on *Zoogeography of the Land and Inland Waters* by F. de Beaufort (London), and some recent views on evolution were contained in G. S. Carter's *Animal Evolution: a Study of Recent Views of its Causes* (London). Jean G. Baer's *Ecology of Animal Parasites* (Urbana) summarized lectures on the subject given by the author at Illinois university. J. Busvine's *Insects and Hygiene* (London) was a useful contribution to the biology and control of insect pests of medical and domestic importance in Great Britain. There was also a second edition of T. W. M. Cameron's *The Parasites of Domestic Animals* (London). Among books on special subjects T. Goodey's *Soil and Freshwater Nematodes* (London) was one of the most important, being one of the first comprehensive monographs containing descriptions of all known genera, and also their bionomics, especially relating to food habits. André Lwoff's *Biochemistry and Physiology of Protozoa* (New York) united a series of articles by eight contributors on various aspects of this subject. *The Anatomy of the Gorilla*, arranged and edited by W. K. Gregory (New York), comprised the studies of H. C. Raven, who died in 1944, and also contained contributions by members of the staff of the American Museum of Natural History and Columbia university. G. Gaylord Simpson's *Horses: the Story of the Horse Family in the Modern World and through Sixty Million Years of History* (New York) was based largely on material in the American Museum of Natural History. Vol. 8 of D. A. Bannerman's *The Birds of Tropical West Africa* (London) and vol. 7 of G. L. Peters' *Check-list of Birds of the World* (Cambridge, Massachusetts) were two important additions to well-known publications. Among monographs, J. Delacour's *The Pheasants of the World* (London) was an authoritative account beautifully illustrated by 32 plates by J. C. Harrison. Others of interest included a second edition of Erna Mohr's *Die freilebenden Nagetiere Deutschlands* (Jena) and Sajiro Makino's *Chromosome Numbers in Animals* (Iowa). There were also two volumes published by the Ray society in London: G. H. Locket and A. F. Millidge's *British Spiders*, vol. 1, and W. M. and Olive S. Tattersall's *The British Mysidacea*. Finally, there was an outstanding book by a naturalist traveller, Sir John Greham Kerr's *A Naturalist in the Gran Chaco* (Cambridge), containing observations made during the course of two expeditions to that little-known region in 1889-91 and 1896-97.

The number of papers listed in vol. 85 of the *Zoological Record* (dealing mainly with the literature for 1948), published in May 1951, reached a total of 11,966, about the same as the previous year. The greatest number of these (2,807) were concerned with insects; birds, with a total of 1,487 papers, came second and mammals (1,130) were third, closely followed by protozoa, amphibia and reptiles, fishes and worms. A total of 1,331 new species was recorded during 1948, the numbers of new insects (707) and arachnida (140) accounting for a large proportion. It is difficult to select any of these publications for special mention but reference may be made to an authoritative account of the history and anatomy of Père David's deer (*Elaphurus davidianus*) by F. Wood Jones and a number of collaborators (*Proceedings of the Zoological Society of London*, vol. 121, pp. 319-68). Nothing was known of this animal between its disappearance in the wild, apparently well before the Christian era, and its discovery by Père David in the imperial hunting park at Peking, in 1865. The date when emperors of China laid the foundation of this Peking herd or the place where they obtained the animals are among the mysteries of zoological literature. This herd was destroyed early this century and during World War II the only specimens in existence were at Woburn park, where the present Duke of Bedford and his father built up a herd from individuals acquired at the end of the 19th century and beginning of the 20th century.

The study of relationship between haemoglobin and erythrocruorin, by D. Keilin and E. F. Hartree (*Nature*, vol. 168, p. 266), summarized information on the oxygen carriers of different organisms. These authors recommended the disuse of the term erythrocruorin, which was introduced by Ray Lankester in 1868 to cover all red pigments carrying oxygen in vertebrates and invertebrates but later was abandoned by him. This term had been revived for the red pigments in invertebrates, but it was shown in this publication that the distinction had no justification and should be abandoned, as all known red respiratory pigments were modifications of haemoglobin. (*See* ENDOCRINOLOGY; ENTOMOLOGY; GENETICS; MARINE BIOLOGY; PALAEONTOLOGY; ZOOLOGICAL GARDENS.) (E. HIN.)

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