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POPULATION ANALYSIS

By T. LYNN SMITH

HEAD OF THE DEPARTMENT
OF SOCIOLOGY AND ANTHROPOLOGY
AND DIRECTOR OF THE
INSTITUTE FOR BRAZILIAN STUDIES
VANDERBILT UNIVERSITY

FIRST EDITION

New York Toronto London

McGRAW-HILL BOOK COMPANY INC.

1948

POPULATION ANALYSIS

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THE MAPLE PRESS COMPANY, YORK, PA.

To My Sons

Jackie and Dicky

PREFACE

THIS book is an introduction to demography, the scientific study of population. In it I have attempted to summarize what is known about the subject of population and to describe the methods and techniques by which that knowledge has been attained. The volume is therefore concerned with sources of data and methodology fully as much as with known facts about, and relationships among, demographic phenomena. The attempt has been made to treat the subjects in language that can be readily understood by the advanced undergraduate in college or university.

The bulk of the data pertains to the United States, since these data are most readily available and because the American student is most concerned with materials about his own country. However, no effort has been spared to assemble comparable information from other portions of the world so that the situation in the United States may be compared with, or contrasted to, that in other great world regions. Naturally the reports of the various censuses taken in this country, from the first to the sixteenth, are the sources of many of the facts. Together these reports form the world's greatest repository of demographic information. Any student of the social sciences would be well paid for taking a semester's work in population even though the course did no more than familiarize him with the reports of the decennial census and the annual publications on vital statistics. The value of the primary materials gathered by the Bureau of the Census has been greatly enhanced by the excellent analytical efforts on the part of demographers during the last quarter of a century. It can rightfully be said that population study is among the most rapidly advancing parts of social science.

A word is necessary about the title, since general books in this field ordinarily are labeled "Population Problems." The avoidance of the pathological emphasis is deliberate. I do not subscribe to the proposition that the United States has been, or is in any immediate danger of being, overpopulated. As far as I am able to judge, mankind is not at the crossroads from the demographic standpoint; nor are we in the United States in any danger of having to hang out the sign "Standing Room Only." Our science has progressed to the point that one can well afford to play down the pathological and to refrain from efforts at sensationalism, once thought

necessary by those who dealt with population questions. Population analysts may be sure that the data which they assemble, classify, and correlate and from which they extract meaningful statements of fact and relationship are needed by many agencies in modern society. Demographers have much to do in putting tested population facts into such a form that they may be useful in the planning of a more adequate school system and the formulation and execution of better educational policies. Adequate health and hospital services can be attained only if the population analyst is ready with the necessary demographic information when the programs and institutions are being reorganized. In the twentieth century the data and services of the population expert are in constant demand in connection with agricultural policies. Industry can be expected to give increasing attention to the source, quality, training, and distribution of the national labor force; and this will involve nearly every phase of demography. City and county planning, systems of communication and transportation, and marketing are only a few more subjects whose mention immediately brings up the need for precise population data. Is it necessary to say more in order to justify leaving off the emphasis upon the pathological?

The title also has another justification. As indicated above, this book is concerned with population data, mountains of which have accumulated since modern census taking began, and the methods and techniques to be used in their analysis. It devotes little space to the philosophical and speculative phases of the subject, not a few of which are carefully disguised in quasi-mathematical form as this or that "law of population growth." To be sure, such mental gymnastics have a place in man's intellectual activities, but that place is hardly in a course or a text for undergraduate students. At such a level such speculations are more likely to serve as sedatives—to lull the student into a false security of believing that he understands the basic principles of demography—than to challenge him to take part in the careful, detailed observation and analysis that are essential for scientific progress in any field. In other words, a basic assumption in the preparation of this book has been that the student in a university course on population should receive more than a superficial knowledge of how to bandy about this or that bit of armchair speculation. By the use of the title "Population Analysis," I have sought to convey an accurate idea of the basic nature of the volume.

The unusual number of maps, charts, and graphs used in the pages that follow also calls for a few words of explanation. Even a cursory examination will indicate that I have relied heavily upon graphical methods of analyzing and presenting population data. However, every effort has been made to refrain from the use of charts, graphs, and maps for the presenta-

tion of materials that merely duplicate those given in the text or in the tables. Nor have graphical devices been used where a short exposition or a simple table would serve the purpose just as well. But where such methods contribute to an analysis of the data or to brevity, clarity, and effectiveness in the presentation of the results, charts, graphs, and maps have been used freely. Had such devices not been employed, it would have been impossible to have compressed within the limits of this volume or even within those of a much larger one the tremendous amount of detailed information that has been included. Even more important, it would have been impossible to examine the relationships between two or more factors with confidence that the results were not being obscured by other factors known to be associated with those under consideration. The preparation of all the charts and graphs employed in this book has been a long and arduous task. It would have been much simpler to have been satisfied with the partial analysis, to have left the data in tabular form. But because they are indispensable as analytical tools and economical of space and the reader's time, graphical methods have been used unsparingly.

T. LYNN SMITH

BATON ROUGE, LA.
August, 1947

ACKNOWLEDGMENTS

IN offering this book to the public, particularly to the academic world, I desire to express my thanks to a large number of friends and associates who have aided in one way or another. The students in my population course at Louisiana State University deserve first mention. Over the years their interest, queries, and comments were my chief stimulation in the work. Not a whit less stimulating were the members of my class on "Análise das populações" at the Faculdade de Filosofia, Universidade do Brasil, where as visiting professor I presented part of the materials contained in this volume during the months of July and August, 1946. My thanks are especially due the Director of the Faculdade, Dr. Antonio Carneiro Leão, and Prof. Hilgard O'Reilly Sternberg, Head of the Department of Geography.

Not a few graduate and research assistants have shared with me in the thrills of discovery as well as in the slow, tedious, and painstaking work of assembling, classifying, analyzing, presenting, and checking the facts. To them all and especially to Mrs. Julien R. Tatum and Mrs. Marylee Mason Vandiver, who worked with me in the Institute of Population Research, and to Louise Kemp of the Department of Rural Sociology, I shall always be heavily indebted.

Mrs. Tatum and Mrs. Vandiver prepared most of the charts, and both helped greatly in editing and checking the manuscript. To Miss Kemp I am grateful for the preparation of some of the charts, for advice and counsel about the preparation of others, and for reading the manuscript when it was still in rough form. Her sharp pencil helped eliminate many defects from the typewritten pages. J. Allan Beegle, John B. Mitchell, and Mary Ellen Caldwell are other former assistants to whom I wish to express my thanks. My secretary, Miss Marion Comeaux, typed the manuscript, aided with the tabulations and the checking, and assisted with the work in all its phases. Paul H. Price and Thomas R. Ford assisted with the proofs and were mainly responsible for the preparation of the index.

My associate, Prof. Homer L. Hitt, is the one on whom I have relied most heavily for advice on technical matters. He provided assistance on questions of interpretation and made a careful scrutiny of fact and theory

while the materials were still in the preliminary stages. His keen analytical mind assisted in the improvement of nearly every section in this volume.

Thanks are due several officials and former officials of Louisiana State University and of the General Education Board. As director of the Louisiana Agricultural Experiment Station, Dr. Carr T. Dowell encouraged me to undertake rural population studies, the investigations that opened my eyes to the importance of and possibilities in the study of demography. His successor, Director W. G. Taggart, also has lent every encouragement to the development of this field of research. It was while working on my projects at the Experiment Station that I acquired the experience in population study which made possible the preparation of this volume. To former President William B. Hatcher, Dean Fred C. Frey, and Dean Henry V. Howe of Louisiana State University, and Dr. A. R. Mann and Mr. Jackson Davis of the General Education Board are due my sincere thanks. These gentlemen were responsible for an arrangement whereby my teaching load was reduced and a greater share of my time given to the university's Institute of Population Research in order that I could complete this book and some others on which I had been working. It is hoped that this volume will partially vindicate their judgment in deciding to support my work at the institute.

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Part I

The Number and Distribution of the Population

The number of inhabitants and their distribution are the aspects of demography in which there is the most interest. They are treated together in the single introductory chapter of which Part I is composed.

Chapter 1

THE NUMBER AND DISTRIBUTION OF THE POPULATION

INTRODUCTION

THE number of persons in the population of a given geographical unit and the manner of their distribution with respect to area and resources are the central facts of demography. The importance of a nation, state, or city is largely judged in terms of these two indicators. Fortunately, both are objective items, the magnitudes of which are subject to fairly accurate and facile measurement. Consequently, the first facts sought after concerning any population ordinarily have to do with size and distribution. Moreover, it appears certain that in instances where a great variety of population data is available, those facts pertaining to size and distribution will be most reliable. The process of obtaining other items of population information, which for the most part represent subclasses under these main categories, increases the chance for the incorporation of additional error. The demographer, then, is usually on the firmest ground when dealing with the size and distribution of a population. These two factors represent different aspects of the same phenomenon in the sense that except for the world as a whole, a consideration of number is also an analysis of distribution and vice versa. Therefore, it seemed feasible to treat population size and distribution together as an entity.

Importance.—The great and manifold consequence of the number of persons in a population makes this fact of primary importance to the demographer. The level of living of a population—one of the most widely accepted indexes of national achievement—is influenced by its size. In the main a small population results in a higher level of living than a large one. This general relationship is reflected in the high level of living characteristic of such relatively sparsely settled countries as Australia, New Zealand, Canada, and the United States. In comparison, the densely populated countries of India, China, and Japan have low standards of living. The contrast between the levels of living prevailing in these two groups of countries is at least in part due to differences in the numbers of people included in their respective populations.

Size of population is, however, only one of the several conditions affect-

ing level of living, for the relationship between the two is neither direct nor simple. Other factors conditioning level of living include natural resources, technological skills, and social organization. The direction and magnitude of the effect on level of living of changes in these factors as well as in the size of population are obvious. The level of living actually realized by a people results from the interrelation of all these conditions.

Such considerations have given rise to the concept of *optimum population*, that number of persons which combines with the other relevant factors to produce the highest possible level of living.[1] Optimum population varies according to the status of the other factors. Since the other factors have not been quantified and since the nature of the interrelationship is highly complex and little understood, practically no headway has been made in designating precise optimum populations for specific sets of conditions.[2] The situation is further confused because the various conditions are constantly undergoing change. This means that optimum populations are highly dynamic. An optimum population figure would be outmoded by the time it could be ascertained. This fact, along with the others mentioned, largely relegates the concept of optimum population, in its narrowest meaning, to a position of theoretical importance. However, it is possible with some reliability to determine in a general way whether an area or country is overpopulated or underpopulated with reference to the optimum number. And, too, valid decisions can be made as to whether or not one country more nearly than another approaches its optimum in population size.

Viewed from a political and military standpoint, the number of persons in a population assumes a more tangible and meaningful role. The military strength of a nation in wartime and consequently its bargaining power in peacetime are to a considerable extent tied up with the magnitude of the forces that it can marshal for both the production line and the battle line.[3]

[1] It is, of course, conceivable that in some countries the goal sought after may not be the "highest possible level of living." For such cases, the optimum population would more correctly be stated in terms of the national aspirations more generally held.

[2] *Cf.* the following statements: "There has been considerable discussion but very little scientific research on the question of the ideal relation of total population to material resources from the standpoint of average productivity per worker and levels of living, at any given stage of technical development and industrial organization. . . .

"Other considerations affecting any final evaluation of optimum population are even more elusive." National Resources Board, *The Problems of a Changing Population*, pp. 28–29, Government Printing Office, Washington, 1938.

[3] Notwithstanding the statement, "There is even less decisive evidence on the relation of population to military power, although assumptions on this subject are frequently made in popular discussion, and sometimes in governmental programs" (*ibid.*, p. 28), it seems quite conclusive that the nations locked in the recent death struggle unearthed

The size of the labor and fighting forces is also largely dependent upon the size of the population from which they are drawn. A large population as a rule means a powerful nation, whereas a small population results in a relatively weak nation. It should be noted, however, that as was the case with respect to level of living, size of population is not the sole factor determining military capacity. Natural resources, technological skills, and social organization are likewise factors that interact with population in the general formula determining military strength. That population is of first-rate importance among the factors of the equation is demonstrated by the stress put on its increase during the past several years by the imperialistically inclined totalitarian governments.

Census Enumeration.—The number of persons comprising a population may wax or wane with the passage of time. This lack of numerical stability introduces the dynamic element into population analysis. The changes that occur may be positive or negative, fast or slow, continuous or sporadic, large or small.

Numerical changes of all types are subject to measurement, study, and, with some degree of precision, prediction. Such, however, has not always been the case. The history of our progress in studying population size and its dynamic aspects is the story of the evolution of the counting techniques embraced by the modern census.[4] Since the size of a population is ascertained by census enumeration, it is worth while to consider briefly the background development of the census procedures. The first recorded beginnings of crude attempts simply to inventory the population of an area came relatively recently and were refined slowly. Consequently, the census as we know it is largely a modern product.

The term *census* is derived from a Roman practice of registering adult males and their property, a procedure that has little in common with the modern census. Its object was to provide the basis for the proper apportionment of obligations for military service and taxation. This Roman

no effective substitutes for man power. The evolution of America's position in the international scene does reveal a chain of wishful searches for substitutes. Even after Europe was embroiled in conflict, many here relied on our wealth and level of living for protection. Gradually it became evident in high places that man power had to be brought to bear against the Axis but only in the productive sense of making America "the arsenal of democracy." Finally the fact dawned that man power in the factories had to be matched by man power in the field and then, in the attempt to produce a "multimillioned" army, competition for man power between the armed forces, agriculture, and the production line assumed critical proportions.

[4] Although this statement applies equally to all phases of population analysis, it is important to note that the first censuses had as their purpose the determination of total number or in some cases only the number of people in special categories, as of designated race, age, or sex groups.

registration was continuous and, therefore, quite different from the present-day census, which represents an attempt to take stock of a population at a given point of time.

Surviving records indicate that few other early civilizations concerned themselves with the size of their human reservoirs. It has been reported, however, that under David's direction an inventory was taken of all Hebrew males over 20 and of all cattle. In the wake of the collection of this information the view became widespread that God, displeased with such impiety, punished the whole people. It seems that this early irrational resentment toward the counting of people and resources was universal. To the present time it persists in the East. As late as the eighteenth century it was evidenced in America and even more recently in England.[5] Throughout the world this antagonistic religious attitude has been no small factor in the slow spread and development of census practices.

The origins of the modern census can be traced only to the latter part of the seventeenth century. In 1662 John Graunt in his publication *Observations on the London Bills of Mortality* made the first attempt to estimate the population of a city. One year earlier, G. B. Riccioli published his *Geographiae et hydrographiae reformatae libri duodecim* in which was included an estimate of the world's population. Following these beginnings, almost a century passed in which, although various attempts were made to determine the populations of cities, provinces, and other small geographical units, no one undertook the enumeration of an entire nation.

The declining years of the eighteenth century saw the birth of the modern national census. Where the first qualified version of it appeared is open to question; several countries, including the United States, England, Sweden, and Canada, are contenders for the honor. Without reviewing the various claims set forth or attempting to name one country the true progenitor, one may state without reservation that the United States Census has exerted the greatest influence on the spread of census procedures to other countries. During the nineteenth century one European nation after another adopted some form of census; finally in 1897 the first census of Russia was taken, a step that brought virtually the last part of the Continent under some system of periodic enumeration. Gradually census taking has been extended to most parts of the world; it was recently estimated that two-thirds of the world's population has been enumerated. This fraction was enlarged continually until the Second World War enveloped the continents. The densely populated areas yet untouched by census procedures are for the most part certain sections of China and Africa.

[5] Resistance to early census counts also tied in with their main purpose—to provide a basis for military conscription and taxation.

Some have called the United States Census a "political accident," since the provision of our decennial enumeration sprang from the historic conflict between small and large states.[6] The former demanded equal representation in the national legislative body, whereas the latter felt their large populations justly called for more power. The compromise solution set up a legislature composed of two chambers: the Senate, in which states would share equally in power, and the House of Representatives, in which representation would depend on population. The decisive influence of size of population on the composition of the House of Representatives, together with the general awareness of the dynamic aspects of population, made it apparent early that some periodic inventory of the residents of the various states was a must. To take care of this matter, the following provision was included in the constitution:

> Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed. The actual enumeration shall be made within three years after the first meeting of the Congress of the United States, and within every subsequent term of 10 years, in such a manner as they shall by law direct.[7]

In accordance with these terms the first United States Census was taken in 1790, and it has been repeated every 10 years, the Sixteenth Census having been taken in 1940.

Definition of Terms.—A census is a periodic count of population expedited through direct visitation of the people. The United States Census, for example, satisfies constitutional requirements by simply enumerating the population of the various states every 10 years. Actually, the modern census amounts to much more than a count of people. Through the years the information collected by the United States Census has been expanded in response to continuous and growing demands until it bears little resemblance to the simple beginnings, which themselves were more elaborate than the stated minimum.

Despite its present-day multitudinous questions and classifications, the census retains the primary task of ascertaining the size of the population. Since this is the most elemental population fact, it is pertinent to inquire, What is population? Certainly the term refers to persons who are present in a definite area—the population of a town, city, state, or nation. Further refinement of the concept, however, is necessary. What criterion deter-

[6] WILLCOX, WALTER F., "Census," *The Encyclopedia of the Social Sciences*, vol. III, The Macmillan Company, New York, 1930, discusses fully the backgrounds of our decennial enumeration.

[7] *Constitution of the United States*, Art. I, Sec. 2, Par. 3, modified by Fourteenth Amendment Par. 2.

mines the persons belonging to a particular area? Two approaches to this question are in vogue. One assumes that all persons physically present in a given area at a given point of time on the census date belong in that area. The enumeration of an area according to this procedure—the practice of the English Census—results in what has been called the *de facto* population. The other approach considers that only persons having their usual place of residence in a given area belong in that area. This practice, which is followed by the United States Census, gives what is termed the *de jure* population.[8] The impracticability of this latter conception as a basis for census enumeration in our present dynamic society is becoming ever more apparent. The weakening of family ties, the frequent relocation of industries, the growing reliance on migrant agricultural laborers, wage and opportunity differentials among areas, rapid means of transportation and communication, and many other factors all combine to make *usual place of residence* an increasingly meaningless term. The concept *de facto* population would, no doubt, be more easily enumerated in a highly atomized, fast moving society such as ours.

It has been suggested that some future United States Census, "seeking a strictly logical basis for apportionment of representation," may utilize a third method of assigning a person to a geographic location—according to legal or voting residence.[9] Ordinarily, legal residence and usual place of residence may be and are considered synonymous. However, there are many exceptions to this general correlation, and there is reason to believe that such exceptions are on the increase in modern society, which seems in some respects to be assuming a transient character. Unquestionably, the largest aggregation of persons in America whose "usual" and legal residences do not jibe are dwelling in the District of Columbia. There thousands, indeed hundreds of thousands of persons make their permanent homes but retain, for political, social, and other reasons, legal residence in some state, usually the one from which they migrated. This phenomenon, however, is by no means confined to the residents of our national capital.

The immensity of the task of enumerating an enormous population raises another important question. The work, of course, cannot be completed instantaneously or even in a day or week in so vast a nation as the United States. At the same time the purpose of the census is to give an

[8] The adjectives *de facto* and *de jure* are also used to modify the noun *census*. When so used, they specify which of the two practices characterizes the enumeration in question.

[9] TRUESDELL, LEON E., "Methods Involved in the Federal Census of Population," in Stuart A. Rice (ed.), *Methods in Social Science*, p. 201, The University of Chicago Press, Chicago, 1931.

account of the population at a given point of time. In order to cope with this difficulty one particular day is designated as the "census date" and all information is supposed to be collected as of that date. Since the actual job of enumeration in the United States consumes 2, 3, sometimes 4 weeks, many persons move, die, or are born between the census date and the arrival of the enumerator. He is instructed to record the situation for each family or persons as it existed on the census date. This means that persons born after the census date should be excluded, persons dying after the census date should be included, etc. It is believed, however, that enumerators do not strictly follow this provision of the instructions.

Present-day usage has extended the meaning of population beyond the limits applying to the previously discussed concepts of total population. It is perfectly legitimate to set off segments of the total and refer to them as "populations." For example, one frequently hears mentioned the relief population, the military population, the migratory population, the youthful population, the illiterate population, etc. Observe that in such special uses of the concept population it is necessary invariably to designate the particular group to which reference in made. In these cases the territorial element remains; *i.e.*, the groups have a definite area basis.

Density of Population.—The size of an area such as a state or nation is more easily determined and also less fluctuating than its population. When both are known, it is a small matter to obtain the simple but useful ratio of the population to the land area. The computation consists of dividing the number of people of the geographical unit by the land area of that unit expressed in square miles (or square kilometers). The resulting ratio is a convenient measure of population density and may be thought of as the average number of inhabitants residing in each square mile of the given area. When computed in the same manner for different geographical units, it provides an excellent basis for comparing their densities of population. This measure, although far from perfect, is probably the most useful single indicator of the relationship between people and resources.

NUMBER AND DISTRIBUTION OF THE POPULATION OF THE WORLD

The number of people on the earth has never been known with any degree of exactitude since many countries have never taken censuses of their population. It is a considered guess that in the neighborhood of one-third of the world's population has not been officially counted. Population figures for the areas inhabited by these uncounted millions are arrived at through estimates based on the indicative information available. At best these estimates for large masses of the world's population and large areas of

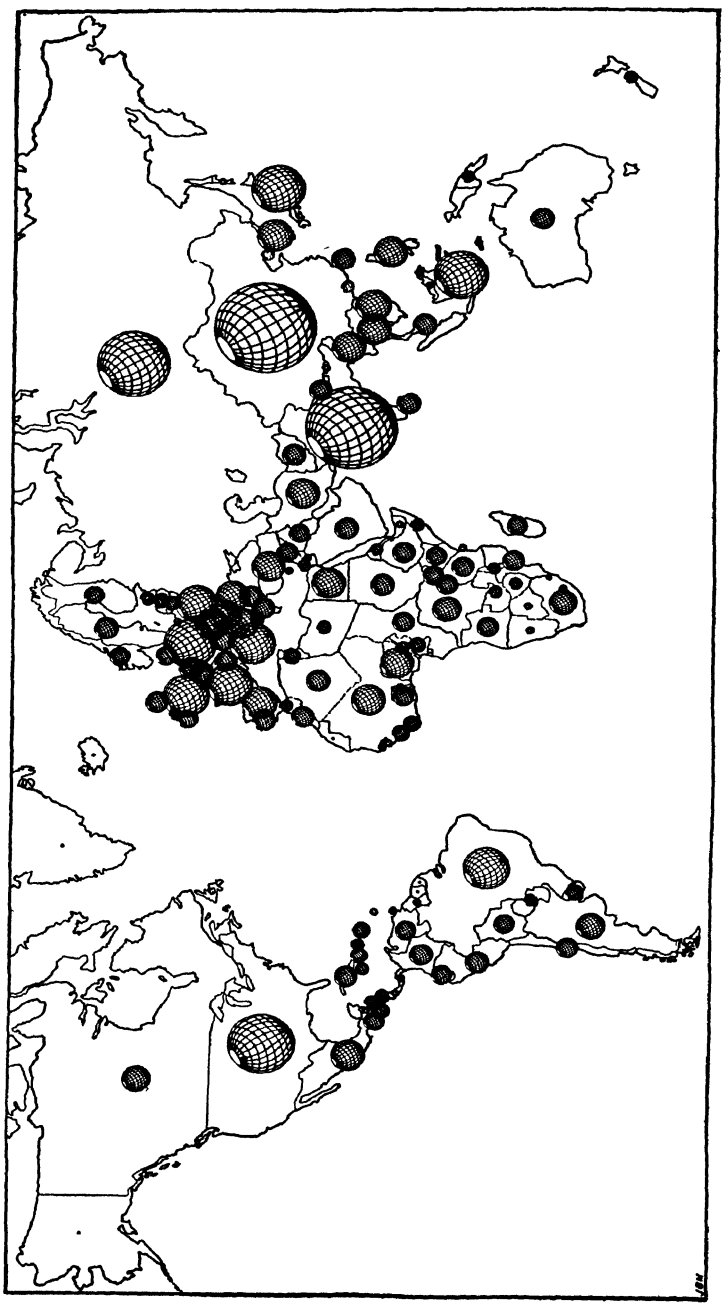


FIG. 1.—Distribution of the world's population, 1940.

the earth's surface, such as Central and South America, Asia, and Africa, are only rough approximations. Because of the current world-wide upheavals, it is very unlikely that any more adequate data on world population will be forthcoming in the immediate future. For this reason the last estimate made by the League of Nations in 1940 and giving data as of Dec. 31, 1938, will probably serve as a bench mark of world population for some time to come. This compilation of data places the total world population at 2,145,200,000, or roughly 2¼ billions. Even this figure undoubtedly contains a large margin of error, possibly as much as 200 million. Since the tillable land of the earth is about 13 billion acres,[10] there is an average of slightly over 6 acres for each of the world's human inhabitants. In terms of total land on the earth, slightly over 15 acres are available for each person.[11]

There is nothing approaching uniformity in the distribution of the world's population over the surface of the earth. In Table 1 are reproduced the 1938 estimates as compiled by the aforementioned authoritative agency, the League of Nations. To make the data more meaningful, the land area of each of the countries and computations showing density of population per square kilometer have also been included. Extensive areas are almost uninhabited, whereas teeming human multitudes are crowded into relatively small areas. Inspection of a world map (Fig. 1) showing distribution of population reveals that people tend to cluster in rather narrow zones adjacent to the coast lines of the continents, though, of course, wide differences in population density exist between the coastal regions of the world. The most densely populated areas of the world are China, India, Europe, Japan, and the eastern part of the United States. In contrast, vast territories having thinly settled populations are situated mainly in the central regions of the continents and are therefore some distance from the ocean. Sparsely populated areas include Siberia, central portions of Africa and South America, and middle and northern parts of North America. An explanation of the great variations in population density embraces the factors of topography, climate, natural resources, geographical location, and technological development.

The irregular geographical distribution of the world's people is particularly evident from a comparison of the populations of the various continents.[12] Considerably over one-half of the world's inhabitants (1,170

[10] EAST, EDWARD M., *Mankind at the Crossroads*, p. 69, Charles Scribner's Sons, New York, 1928.

[11] Assuming that total land on earth is 33 billion acres.

[12] The population of Europe is known with relative certainty, since all of its countries take censuses; the figure quoted for North America is subject to a narrow margin of error; and for South America still greater error. Estimates also play a large part in the population figures for Asia (particularly China) and Africa.

TABLE 1.—POPULATION, LAND AREA, AND DENSITY OF POPULATION, BY DIVISIONS AND COUNTRIES, DEC. 31, 1938*

Country	Estimated population	Area, square kilometers (000)	Density of population
Africa	155,500,000	30,300	5.1
Egypt (includes desert land)	16,380,000	1,000	16.4
Ethiopia	5,500,000	900	6.1
Liberia	2,500,000	120	20.8
Union of South Africa	10,070,000	1,222	8.2
Tangier	80,000	0.6	133.3
Dependencies, colonies, etc.			
Belgian: Congo	10,329,000	2,356	4.4
British	38,980,000	4,202	9.3
British West Africa:			
Gold Coast	3,450,000	204	16.9
Gambia	205,000	10.5	19.5
Nigeria	19,725,000	877	22.5
Sierra Leone	1,970,000	78	25.3
Basutoland	580,000	30	19.3
Bechuanaland	275,000	712	0.4
Kenya	3,366,000	583	5.8
Mauritius and dependencies	416,000	2.1	198.1
Nyasaland	1,676,000	124	13.5
Uganda	3,745,000	244	15.3
Northern Rhodesia	1,400,000	752	1.9
Southern Rhodesia	1,390,000	389	3.6
St. Helena and dependencies	4,500	0.2	22.5
Seychelles	31,000	0.4	77.5
Somaliland	350,000	176	2.0
Swaziland	160,000	17	9.4
Zanzibar	242,000	2.6	93.1
Anglo-Egyptian:			
Sudan	6,342,000	2,511	2.5
Spanish	1,000,000	333	3.0
Ceuta, Melilla, etc.	115,000	0.2	575.0
Spanish Guinea	120,000	27	4.4
Morocco	750,000	21	35.7
Ifini, Rio de Oro, Sahara	20,000	285	0.07

* SOURCE: *Statistical Yearbook of the League of Nations, 1939–40*, Table 2, League of Nations, Geneva, 1940.

TABLE 1.—POPULATION, LAND AREA, AND DENSITY OF POPULATION, BY DIVISIONS AND COUNTRIES, DEC. 31, 1938.*—(*Continued*)

Country	Estimated population	Area, square kilometers (000)	Density in population
French	39,150,000	10,565	3.7
French Equatorial Africa	3,500,000	2,487	1.4
French West Africa	14,800,000	4,720	3.1
Algeria	7,490,000	2,205	3.4
Somali Coast	50,000	21.7	2.3
Madagascar	3,900,000	592	6.6
Morocco (French Zone)	6,500,000	399	16.3
Reunion	210,000	2.5	84.0
Tunis	2,700,000	156	17.3
Italian:			
Italian East Africa	7,600,000	1,725	4.4
Libya	870,000	1,760	0.5
Portuguese	8,210,000	2,076	3.9
Angola	3,260,000	1,264	2.6
Cape Verde Islands	170,000	4.0	42.5
Portuguese Guinea	420,000	36.1	11.6
Mozambique	4,300,000	771	5.6
St. Thome and Principe Island	60,000	1.0	60.0
Mandated territories	13,950,000	2,460	5.7
Belgian:			
Ruanda-Urundi	3,784,000	55	68.8
British:			
Cameroons	858,000	88	9.8
Tanganyika Territory	5,258,000	969	5.4
Togoland	370,000	34	10.9
French:			
Cameroun	2,609,000	422	6.2
Togoland	781,000	57	13.7
South African:			
South West Africa	293,000	835	3.5
America	274,100,000	40,400	6.8
North America	141,940,000	19,662	7.2
Canada	11,255,000	9,569	1.2
United States	130,300,000	7,839	16.6
Newfoundland	291,000	111	2.6

TABLE 1.—POPULATION, LAND AREA, AND DENSITY OF POPULATION, BY DIVISIONS AND COUNTRIES, DEC. 31, 1938.*—(*Continued*)

Country	Estimated population	Area, square kilometers (000)	Density in population
Dependencies, colonies, etc.	90,000		
Greenland	18,000	313	0.06
Alaska	63,000	1,519	0.04
St. Pierre and Miquelon	4,000	0.2	20.0
Labrador	5,000	311	0.02
Mexico and Caribbean	40,870,000	2,780	14.7
Mexico	19,640,000	1,969	10.0
Costa Rica	623,000	50	12.5
Cuba	4,228,000	114	37.1
Dominican Republic	1,617,000	50	32.3
Guatemala	3,045,000	110	27.7
Haiti	2,600,000	26	100.0
Honduras	1,040,000	154	6.8
Nicaragua	900,000	128	7.0
Panama	560,000	75	7.5
Salvador	1,704,000	34	50.1
Dependencies, colonies, etc.:			
British	2,361,000	55	42.9
British West Indies	1,807,000	27.5	65.7
Bermuda	31,000	0.05	620.0
British Honduras	58,000	22.3	2.6
Trinidad and Tobago	465,000	5.1	91.2
United States:			
Virgin Islands	22,000	0.3	73.3
Panama Canal Zone	45,000	1.4	32.1
Puerto Rico	1,820,000	8.9	204.5
French:			
Guadeloupe	310,000	1.8	172.2
Martinique	255,000	1.1	231.8
Dutch:			
Curacao	101,000	1.0	101.0
South America	91,300,000	17,960	5.1
Argentina	12,957,000	2,793	4.6
Bolivia	3,350,000	1,090	3.1
Brazil	44,116,000	8,511	5.2
Chile	4,635,000	742	6.2
Colombia	8,800,000	1,139	7.7

TABLE 1.—POPULATION, LAND AREA, AND DENSITY OF POPULATION, BY DIVISIONS AND COUNTRIES, DEC. 31, 1938.*—(*Continued*)

Country	Estimated population	Area, square kilometers (000)	Density of population
Ecuador	3,000,000	455	6.6
Paraguay	1,000,000	390	2.6
Peru	7,200,000	1,249	5.8
Uruguay	2,123,000	187	11.4
Venezuela	3,580,000	912	3.9
Falkland Islands	3,000	15	0.2
British Guiana	338,000	232	1.5
French Guiana	31,000	20	1.6
Inini Territory	6,000	70	0.08
Surinam	174,000	156	1.1
Asia.			
Excluding U.S.S.R.	1,134,500,000	26,800	42.3
Excluding U.S.S.R. and China	684,500,000	15,700	43.6
Afghanistan	7,000,000	650	10.8
Arabia	7,000,000	2,600	2.7
Bahrein Islands	120,000	0.6	200.0
Bhutan	250,000	50	5.0
China and dependencies	450,000,000	11,103	40.5
India, other British provinces, Indian states	365,900,000	4,079	89.7
Iraq	3,700,000	302	12.3
Iran	15,000,000	1,643	9.1
Japan	72,750,000	382	190.4
Nepal	5,600,000	140	40.0
Thailand	14,900,000	518	28.8
Turkey	17,100,000	768	22.3
Asiatic	15,750,000	744	21.2
Dependencies, colonies, etc.:			
British (including Burma)	29,610,000	1,012	29.3
Aden, Perim, Socotra	65,000	3.6	18.0
Burma	15,958,000	605	26.4
British Borneo:			
North Borneo	302,000	76	4.0
Brunei	38,000	6	6.3
Sarawak	600,000	109	5.5

TABLE 1.—POPULATION, LAND AREA, AND DENSITY OF POPULATION, BY DIVISIONS AND COUNTRIES, DEC. 31, 1938.*—(*Continued*)

Country	Estimated population	Area, square kilometers (000)	Density of population
Ceylon	5,864,000	66	88.8
Maldive Islands	80,000		
Cyprus	377,000	9.3	40.5
Hong Kong	1,040,000	1.0	1,040.0
Kuria Muria Islands	2,000	0.06	33.3
British Malaya:			
Straits Settlements and dependencies	1,358,000	4.0	339.5
Federated Malay States	2,108,000	72	29.3
Unfederated Malay States	1,820,000	60	30.3
United States:			
Philippine Islands	16,250,000	296	54.9
French	24,050,000	742	32.4
French India	300,000	0.5	600.0
French Indo-China	23,500,000	740	31.8
Kwangchow Wan	250,000	0.8	312.5
Italian:			
Aegean Islands	141,000	2.7	52.2
Japanese	31,640,000	297	106.5
Korea (Chosen)	24,050,000	221	108.8
Formosa (Taiwan)	5,500,000	36	152.8
Kwantung	1,750,000	3.7	473.0
Sakhalin (Karafuto)	340,000	36	9.4
Dutch:			
Netherlands Indies	68,400,000	1,904	35.9
Portuguese	1,250,000	23	54.3
Portuguese India	600,000	4.0	150.0
Macao	170,000	0.02	8,500.0
Timor	480,000	19	25.3
Mandated Territories	5,335,000	318	16.8
British:			
Palestine	1,435,000	26	55.2
Trans-Jordan	300,000	90	3.3
French:			
Syria and Lebanon	3,600,000	197	18.3

TABLE 1.—POPULATION, LAND AREA, AND DENSITY OF POPULATION, BY DIVISIONS AND COUNTRIES, DEC. 31, 1938.*—(*Continued*)

Country	Estimated population	Area, square kilometers (000)	Density in population
U.S.S.R. in Europe and Asia	170,400,000	21,176	8.0
Europe	400,100,000	5,420	73.8
Albania	1,057,000	28	37.8
Germany	79,200,000	586	135.2
Andora	6,000	0 5	12.0
Belgium	8,386,000	30	279.5
Bulgaria	6,273,000	103	60.9
Denmark	3,793,000	43	88.2
Faroe Islands	26,000	1.4	18.6
Danzig	403,000	1.9	212.1
Spain (including Canary Islands)	25,600,000	503	50.9
Estonia	1,134,000	48	23.6
Finland	3,659,000	383	9.6
France	41,980,000	551	76.2
Greece	7,108,000	130	54.7
Hungary:			
"Trianon Territory"	9,078,000	93.1	97.5
"Northern Territory"	1,041,000	11.9	87.5
Ireland (Eire)	2,936,000	69	42.6
Iceland	118,000	103	1.1
Italy	43,430,000	310	140.0
Latvia	1,995,000	66	30.2
Lichenstein	12,000	0.2	.60.0
Lithuania	2,575,000	53	48.6
Luxemburg	301,000	2.6	115.8
Monaco	24,000	0.002	12,000.0
Norway	2,921,000	323	9.0
Netherlands	8,727,000	33	264.5
Poland	35,090,000	389	90.2
Portugal:			
Azores and Madeira	7,460,000	92.4	80.7
Rumania	19,852,000	295	67.3
United Kingdom	47,600,000	244	195.1
England and Wales	41,300,000	151	273.5
Scotland	5,002,000	79	63.3
Northern Ireland	1,290,000	14	92.1

TABLE 1.—POPULATION, LAND AREA, AND DENSITY OF POPULATION, BY DIVISIONS AND COUNTRIES, DEC. 31, 1938.*—(*Continued*)

Country	Estimated population	Area, square kilometers (000)	Density of population
San Marino	14,000	0.1	140.0
Sweden	6,310,000	449	14.1
Switzerland	4,210,000	41	102.7
Czechoslovakia	10,500,000	140	75.0
Turkey	17,100,000	768	22.3
In Europe	1,330,000	24	55.4
Yugoslavia	15,490,000	248	62.5
Dependencies, colonies, etc.:			
British	289,000	0.3	963.3
Gibraltar	20,000		
Malta	269,000	0.3	896.7
Norwegian:			
Spitzbergen (Svalbard)	1,000	63	0.02
Oceania	10,670,000	8,550	1.2
Australia	6,930,000	7,704	0.9
New Zealand	1,618,000	268	6.0
Dependencies, colonies, etc.:			
Australian	281,000	234	1.2
Norfolk	1,000		
Papua	280,000	234	1.2
British	373,000	48.1	7.8
Fiji Islands	211,000	19	11.1
Gilbert and Ellice	35,000	0.5	70.0
British Solomon Islands	95,000	28	3.4
Tonga	32,000	1.0	32 0
United States	448,000	17.7	25.3
Guam	23,000	0.5	46.0
Hawaii	413,000	17	24.3
American Samoa	12,000	0.2	60.0
French	100,000	23	4.3
French Settlements	45,000	4.0	11.3
New Caledonia and dependencies	55,000	19	2.9
Anglo-French:			
New Hebrides	50,000	12	4.2
New Zealand:			
Cook, Tokelau, etc	18,000	1.6	11.3

TABLE 1.—POPULATION, LAND AREA, AND DENSITY OF POPULATION, BY DIVISIONS AND COUNTRIES, DEC. 31, 1938.*—(*Continued*)

Country	Estimated population	Area, square kilometers (000)	Density in population
Mandated Territories	852,000	241	3.5
New Guinea (Australia)	670,000	236	2.8
Nauru (Britain)	3,000	0.02	150.0
Caroline, Marianas, and Marshall Islands (Japan)	122,000	2.1	58.1
West Samoa (New Zealand)	59,000	2.9	20.3
World Total	2,145,200,000	132,700	16.2
World Total (excluding China)	1,695,200,000	121,600	13.9

million) reside on the largest continent—Asia. An additional one-fourth of the population of the world (534 million) is contained in Europe. This means that the remaining portion of the world's population, one-fifth (441 million), is divided among North America (183 million), Africa (156 million), South America (91 million), and Oceania (11 million). All of these continents are relatively thinly settled, though striking variations in this respect within each are marked.

NUMBER AND DISTRIBUTION OF THE POPULATION OF THE UNITED STATES

Tabulations concerned with the number and distribution of the inhabitants are given a primary place in the United States Census. Population counts are made not only for each of the 48 states but for each incorporated center, county, and minor civil division of the county (township, beat, ward, etc.) within the state. Each city, in turn, is subdivided into its component wards, and more recently for census purposes smaller fractions designated as "census tracts" have been laid off in most of the more important cities of the nation. Publication of the number of persons in each of these geographic areas permits a full utilization of the materials dealing with the distribution of the inhabitants. Probably the chief deficiency in this respect is the failure of the census to take account of thousands of clearly differentiated small centers of population that have not been incorporated.

The Sixteenth Decennial Census of the United States, as of Apr. 1, 1940, enumerated a total of 131,669,275 persons. This figure represents slightly more than one-sixteenth of the population of the globe. However,

TABLE 2.—NUMBER, DISTRIBUTION, AND DENSITY OF POPULATION IN THE UNITED STATES, 1940*

Division and state	Population 1940	Per cent of national population	Rank in population	Population per square mile
Continental United States	131,669,275	100.00	. .	44.2
New England	8,437,290	6.41		
Maine	847,226	0.64	35	27.3
New Hampshire	491,524	0.37	44	54.5
Vermont	359,231	0.27	45	38.7
Massachusetts	4,316,721	3.28	8	545.9
Rhode Island	713,346	0.54	36	674.2
Connecticut	1,709,242	1.30	31	348.9
Middle Atlantic	27,539,487	20.92		
New York	13,479,142	10.24	1	281.2
New Jersey	4,160,165	3.16	9	553.1
Pennsylvania	9,900,180	7.52	2	219.8
East North Central	26,626,342	20.22		
Ohio	6,907,612	5.25	4	168.0
Indiana	3,427,796	2.60	12	94.7
Illinois	7,897,241	6.00	3	141.2
Michigan	5,256,106	3.99	7	92.2
Wisconsin	3,137,587	2.38	13	57.3
West North Central	13,516,990	10.27		
Minnesota	2,792,300	2.12	18	34.9
Iowa	2,538,268	1.93	20	45.3
Missouri	3,784,664	2.87	10	54.6
North Dakota	641,935	0 49	38	9.2
South Dakota	642,961	0.49	37	8.4
Nebraska	1,315,834	1.00	32	17.2
Kansas	1,801,028	1.37	29	21.9
South Atlantic	17,823,151	13.54		
Delaware	266,505	0.20	46	134.7
Maryland	1,821,244	1.38	28	184.2
District of Columbia	663,091	0.50		
Virginia	2,677,773	2.03	19	67.1
West Virginia	1,901,974	1.44	25	79.0
North Carolina	3,571,623	2.71	11	72.7
South Carolina	1,899,804	1.44	26	62.1
Georgia	3,123,723	2.37	14	53.4
Florida	1,897,414	1.44	27	35.0

* SOURCE: *Sixteenth Census of the United States.*

TABLE 2.—NUMBER, DISTRIBUTION, AND DENSITY OF POPULATION IN THE UNITED STATES, 1940.*—(*Continued*)

Division and state	Population 1940	Per cent of national population	Rank in population	Population per square mile
East South Central	10,778,225	8.19		
Kentucky	2,845,627	2.16	16	70.9
Tennessee	2,915,841	2.21	15	69.5
Alabama	2,832,961	2.15	17	55.5
Mississippi	2,183,796	1.66	23	46.1
West South Central	13,064,525	9.92		
Arkansas	1,949,387	1.48	24	37.0
Louisiana	2,363,880	1.80	21	52.3
Oklahoma	2,336,434	1.77	22	33.7
Texas	6,414,824	4.87	6	24.3
Mountain	4,150,003	3.15		
Montana	559,456	0.42	39	3.8
Idaho	524,873	0.40	42	6.3
Wyoming	250,742	0.19	47	2.6
Colorado	1,123,296	0.85	33	10.8
New Mexico	531,818	0.40	41	4.4
Arizona	499,261	0.38	43	4.4
Utah	550,310	0.42	40	6.7
Nevada	110,247	0.08	48	1.0
Pacific	9,733,262	7.39		
Washington	1,736,191	1.32	30	25.9
Oregon	1,089,684	0.83	34	11.3
California	6,907,387	5.24	5	44.1

the true magnitude of this sum is better appreciated when related to the relatively sparse populations of this hemisphere and continent. Approximately one-half of the population of North and South America combined resides in the United States, and over 93 per cent of the population of North America alone is composed of residents of the United States. When compared with certain European and Asiatic countries, the population of the United States is thinly scattered; its numerical importance results from the wide expanse of the country. On the other hand, the United States is relatively densely populated when compared with the neighboring nations of this continent and hemisphere.

A rough idea of the general distribution of population in the United States is given by a consideration of the relative numbers of persons con-

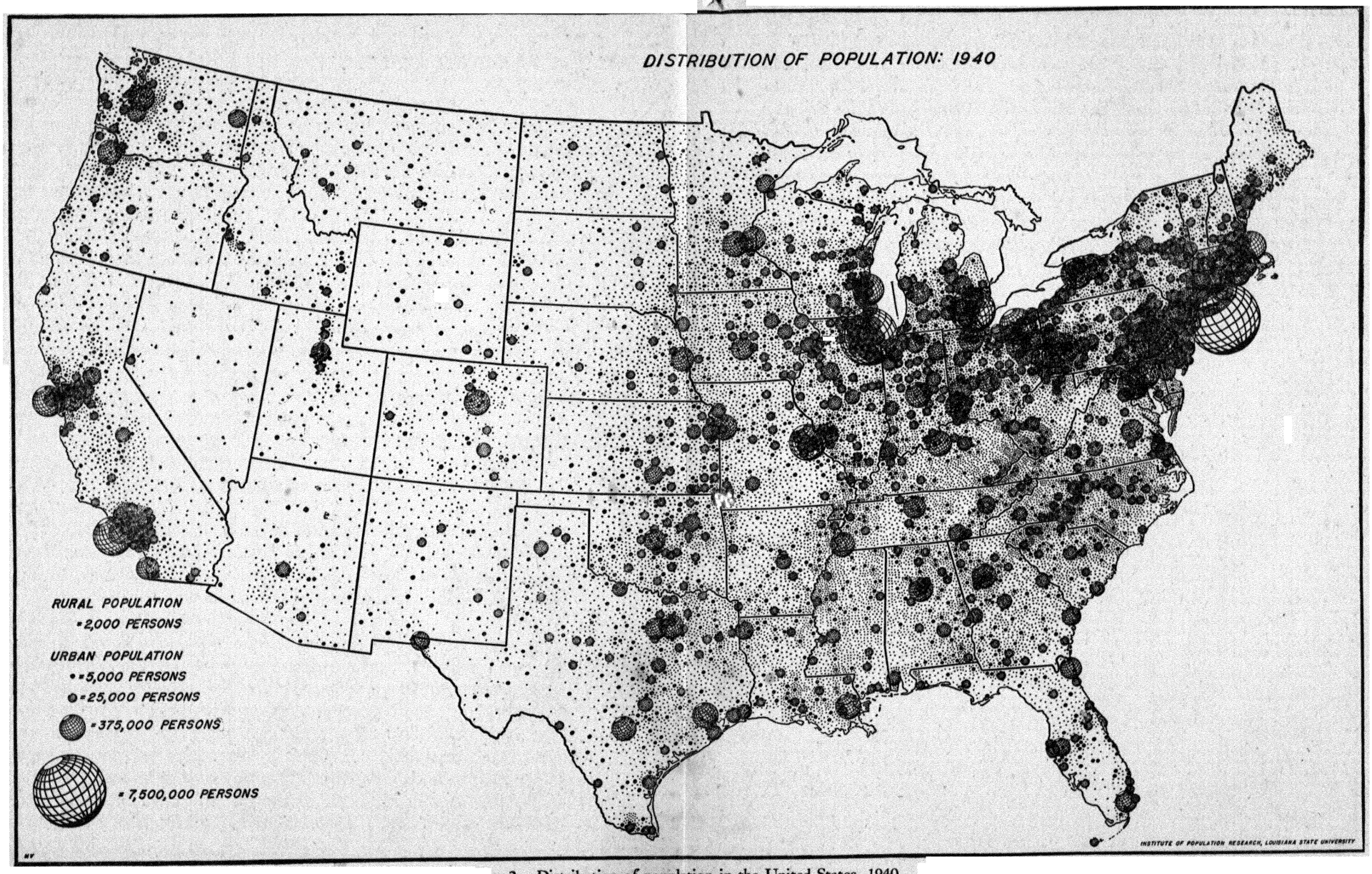
tained in the three major regions of the nation.[13] The bulk of the nation's population resides in the North; over 76 million, or 57.8 per cent of the total, were so classified in 1940. The South, next in importance in this respect, was reported to have a population of almost 42 million, or 31.7 per cent of the total. The remainder of the nation's population, slightly less than 14 million, or 11.8 per cent, lives in the West. In line with these differences in population size are the differences in population density, the number of persons per square mile. The figures for the North, South, and West are 82.8, 47.4, and 11.8, respectively. These differences in the ratio of persons to land area make more meaningful the relative congestion of the North and "the wide open spaces" of the West.

More nearly complete information concerning the density and distribution of the national population can be gleaned from observation of Table 2. That New York, Pennsylvania, and Illinois rank in the order named as the three most populous states occasions little or no surprise; that Ohio, California, and Texas rank fourth, fifth, and sixth, respectively, is much less generally known; and that New Jersey and Missouri, along with Michigan and Massachusetts, go to make up the remainder of the first 10 is probably surprising to a majority of persons. It is well known that Nevada is not only the most sparsely populated but also the least populous of all the states. It is rivaled in this latter respect by Wyoming and Delaware. That Vermont and New Hampshire rank next to them and below Arizona, Idaho, New Mexico, Utah, and North Dakota in the size of population is not generally recognized.

More useful for many purposes than such tabular material is the map of population distribution presented in Fig. 2. The use of volumetric spheres to represent urban population and dots to indicate density of rural population makes this type of illustration particularly economical of space and valuable for analytical purposes.

The density of population, or the man-land ratio, serves many useful purposes in the analysis of population distribution. For the continental United States as a whole in 1940 this index stood at 44.2 persons per square mile of territory, a slight increase from the ratio of 41.1 in 1930. The density of population was greatest in tiny Rhode Island, where there were 674.2 persons for each square mile of land area. New Jersey and Massachusetts were the nearest competitors of Rhode Island, both of them having population densities exceeding 500 persons per square mile in 1940. Connecticut, New York, Pennsylvania, Maryland, Ohio, Illinois, and Dela-

[13] The three regions—the North, South, and West—are used as delineated by the United States Census Bureau.



G. 2.—Distribution of population in the United States, 1940.

ware, ranking in the order named, complete the list of the 10 most densely populated states.

At the other extreme was Nevada, where the number of inhabitants just equaled the number of square miles of expanse and the ratio stood at 1.0. In addition to Nevada the other most sparsely populated states are also to be found in the West. Eight other states had man-land ratios below 10 in 1940, the lowest six of them (Wyoming, Montana, New Mexico, Arizona, Idaho, and Utah) being all Rocky Mountain states and the next two (South Dakota and North Dakota) Plains states.

It is interesting that the state in which the density of population most nearly approximates that of the nation as a whole is California; Vermont and Iowa also are characterized by man-land ratios that are near the national average.

Part II

The Composition of the Population

It is logical to follow the discussion of the number and distribution of the inhabitants with an analysis of the composition of the population. The important characteristics with which the modern census is largely concerned are residence, race and nativity, age, sex, marital status, educational status, occupational status, and religious affiliation or composition. To each of these subjects one of the eight chapters in Part II is devoted.

Chapter 2
RESIDENCE

THE first classification made by the United States Census of Population is that by residence. It is based upon the nature of the areas in which people live and, therefore, divides the inhabitants into the rural and urban categories. This procedure is grounded in sound logic. Residence, or where people live, is the most important indication of existing fundamental differences in the environmental forces, both natural and man-made, that impinge upon the human personality. Within the limits imposed by man's biological inheritance, residence determines largely the specific personality traits that any given person will acquire.

Rural society presents a sharp contrast to urban society. Outstanding in the former is the preponderance of the agricultural occupations, a low density of population, small population aggregates, a high degree of ethnic and cultural homogeneity, and great territorial, occupational, and social stability. The natural rather than the human environment looms large in the life of the countryman. He therefore makes relatively few contacts with others, and those which he does make are restricted to more limited geographical and social spheres. In the city one finds the opposite extremes of all of these. The sum total of these and other dissimilarities means that the country person and the city man are surrounded by profoundly divergent natural and man-made environments. The resultant molding influences of the city and the country are so vastly different that the classification of the population on a residential basis is absolutely necessary as a prerequisite to all other meaningful demographic analyses.

DEFINITIONS AND CLASSIFICATIONS

There is no agreement throughout the world as to where to draw the line between urban and rural populations or even upon the criteria that should be taken into account in separating these two categories. The French procedure of making the division arbitrarily at a given place on the population scale is used by many countries, including the United States. But some nations are still bound by the medieval system of distinctions under which population centers were "elevated" to a certain rank and the categories so established, not always closely associated with size, are used in distinguishing rural and urban populations. There even seems to be a

tendency for other countries to adopt such a basis. In many respects the confusion is even greater than it used to be, for at one time it appeared that there was some hope of securing reasonably comparable criteria. After France selected, in 1846, a numerical criterion (2,000) for separating rural and urban, the practice spread rapidly throughout Central Europe, and the International Institute of Statistics adopted it in 1887.[1] At that time, there seemed every reason to hope that the numerical basis would become universal. But today there still remains almost complete lack of comparability of the residential classifications used by various censuses through the world. Indeed, the different countries express so much individuality in this respect that a great deal of effort and study must be expended before any accurate comparisons can be made of the degree of urbanization in two or more countries. Even more labor is necessary to develop a useful comparison of trends. Therefore, one can appreciate why so many of the authors of our books on population have strictly avoided the subject.

A few examples will serve to illustrate the present situation. Among the countries, including France and the United States, that use an arbitrary distinction based on size of population may be mentioned Japan, which divides rural from urban at 10,000 inhabitants,[2] and Colombia, where 1,500 is taken as the point for separating the two categories.[3]

Even more attention should be given to the countries not using size of population as the basis for making the distinction between the rural and urban areas. In Canada, for census purposes all persons residing in incorporated cities, towns, and villages, regardless of size, are classified as urban. Legal requirements for incorporation vary from one province to another, so that the line between rural and urban is not uniform throughout the Dominion.[4] In Australia, urban areas include the capital city of each province, the adjoining urban municipal areas, and also "those cities and towns which are not adjacent to the metropolitan areas, and which are incorporated for local governmental purposes." The remainder of the state, whether incorporated or not, is classed as rural.[5] The fundamental

[1] *Cf.* WEBER, ADNA FERRIN, *The Growth of Cities in the Nineteenth Century*, p. 14,. Columbia University Press, New York, 1899.

[2] ISHII, RYOICHI, *Population Pressure and Economic Life in Japan*, pp. 68–69, University of Chicago Press, Chicago, 1937 [?].

[3] Dirreción Nacional de Estadistica, *Censo de Colombia, 1938*, tomo 16, p. 51, Imprenta Nacional, Bogotá, 1942.

[4] *Cf.* Dominion Bureau of Statistics, *The Canada Yearbook, 1942*, p. 92, Edmond Cloutier, King's Printer, Ottawa, 1942.

[5] Commonwealth Bureau of Census and Statistics, *Official Year Book of the Commonwealth of Australia, No. 33, 1940*, p. 523, L. F. Johnston, Commonwealth Government Printer, Canberra, 1941.

residential classification in the census of Scotland is the division of the population into "burghal" and "landward," *i.e.*, living inside incorporated centers and outside them. However, since many burghs are very small, this census also classifies all of them with 1,000 or more persons as urban and places the remainder along with the landward in the rural category.[6] Sweden is another country in which the number of inhabitants in a population center is not the determining factor in whether it is classified as rural or urban. Towns are created by charters secured from the state, and the population of a town, irrespective of size, is placed in the urban category.[7] In 1930 more than one-tenth of Sweden's towns contained less than 2,000 inhabitants. In Russia, or the U.S.S.R., the classification of people as rural or urban depends upon the legal status of the area in which they live. The actual definition is largely dependent upon economic functions and not strictly upon either size or density of population.[8] The excellent 1940 census of Peru considered as urban inhabitants the persons residing in all capitals of *departmentos*, *provincias*, and *distritos*, along with the populations of all other centers whose number of inhabitants exceeded the arithmetic mean of said capitals unless they had strictly rural characteristics such as an *hacienda*, a *fundo*, or an Indian community. We are informed that "to adopt a criterion essentially demographical, drawing a limit of 1,000, 1,500 or 2,500 in an arbitrary manner—as some countries have done—would have meant the relegation of an appreciable number of the said capitals to the level of rural populated centers, thus going contrary to the political-administrative structure of the Republic."[9] Of course, this difficulty is by no means limited to Peru.

A new approach to the problem of classifying the population by residence is that employed in the 1940 census of Brazil. Since this approach is being favorably received in other Latin-American countries and may point the way to considerable improvements elsewhere, it deserves a detailed description. As a preparatory measure for the census, in 1938 a decree was issued making the prefect of each *municípo* (county) responsible for having drawn and deposited with the Regional Directory of Geography a map of his *município*, prepared in accordance with instructions sent out by the National Geographical Council. Included in these instructions was a pro-

[6] *Census of Scotland, 1931, Report of the Fourteenth Decennial Census of Scotland*, vol. 2, p. xvi, His Majesty's Stationery Office, Edinburgh, 1933.

[7] *Cf.* THOMAS, DOROTHY SWAINE, *Social and Economic Aspects of Swedish Population Movements, 1750–1933*, pp. 19–20, The Macmillan Company, New York, 1941.

[8] LORIMER, FRANK, *The Population of the Soviet Union: History and Prospects*, p. 147, League of Nations, Geneva, 1946.

[9] Dirección Nacional de Estadistica, *Censo nacional de población y ocupación, 1940*, pp. clxv–clxvi, Lima, 1944.

vision that the map of each *município* should contain inserts showing plans of the seats of the *município* and of each of its districts. It was also stipulated that "the urban and suburban areas of each *vila*, district seat, together shall include at least thirty dwellings; the urban area of the *cidade*, seat of the *município*, shall include a minimum of two hundred dwellings." It was provided, however, that existing *cidades* and *vilas* should be mapped even though they did not meet the minimum requirements specified. Additional instructions were as follows:

Article 8: The determination of the urban part of the seat, whether of a *município* or a *distrito*, shall consist in the clear and simple description of a line, easily identified on the ground, surrounding the center of the greatest concentration of houses, in which, as a general rule, are located the principal public edifices and where the commercial, financial, and social life of the seat is manifested most intensely, and where, in many cases, there is the imposition of special taxes, as for example the urban tenth.

Single Paragraph—The said line of delineation of the urban area shall describe, preferably, a polygon, made of straight lines, which follows closely the periphery of the above-mentioned center of concentration of the houses in the seat.

Article 9: The delineation of the suburban portion of the seats, of *municípios* or *distritos*, shall consist in the clear and simple description of a line, also easily recognized on the ground, embracing an area that surrounds, at a variable distance, the urban section, an area into which the expansion of the urban zone is already proceeding or to which, due to its favorable topographic conditions, this expansion is naturally destined. The boundary line of the suburban zone should circumscribe as rigorously as possible, the area that really corresponds to the present or future expansion of the urban center, it being prohibited to delimit under any pretext whatsoever that may be invoked, even that of regularizing the form, a suburban perimeter which is removed in distance and confrontation, from the area of expansion mentioned above.[10]

Thus it is evident that the territory of each *município* is divided into three residential categories, *viz.*, one or more urban areas, one or more suburban zones, and the remaining rural territory. This division was used in the census of 1940 for classifying the population in urban, suburban, and rural categories.

THE UNITED STATES CLASSIFICATION

More than fourscore years elapsed between the first United States Census and the official inclusion of a classification of population on the

[10] Conselho Nacional de Geografia, *Resolução N. 3, de 29 de Março de 1938*, pp. 7–8, Diretoria de Estatística da Produção, Rio de Janeiro, 1938.

basis of residence.[11] The earliest appearance of such a division came in 1874 with the publication of *Statistical Atlas of the United States*, prepared under the supervision of Francis A Walker.[12] At this time the division between rural and urban was placed at 8,000; persons living in cities having that number or more inhabitants were included in the urban category; all others in the rural. In this volume the data for all the previous censuses were reclassified, and the number of urban people so defined tabulated for all decennial censuses to 1870. This breakdown also has been retained in each subsequent decennial census for comparative purposes. With primary interest still focused on the urban group, the census of 1880 introduced another classification, dropped in the succeeding census, according to which all residents of cities having populations of 4,000 or more were classed as urban.

Attention was shifted partially to the rural segment of population in the 1890 census when all persons residing outside settlement aggregates having 1,000 or more inhabitants were set apart as rural. The 1900 census introduced still another version of rural-urban classification. It revived the lower extreme of the urban population used in 1880—4,000 persons—and divided the category of people falling below this limit into two subclasses: the semiurban, residing in incorporated places of less than 4,000 population, and the rural, residing in unincorporated territory. The latter of these two subclasses has been retained by the census to the present.

In 1910 the line of demarcation between the urban and the rural was set at 2,500, and this criterion continues in use.[13] At the present time the census classifies inhabitants of those incorporated centers with 2,500 or more residents as urban and residents of the smaller incorporated centers and the nonincorporated areas as rural. Minor exceptions to this rule are applied in three of the New England states, *viz.*, Massachusetts, New Hampshire, and Rhode Island. In these states cities are not incorporated separately from the minor civil divisions, or "towns," in which they lie unless they contain 10,000 or more inhabitants. In some of the less densely populated towns are to be found centers of population numbering considerably more than 2,500 inhabitants. In these three states in 1910 and 1920 all of the towns containing more than 2,500 inhabitants were

[11] A brief account of the development of the "urban-rural concept" is presented by Leon Truesdell, "Methods Invoked in the Federal Census of Population," in Stuart A. Rice (ed.), *Methods in Social Science*, pp. 197 *ff.*, University of Chicago Press, Chicago, 1931.

[12] Government Printing Office, Washington.

[13] However, the census report of 1890 included a statement to the effect that ordinarily it might be assumed that places of 2,500 or more inhabitants would possess urban characteristics.

counted as urban. This had the effect of throwing considerable segments of the rural population in with the urban. In 1930 the practice was improved, and only those towns containing a village or thickly settled area embracing more than 2,500 inhabitants were classified as urban.[14] The precise distinctions utilized in the Sixteenth Census in 1940 are as follows:

> The urban area is made up for the most part of cities and other incorporated places having 2,500 inhabitants or more, places of this type constituting about 97 per cent of the urban places in the United States. A second type is limited to the states of New Hampshire, Massachusetts, and Rhode Island, in which states it is not the practice to incorporate as municipalities places of less than 10,000. This type is made up of towns (townships) in which there is a village or thickly settled area having 2,500 inhabitants or more and comprising, either by itself or when combined with other villages within the same town, more than 50 per cent of the total population of the town. . . . A third type of urban places is made up of townships and other political subdivisions (not incorporated as municipalities, nor containing any areas so incorporated) with a total population of 10,000 or more and a population density of 1,000 or more per square mile.[15]

The Urban Category.—For many purposes the simple rural-urban dichotomy is inadequate. Fortunately, the basic tabulations of the United States Census further subdivide each category. In the case of the urban population the detailed procedure is fairly satisfactory, since cities are divided into nine classes according to size. In addition to this the census publishes for the individual cities of 50,000 or more inhabitants rather detailed classifications, and only slightly less complete data are reported for the smaller cities and towns. No such care and attention have been given to the tabulations of the data concerning the rural population.

The Rural-farm Category.—Prior to the 1920 census the rural data were lumped together in one single class. Beginning with the state tables in 1920 and expanded to the county tabulations in 1930 and 1940, it has been divided by the census into what is called "rural-farm" and the "rural-nonfarm" portions. The nature of this division is fundamental and deserves careful consideration. The rural-farm population consists of the persons residing on certain specific tracts of rural territory that have been desig-

[14] *Cf. Fifteenth Census of the United States, 1930, Population*, vol. II, *General Report by Subjects*, p. 7. A procedure based somewhat upon that used in New England should be introduced to provide badly needed information concerning the number, distribution, and population characteristics of the unincorporated centers of population throughout the nation. As will be indicated below, lack of this primary data makes the proper interpretation of the data for rural-farm and rural-nonfarm population difficult if not impossible.

[15] *Sixteenth Census of the United States, 1940, Population*, vol. II, *Characteristics of the Population*, Part 1, p. 8.

nated as farms by the census.[16] All others are lumped together in the rural-nonfarm category.

Of the two divisions thus established, that embracing the rural-farm population is by far the most homogeneous and satisfactory. It should be stressed, however, that residence and not occupation is the basis of the classification. The rural-farm population includes all of those persons residing on tracts of land that qualify as farms, irrespective of the occupational pursuits in which they are engaged. It does not exclude the urban worker who tills a small tract, the banker who lives as a country gentleman, or the numerous dependent relatives who make their homes with the farm families of the nation. On the other hand it does not include the family whose breadwinner is actively and even solely engaged in agricultural pursuits unless the residence of the family is actually in rural territory and on a tract of land that is designated as a farm.[17]

The Rural-nonfarm Category.—The rural-nonfarm category is a hodgepodge embracing some of the most widely divergent segments of the entire population. As the class was introduced in 1920 and as it persisted in 1940, it does violence to almost every rule of logical division. At first it was claimed that the rural-nonfarm population was synonymous with the village population, and the census reports utilized tabular headings to emphasize this point.[18] However, it has been demonstrated that in 1930 the village population made up only about one-third of the rural-nonfarm population, that the population of unincorporated fringes of the cities of

[16] The definition used in the 1930 and 1940 enumerations is as follows: "A farm, for census purposes, is all the land on which some agricultural operations are performed by one person, either by his own labor alone or with the assistance of members of his household, or hired employees. The land operated by a partnership is likewise considered a farm. A 'farm' may consist of a single tract of land or a number of separate tracts, and the several tracts may be held under different tenures, as when one tract is owned by the farmer and another tract is rented by him. When a landowner has one or more tenants, renters, croppers, or managers, the land operated by each is considered a farm. Thus, on a plantation the land operated by each cropper, renter, or tenant should be reported as a separate farm, and the land operated by the owner or manager by means of wage hands should likewise be reported as a separate farm. . . .

"Do not report as a farm any tract of land of less than three acres, unless its agricultural products in 1939 were valued at $250.00 or more." *Sixteenth Census of the United States, 1940, Agriculture*, vol. I, Part 1, p. viii.

[17] Since rural-farm and agricultural population are generally used as synonymous terms, it is highly important to understand the precise nature of the procedure. *Cf.* T. Lynn Smith, "The Agricultural Population: Realism vs. Nominalism in the Census of Agriculture," *Journal of Farm Economics*, 20 (August, 1938), 679–687.

[18] Edmund deS. Brunner and John H. Kolb also leaned heavily upon this interpretation in their two works, *Rural Social Trends*, McGraw-Hill Book Company, New York, 1933, and *A Study of Rural Society*, Houghton Mifflin Company, Boston, 1935.

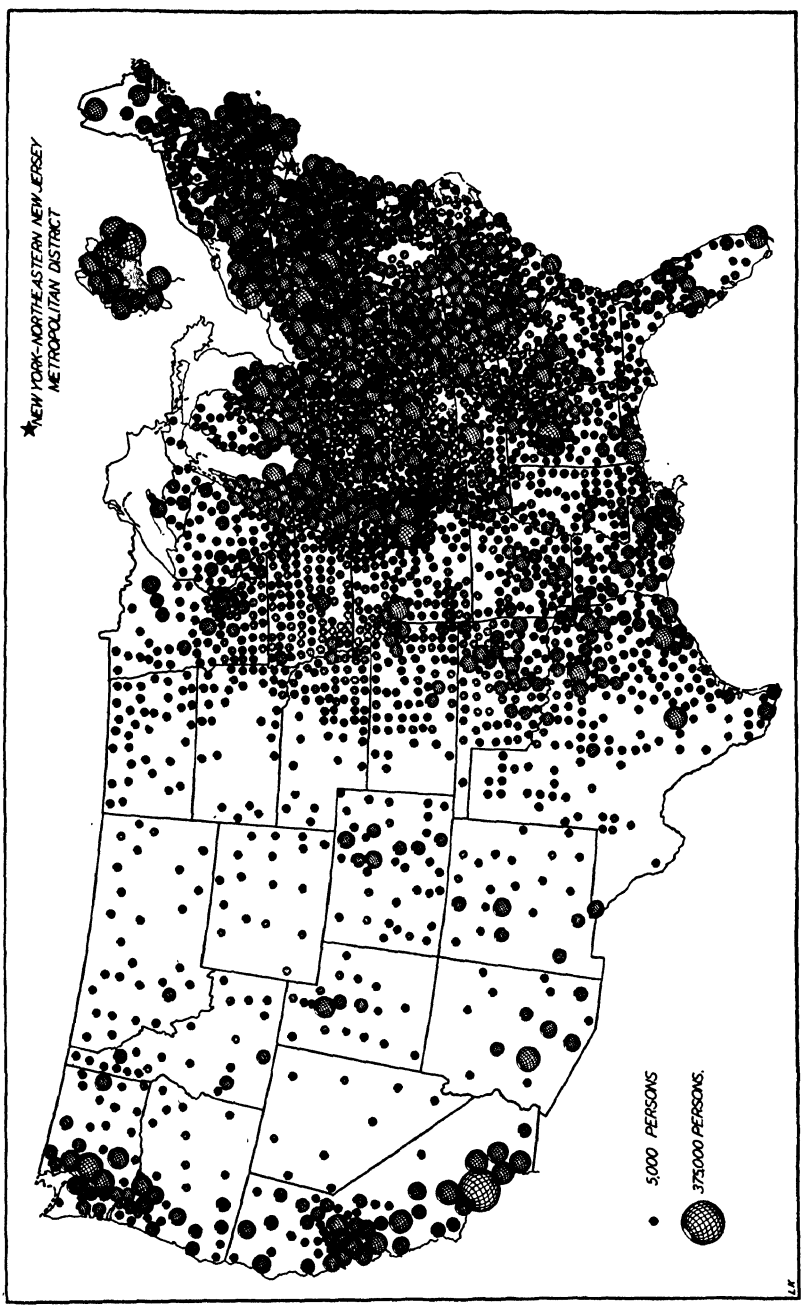


FIG. 3.—Distribution of the rural-nonfarm population of the United States, by counties, 1940.

10,000 or more inhabitants comprised an additional third, and that the remaining one-third was composed of a conglomeration of such widely divergent population nuclei as mining, road, and lumber camps; hamlets servicing agricultural families; the residences of trappers and others engaged in the collecting enterprises; and the night-club, tourist-camp fringes of the smaller towns.[19]

By 1940 the concentration of the rural-nonfarm population just beyond the incorporated limits of town and cities was even more pronounced than it was 10 years earlier (see Fig. 3). Indeed, at the time when the latest census was taken, the suburban population made up such a large part of the rural-nonfarm category that it emphasizes the necessity of abandoning the fiction which includes this portion of our citizenry with the rural instead of with the urban population. Even a few simple tests are sufficient to demonstrate the validity of these statements. If we scan the tabulations of the rural-nonfarm population by counties, we shall observe that out of about 3,100 counties in the United States there are 189 containing rural-nonfarm populations of more than 25,000. (Together these counties include 9,623,364, or 35.6 per cent, of the rural-nonfarm population of the United States.) In the course of such a survey we shall observe that 376,097 persons of the rural-nonfarm category were enumerated in Los Angeles County, California, alone; that 208,486 people of this class were counted in Allegheny County, Pennsylvania (Pittsburgh); and that two other counties in the Pittsburgh metropolitan district—Fayette and Washington—contained 113,011 and 100,942, respectively. Hardly likely to escape notice is the fact that Nassau County and Suffolk County, New York, both in the New York City Metropolitan district are listed with 207,179 and 142,680, respectively, and Fairfield County, Connecticut, also in the metropolitan district of our greatest city, with 115,939. Other counties containing 100,000 or more rural-nonfarmers in 1940 are as follows: St. Louis, Missouri, 133,408; Jefferson, Alabama (Birmingham), 115,953; Baltimore, Maryland, 102,167; Erie, New York (Buffalo), 100,382; and King, Washington (Seattle), 100,369.

Such data suggest that there is a tremendous heaping up of rural-nonfarm population in the areas immediately adjacent to our largest industrial and commercial centers. Since the 1940 census prepared a map of the "metropolitan district" of each of the nation's centers having 50,000 or more inhabitants, this lead is easy to follow. In delineating these districts the general plan was to include, along with the central city or cities, "all adjacent and contiguous minor civil divisions or incorporated places having

[19] See the data in SMITH, T. LYNN, *The Sociology of Rural Life*, pp. 45–48, Harper & Brothers, New York, 1940.

a population of 150 or more per square mile. . . . A metropolitan district is thus not a political unit but rather an area including all of the thickly settled territory in and around a city or a group of cities."[20] It should be kept in mind that the incorporated centers referred to are mostly in the urban category, because a village located in such an area quickly grows out of the rural class.

One metropolitan district alone—that centering in New York City, including the counties of Nassau, Rockland, Suffolk, Westchester, and five northeastern New Jersey counties and lapping over Fairfield County, Connecticut—accounted for 832,946 of the nation's 1940 rural-nonfarm population.[21] Not far behind was the Pittsburgh district, where five counties lying wholly or partially in the densely populated area contained 600,159 persons classified as rural-nonfarm. In addition to more than a ⅓ million rural-nonfarm population in Los Angeles County, California, other large numbers in Orange and San Bernardino counties swell the total for the district to 462,496. This makes no allowance for an additional 34,378 of the same category in Riverside County, because no part of it is embraced in the Los Angeles metropolitan district according to the census criteria. The area surrounding Philadelphia is another one in which hundreds of thousands of suburbanites have been thrown into the rural category by the inadequate criteria used in making our fundamental classification. The seven counties, four in Pennsylvania and three in adjacent New Jersey, lying wholly or partially in the metropolitan district of this city together were credited with a total of 399,966 rural-nonfarm population in 1940. St. Louis, Mo., where there were 133,408 persons of the rural-nonfarm category living in St. Louis County, and sizable contingents just across the Mississippi River in Illinois, had a total of 221,700 persons in the rural-nonfarm category in the five counties involved in its metropolitan district. In addition to the leading five already enumerated, other cities whose metropolitan districts included more than 100,000 rural-nonfarm population are as follows: Detroit, 202,955; Boston, 196,949; Baltimore, 166,849; Chicago, 166,217 (not including adjacent Will County); San Francisco-Oakland, 165,663; Seattle, 151,863 (adjoining is Pierce County, with the city of Tacoma and 44,641 additional rural-nonfarm persons); Washington, D. C., 147,867 (not including Arlington County, Virginia, with a rural-nonfarm population of 24,264 in 1930, which was placed in the urban category under

[20] *Sixteenth Census of the United States, 1940, Population*, vol. I, p. 11.

[21] In these calculations the entire rural-nonfarm population of any county included, even partially, in a metropolitan district is attributed to that district. Data are not available for making any partial allocations; furthermore, we may be sure that even this gives a very conservative estimate of the number of suburbanites actually involved.

a special rule in 1940); Johnstown, Pa., 130,447; Buffalo-Niagara, 119,996; Birmingham, 115,953 (Jefferson County, only; near-by Walker County contained a rural-nonfarm population of 32,560); Atlanta, 115,261; Scranton-Wilkesbarre, 114,954; Cincinnati, 110,173; Hartford, 108,049; Albany-Schenectady-Troy, 101,579; and Wheeling, W. Va., 101,345.

Together these 21 metropolitan districts contained 4,733,207, or 17.5 per cent of the nation's rural-nonfarm population. Forty other concentrations of over 50,000 persons classed as rural-nonfarm contain a total of 2,681,226 more. These include, in addition to other metropolitan districts, the suburban population grouped about a few cities of less than 50,000 inhabitants, such as Bakersfield, Calif.; Harlan, Ky.; Greenville, S. C.; and in Schuylkill County, Pennsylvania. The 61 combined accounted for 27.4 per cent of the entire rural-nonfarm population of the United States.

What is true of New York City, Pittsburgh, Los Angeles, Philadelphia, St. Louis, and the other great metropolitan centers is true on a smaller scale of most of the smaller urban centers of the nation. Just outside the incorporated limits of most towns and small cities are thousands of persons now classed as rural-nonfarm solely because the city limits have not been extended rapidly enough to keep pace with the natural growth of the center. Since, as indicated above, the 189 counties with the largest aggregations of such persons alone accounted for 35.6 per cent of the total rural-nonfarm population, we can be relatively sure that were it possible to sort the suburbanites from the other components of the rural-nonfarm population in the remaining counties of the nation, their numbers would mount to around one-half of the total. Such data should, at least, raise a question about the wisdom of maintaining our current categories, of keeping on with the fiction that our suburban millions constitute an integral part of the rural population.

For the most part all information relative to the rural population must be secured from the tabulations of the rural-farm and rural-nonfarm populations. Analysis was greatly facilitated when the 1930 census extended this division into the county tables and tabulated a few items having to do with the composition of the population for both the rural-farm and the rural-nonfarm categories. However, even now the basic tabulations of ages by sex for each of the principal race and nativity groups are not available for any aggregate rural-farm or rural-nonfarm population smaller than that of a state. Sadly neglected have been the proper tabulation and publication of these data which are so sorely needed for the guidance of rural school programs, local governmental activities, rural public-welfare agencies, and the agricultural planning activities within the county.[22]

[22] If the complete tabulation of these primary data on a county and even a minor civil

Suggested Improvements.—The Bureau of the Census should be encouraged to improve its fundamental classifications of the rural population. Primary in any such attempt would be the development of procedures to count as urban population the people living in the unincorporated fringes of the nation's cities. This is simply a problem in delineating the natural area that makes up the urban district. Obviously the territory within the incorporated limits is a very poor approximation of this area. The Brazilian procedure described above is much more reasonable.

After the urban population has been separated from the rural, there is still the problem of further subdividing the latter. Of primary importance in this connection is the determination of the limits and size of each village and hamlet irrespective of whether or not it happens to be incorporated. The Bureau of the Census has already admitted the validity of this claim in connection with the special rule that it has developed for the handling of New England towns. It should be stressed that present practices of the bureau give far too much importance to the fact of incorporation, and this with respect to both rural and urban data. In state tables at least and possibly in those for smaller areas, rather detailed tabulation of age by sex for each race and nativity group and other fundamentals of population composition should then be published for categories of the rural population similar to the following: (1) villages of 1,000 to 2,499 inhabitants; (2) villages of 100 to 999 inhabitants; (3) hamlets with less than 100 inhabitants; (4) the open-country territory included in the nation's farms; and (5) the open-country territory that is not in farms. This division of the open-country population might be further improved if it were combined with detailed occupational classifications.

No such tabulations are as yet available to the persons and agencies requiring detailed information relative to the rural population—a group whose number is legion and includes all the principal state and federal agencies. Other than the data, mentioned above, that are available relative to the rural-farm and the rural-nonfarm divisions of the population, data are published for incorporated villages of 1,000 or more inhabitants giving the division according to sex, the number of whites and Negroes, the division of the white population according to nativity, a very abbreviated age distribution (not by sex), and the number of rural-nonfarm persons in the village population.

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division basis is too great a task for the Census Bureau, then certainly a system should be devised whereby duplicate copies of the cards could be made available to responsible agencies of state government in order that the necessary tabulations could be done in the states.

INDEXES AND SCALES OF URBANITY AND RURALITY

Very frequently there is need for an index of the extent to which the population of a county or other division is urban or rural. Such needs arise, of course, principally where it is desired to include this factor in the analysis of other demographic relations or trends and particularly where an attempt is made to use correlation analysis. The question arises as to what should constitute such an index. The proportion of urban population in the total population at once suggests itself. However, in practical application this turns out to be highly unsatisfactory because there are so many counties in which there is no incorporated center containing as many as 2,500 inhabitants. Thus, in 1940 of a total of about 3,100 counties in the United States as a whole, 1,257 were entirely rural. In many states such as Georgia, Kansas, and Mississippi, the proportion of all counties in which there is no urban population runs well over 50 per cent; and in such states as Colorado, Kentucky, Montana, Nebraska, Nevada, and South Dakota, it is more than 60 per cent. Also frequently found is the sparsely populated county far distant from metropolitan centers and little exposed to city influences, but in which there is a town of 2,500. Thus some very thinly populated and extremely remote counties contain high proportions of persons classed as urban. For these reasons the proportion of urban population in a county is a poor index of the extent to which the population of the county is subjected to city influences. What are some other possibilities? After considerable exploratory study the author has arrived at the conclusion that the best available index for use in the type of problem mentioned above is the proportion of the county's population that is resident in incorporated centers.

Frequently the research worker or writer needs more than a simple division of the population into the rural and urban categories and cares to relate population according to the size of their community of residence to some other factors. The need in this case is for a scale that will reflect the various grades or degrees that one passes as he moves from the most rural to the most urban situations or populations. Usage in this respect is little standardized, and the terminology, especially that used in designating the smaller population nuclei, is frequently confusing. However, once the Census Bureau has improved its practices in handling the large populations who live just outside the incorporated limits of the nation's cities and towns and begins the publication of its tabulations of data for unincorporated centers, the problems will be greatly simplified. Under the prevailing conditions the author has found the following arrangement or scale of considerable use for many purposes.

Size of community			
	Rural	Open country	Less than 100 inhabitants
		Hamlets	100 to 249 inhabitants
		Small villages	250 to 999 inhabitants
		Large villages	1,000 to 2,499 inhabitants
	Urban	Small towns	2,500 to 4,999 inhabitants
		Large towns	5,000 to 9,999 inhabitants
		Small cities	10,000 to 99,999 inhabitants
		Large cities	100,000 to 999,999 inhabitants
		Metropolitan centers	1,000,000 or more inhabitants

THE RURAL AND URBAN POPULATIONS OF THE UNITED STATES

Of the 131,669,275 inhabitants of the United States enumerated in the Sixteenth Census, taken as of Apr. 1, 1940, a total of 74,423,702 (56.5 per cent) were classed as urban and 57,245,573 (43.5 per cent) as rural. These proportions may be compared with 56.2 and 43.8 which were the percentages of urban and rural, respectively, in the population in 1930. Thus in the interval between the two latest enumerations the urban population continued an absolute and relative gain, as compared with the rural, although the differential was greatly reduced over that prevailing prior to 1930. The number of urban centers in 1940 totaled 3,464, an increase of 299 from the 3,165 present in 1930. This change represents the net influence attained by adding a few new incorporations and a large number of former villages that passed the 2,500 mark between 1930 and 1940 and subtracting 45 centers that had dropped below 2,500 population, had been disincorporated, or had been annexed to other urban places.

The war years that came almost immediately after the census of 1940 was taken were a period of unparalleled urban gain and rural loss of population. The Bureau of the Census estimates that the population of the nation was 140,386,509 on Jan. 1, 1946.[23] This is an increase of 8,717,234, or 6.6 per cent, over the Apr. 1, 1940, figure. For the same date, the Bureau of the Census and the Bureau of Agricultural Economics estimated the farm population of the United States as only 25,990,000 compared with 30,269,000 on Jan. 1, 1940.[24] This would represent a loss of 4,279,000 farm persons, or 14.1 per cent, during the period of great dislocation of population that was brought about by the war. It also indicates not only that the entire increase of population between 1940 and 1946 was absorbed by the nation's cities, towns, and villages but also that the rural "seed stock"

[23] *Population, Special Reports*, Series P-46, No. 6, July 10, 1946.

[24] Bureau of Agricultural Economics, *Farm Population Estimates, United States and Major Geographic Divisions, 1910–1946*, United States Department of Agriculture, Washington, 1946 (mimeographed).

was heavily depleted. The 6-year period saw an increase of some 13,000,000 persons in urban and suburban areas, accompanying the loss of 4,250,000 people by the farms. Obviously not a little of the housing problem was due to this fact.

Variations in the relative importance of the rural and urban populations are very pronounced as between the states (see Fig. 4). At the top of the list are Rhode Island (91.6 per cent urban), Massachusetts (89.4 per cent urban), New York (82.8 per cent), and New Jersey (81.6 per cent), in all of which the urban population made up more than four-fifths of the whole in

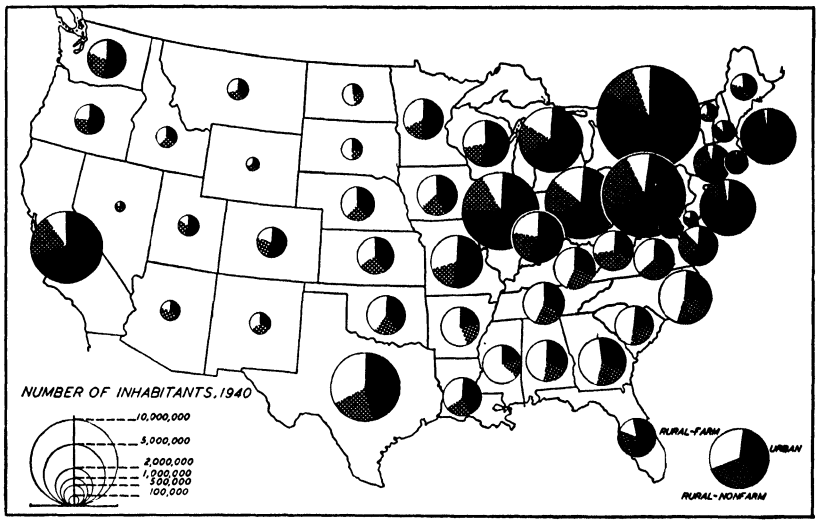

FIG. 4.—The population of the United States, by residence, 1940.

1940. At the other end of the scale stood Mississippi (19.8), North Dakota, Arkansas, South Carolina, and South Dakota, in the order named, where the urban population constituted less than one-fourth of the total population.

Observation of Fig. 4 makes it evident at once that the section north of the Ohio and east of the Mississippi is the most highly urbanized part of the nation. Only two of the states included in this delineation (Maine and Vermont) are primarily rural, although Indiana and Wisconsin are slightly below the national average with respect to the proportion of urban dwellers in the total population. On the other hand, only two states (California and Maryland) lying outside the area north of the Ohio and east of the Mississippi exceed the national average in percentage of urban in the population. Also evident from Fig. 4 is the manner in which a few cities of medium size

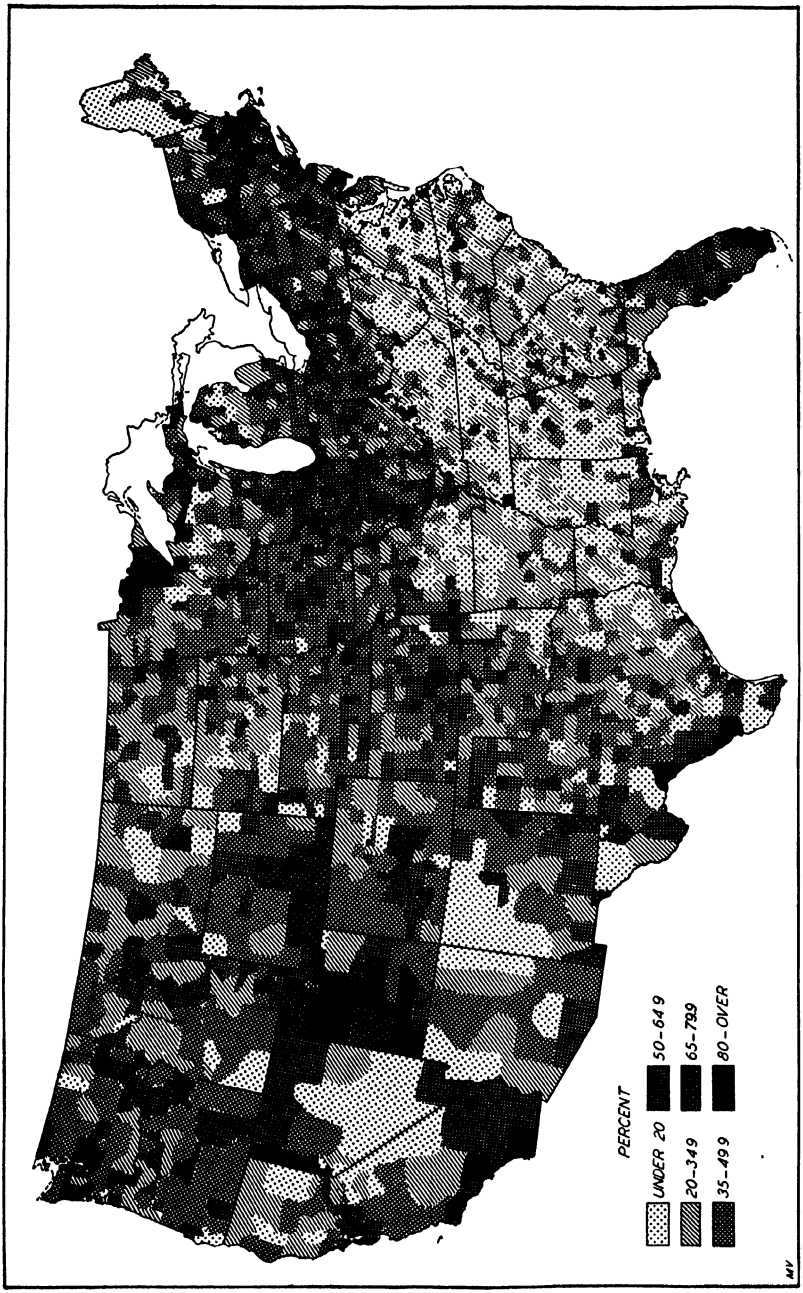

FIG. 5.—Percentage of the population of the United States residing in incorporated centers, by counties, 1940.

make for a fairly large percentage of urban population in such states as Colorado and Utah. Note also that the most sparsely populated state (Nevada) has a higher proportion of urban population than 20 of the more densely populated states.

A much clearer view of the variations in the importance of the rural and urban population throughout the United States is obtained from observa-

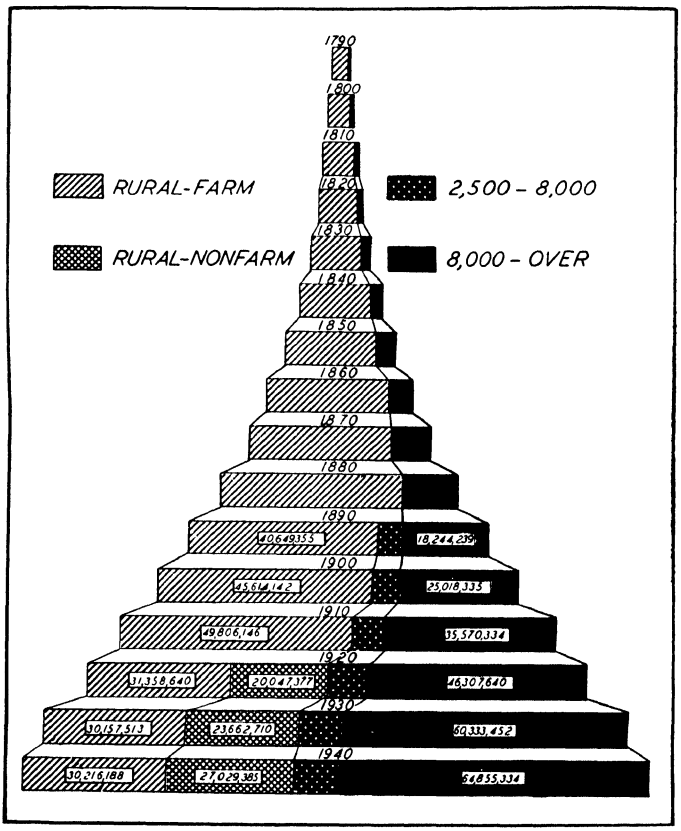

FIG. 6.—The growth of population in the United States, 1790 to 1940, by residence.

tion of Fig. 5. In this map the county basis is utilized to show variations in the proportions of the population residing in incorporated centers. Observation of this map helps eliminate the danger of confusing low density of population and a high degree of rurality. The Plains and Mountain states are sparsely populated, but the bulk of their inhabitants live together in incorporated centers. The South is more densely populated, but its people are spread about on the land.

Trends.—When the First Census of the United States was taken in 1790, the small new nation was overwhelmingly agricultural and rural. At that time only 5.1 per cent of the 3,727,559 inhabitants lived in centers of 2,500 or more. From that day to this the urban population has consistently outstripped the rural in rate of growth. By 1850 almost one-sixth (15.8 per cent) were urban. But as late as 1890 only 35.4 per cent of the population qualified as urban. By 1920 this proportion had risen to more than one-half (51.4 per cent) and it continued to rise rapidly to 1930 (56.2 per cent) and less rapidly to 1940 (56.5 per cent) (see Fig. 6). Rural population, of course, showed a corresponding decrease in relative importance. Particularly significant is the decreasing proportion of the population residing in rural territory and outside incorporated territory. In 1890 this element in the population made up 57.0 per cent of all the people in the United States Despite the fact that its importance is constantly swelled by the growth of the unincorporated fringes of the cities, the percentage of population in this category fell off to only 36.4 in 1930. However, during the last decade it did not change, a fact that must be attributed largely to the waxing of the suburban population.

Chapter 3

RACE AND NATIVITY

THE modern census uses a classification of the population by race and nativity as a primary subdivision in its tabulations. Only the rural-urban differentiation takes precedence over this indispensable breakdown. Most countries not only distinguish between natives and foreign born but further subdivide each of these categories into the basic racial stocks from which it is derived. This is sound procedure, for so great are the differences between the cultural backgrounds and economic status of the native born and the foreign born and of the white races and the colored races that very significant differentials in birth rates, death rates, incidence of migration, intelligence quotients, and other important social indexes are generated. Usually there is very little point in comparisons of one region with another, of rural with urban areas, of the population at two points in time, and so forth, unless the data have first been subdivided by race and nativity. This is especially true in countries such as the United States, Brazil, and Colombia where racial groups are not distributed equally in the various sections of the country, where the rural populations contain higher proportions of the colored races than the cities, and where the racial composition of the population has been changing very rapidly. For example, in the United States there is very little value in demographic comparisons of the South with other regions of the country unless the data are first divided by race and by residence. Otherwise, the results may show merely that the region is the home of the rural Negro, a fact that has been well known for many years. Fortunately, the United States Census, as well as many other modern censuses, uses classifications that are sufficiently detailed to allow the necessary refinements to be used in most of the analyses.

DATA AND SOURCES

Prior to 1850 the distinction between the white and colored populations was the only classification involving race or nativity used in the various censuses of the United States. There are even some questions about this division, because it is not known in which category the small number of taxed Indians were included. For example, in the census of 1790 the classification consisted of the following categories: free white males 16

years of age and over, free white males under 16, free white females, all other free persons, and slaves,[1] but it is not known whether the Indians were grouped with the whites or with the other free persons. Essentially the same procedures were followed in the censuses of 1800, 1810, 1820, 1830, and 1840. Of course, none of these had much in common with the later enumerations; they resemble the present census in little except that a complete count of the population was attempted.

To J. D. B. DeBow, who served as superintendent of the Fifth Census, should go the credit for beginning the classification of the population according to nativity. Indeed, this pioneer statistician developed and introduced much of the detail that has made the United States Census the world's greatest repository of demographic information.[2] In the census of 1850 both the white and the colored populations were further classified into those born in their state of residence, those born elsewhere in the United States, those born in foreign countries, and those whose birthplaces were unknown. Those born in a foreign country were classified according to the country of birth. Since 1850 these valuable tabulations have been included in every census. In fact, a very large share of all of the tables now included in the census reports have columns headed "native white," "foreign-born white," "Negro," and "other races" in addition to the column that gives the figures for all classes. The extension of this basic race and nativity classification into many of the county tables has greatly enhanced the value and usefulness of the state reports. It is not saying too much to assert that among all of the classifications used in the United States Census of Population the one giving race and nativity is now second in importance only to the residential breakdown.

Since the classification by race and nativity is so basic, it is essential to know its specific features. In 1940 the fundamental racial dichotomy, white and nonwhite, was introduced as the basis for further subdivisions. In some of the tables for the larger geographic areas the nonwhites were further subdivided as follows: Negro, Indian (American), Chinese, Japanese, Filipino, Hindu, Korean, Polynesian, and other Asian. In the more detailed tabulations the list was abbreviated to Negro, Indian, Chinese, Japanese, Filipino, Hindu, and all other; and in the tables for counties and minor civil divisions the older division into Negroes and other races was

[1] *Cf. Return of the Whole Number of Persons within the Several Districts of the United States . . .* , p. 3, William Duane, Washington City, 1802.

[2] Every student of population problems should examine with care DeBow's *Statistical View of the United States . . . Being a Compendium of the Seventh Census* Beverley Tucker, Washington, 1854. When one allows for the date at which it was written, one finds this volume replete with well-arranged population data.

used, with a supplementary tabulation of Indians, Chinese, and Japanese for those counties containing 10 or more representatives of any one of the three groups. Added value is given to these racial data by subdividing the Negroes, Chinese, and Japanese into native born and foreign born in the state and regional tables and in some of the county tabulations. A principal defect is that the large group of immigrants from Mexico, which includes many persons of almost pure American Indian stock, was classified with the white population. In 1930 the Mexicans were classed separately, but in 1940 all tabulations were revised to group them in the white category. This is a basic fault in present practice.

Even more detailed and satisfactory are the classifications of the white population. In justifiable contrast to the handling of the data for the non-whites, nativity is primary in the classifications of the whites. Thus, the division into native whites and foreign-born whites not only is the basic one in the tables for the nation, the regions, and the states but adds immensely to the usefulness of the data by being carried into the tables for counties and minor civil divisions. In several censuses, particularly that of 1930, the division of the native white population into those inhabitants of native parentage and those of foreign or mixed parentage occupied a prominent place, but this differentiation was relegated to a less important position in the 1940 census. Nor is the classification of the country of origin and the mother tongue of the foreign-born population neglected. Although this does not figure in the basic county tables, it is available for the state tables and in some of the supplementary tables for the smaller divisions. All in all, the data are fairly accurate. The Census Bureau has done its part. The point to emphasize is the extent to which the available data have been neglected by those engaged in demographic investigations.

THE ELEMENTS AND THEIR IMPORTANCE

Fortunately, the tabulations of the United States Census are so well planned that it is possible to determine in detail the present race and nativity make-up of the population of the United States as well as those of the regions and states into which the nation is divided. The most recent count, that of 1940, showed a total white population of 118,214,870, or 89.8 per cent of all persons included in the census. At the same time, there were enumerated 12,865,518 Negroes (9.8 per cent) and 588,887 (0.4 per cent) people of other racial stocks. Thus, approximately 9 persons out of every 10 in the United States belong to the white race; almost 1 in 10 is a Negro; and only 4 persons in each 1,000 is a Chinese, a Japanese, or the representative of one of the other colored races.

Approximately 9 out of every 10 white persons in the United States

TABLE 3.—COUNTRY OF ORIGIN OF THE FOREIGN-BORN WHITE POPULATION AND OF THE PARENTS OF THE NATIVE WHITES OF FOREIGN OR MIXED PARENTAGE IN THE UNITED STATES, 1940*

Country of birth	Foreign-born white		Native born of foreign or mixed parentage	
	Number	Per cent	Number	Per cent
Total	11,419,138	100.0	23,157,580	100.0
Italy	1,623,580	14.2	2,971,200	12.8
Germany	1,237,772	10.8	3,998,840	17.3
Russia	1,040,884	9.1	1,569,360	6.8
Poland	993,479	8.7	1,912,380	8.3
Canada, other	770,753	6.7	1,231,020	5.3
England	621,975	5.4	1,354,000	5.8
Irish Free State	572,031	5.0	1,838,920	7.9
Austria	479,906	4.2	781,340	3.4
Sweden	445,070	3.9	856,320	3.7
Mexico	377,433	3.3	699,220	3.0
Czechoslovakia	319,971	2.8	664,620	2.9
Hungary	290,228	2.5	371,840	1.6
Scotland	279,321	2.4	446,540	1.9
Canada, French	273,366	2.4	635,020	2.7
Norway	262,088	2.3	662,600	2.9
Lithuania	165,771	1.5	229,040	1.0
Greece	163,252	1.4	163,420	0.7
Yugoslavia	161,093	1.4	222,300	1.0
Denmark	138,175	1.2	305,640	1.3
Finland	117,210	1.0	167,080	0.7
Rumania	115,940	1.0	131,760	0.6
Netherlands	111,064	1.0	261,320	1.1
North Ireland	106,416	0.9	270,820	1.2
France	102,930	0.9	246,120	1.1
Switzerland	88,293	0.8	205,680	0.9
Portugal	62,347	0.5	114,060	0.5
Belgium	53,958	0.5	76,400	0.3
Turkey (Asia)	52,479	0.5	43,360	0.2
Syria	50,859	0.4	87,740	0.4
Spain	47,707	0.4	61,700	0.3

* SOURCE: *Sixteenth Census of the United States, 1940, Population, Nativity and Parentage of the White Population—Country of Origin of the Foreign Stock*, Table 1, p. 9.

TABLE 3.—COUNTRY OF ORIGIN OF THE FOREIGN-BORN WHITE POPULATION AND OF THE PARENTS OF THE NATIVE WHITES OF FOREIGN OR MIXED PARENTAGE IN THE UNITED STATES, 1940.—(*Continued*)

Country of birth	Foreign-born white		Native born of foreign or mixed parentage	
	Number	Per cent	Number	Per cent
Wales	35,360	0.3	112,900	0.5
South America	28,770	0.3	26,060	0.1
Azores	25,751	0.2	48,600	0.2
Newfoundland	21,361	0.2	25,640	0.1
Latvia	18,636	0.2	16,020	0.1
Cuba	15,277	0.1	16,980	0.1
Other West Indies	15,257	0.1	18,200	0.1
Australia	10,998	0.1	15,900	0.1
Bulgaria	8,888	0.1	6,800	†
Central America	7,638	0.1	5,100	
Palestine	7,047	0.1	5,760	
Luxemburg	6,886	0.1	20,280	0.1
Turkey (Europe)	4,412	†	3,960	
Estonia	4,178	.....	2,480	
Iceland	2,104	.....	4,480	
Other Asia	39,524	0.3	46,400	0 2
Other Europe	19,819	0.2	21,640	0.1
Other Atlantic Islands	3,232	.....	5,360	
All other and not reported	18,649	0.2	175,360	0.8

† When no figure is given, the number is less than 0.1 per cent.

were born in this country, the number enumerated in 1940 being 106,795,732 and the percentage of all whites equaling 90.3. Thus, the foreign-born whites, totaling 11,419,138, are only slightly less important numerically than the Negroes. However, an additional 23,183,740 white persons (21.7 per cent of all) were classed as of foreign or mixed parentage. In short, as of 1940 the foreign born and their children made up 3 out of every 10 white people in the United States. Furthermore, this foreign stock is extremely heterogeneous in composition as can be seen from Table 3 (see also Figs. 126 and 127). In contrast to the homogeneous ethnic composition of the population when the nation declared its independence, by 1940 every nation in Europe had contributed a considerable contingent of its population to the United States. Four of them (Italy, Germany, Russia, and Canada) had sent more than 1,000,000 immigrants; three others (Poland, England, and

Eire) each had supplied between 500,000 and 1,000,000 of our foreign-born population; sixteen more had contributed quotas numbering above 100,000; and another long list had dispatched fewer than 100,000 apiece.

Less heterogeneous are the origins of the colored population of the United States, even though every major racial group is represented. Of the total of 13,454,405 nonwhites enumerated in the 1940 census, 12,865,518 (95.6 per cent) were Negroes. Of these all but 83,941 (0.7 per cent) were born in this country, the lion's share of them being descended through several generations of native-born Negroes. Even though due allowance is made for the diverse African sources of the slaves who were torn from their native environment and transported to the United States, the fact remains that their descendants today are so thoroughly mixed and blended that it is almost impossible to establish any physical characteristics distinguishing the Negroes of one state or section from those of another. Except for the differences developed through varying degrees of interbreeding with the whites, the North American Negroes appear to be a very homogeneous lot.

Indians, the descendants of the aborigines found by the white man when he came to the New World, numbered 333,969 at the time of the 1940 census. They constituted 2.5 per cent of the nonwhite population, and all except 4,491 (1.3 per cent) of them were born within the borders of the United States. As indicated above, in 1940 natives of Mexico were enumerated with the white population. Naturally, had a strict racial classification been adhered to in handling this group, it would have materially increased the number of Indians. No other colored race made up as much as 1 per cent of the nonwhite population, the three major groups being the Japanese totaling 126,947 (0.9 per cent); Chinese, 77,504 (0.6 per cent); and Filipinos, 45,563 (0.3 per cent). A total of 2,405 Hindus, 1,711 Koreans, 657 Polynesians, and 131 other Asians complete the list. In 1940 the percentages of native born among these racial groups were as follows: Japanese, 62.7; Chinese, 51.9; Filipino, 99.1; Hindu, 37.8; Polynesian, 98.6; and other Asian, 27.5. Undoubtedly, natives of the Philippines and Hawaii were counted as native born.

RURAL-URBAN DISTRIBUTION

The distribution of the various elements, white and colored, that have a share in the ethnic composition of the population of the United States also is of importance. It has two major aspects, *viz.*, the extent to which the members of each of the racial and nativity groupings are dispersed among the various residential categories of the population (urban, rural-nonfarm, and rural-farm) and also the manner in which they are distributed regionally. Each of these will be examined in turn.

It has long been known that the "foreign" elements in a given population tend to concentrate in the cities whereas the "native" elements make up relatively high proportions of the people of the rural areas.[3] In fact, Livi's law, which is the most adequate explanation of all the observed differences between rural and urban populations, is based on this elemental fact.[4] Therefore, it is not surprising that the situation in the United States is strictly in accord with the hypothesis. Thus, in 1940 the proportion of foreign born in the white population was 13.4 per cent in urban districts, 5.5 per cent in the rural-nonfarm areas, and only 3.1 per cent in rural-farm territory. The tendency for the foreign-born population to be concentrated in the urban districts holds true for most of the 48 states in the Union. The exceptions are California, where the percentages of foreign born among the white population are 14.0, 9.9, and 14.6 for the urban, rural-non-farm, and rural-farm populations, respectively; Nevada, where the corresponding percentages are 9.8, 9.5, and 13.9; North Dakota where they are 9.6, 12.7, and 12.1; and South Dakota where only 6.3 per cent of the urban white population is foreign-born in comparison with 7.8 per cent of the rural-nonfarm and 7.2 per cent of the rural-farm populations. To all of these states and some of their neighbors went great blocks of immigrant farmers to settle directly on the land, a phenomenon rare in immigration annals. But even this does not obscure the fundamental fact that foreigners entering the United States have conformed with the general rule by settling in the cities and establishing themselves in urban occupations.

The proposition that the foreign-born population of a country tends to concentrate in the cities, in comparison with the native-born elements, is so firmly established that it is unusual to find any demographer who disputes it. Therefore, one is a little taken aback that a man with a full lifetime of experience with the United States Census could make the following flat statement: "No evidence has been found that the foreign born tend more than the natives to live in the cities."[5] Willcox was, of course, aware that this statement was contradicted by the data, and to support the seemingly untenable position he urged that the larger proportion of foreign born which the census regularly enumerates in the cities is due to the fact that the immigrants arrive by way of a city and that it takes time for them to disperse. From the scientific point of view, to bring up this alternative

[3] See, for example, SOROKIN, PITIRIM, and CARLE C. ZIMMERMAN, *Principles of Rural-Urban Sociology*, pp. 23, 108–109, Henry Holt and Company, Inc., New York, 1929.

[4] *Ibid.*, pp. 108–109, 116.

[5] WILLCOX, WALTER F., *Studies in American Demography*, p. 168, Cornell University Press, Ithaca, N. Y., 1940.

explanation of the facts is commendable; but to fail to test its validity against the available data is inexcusable. It is possible to compare the proportions of each age group, foreign born as well as native born, living in urban and rural territory (see Table 4). Observations of these data make it evident that the proportion of the foreign born residing in urban territory declines as age increases, but the data also demonstrate clearly that at every age the percentage of foreigners residing in the nation's towns and cities greatly exceeds the corresponding percentage of the native-born population. Such a test makes the statement by Willcox stand out as the unsupported piece of special pleading that it is. The proposition that the native elements in population are found in highest proportions in the rural districts whereas the foreign elements congregate in the cities still stands as one of the most significant social uniformities that has been discovered.

GEOGRAPHIC DISTRIBUTION

It is well known that within the United States the relative importance of the several race and nativity categories varies greatly from one state or

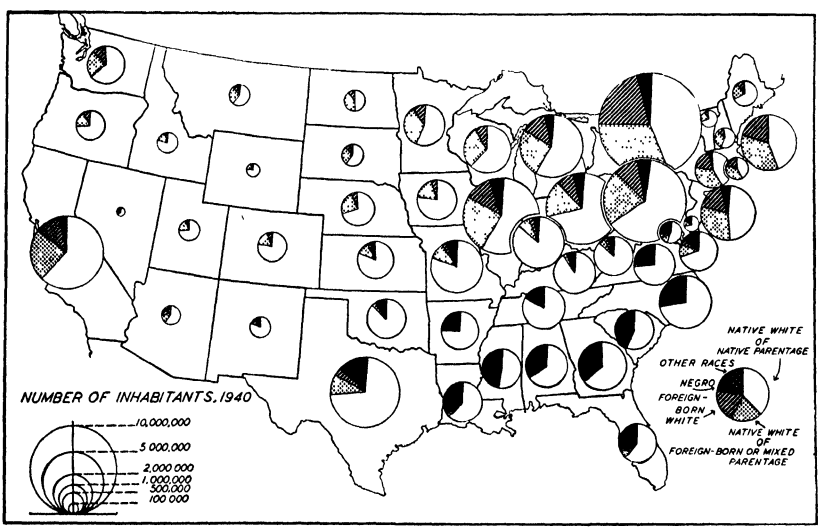

FIG. 7.—Distribution of the population of the United States, by race and nativity, 1940.

region to another. But the precise nature of the differences is not so well known. Therefore, it is advisable to begin the analysis with an over-all view of the absolute and relative importance of the large race and nativity groupings in each of the states (see Fig. 7).

This chart makes it clear that the states which lie near the center of population are the ones having the most homogeneous populations, the ones in which native whites of native parentage constitute the overwhelming proportions of the totals. Highest of all is Kentucky, which, in spite of being a southern state and possessing a considerable Negro population, has 89.9 per cent of its people classified as native white of native parentage. West Virginia and Indiana, along with Oklahoma, are close rivals for the

TABLE 4.—PERCENTAGES OF THE NATIVE WHITE AND FOREIGN-BORN WHITE POPULATIONS LIVING IN URBAN, RURAL-NONFARM, AND RURAL-FARM TERRITORY, BY AGE, 1940*

Age	Native white			Foreign-born white		
	Urban	Rural-nonfarm	Rural-farm	Urban	Rural-nonfarm	Rural-farm
Total	55.1	21.9	23.0	80.0	12.0	8.0
0—	49.0	24.9	26.1	83.9	11.1	5.0
5—	48.9	23.8	27.3	83.6	11.3	5.1
10—	51.0	22.0	27.0	82.9	11.3	5.8
15—	53.6	20.7	25.7	82.4	11.5	6.1
20—	59.1	20.5	20.4	82.4	11.7	5.9
25—	60.3	21.6	18.1	84.1	10.9	5.0
30—	59.9	22.2	17.9	84.3	10.8	4.9
35—	59.0	21.8	19.2	84.3	10.6	5.2
40—	58.8	20.7	20.5	84.1	10.4	5.5
45—	57.3	20.4	22.3	82.4	10.9	6.7
50—	55.8	20.3	23.8	80.3	11.5	8.2
55—	53.9	20.9	25.2	78.3	12.1	9 6
60—	53.4	21.6	25.1	76.9	12.7	10.4
65—	52.2	23.0	24.8	75.3	13.7	11.0
70—	52.3	24.3	23.4	73.4	15.1	11.5
75+	51.6	25.7	22.7	69.9	17.3	12.8

* SOURCE: *Sixteenth Census of the United States, 1940, Population*, vol. II, *Characteristics of the Population, United States Summary*, Table 7, pp. 16–20.

top position. New Mexico, where the large Spanish American population was classed as white in 1940, also ranks high, as do Kansas, Tennessee, and Missouri. In all of these more than four out of every five persons are native whites of native parentage. These proportions are far above the 71.3 per cent in Vermont, the state that enjoys such a widespread reputation for being populated by native stock. Native white elements are least important

relatively in Michigan, where in 1940 they made up only 40.5 per cent of the population. Connecticut (42.2 per cent), New York (42.6 per cent), and Massachusetts (42.8 per cent) are close rivals. North Dakota and Mississippi are the other two states in which less than one-half of the population is native white of native parentage.

The foreign white stocks—the foreign born and their children—are concentrated in the great industrial states of the North and the East, with sizable contingents also being found in Minnesota and California. In Massachusetts, Connecticut, New York, and Michigan, they form a majority of the population. Of the states in which immigrants and their children are most important, the foreign born are greatest relatively in New York, New Jersey, Massachusetts, and California, while the first generation born in this country bulk largest in Rhode Island, Michigan, Massachusetts, New York, Connecticut, Illinois, Wisconsin, Minnesota, the Dakotas, and California.

Negroes are, of course, concentrated in the South. However, by 1940 they were found in large numbers in most of the great northern cities, so that Illinois, Michigan, Pennsylvania, New York, and New Jersey contained substantial contingents. At that time, Negroes also made up 28.2 per cent of the population of the nation's capital. Prior to the Second World War, they had not migrated to any extent to the Pacific Coast. The census of 1950 will enumerate great numbers of them in California.

Other races are represented mostly by the Japanese and Chinese on the West Coast, the Indians in the Plains and Mountain states, and the hodgepodge of all races found in New York City, Chicago, Boston, and Detroit.

Viewed as a whole, the most diverse ethnic and racial elements are found in states east of the Mississippi and north of the Ohio, with Maine, Vermont, and Indiana excepted. Minnesota, the Dakotas, Texas, Arizona, and California (New Mexico belongs with them, too) also are inhabited by motley groups of peoples. In the Old South, the population consists almost exclusively of native stock, white and Negro.

In order to bring out clearly the principal features of the regional distribution of each of the race and nationality groupings in the United States, a series of maps has been prepared. Since our immigrant population was at an all-time high in 1930, the figures for that year are employed. They give a more correct impression of the relative importance of the various nationality groups and of the sections of the country in which each is making its contribution to our ethnic stock and national culture than would the data for any other single year (see Figs. 8 to 31, inclusive). By observing these, it is possible to see at a glance the extent to which any racial or nationality group is dispersed over the national territory and also to

identify the area or areas in which its members are concentrated. A few observations about each of these ethnic stocks are appropriate. They are discussed in the order of their relative importance.

The Italians.—The most striking feature in the distribution of the 1,790,429 immigrants from Italy enumerated in our 1930 census is their extreme concentration in a few great urban and industrial centers (see Fig. 8). The heaping up in New York City and the near-by centers has been more pronounced on the part of the Italians than of any other nationality group. Except for good-sized colonies in San Francisco and its satellites, in Los Angeles, in New Orleans, and in Tampa, Italians in the

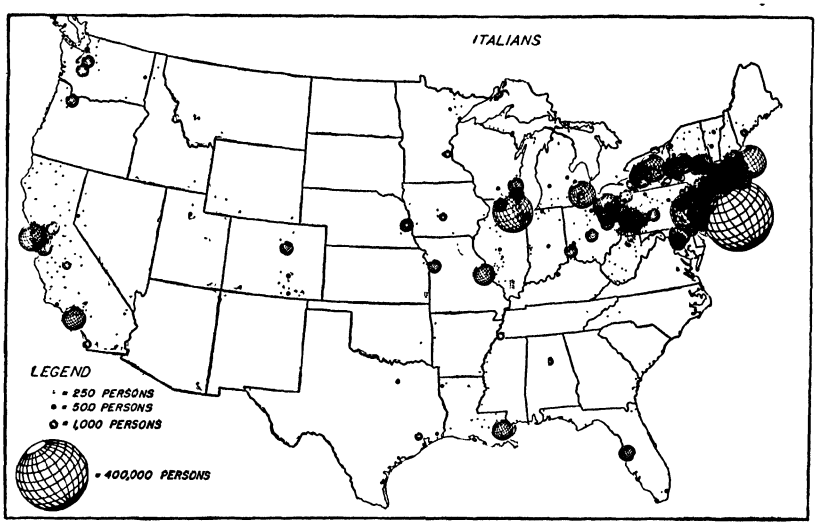

FIG. 8.—Distribution of persons born in Italy, 1930.

United States have avoided the areas of balmy climate. They also have avoided the land. In California and Louisiana some of them have engaged in agricultural pursuits, but most of those scattered about in Pennsylvania, West Virginia, Illinois, Colorado, and Utah are occupied at mining.

The Germans.—Immigrants from Germany rank with those from England in being the most widespread throughout the nation of any of the principal nationality groups (see Fig. 9). To be sure, there is one tremendous concentration in New York City and another in Chicago. But there are also large segments of the 1,608,814 total in Philadelphia, Milwaukee, Detroit, Cleveland, St. Louis, and a couple of dozen other cities. Furthermore, natives of Germany are also widespread throughout the farming districts of the northern, midwestern, and northwestern states. In

California, too, and even in Texas not a few German immigrants are to be found on the land.

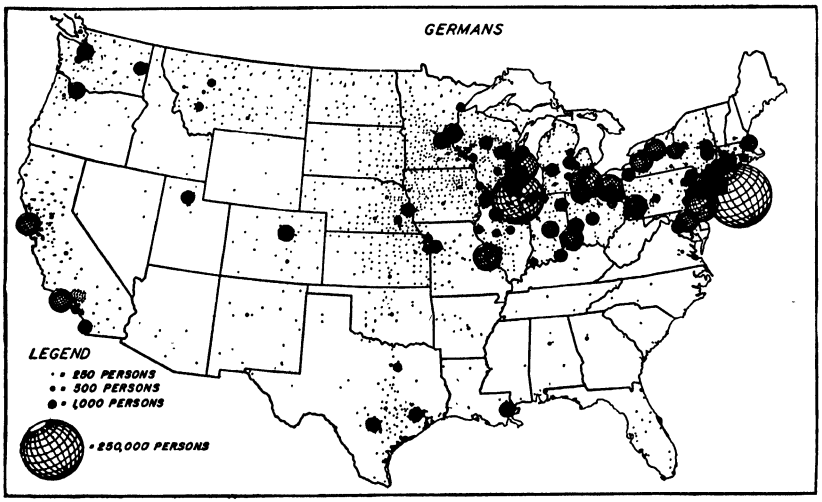

FIG. 9.—Distribution of persons born in Germany, 1930.

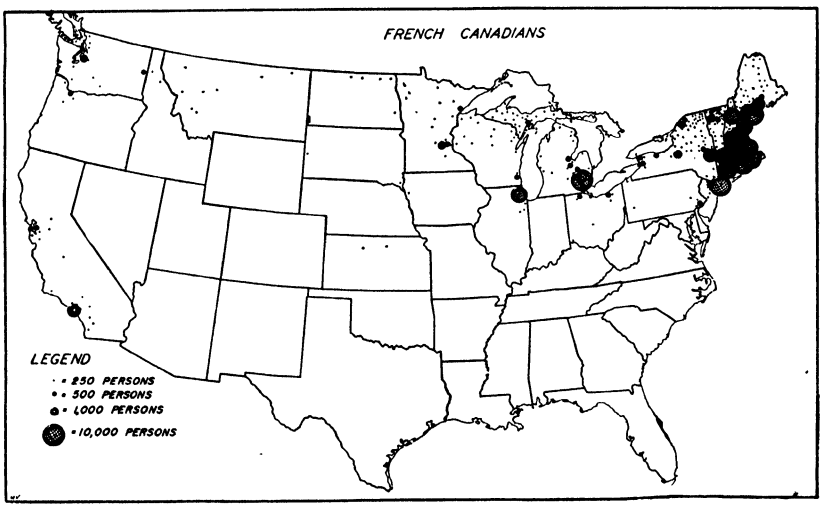

FIG. 10.—Distribution of French Canadians, 1930.

The Canadians.—Immigrants from Canada enumerated in the 1930 census included 370,852 classed as French Canadians and 915,537 as other. Most of the French Canadians were concentrated in New England, although

Detroit also contained a good many (see Fig. 10). The other Canadians (Fig. 11) were widely disseminated throughout the United States, rivaling such groups as the Germans and the English in this respect.

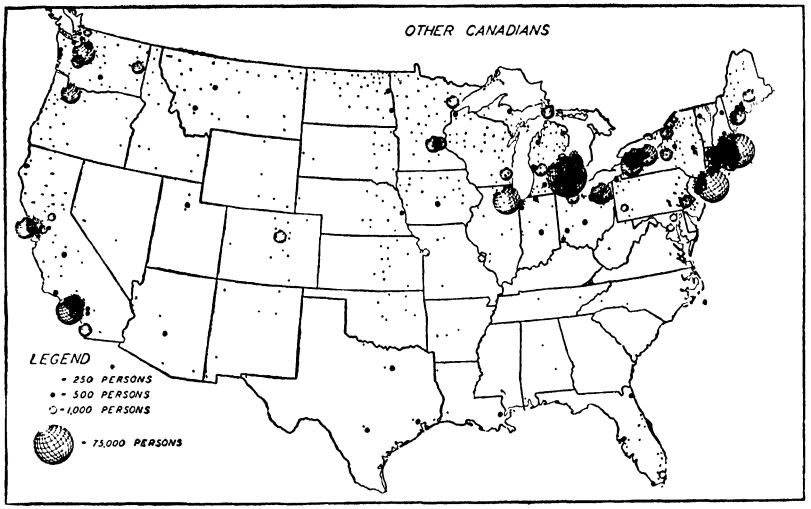

FIG. 11.—Distribution of other Canadians, 1930.

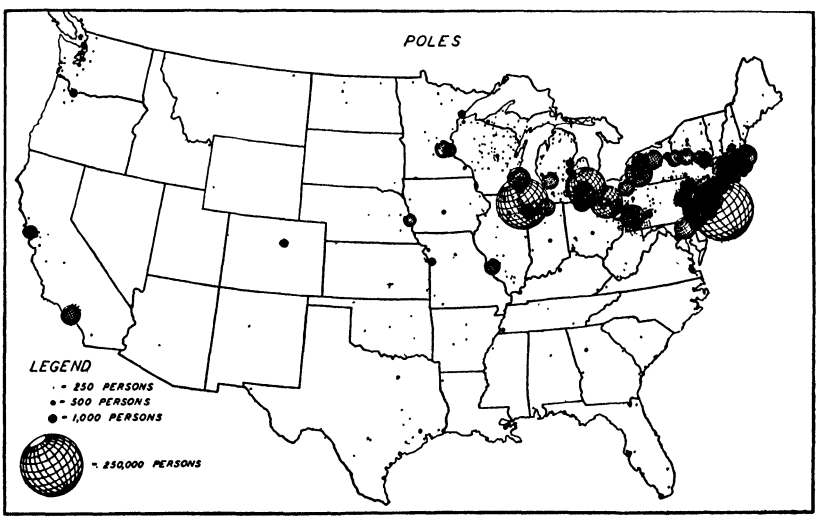

FIG. 12.—Distribution of persons born in Poland, 1930.

The Poles.—The Polish immigrants concentrated in the large cities located east of the Mississippi and north of the Ohio to the greatest extent of any of the major nationality groups (see Fig. 12). New York City,

Chicago, and Detroit contained the lion's share of the 1,268,583 persons born in Poland who were enumerated in the 1930 census. The heaping up of the Polish immigrants in a few major industrial centers exceeds even the

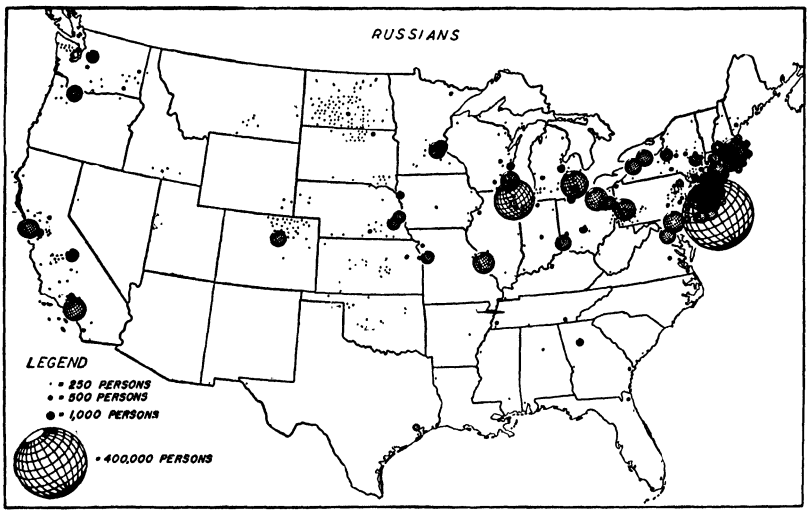

FIG. 13.—Distribution of persons born in Russia, 1930.

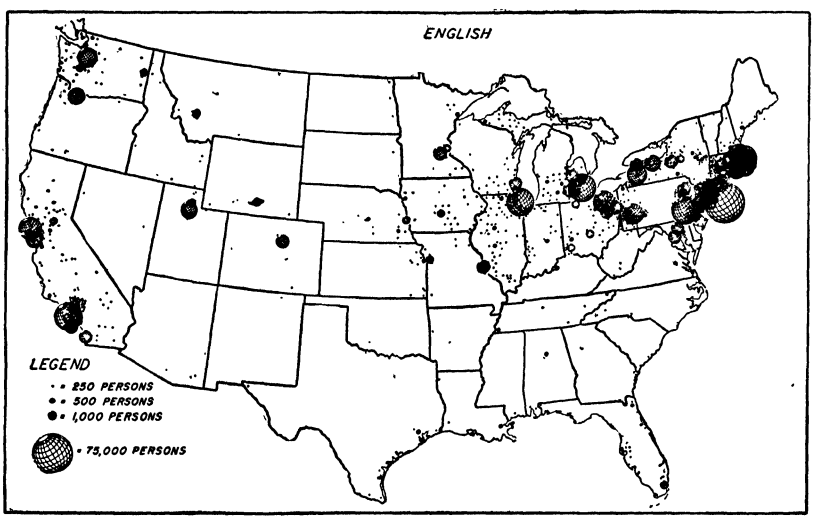

FIG. 14.—Distribution of persons born in England, 1930.

concentration of the Italians in such localities. However, the Poles also have spread out onto the land in certain sections, notably in northern Wisconsin and Michigan.

The Russians.—New York City contained almost 40 per cent of the 1,153,628 persons born in Russia who were enumerated in the 1930 census (see Fig. 13). Undoubtedly, this number included a very substantial proportion of persons of the Jewish faith. Chicago, Detroit, and Boston are the other cities containing large groups of Russian immigrants. Few of them are to be found on the land, although the Plains states contain scattered settlement and a few more are to be found in the Rocky Mountain region. The late date at which the immigration of Russians to this country began does much to explain this distribution.

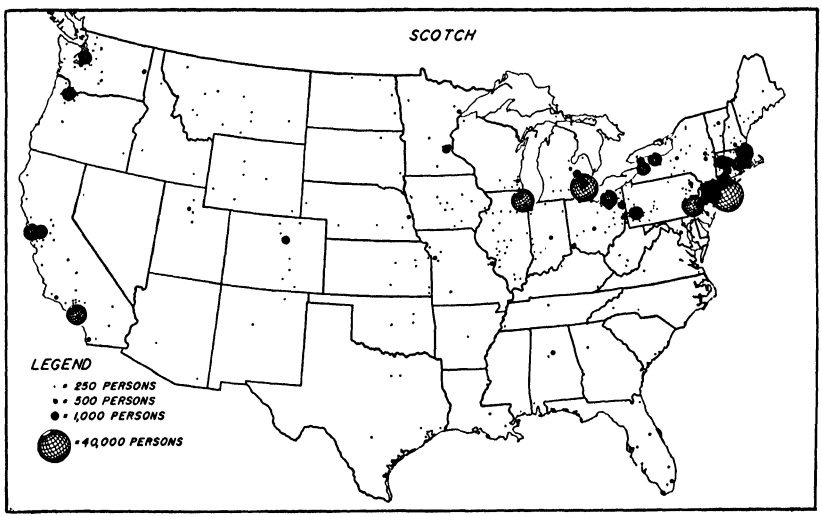

FIG. 15.—Distribution of persons born in Scotland, 1930.

The English, Scotch and Welsh.—Immigrants from the United Kingdom totaled 1,224,091 in 1930, of whom 809,563 were born in England, 354,323 in Scotland, and 60,205 in Wales. The English are remarkable for the extent to which they spread throughout the country, being found in considerable numbers everywhere except in the southern states (see Fig. 14). The Scotch exhibited similar tendencies, as may be seen from Fig. 15. The mining districts of Pennsylvania and Ohio seem to have attracted the bulk of the Welsh immigrants who got beyond New York (see Fig. 16).

The Scandinavians.—In 1930 a total of 1,122,576 persons born in the Scandinavian countries were included in our foreign-born population. Of this total, 595,250 were counted as born in Sweden, 347,852 in Norway, and 179,474 in Denmark. The concentration of these groups in Minnesota and other northwestern states is proverbial. This is largely borne out by the facts, especially with reference to the Swedes and the Norwegians

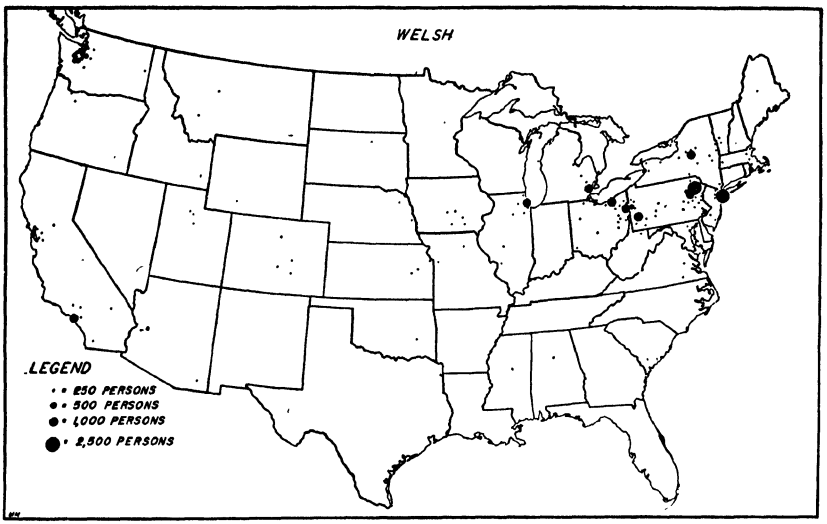

FIG. 16.—Distribution of persons born in Wales, 1930.

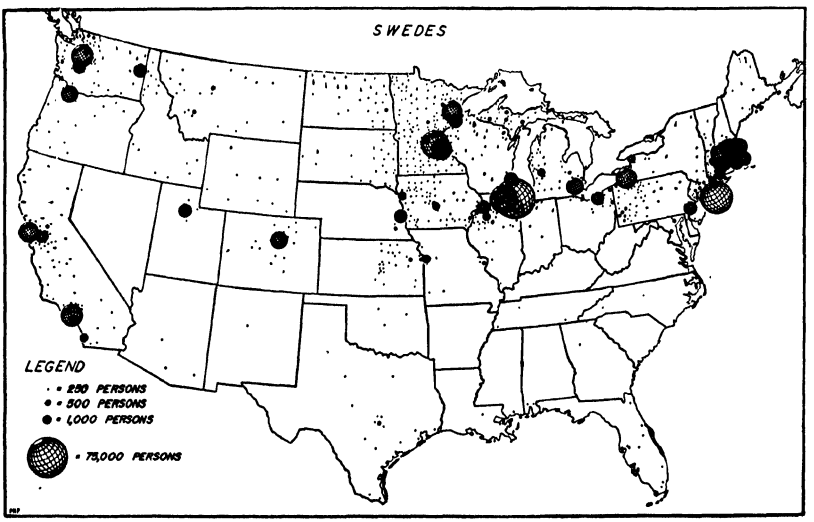

FIG. 17.—Distribution of persons born in Sweden, 1930.

(see Figs. 17 and 18). The Danes have tended to settle more in the Midwest than the other two groups (see Fig. 19). All three are heavily represented in the cities on the West Coast. Worcester, Mass., contains the largest numbers of Swedes, with Boston ranking second.

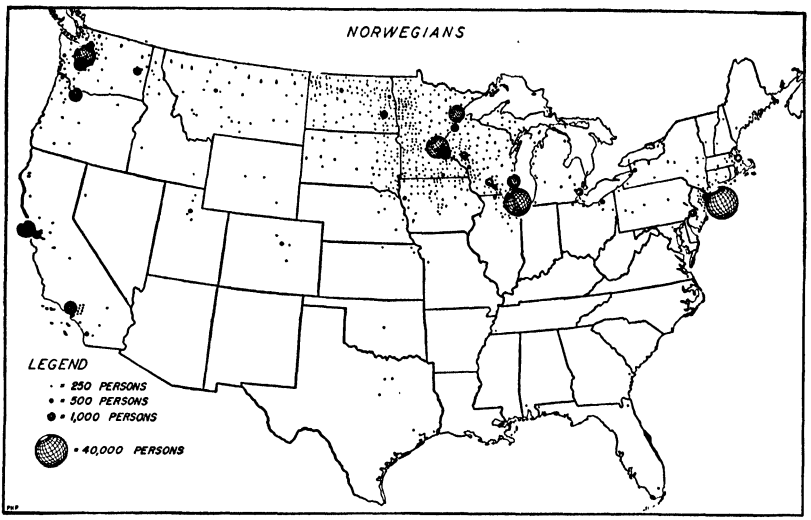

FIG. 18.—Distribution of persons born in Norway, 1930.

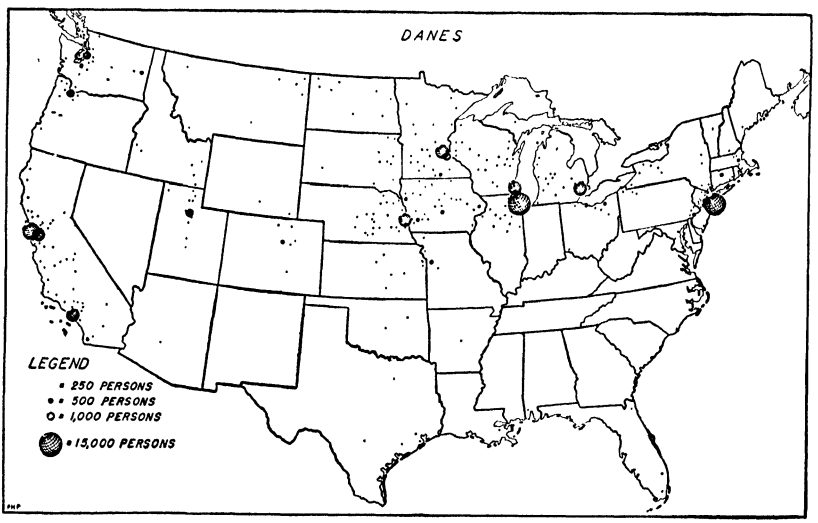

FIG. 19.—Distribution of persons born in Denmark, 1930.

The Irish.—The survivors of the tremendous Irish immigration to this country totaled 923,642 in 1930, of whom the lion's share (744,810) were from Eire. Although they came early, the extent to which they remained in a few large cities is remarkable (see Fig. 20). Not only did they avoid

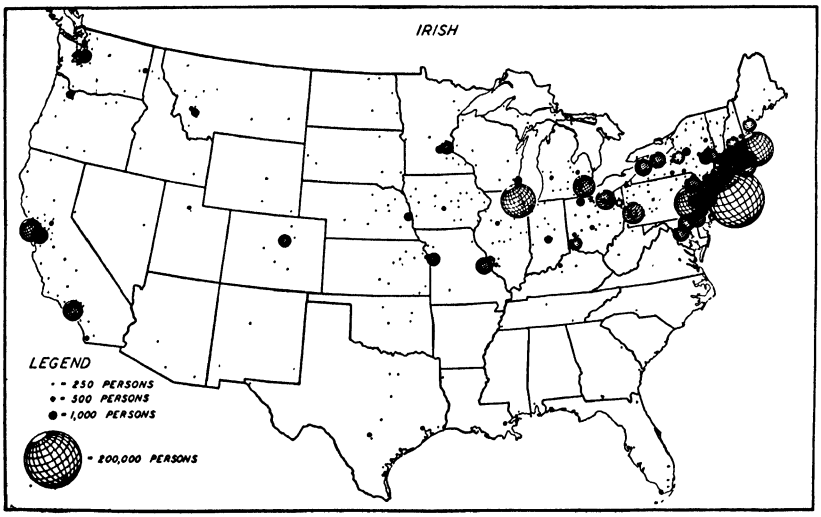

FIG. 20.—Distribution of persons born in Ireland, 1930.

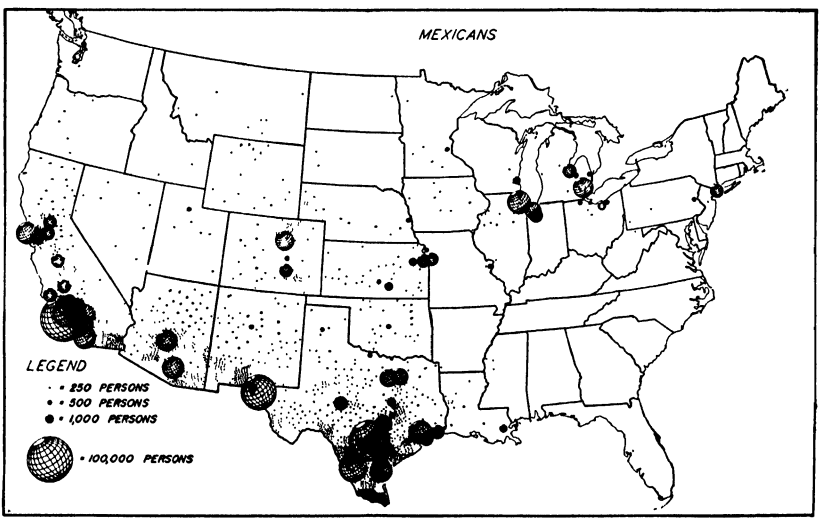

FIG. 21.—Distribution of persons born in Mexico, 1930.

the land almost completely, but west of Chicago they are sparsely represented in the bulk of the urban centers.

The Mexicans.—Just as the Canadian French have pushed across the international boundary line in the Northeast, immigrants from Mexico have crowded across the Rio Grande and the other portions of our southwestern

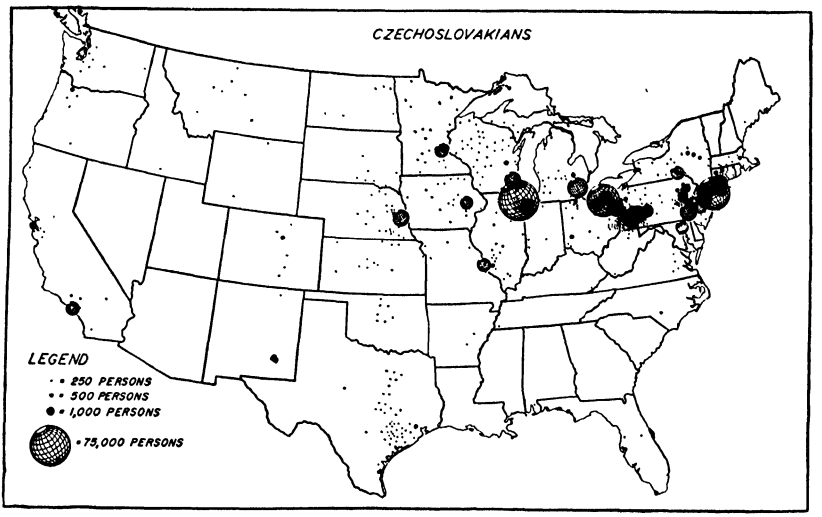

FIG. 22.—Distribution of persons born in Czechoslovakia, 1930.

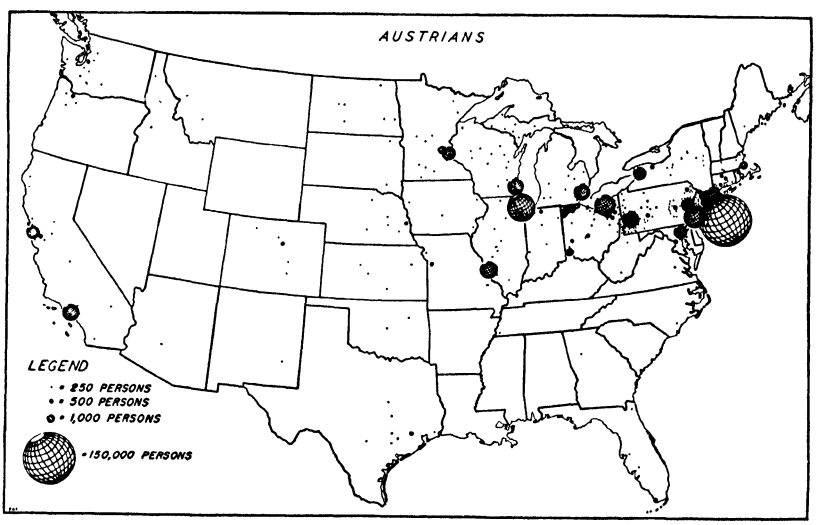

FIG. 23.—Distribution of persons born in Austria, 1930.

border (see Fig. 21). By 1930 persons born in Mexico totaled 641,462. Already they had made their way in considerable numbers to several of the larger midwestern cities.

The Czechoslovakians.—Persons born in Czechoslovakia totaled 491,638 at the time of the 1930 census. Chicago was the mecca of these immigrants

from Central Europe, although many went to Cleveland and to the Pittsburgh area. Another large continent lodged in New York. A few had established homes on the land, particularly in Wisconsin, Minnesota, Iowa, and the Plains states (see Fig. 22).

The Austrians.—Natives of Austria living in the United States in 1930 totaled 370,914. Most of them had congregated in a few cities, with New York alone retaining the lion's share (see Fig. 23).

The Hungarians.—There were in the United States in 1930 a total of 274,450 persons who gave Hungary as their country of birth. Their distribution was approximately the same as that of persons from the other

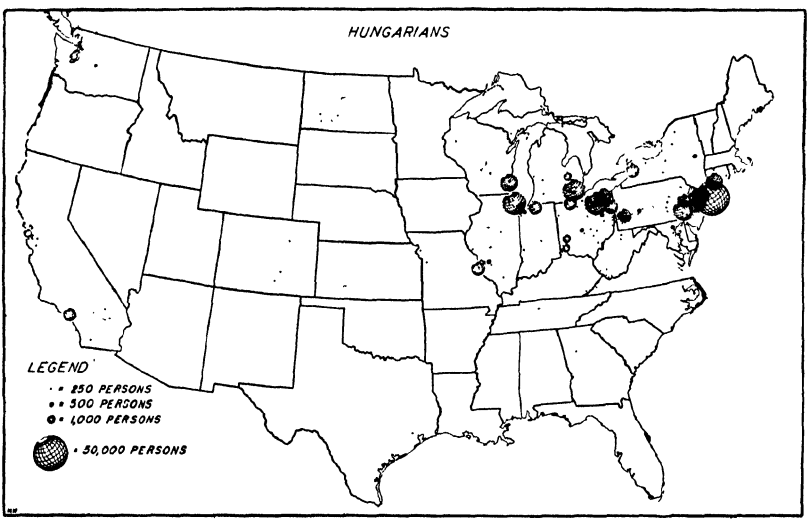

FIG. 24.—Distribution of persons born in Hungary, 1930.

part of the dismembered Hapsburg empire (see Fig. 24). However, the Hungarians seem to have been even more adverse to settling on the land than were the Austrians.

The Yugoslavs.—By 1930 a total of 211,416 immigrants born in Yugoslavia were living in the United States. Fewer settled in New York City than almost any of the other Europeans (see Fig. 25). Chicago, Detroit, Cleveland, and the Pittsburgh area attracted the bulk of them. Very few established homes in the agricultural districts.

The Lithuanians.—Chicago was the city that also attracted the largest number of the 193,606 Lithuanian immigrants who were living in the United States in 1930 (see Fig. 26). However, the great centers of population in the east, along with Detroit and Cleveland, also contained good-

sized colonies. Very few persons of this nationality group had gone onto farms, and practically none had settled west of the Mississippi.

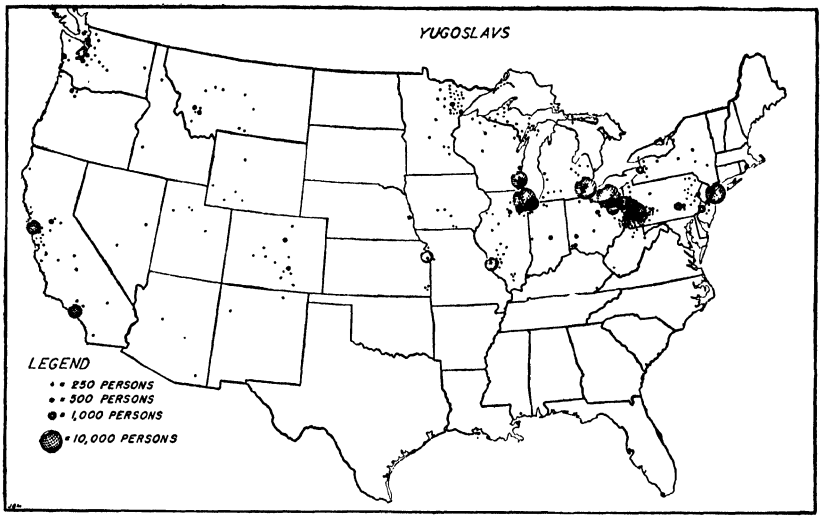

FIG. 25.—Distribution of persons born in Yugoslavia, 1930.

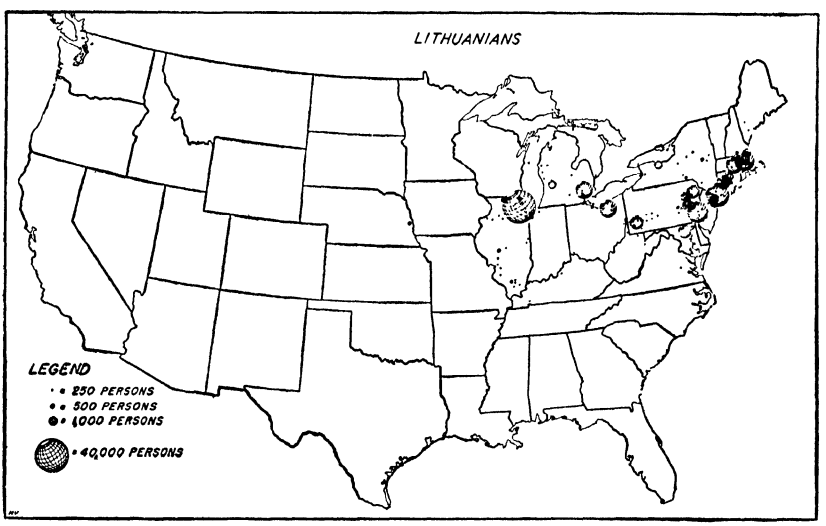

FIG. 26.—Distribution of persons born in Lithuania, 1930.

The Greeks.—The 174,526 immigrants from Greece were nearly all urban residents, but they had not crowded together in a few large urban centers (see Fig. 27). Nearly every city of any size in the United States

contained at least a small group. However, they had avoided the cities of the Northwest.

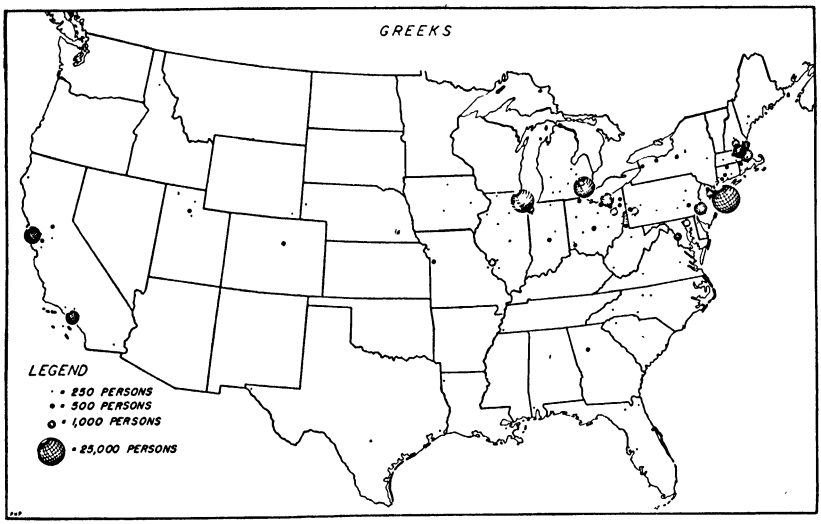

FIG. 27.—Distribution of persons born in Greece, 1930.

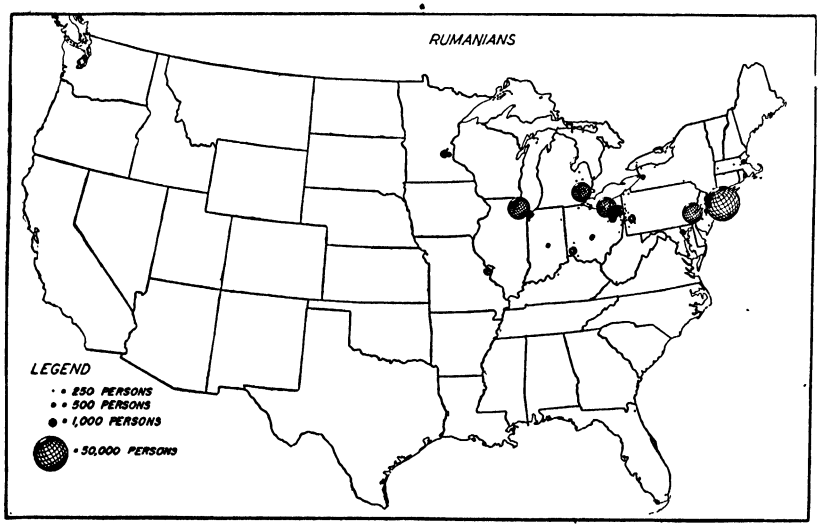

FIG. 28.—Distribution of persons born in Rumania, 1930.

The Rumanians.—The bulk of the 146,393 Rumanian immigrants in the United States at the time of the 1930 census had lodged in New York City. Most of the others had established themselves in Philadelphia, Cleveland,

Detroit, or Chicago (see Fig. 28). Except for small colonies in St. Louis and the Twin Cities and a few little groups in North Dakota, practically none of them had got west of the Mississippi.

The Finns.—The 142,478 immigrants from Finland have an interesting distribution (see Fig. 29). There was, of course, the expected concentration in New York City, and sizable contingents settled in Massachusetts. But Duluth contained about as many Finns as Detroit or Chicago. Throughout Upper Michigan and in northern Wisconsin and northern Minnesota they had settled in no small numbers on the land. Quite a few of them had made their way to the cities of the West Coast, particularly to San Francisco and Seattle.

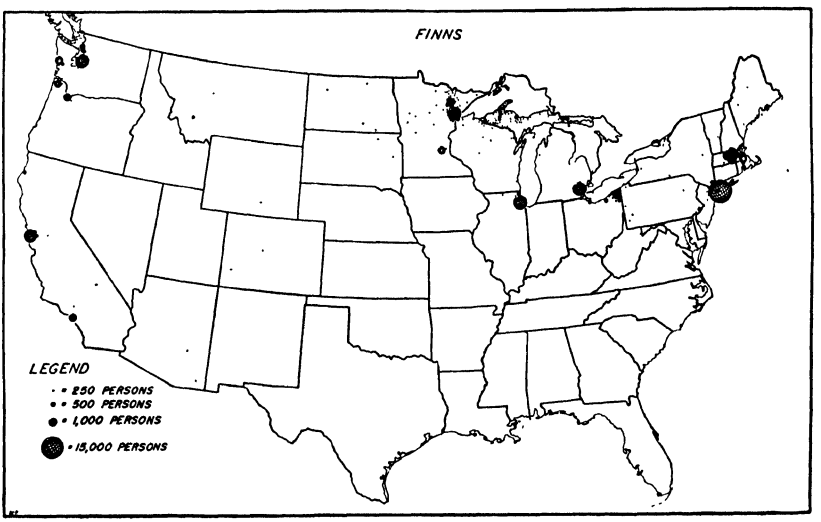

FIG. 29.—Distribution of persons born in Finland, 1930.

The French.—Immigration of the French was not very great during the opening decades of the twentieth century. In 1930 there were only 135,492 persons born in France living in the United States. They were widely spread throughout the nation's cities (see Fig. 30). New York contained the largest number, and its closest rival was San Francisco. It is interesting to note that a goodly number had cast their lot in New Orleans with the Louisiana French.

The Dutch.—The immigrants from the Netherlands have a unique distribution (see Fig. 31). Grand Rapids and the surrounding areas in western Michigan are where a large portion of them settled. They had also scattered about in the farming districts of the midwestern and northern states to a considerable extent.

The Swiss.—Among the immigrants enumerated in the 1930 census were 113,010 persons born in Switzerland. They were rather widely spread about in the nation, with the largest colony in New York and other

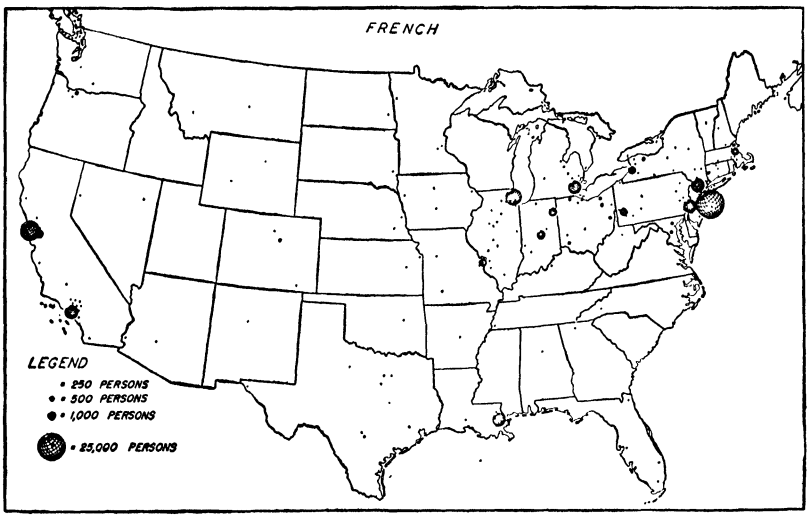

FIG. 30.—Distribution of persons born in France, 1930.

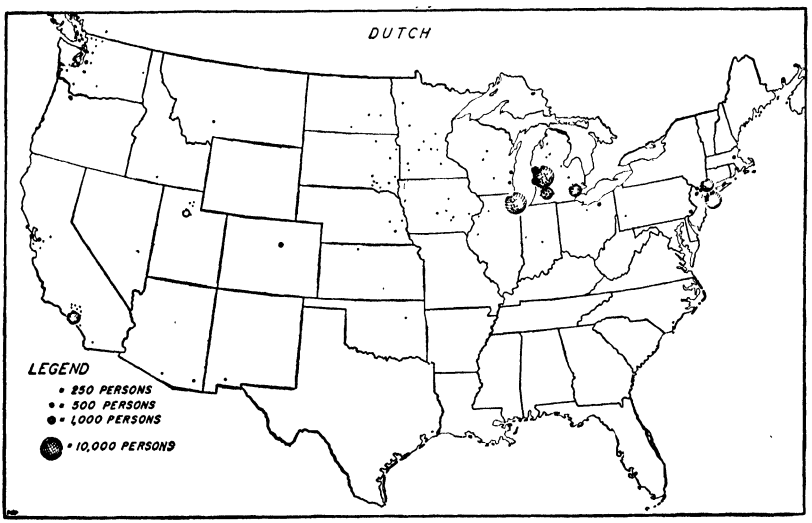

FIG. 31.—Distribution of persons born in the Netherlands, 1930.

sizable groups in Chicago, Los Angeles, and San Francisco. Not a few of them were settled in the farming districts throughout the Midwest and on the West Coast.

The Latin Americans.—Immigrants from Mexico, one of the larger groups of the foreign born, have already received consideration. Puerto Ricans, of whom there is a large colony in New York City, are not classed as immigrants. The numbers of persons born elsewhere in Latin America and enumerated in the census of 1930 are as follows: Cuba, 18,493; other West Indies, 87,748; Central America, 10,514; and South America, 33,623. Nearly all of them were living in six cities, *viz.*, New York, Tampa, San Francisco, Los Angeles, New Orleans, and Key West.

The Portuguese.—Our foreign-born population in 1930 included 73,164 natives of Portugal and an additional 35,611 persons from the Azores. These Portuguese immigrants had the most distinctive distribution of any of the nativity groups. The bulk of them were in southeastern Massachusetts, particularly in New Bedford, in Fall River, and on Cape Cod. The other large concentration was in California, in the city of Oakland, and in many rural districts scattered throughout the central portion of the state. Newark, N. J., also contained a significant number.

The Japanese.—A total of 70,993 persons born in Japan was enumerated in the 1930 census. It is well known that they were concentrated on the West Coast. Los Angeles, San Francisco, and Seattle contained the bulk of them, although many of them had established themselves throughout the agricultural districts of California, Oregon, and Washington. Also quite a few had settled on the land throughout the Rocky Mountain area.

The Belgians.—At the time of the 1930 census, 64,194 immigrants born in Belgium were living in the United States. Detroit and Chicago had received most of them.

Syrians and Palestinians.—The foreign-born population as of 1930 included 57,227 persons born in Syria and 6,137 from Palestine. A few of them were widely scattered throughout the southern states, but the great majority lived in New York City, Detroit, and Boston.

The Spaniards.—Natives of Spain residing in the United States in 1930 totaled 59,362. Most of them lived in New York City, San Francisco, Tampa, and Los Angeles.

The Turks.—Natives of Turkey living in the United States numbered 48,911 at the time of the 1930 census. New York City and Detroit contained the largest colonies, with smaller groups being found in Boston, Chicago, and Philadelphia. Numerous little clusters were present in Massachusetts.

The Chinese.—There were 46,129 persons born in China enumerated by the census of 1930. Interestingly enough, and despite the Exclusion Act, this figure represented an increase of 2,569 persons over the total of 43,560 counted by the 1920 census. Most of these Chinese immigrants

lived in the "Chinatowns" of a few cities, notably those of San Francisco and New York. Except in California, very few were found in the rural districts.

THE COMPOSITION OF POPULATION IN 1790

The extremely heterogeneous make-up of the white population revealed in the preceding paragraphs is, of course, in sharp contrast to the homo-

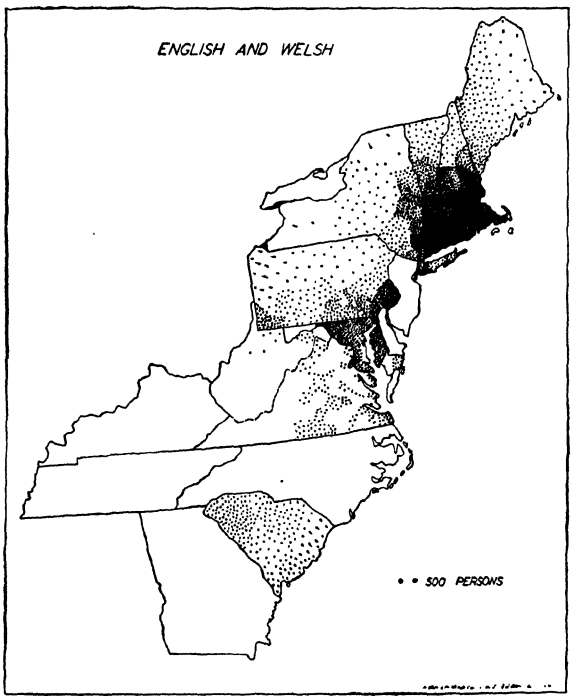

FIG. 32.—Distribution of persons with English and Welsh names, 1790.

geneous population that prevailed when the United States entered its career as an independent nation. On the basis of the names of the heads of white households, the Bureau of the Census has classified the population of 1790 according to the basic stocks represented. Although this procedure is not entirely satisfactory, it is the only approach possible, and the results have a fair degree of accuracy. It is to be remembered that the data are not complete. The original schedules for some of the states were lost, so that only 2,810,248 of a total white population of 3,172,444 could be included in the study. Also the precise percentages may be slightly in error because undoubtedly some names had been anglicized, but the essential facts are not

open to dispute. According to this classification, the composition of the white population of the United States in 1790 was as indicated in Table 5.[6] The most important fact revealed by these data is the overwhelming importance of the English and other stocks from the British Isles in the population of the nation as constituted at this early date. However, significant German and Dutch elements were present, and there also were

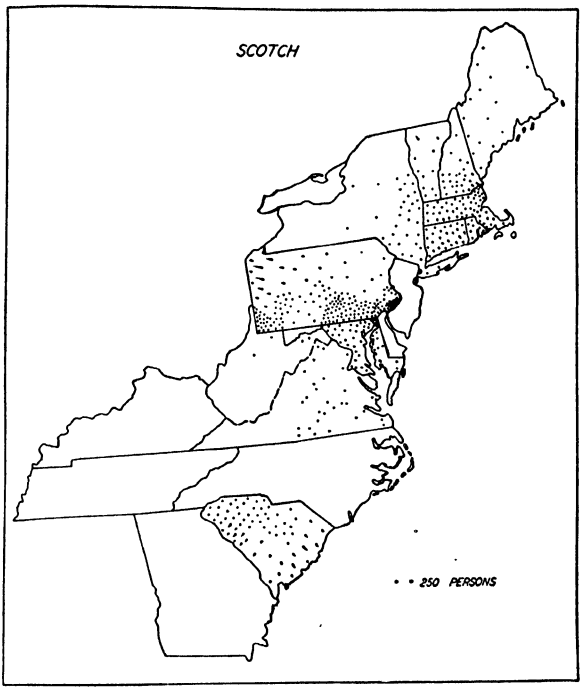

FIG. 33.—Distribution of persons with Scottish names, 1790.

a small number of French, Hebrews, and other nationality groups in the population. But homogeneity of population in the new republic is the feature that strikes one most forcibly if he compared the make-up in 1790 with that in 1940.

The basic facts about the distribution of the several stocks throughout the original states also are of primary interest and importance. The data relating to this were mapped, as in Figs. 32 to 37, in a manner designed to bring out the essentials.

[6] The total population of 3,929,625 enumerated in the First Census included, in addition to the whites, 59,557 other free persons and 697,624 slaves.

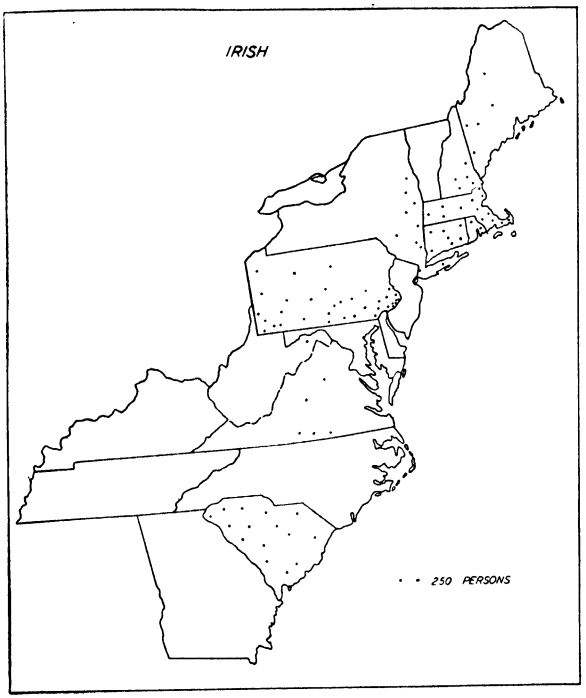

FIG. 34.—Distribution of persons with Irish names, 1790.

TABLE 5.—NATIONAL ORIGINS OF THE WHITE POPULATION, 1790*

National origin indicated by the name	Number	Per cent
All nationalities	2,810,248	100.0
English	2,345,844	83.5
Scotch	188,589	6.7
Irish	44,273	1.6
Dutch	56,623	2.0
French	13,384	0.5
German	156,457	5.6
Hebrew	1,243	†
All other	3,835	0.1

* SOURCE: Bureau of the Census, *A Century of Population Growth*, p. 116, Government Printing Office, Washington, 1909.

† Less than 0.1 per cent.

In 1790 the white population was largely concentrated in a narrow band extending from central New Hampshire through southern Vermont, Massachusetts, Rhode Island, Connecticut, southeastern New York, New Jersey, southeastern Pennsylvania, Delaware, and eastern Maryland into Virginia. It was well diffused over Virginia, the Carolinas, and eastern Georgia, although less dense than in the settled areas north of where Washington, D. C., was laid out. When we became a nation of 13 states,

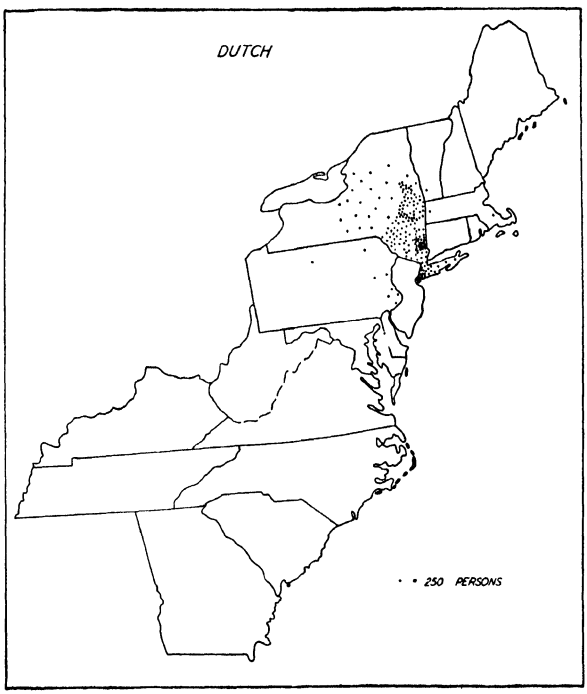

FIG. 35.—Distribution of persons with Dutch names, 1790.

white settlers already had pushed into southwestern Pennsylvania, central Kentucky, and eastern Tennessee. In 1790 a few slaves were found in the New England and Central states, especially in New York and New Jersey, but the great concentrations of human cattle were in the tidewater sections from Maryland to Georgia. Free people of color were widely dispersed throughout the new nation, being found in greatest numbers in and around Philadelphia and New York City and in Rhode Island.

Of the white stocks, the English were, of course, the most broadly disseminated, whereas the Germans, the progenitors of the Pennsylvania Dutch, huddled together in southeastern Pennsylvania, were the most con-

centrated of any of the stocks. The high density of English in eastern Massachusetts and the neighboring sections of other states is striking. The Scotch, more commonly referred to as the Scotch-Irish, were, like the English, widely disseminated. In Pennsylvania they tended to settle to the west of the Germans, and in the states to the south of it they established

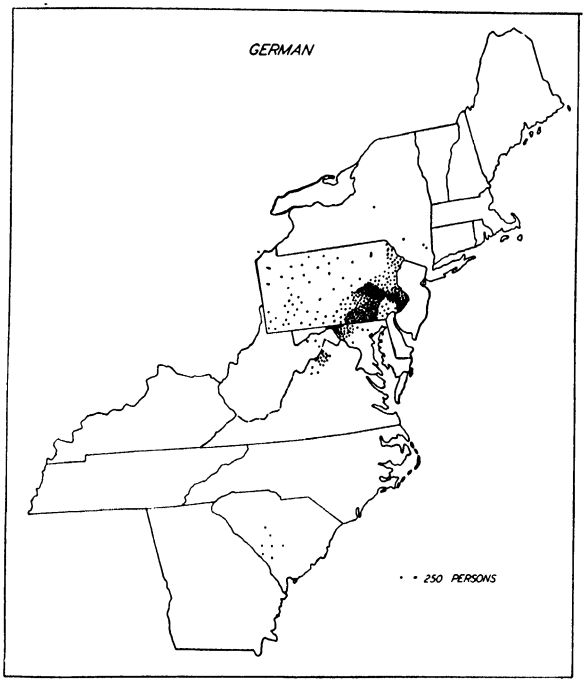

FIG. 36.—Distribution of persons with German names, 1790.

themselves in the western sections of the several states, the parts in which the slaves were least numerous.

TRENDS IN THE NEGRO POPULATION

The place of the Negro in the racial make-up of the population of the United States deserves special attention. From around 760,000 Negroes in 1790, the number has risen to 12,865,518 in 1940. This growth has been almost entirely due to natural increase, for the importation of slaves was prohibited and almost stopped in 1808, when the Negro had been carried to only a fraction of the territory in which he was found in 1860. The breeding farms of the older slave states, particularly Virginia, were largely responsible for the increase of Negroes under slavery.

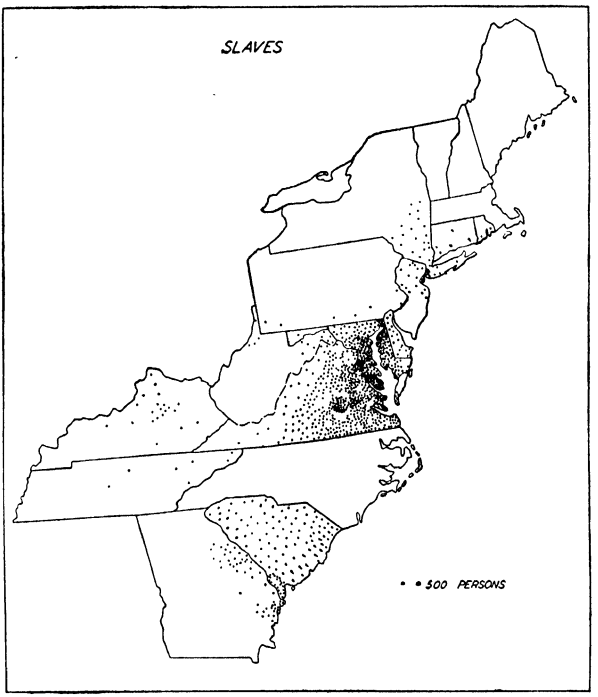

FIG. 37.—Distribution of slaves, 1790.

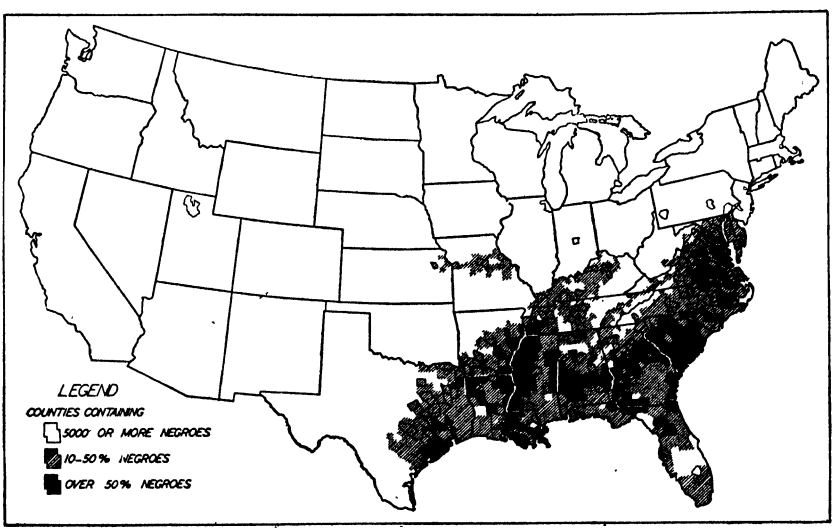

FIG. 38.—Relative importance of Negroes in the population, by counties, 1880.

Of all the facts relative to the Negro population the one deserving most attention is that it has been losing, not gaining, in relative importance during

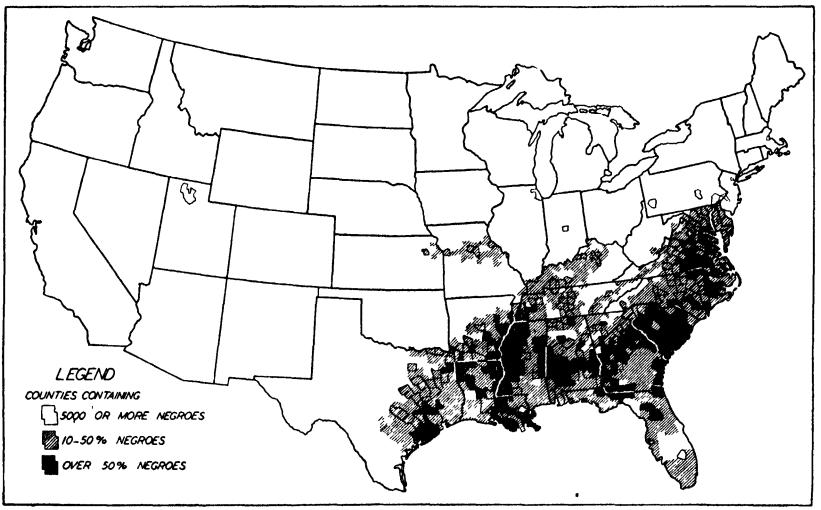

FIG. 39.—Relative importance of Negroes in the population, by counties, 1900.

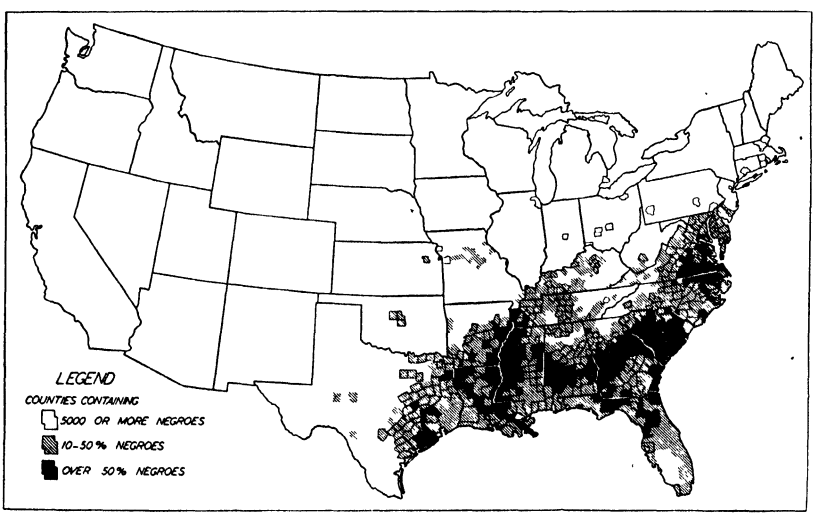

FIG. 40.—Relative importance of Negroes in the population, by counties, 1920.

every decade since 1790, except the last one when there was a very slight increase (see Table 6). Widespread publication of this fact would do much to allay fear of a "rising tide of color."

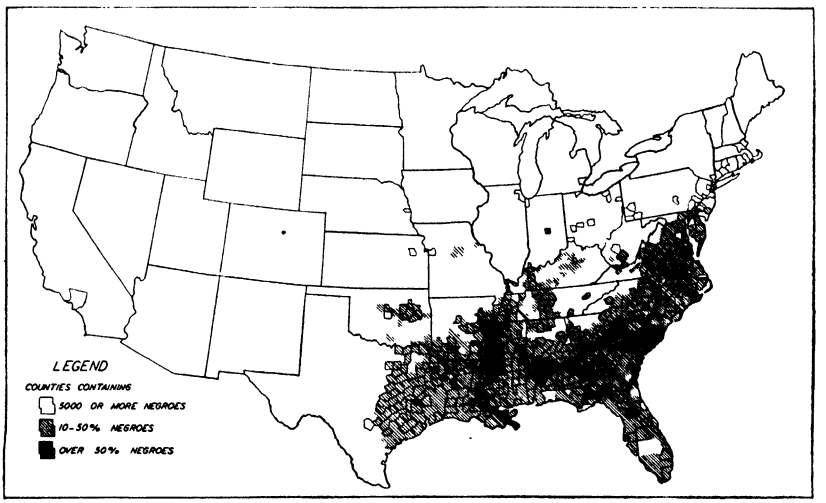

FIG. 41.—Relative importance of Negroes in the population, by counties, 1940.

TABLE 6.—NUMBER AND PROPORTION OF NEGROES IN THE POPULATION OF THE UNITED STATES, 1790 TO 1940*

Year	Number of Negroes	Percentage of the total population
1790	757,208	19.3
1800	1,002,037	18.9
1810	1,377,808	19.0
1820	1,771,656	18.4
1830	2,328,642	18.1
1840	2,873,648	16.8
1850	3,638,808	15.7
1860	4,441,830	14.1
1870	4,880,009	12.7
1880	6,580,793	13.1
1890	7,488,676	11.9
1900	8,833,994	11.6
1910	9,827,763	10.7
1920	10,463,131	9.9
1930	11,891,143	9.7
1940	12,865,518	9.8

* SOURCES: Bureau of the Census, *Negroes in the United States, 1920–1932*, p. 1, Government Printing Office, Washington, 1935; and *Sixteenth Census of the United States, 1940, Population, Second Series, United States Summary*, p. 3.

The next most significant fact about the Negro population is the high degree to which it long remained rooted in the rural sections of the South. For three-quarters of a century, while the white population was pushing westward and filling up the western portions of the nation, making their own land that was to be had for the taking (from the Indians), the Negro population hardly budged from the same sections of the South in which it was located at the time slavery was abolished (see Figs. 38, 39, 40, and 41). There has been a tendency for the black belt to become gray, but the expansion of its limits has been very slow. Indeed, during the last few decades it has contracted. The first rapid change came when the First World War generated a large migration of Negroes to northern cities. The Second World War has brought about a comparable exodus to the West Coast, so that when the 1950 census is taken, the counties in which Negroes outnumber the whites may be few in number. At last the time is approaching when the Negro problem will be a national one and not merely the concern of one region.

THE ASSIMILABILITY OF THE FOREIGN STOCKS

From the standpoint of immigration policy, the degree to which the foreign elements mix and blend with the native stock is the important consideration. Perhaps this cannot be measured very accurately, but the census data do lend themselves to analyses that throw some light on the subject. For example, in some of the tables the white population is classed not merely as of foreign and native birth but persons of foreign parentage are further subdivided into those whose parents both were born in a foreign country and those of mixed parentage, *i.e.*, one parent born in the United States and the other abroad. For both categories the parents' country of origin also is tabulated, being enumerated as the father's country of birth in cases where both parents are foreign-born. Those of mixed parentage are further subdivided to indicate whether the father or the mother was of foreign birth.

With these materials a number of indexes can be constructed that are useful in helping to gauge the extent to which the various nationality groups are being assimilated with the older national stocks (see Table 7). Thus, the mere percentage that those with both parents of foreign birth constitute of the total number of persons of foreign or mixed parentage is informative. It indicates the degree to which the foreign stocks are being assimilated—the lower the percentage the more effectively the process is operating. It will be observed that the differences are very great, immigrants from Canada and other parts of the Western Hemisphere, Australia, the British Isles, and France being most readily assimilated. In an intermediate

position come the peoples of northwestern Europe, whereas the persons coming from southern and eastern Europe are least likely to mate with the native-born Americans.

The factors responsible for these differences are another matter. They include clannishness on the part of some of the newcomers and discrimination against persons of different national and cultural backgrounds on the part of the native elements. Furthermore, if the number of immigrants from a given country is large and the sexes fairly well balanced, the chances of an individual's taking a mate who also is from the old country are increased, whereas many persons from a country sending only a small contingent composed almost exclusively of males may have to cross cultural lines or not marry at all.

Another indicator of the ease of assimilation is obtained by an analysis of the population of mixed parentage to determine the relative importance of the number whose fathers were of foreign birth in comparison with those whose mothers were foreign born (see Table 7). Unfortunately, the sex ratio among the immigrants exerts a very disturbing influence upon this index. Were this not so, a high proportion of offspring with foreign-born mothers would be indicative of the ease of assimilation. Even as it is, the ratios given in Table 7 may be useful in properly evaluating the showing of many of the nationality groups.

The extent to which immigrants remain concentrated in the ports of entry and other large cities or, on the contrary, the extent to which they disseminate throughout the length and breadth of the land also is very important as an aid in judging the assimilability of the various foreign peoples. Fortunately, the tabulations of the mother tongue of the foreign born made in connection with the 1940 census make possible additional illuminating analysis of these matters. As one step in this study computations have been made to determine how the proportion of the contingent from each country residing in the seven great aggregations of foreign-born persons (Boston, Chicago, Cleveland, Detroit, Los Angeles, New York, and Philadelphia) changes as the age of the immigrant advances. As is to be expected, the comparison of one nationality with another on this basis reveals some very striking differences.

Of all foreign-born white persons in the United States in 1940, about 41 per cent of those of less than 35 years of age were living in the seven cities listed above. As age advanced, however, this proportion fell rapidly and consistently until it was only 22 per cent among those aged 75 and over (see Fig. 42). This curve may be considered as a norm for use in determining the differences among the various nationalities represented among the immigrants. For example, among the immigrants reporting the Nor-

wegian language as their native tongue only 37.2 per cent of those under 25 years of age were residents of those seven cities, and of those aged 75 and over only 6.9 per cent were living in these great urban centers. Obviously the Norwegians were less prone to stop in the great cities than the bulk of

TABLE 7.—ASSIMILATION OF THE IMMIGRANT STOCKS*

Country	Number of white persons of foreign or mixed parentage	Percentage having both parents foreign-born	Offspring of mixed parentage: number with foreign-born mother per 100 with foreign-born father
All countries	23,157,580	65.6	51.4
Canada, other	1,231,020	30.3	89.7
Central America	5,100	31.4	11.3
Australia	15,900	33.6	68.2
South America	26,060	36.6	46.5
Cuba and the West Indies	33,180	40.4	65.3
England	1,354,000	43.1	64.6
Wales	112,900	46.8	55.8
Scotland	446,540	48.5	68.7
France	246,120	51.1	50.4
Canada, French	635,020	52.7	76.2
Bulgaria	6,800	53.2	4.6
Switzerland	205,680	54.7	41.7
Other Atlantic Islands	5,360	55.2	44.6
Netherlands	261,320	56.7	45.7
Luxemburg	20,280	57.1	33.0
North Ireland	270,820	57.7	75.8
Belgium	76,400	58.7	45.4
Denmark	305,640	59.7	36.9
Germany	3,998,840	60.4	43.2
Newfoundland	25,640	60.9	126.0
Norway	662,600	61.4	50.1
Iceland	4,480	62.5	68.0
Irish Free State	1,838,920	64.4	82.4
Mexico	699,220	64.8	54.7
Spain	61,700	65.3	21.7

* SOURCE: *Sixteenth Census of the United States, Population, Nativity and Parentage of the White Population*, p. 9.

TABLE 7.—ASSIMILATION OF THE IMMIGRANT STOCKS—(*Continued*)

Country	Number of white persons of foreign or mixed parentage	Percentage having both parents foreign-born	Offspring of mixed parentage: number with foreign-born mother per 100 with foreign-born father
Sweden	856,320	67.4	48.0
Turkey (Europe)	3,960	68.4	17.5
Palestine	5,760	69.0	36.9
Estonia	2,480	71.0	28.6
Portugal	114,060	74.3	26.6
Greece	163,420	75.0	4.0
Czechoslovakia	664,620	75.7	51.5
Azores	48,600	76.0	27.2
Austria	781,340	76.8	42.9
Latvia	16,020	78.1	35.7
Rumania	131,760	78.2	41.1
Italy	2,971,200	79.0	16.8
Finland	167,080	79.1	57.0
Syria	87,740	79.1	12.5
Russia	1,569,360	80.0	41.9
Hungary	371,840	80.4	51.7
Yugoslavia	222,300	82.0	18.1
Poland	1,912,380	82.9	34.5
Turkey (Asia)	43,360	84.3	16.8
Lithuania	229,040	86.3	27.3

the immigrants, and those who did stop were more likely to leave later on than the remainder of the newcomers. Similar was the behavior of other immigrants from Scandinavia, Great Britain and Canada, the Netherlands, Switzerland, France, Yugoslavia, Czechoslovakia and Finland.

The situation among immigrants originating in the Irish Free State was quite different. Thus, nearly 60 per cent of all those of less than 25 years of age lived in the seven cities under consideration, and the same centers also provided homes for 39.9 per cent of those 75 years of age and over. Poles and Austrians exhibited similar tendencies. But most striking of all is the extent to which the Russians, Italians, Greeks, Hungarians, and Rumanians of all ages were concentrated in these seven large centers. Of

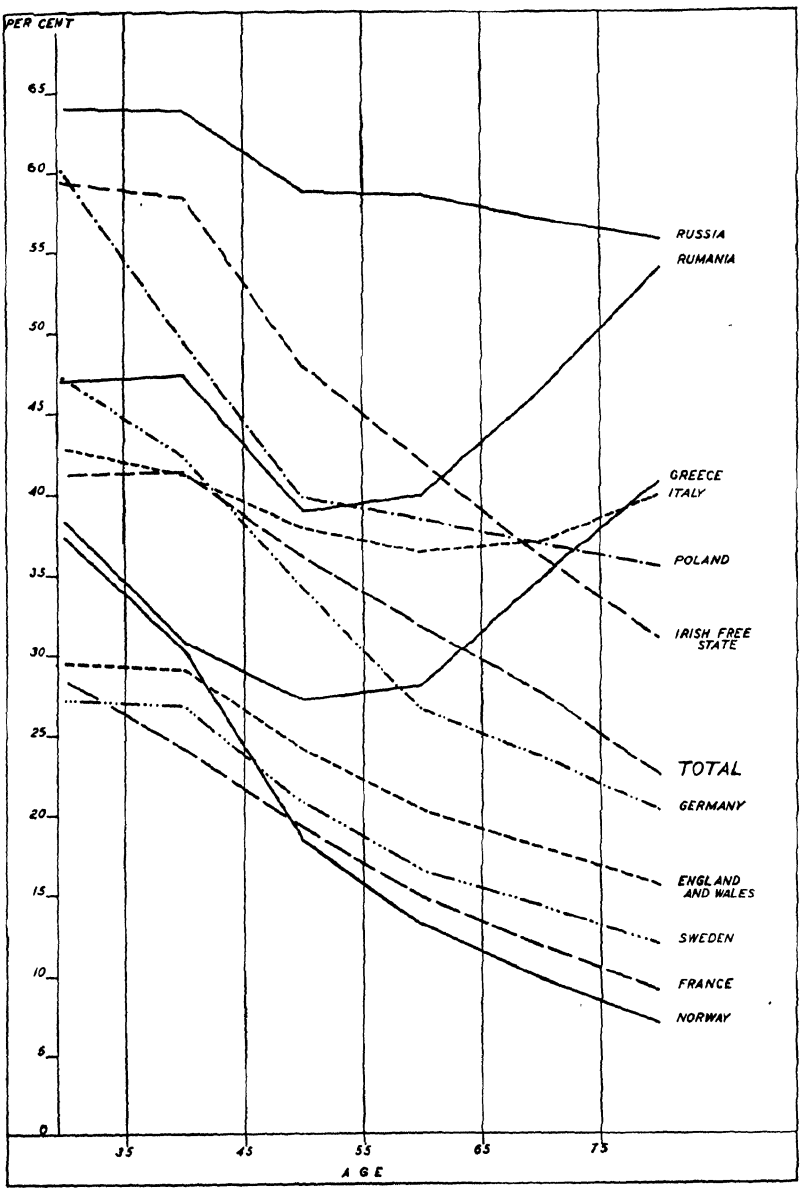

FIG. 42.—Percentages of the total foreign-born white population of the United States who were residing in seven large cities (Boston, Chicago, Cleveland, Detroit, Los Angeles, New York, and Philadelphia) by country of birth and age, 1940.

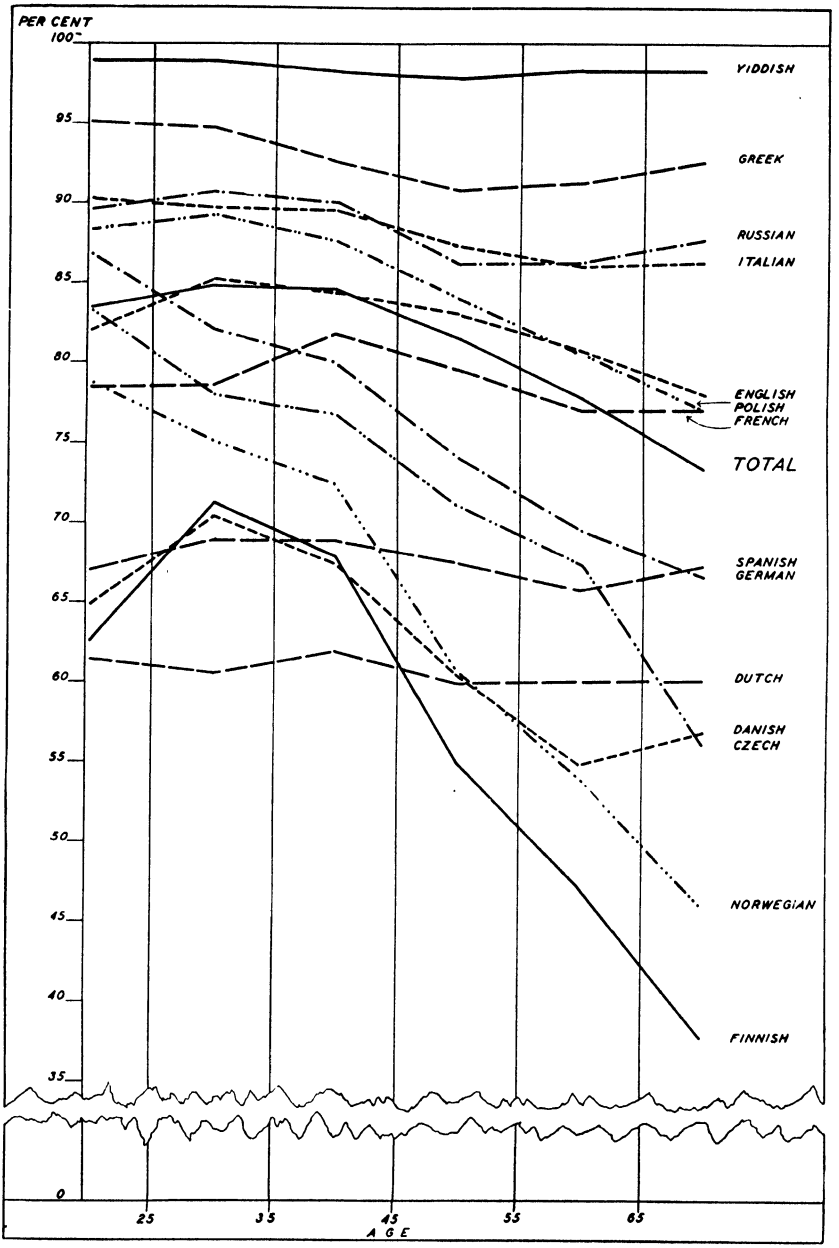

FIG. 43.—Percentages of the total foreign-born white population of the United States who were residing in urban centers, by mother tongue and age, 1940.

those reporting Russian as the native language, 64.1 per cent of the youngest group were living in the seven cities. In the oldest age group, 75 and over, this extremely high proportion was only slightly reduced, to 55.8 per cent. Among the Italians the corresponding percentages were 42.8 per cent for the youngest group and 39.7 for the oldest.

The Germans corresponded more closely to the averages for all foreigners than any of the other large nationality groups.

Even more detailed tabulations are available for urban and rural areas than for the seven great cities referred to in the preceding paragraphs. Analysis comparable to that used above indicates which foreign nationalities concentrate in urban centers to the greatest extent and how this concentration changes with age. Among all immigrant white people the percentage resident in urban territory in 1940 was 83.3 among those under 25, rose slightly to 84.8 among those 25 to 34 inclusive, and then fell off gradually to 73.2 for those aged 75 or more. Extremely great were the differences among the various linguistic groups who entered the stream of immigration that flowed to the United States. See Fig. 43 for data relating to a selected number of the principal groups. On the basis of these and similar curves for the other foreign language groups, the following statements may be made.

Of all the immigrants those whose native tongue was Yiddish remained in urban centers in the greatest proportions. In every age class at least 98 per cent of this group were urban residents. Greeks were second in this respect, the percentage of all immigrants of this linguistic group residing in urban centers being well over 90 at every age. Russians, Italians, Rumanians, and Armenians of all ages also settled almost exclusively in towns and cities. To a lesser degree, but well above the average for all immigrants, the same has been true of the Magyars or Hungarians, the Polish, and those white immigrants whose native tongue was English. Slightly below the norm at most ages were the French, Croats, Ukranians, Portuguese, and Serbs. Well below that average came the Flemish, Germans, Swedes, Czechs, Slovaks, and Slovenes. Lowest of all rank the Spanish-speaking immigrants (mostly Mexicans), the Dutch, Danes, Norwegians, and especially the Finns. The Finns, Norwegians, Czechs, Serbs, Germans, and Poles are the groups in which the porportions living in urban centers dropped most rapidly with increasing age.

Another indication of the extent to which the various immigrant groups lose their identity in the general population, *i.e.*, assimilate, is the tenacity with which they maintain their native tongue and the degree to which their native-born descendants fail to acquire facility in the use of English in the home. Thus, the language spoken in the home, the mother tongue,

undoubtedly is a most significant indicator of the extent to which the groups speaking various foreign tongues have perpetuated themselves in this country. Prior to the 1940 census it was impossible to attack this question on any comprehensive basis, since the tabulations of the mother tongue of the population were confined to the foreign born. That this procedure was entirely inadequate is indicated by the results of the special queries asked a 5 per cent sample of the population in connection with the 1940 enumeration. Even ignoring more than 3 million persons classified as unreported, this inquiry indicated that there was a total of 13,642,540 native whites—persons born and reared in the United States—whose mother tongue was not English. This figure represents 13 per cent of the entire native white population. Nearly one-half of the children of immigrant parents, 10,700,000 out of 23,160,000 native whites of foreign or mixed parentage, are included in the total. But it also embraces 2,929,060 persons who were not children of immigrants but were native whites of native parentage. In addition to the Louisiana French and southwestern Spanish Americans, who are for the most part descendants of persons residing in those areas at the time they were annexed to the United States, it includes several very large ethnic groups of immigrant origin (see Table 8).

These materials deserve serious consideration. Analysis shows that more than any other group, immigrants speaking the German tongue placed their descendants partially at the mercy of incipient demagogues in the old country by giving the use of German a preference over English in the home. Native-born Americans whose formative years were passed hearing, speaking, and thinking mainly German totaled over 3⅓ millions. Those who received the bulk of their conditioning via the Italian, Polish, Spanish, and French languages follow in the order named. The figures for many of the other groups also are amazingly high, for it is to be stressed that they do not include the foreign born.

The use of a language other than English as the principal language in the home is, of course, much more excusable on the part of immigrants than it is by persons who themselves were born and reared in the United States.[7] Therefore, if special allowance is made for the Spanish American in the Southwest and the Louisiana French, two stocks who did not immigrate to this country but who were residing in territory that was annexed, the relative importance of the native whites of native parents in the total native white population who did not have English as their mother tongue is significant. This analysis indicates that Italian-, Greek-, Yiddish-, and Danish-speaking immigrants perpetuated their native tongues to the least

[7] Although one cannot but admire the steadfastness with which many immigrants do all in their power to speed the process of assimilation.

TABLE 8.—NATIVE WHITES REPORTING NON-ENGLISH MOTHER TONGUE CLASSIFIED ACCORDING TO LANGUAGE, BY NATIVITY, 1940*

Mother tongue	Nativity					
	Total		Native whites of foreign or mixed parentage		Native whites of native parentage	
	Number	Per cent	Number	Per cent	Number	Per cent
Total	13,641,540	100.0	10,712,480	100.0	2,929,060	100.0
German	3,360,740	24.6	2,435,700	22.7	925,040	31.6
Italian	2,205,720	16.2	2,080,680	19.4	125,040	4.3
Polish	1,614,640	11.8	1,428,820	13.3	185,820	6.4
Spanish	1,433,040	10.5	714,060	6.7	718,980	24.6
French	1,052,540	7.7	533,760	5.0	518,780	17.7
Yiddish	826,660	6.1	773,680	7.2	52,980	1.8
Norwegian	425,400	3.1	344,240	3.2	81,160	2.8
Swedish	407,700	3.0	374,040	3.5	33,660	1.1
Czech	360,800	2.6	279,040	2.6	81,760	2.8
Slovak	312,780	2.3	283,520	2.6	29,260	1.0
Magyar	211,780	1.6	198,600	1.9	13,180	.4
Lithuanian	150,020	1.1	140,620	1.3	9,400	.3
Dutch	164,440	1.2	103,240	1.0	61,200	2.1
Finnish	133,340	1.0	118,460	1.1	14,880	.5
Portuguese	132,080	1.0	120,500	1.1	11,580	.4
Greek	108,300	.8	102,140	1.0	6,160	.2
Danish	104,560	.7	95,460	.9	9,100	.3
Slovenian	103,080	.7	97,300	.9	5,780	.2
Crotian	62,900	.5	58,980	.6	3,920	.1
All others	471,020	3.5	429,640	4.0	41,380	1.4

* SOURCE: *Sixteenth Census of the United States, 1940, Population, Nativity and Parentage of the White Population, Mother Tongue*, Table 1, p. 7.

degree among the second and succeeding generations, whereas the Dutch, Germans, Czechs, and Norwegians have been least inclined to master English and to teach it to their children. Thus from the data in Table 8, it may be established that the percentages which native whites of native parentage constitute of all native whites reporting other than English as their native tongue are as follows: Spanish, 50.2; French, 49.3; Dutch, 37.2; German, 27.5; Czech, 22.7; Norwegian, 19.1; Polish, 11.5; Finnish, 11.2;

Slovak, 9.3; Portuguese, 8.8; Danish, 8.7; Swedish, 8.3; Yiddish, 6.4; Lithuanian, 6.3; Magyar, 6.2; Croatian, 6.2; Italian, 5.7; Greek, 5.7; Slovenian, 5.6; and all others, 8.8.

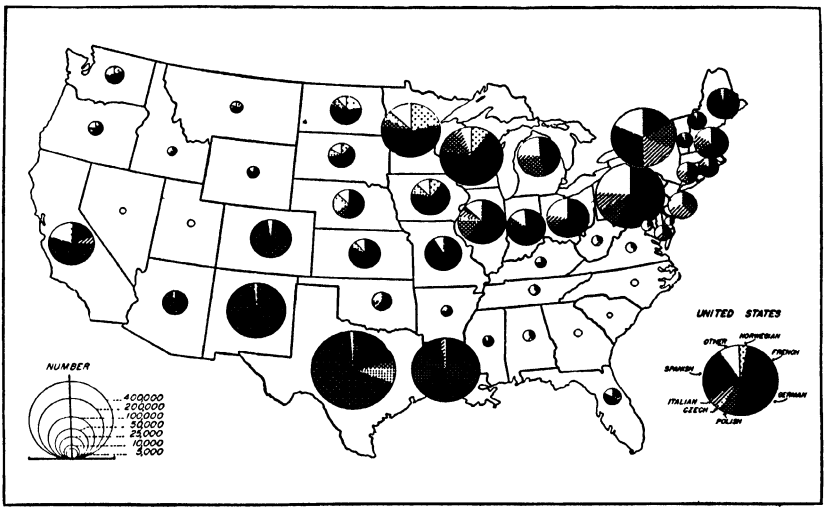

FIG. 44.—Distribution of the native white population of native parentage whose mother tongue is not English, by language spoken in the home, 1940.

The distribution of the native whites of native parentage whose mother tongue was not English also is of importance. To show this, Fig. 44 has been prepared.

Chapter 4

AGE COMPOSITION

FEW population facts are of more significance for specialists or of more general interest than those pertaining to the age structure of the population. It is not overstating the case to say that data concerning the age and sex of the population are among the most useful in the field of demography. Their services are legion. The educator requires information concerning the number and sex of the population of specified ages and their proportions in the total population. The military authorities demand data on specified age groups, particularly how numerous are the males of military age. In fact, the "numbering" of people for military purposes seems to have constituted the beginnings of census taking.[1] The demands of these are matched by those of the employers, planning boards, governmental bureaus other than the military, welfare organizations, and numerous other agencies and groups. In recent years there has been a mounting interest in the number and proportion of the aged in the population and in the trends in these demographic features. Finally, for the social scientists the age structure of the population is of paramount importance because in a great many ways, some of them extremely subtle, age conditions practically every aspect of social phenomena.[2]

Furthermore, until the effects that are attributable to age have been eliminated, little validity can be attached to differences found in comparing two groups or classes with respect to such things as mortality, birth rates, etc.

[1] The coincidence of a plague with one of these military censuses which revealed "in Israel eight hundred thousand valiant men" gave rise to the superstition that God was displeased with such activities. *Cf.* II Sam. 24: 9. It was not until the eighteenth century that popular dread on the subject was overcome sufficiently so that the evolution of modern census could get under way.

[2] For a detailed study of the relationship of age to likes, dislikes, and interests see Edward K. Strong, Jr., *Change of Interests with Age*, Stanford University Press, Stanford University, Calif., 1931. Judson Landis, *Attitudes and Adjustments of Aged Rural People in Iowa*, Ph.D. thesis (unpublished), Louisiana State University, 1940, has analyzed in detail the activities, interests, attitudes, and adjustments of the aged population in rural Iowa. See also Robert M. Dinkel, "Social Problems of the Aged," *Sociology and Social Research*, 27 (January, February, 1943), 200–207.

RELIABILITY OF THE DATA

Because age is such a primary determinant in social affairs, data relative to the ages of the population are of great interest to the demographer. Every effort should be made to secure complete and accurate data relative to the age profile of the population. In countries with long experience in census taking, the errors in age data are reduced to a minimum, but even there certain types of errors are almost sure to be present.

Most obvious of all discrepancies in census data is the tendency for ages to cluster in the even years, in the numbers ending with 5, and especially in the ages ending with 0. On the other hand, there is always a deficiency in ages not exactly divisible by 2 or by 5. The existence and nature of these discrepancies are readily revealed by charting the reported ages according to single years. The United States Census regularly does this by means of the age and sex pyramid.[3] Ellsworth Huntington has advanced the proposition that the extent of the discrepancies in the reported ages below 25 is the best measure of the "general intelligence" of a population and has presented a series of charts designed to show the nature of the variations as between the sexes, the regions, and the principal race and nativity groups.[4] Huntington mentions the use of index numbers as a device for gauging the relative amount of error in the reported ages, and he indicates that his indexes vary from 0 in Minnesota and North Dakota to 300 in Mississippi. This makes it obvious that the situation in Minnesota and North Dakota is regarded as perfect and that the others are judged in relation to these norms, but we are not informed as to the manner in which the indexes were constructed.

This methodological point is raised not merely because conclusions are usually only as good as the techniques employed but also because it is very important to have an accurate device for gauging the amount of error that is present in a given age distribution. This should be constructed so as to permit the formation of a judgment about the accuracy of age reporting in Minnesota and North Dakota as well as a means of judging their relative position in comparison with other states. Considerable experimentation leads to the suggestion of the method described below and utilized in the calculations presented in this discussion.

[3] See, for example, *Sixteenth Census of the United States, 1940, Population*, vol. IV, *Characteristics by Age, Marital Status, Relationship, Education, and Citizenship*, Part 1, pp. ix–xi.

[4] *Cf.* his contribution "Society and Its Physical Environment," in Jerome Davis and Harry Elmer Barnes (eds.), *An Introduction to Sociology*, rev. ed., pp. 272–276, D. C. Heath and Company, Boston, 1931.

The United States Census and the censuses of many other countries present age distributions for single years beginning with under 1 and ending with 99, or a total of 100 1-year age periods. Omitting the persons whose age is unknown and those 100 years of age and over, approximately 10 per cent of the remainder normally should be of an age exactly divisible by 10, another 10 per cent in other ages exactly divisible by 5, 40 per cent in the other even-number ages, and the remaining 40 per cent in the odd-number ages other than those ending in 5. The effects of each of the known concentrations, *i.e.*, on even years, years ending in 5, and years ending in 0, are to reduce the proportion of the population in the odd-number ages other than those ending in 5. Consequently the ratio of the percentage of the population reporting ages 1, 3, 7, 9, 11, 13, 17, 19, etc., to 40 per cent is a fairly reliable gauge of the accuracy of the reported ages. Expressing the observed percentages in these odd-number ages as a percentage of 40 gives an easily understood and useful index number. On such a scale perfect reporting would give a score of 100, and any tendency for the reported ages to concentrate in the even years and in the ages ending with 5 or 0 would reduce the rating.

In an exploratory manner a considerable number of calculations have been made, the results of which are interesting to observe. For the year 1940 the population of the United States taken as a whole made a score of 95.5 out of the possible 100. This indicates that there is sizable error in the data, but the index is considerably better than that of 94.0 registered in 1930. Minnesota and North Dakota are by no means perfect as far as correctly reporting ages is concerned, the score for the former being 97.6, for the latter, 97.4. Mississippi rates only 90.6. However, this represents substantial improvement in Mississippi, for in 1930 the corresponding index was 88.5, a score identical with that of the city of Rio de Janeiro in 1920.

There are also very considerable differences among the various categories into which the population may be divided. Interestingly enough, in the United States, males make a slightly better showing than females as is indicated by the score of 96.0 for the former and 95.5 for the latter. Despite the fact that they contain relatively small proportions of Negroes, for whom the index is very low, urban areas fail to make as good a showing as rural areas, the scores being 95.5, 96.2, and 95.0 for the urban, rural-nonfarm, and rural-farm areas, respectively. But the racial difference is the pronounced one, with the white population scoring 96.1 and the nonwhite only 90.1. For 1930, a year for which more detailed race and nativity breakdowns are possible, the native whites of native parentage rated 95.8 and Negroes only 87.3. Rural-farm nonwhites score lowest of all, 88.5, although urban

nonwhites rate only 91.3. For 1930 among native whites of native parents, the rural-farm score (95.8) is slightly better than the urban score (95.5), and for 1940 the index for rural-farm whites (96.3) is slightly higher than the score for urban whites (95.9).

THE AGE AND SEX PYRAMID

Widely used in population analysis is the age and sex pyramid, referred to frequently as the "tree of ages."[5] Figure 45 is an illustration presenting four of these, and others will be found in the following pages. For the purpose of revealing variations in the age and sex profiles of various populations, the pyramid has been the principal analytical tool used by students of population questions. The United States Bureau of the Census makes elaborate use of this device, which is very noticeable, since for the most part its volumes are devoted almost exclusively to tabular presentations of data.

The construction of the age and sex pyramid is relatively simple. Age groupings are placed on the vertical scale, starting at the bottom with the youngest age group and passing successively to the higher ones. Thus for the conventional age groupings used in the United States Census the age group 0 to 4, inclusive, is placed at the bottom; immediately above it the group 5 to 9; and so on, with the age group 75 and over at the top of the scale. On the horizontal scale are plotted the percentages that each of the specified age groups constitutes of the entire population, with the portion of the percentage composed of males on the left of the center dividing line and the portion made up of females on the right. Building up from bottom to top of those bars representing percentages of males and females in any age category gives rise to the age and sex pyramid. The pyramid itself represents unity, or 100 per cent of the total population.

This pyramid is a very easily understood device for portraying in bold relief many of the essential characteristics of the age and sex distribution of any population. In a population that has been little influenced by migration, either immigration or emigration, and in which there have been no marked changes in the birth rate or death rate the proportion of the population in the various age groups will decline as one passes from the bottom to the top of the diagram. The decrease will be most pronounced between the group aged 0 to 4 and that 5 to 9 because of the high mortality rates of infants and small children. After the dangers of early childhood are passed, the low mortality rates of adolescence and early adulthood are reflected in the

[5] The most discriminating analysis of age data that has come to the author's attention is in Frank W. Notestein *et al.*, *The Future Population of Europe and the Soviet Union*, Chap. III, League of Nations, Geneva, 1944.

diminished rate at which the pyramid narrows, and this will be continued until in the advanced ages the incidence of high mortality rates exert a severe pinching effect and rapidly narrow the figure near the apex of the pyramid. For illustrative purposes the population of a life table may be

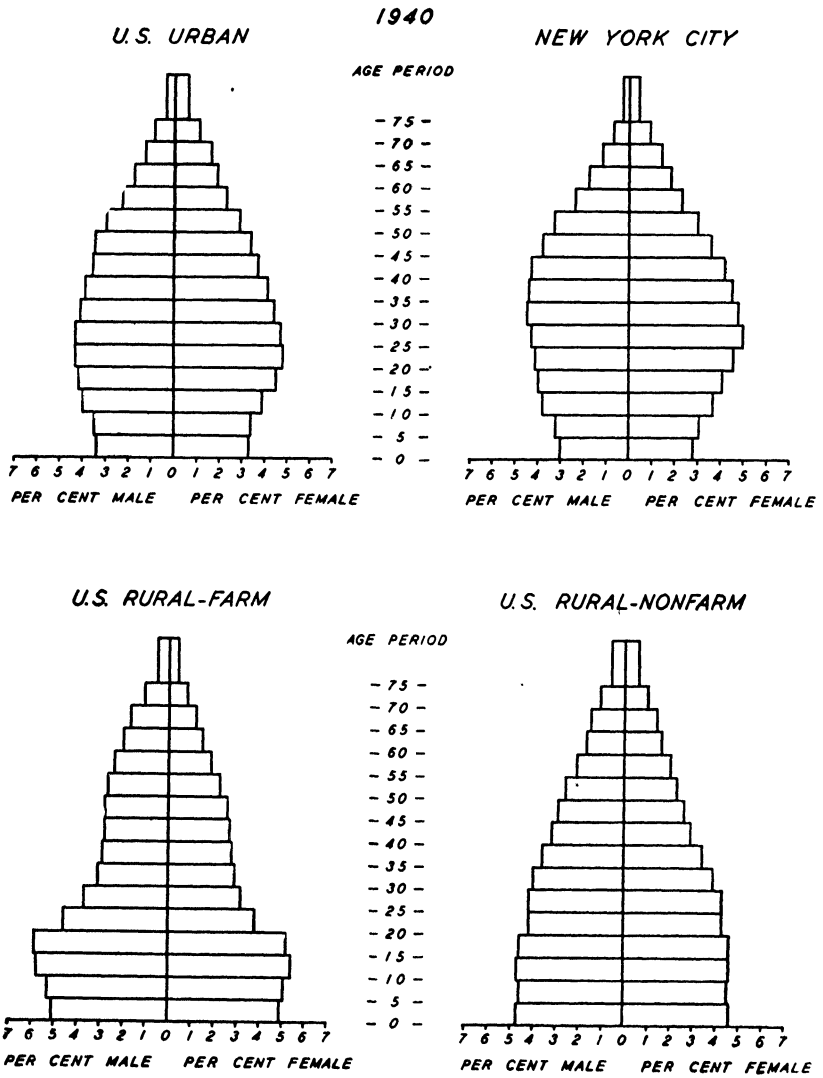

FIG. 45.—Age-sex pyramids for the urban, rural-farm, and rural-nonfarm populations of the United States and the population of New York City, 1940.

used to show how the age and sex distribution of such a hypothetical population would appear (see Fig. 46). However, in all actual populations important factors have been continually at work, and these exert profound modifications upon the actual age and sex pyramid that is found. To a discussion of these modifying or sculpturing factors attention is next directed.

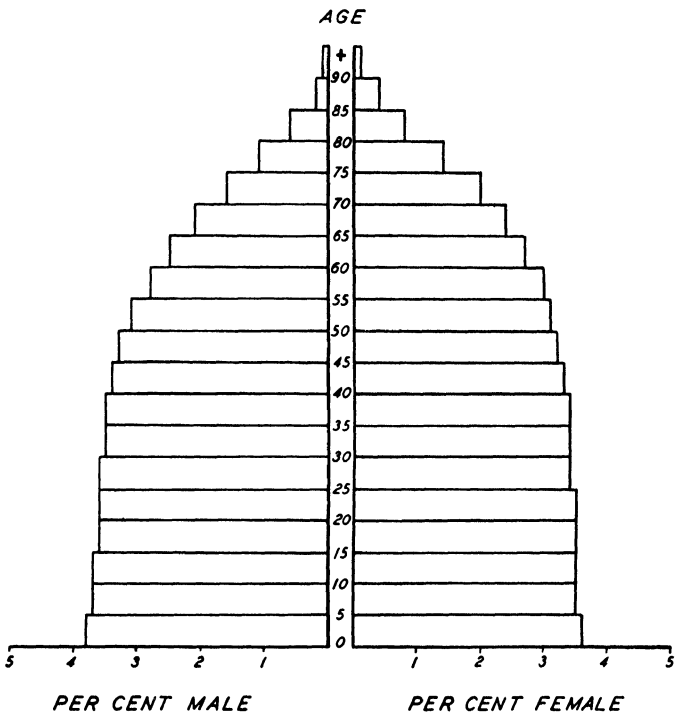

FIG. 46.—Age-sex pyramid of the hypothetical population derived by combining a sex ratio of 106 at birth and the age distributions of the life tables for white males and females in the United States, 1939 to 1941.

Causes of the Variations in Age and Sex Profile.—Each age and sex distribution records nearly a century of societal experience. Stratum by stratum the age and sex pyramid reflects the experience of society over the entire period of the human life span. Just as a considerable portion of the earth's history is recorded by the configuration of its surface, the profile of the age and sex distribution reflects a society's experiences over a period of a century. Wars, epidemics, migrations, and lengthy swings in the trends of the vital processes all leave their impressions—scars on the population pyramid. An understanding of the manner in which each of these

factors operates is basic to a proper understanding of the configuration of the pyramid and necessary before demographic comparisons of two or more populations are attempted. The following paragraphs attempt to clarify this aspect of population analysis.

War.—The configuration of the age and sex pyramid is pronouncedly affected by war. Most obvious, of course, is the fact of deaths among the

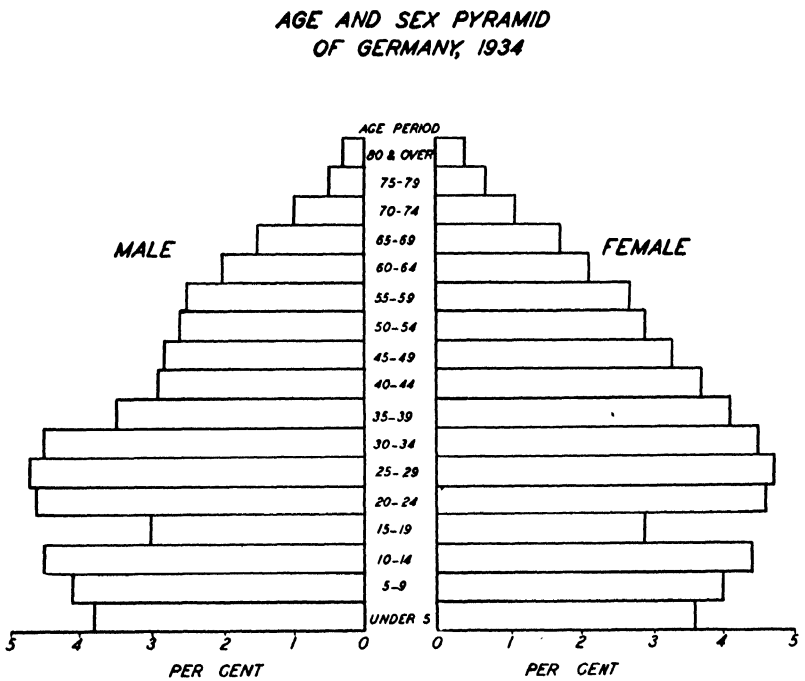

FIG. 47.—Age-sex pyramid for the population of Germany, 1934.

combatants of males in the military ages. Most of these deaths are concentrated in the younger ages, under 30, even though in long drawn-out struggles the older reserves are called into battle. In the First World War approximately 72 per cent of German losses and 55 per cent of French losses were of men aged less than 30.[6]

It is important to remember that these effects of war remain during the life span of the generation under consideration. Twenty or even thirty years later they may still be observed. However, it is difficult to find cases, or "natural experiments," in which sculpturing effects of this factor

[6] "Post-war Depletion of Ranks of Men at Marrying Ages," *Statistical Bulletin*, Metropolitan Life Insurance Company, 21 (February, 1940), 1.

can be distinguished from those of long-distance migration or emigration which, by carrying off large numbers of young adult males, affect the age and sex distribution in the same manner. For example, in the case of Germany in 1934 (see Fig. 47) part of the deficiency of men aged 35 to 45 is attributable to war losses, part to emigration. But from the data at hand it is impossible to determine the relative importance of the two factors. Another experience must be examined to make clear the nature of these effects, and fortunately there is one good case on record. Consider the

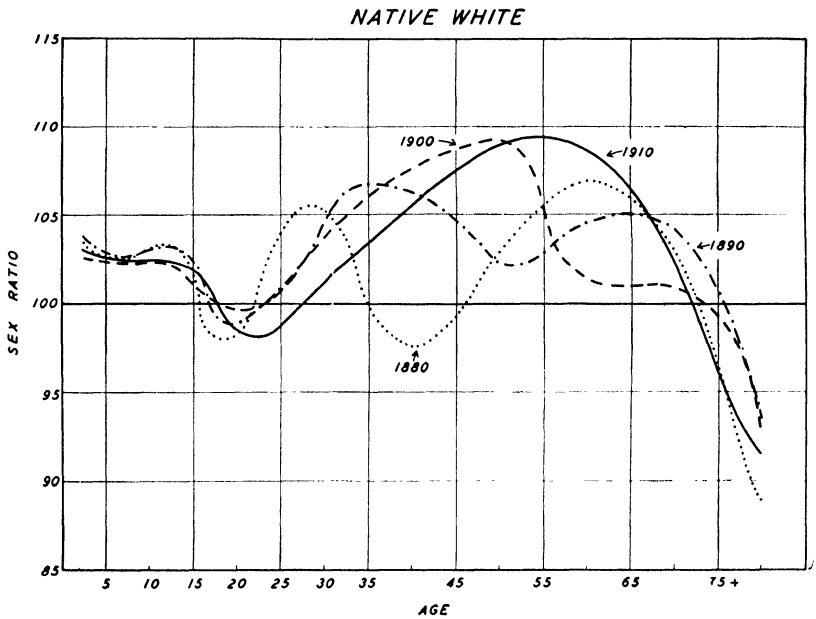

FIG. 48.—Sex ratios by age for the native white population of the United States, 1880 1890, 1900, and 1910.

situation among the native white population of the United States in the years following the Civil War. Confining the attention to native whites practically eliminates the migration factor. Following this group through the years 1880, 1890, 1900, and 1910 (Table 9) demonstrates how the mortality of soldiers scars the age pyramid for half a century following a war. It was not until 1910 that the sculpturing effects of combatant deaths in the Civil War were practically eliminated. The Spanish-American War was of slight duration and demographic consequence. By charting the data of Table 9, as in Fig. 48, one can observe how the curve showing sex ratios by age for the year 1880 is affected. Men aged 20 to 30 in 1860,

the ones decimated most by military service during the war, are noticeably scarce in 1880, when they constituted the age group 40 to 50. This causes the curve to sag at those ages. In 1890 this age group is 10 years older, and the same phenomenon causes a drop in the sex ratio of the group 50 to 60; in 1900 the effects are evident in the group aged 60 to 70. By 1910 the curve is relatively free of disturbances due to war. Except for the sculpture-effect of war these curves, of course, take the typical S shape brought about by the consistent understatement of women's ages.

TABLE 9.—SEX RATIOS BY AGE IN THE NATIVE WHITE POPULATION OF THE UNITED STATES, 1880, 1890, 1900, AND 1910*

Age, years	Number of males per 100 females			
	1880	1890	1900	1910
0– 4	103.5	103.8	102.6	102.9
5– 9	102.6	102.5	102.3	102.3
10–14	103.6	103.3	102.3	102.4
15–19	97.9	98.8	99.7	100.0
20–24	100.8	99.9	99.6	98.1
25–29	105.4	102.0	101.8	100.3
30–24	103.7	106 5	104.6	102.4
35–44	97.5	106.4	106.8	105.1
45–54	103.3	102.2	109.3	109.2
55–64	107.0	104.7	101.2	109.1
65–74	103.1	104.3	101.1	101.2
75 and over	89.1	93.6	93.1	91.5

*SOURCE: *Fifteenth Census of the United States, 1930, Population*, vol. II, *General Report, Statistics by Subjects*, Table 9, p. 578.

But the deaths of combatants is not the only effect that a war has upon the configuration of the age and sex pyramid. Probably even more important is the manner in which war influences the birth rate. Approximately 9 months after the outbreak of a war and general mobilization, the normal trend of the birth rate is broken and a sharp decline begins. The more severe the war and the greater the proportion of men under arms the more pronounced this decline will be. The decrease in the birth rate is not arrested until about a year after the cessation of hostilities and the demobilization of the soldiers, when a bumper crop of babies sends fertility to a peak above prewar levels. However, this new high is not maintained for any

length of time, and the birth rate after a few years renews its prewar trend.[7] For the First World War period, the data for most of the important belligerents, for Japan which was only nominally in the conflict, and for neutral Spain are assembled in Fig. 94. These serve to exhibit clearly the tendencies described above and also to indicate that the vital processes of nonbelligerents are not affected in the same way. An interesting study published in the *Statistical Bulletin* of the Metropolitan Life Insurance Company[8] expresses for selected countries the minimum birth rate during the First World War as a percentage of the 1911 to 1913 birth rate. These are as follows: Bulgaria, 41.7; Hungary, 47.5; Germany, 49.5; Belgium, 49.8; France, 50.5; Italy, 56.7; Austria, 57.1; and England and Wales, 73.1.

For present purposes the important point is to note that the war's influence upon the birth rate exerts a sculpturing effect upon the configuration of the age and sex pyramid for the next 75 years. Observe in Fig. 47 how the age composition of the population of Germany in 1934 reflects the war's influence. The age group 15 to 19 might be called the unborn generation. At any rate, its numbers were diminished almost 50 per cent by the low fertility occasioned by the First World War. Comparable effects are exerted by other wars, the longer and more intense the war the more pronounced the shortage of babies. For the United States the influences are most clearly revealed in the case of the Civil War. In this country as late as 1930 the demographic effects of the Civil War were still being felt, there being a scarcity of persons aged 65 to 70 in the South as a direct result of the low birth rate during the war years.[9]

[7] *Cf.* SOROKIN, PITIRIM, *Contemporary Sociological Theories*, pp. 337–338, Harper & Brothers, New York, 1928, and the literature cited there; see also Gaston Bouthoul, *La Population dans le monde*, Chap. XV, Payot, Paris, 1935.

[8] Vol. 21 (March, 1940), 3–6.

[9] SMITH, T. LYNN, "The Demographic Basis of Old Age Assistance in the South," *Social Forces*, 17, March, 1939, 356–361. Some persons may be inclined to question the fact that a war reduces the birth rate and to cite the experience of the United States during the Second World War as a case in point. Undoubtedly, since 1940 there has been an abrupt upturn in the nation's rate of reproduction. Many are inclined to explain this by asserting that there was a tendency for young people to rush into marriage before the boys were inducted into the military forces. However, one should not overlook two other factors: (1) The Bureau of the Census has been conducting an intensive program to reduce the proportion of births going unrecorded, and (2) the reduced number of babies born during the First World War were in the ages of highest reproduction rates during the middle 1930's, while the large crop that came in 1920 to 1921, following demobilization, began entering the period of high age-specific birth rates about 1940. Complete analysis must await the data of the 1950 census, but undoubtedly the small percentages of persons aged 20 to 24 depressed the birth rate in 1937 to 1938, while the high percentages of persons entering these ages following 1940 caused it to

Epidemics.—Severe epidemics and plagues sometimes exert a marked sculpturing effect upon the age and sex pyramid. This is especially true where such ravages are concentrated upon any particular age group. Observe, for example, the age and sex distribution of Lima, Peru, for 1931 (see Fig. 49). Note the scarcity of youths aged 10 to 17. These are the scars left by the severe influenza epidemic of 1918 and the years immediately

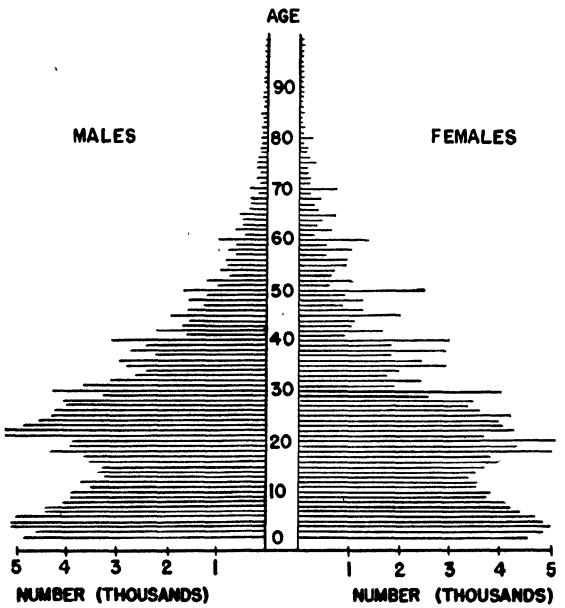

FIG. 49.—Age-sex pyramid for the population of the *provincia* of Lima, 1931.

following. Its malignant complications, such as bronchopneumonia and gastroenteritis, fell particularly hard upon children of a tender age.[10]

Variations in Fertility.—In the period since sufficiently trustworthy data have been available to make scientific analysis possible, variations in the birth rate have been paramount among factors influencing the configuration of the age and sex pyramid. The abnormal influences of war on the birth rate were mentioned above; here it is important to point out the effects of long-time secular trends. The birth rate in the United States has

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rise abruptly. In this connection, it should be remembered that women aged 20 to 24 give birth to approximately one-third of all the children born in the United States.

[10] LASSUS, CARLOS E., "El Falseamiento de las datos sobre la edad y sus proyecciones," *Gaceta economica y financiera*, 1 (May, 1939), 8–9.

been falling for many years,[11] but only recently has a precipitous decline set about in rural areas—the seed bed of the nation. For the period 1925 to 1940 (see Fig. 45) the decline in the birth rate has more than offset the specific mortality rates with the net result that the base of the age and sex pyramid has been sharply trimmed at both ends. In 1940 there were actually more people aged 15 to 19 than in any other 5-year age group. Only the declining birth rate, making levels in 1935 to 1939 far below those of 1920 to 1925, could bring this about. This illustrates the manner in which a long-continued fall in the birth rate brings about a narrowing of the lower portion of the pyramid and an extending of the upper; in other words, it narrows the base of the triangle without affecting the height.

Just as the falling birth rate narrows the base of the pyramid, a rising birth rate causes it to broaden and, if long continued, considerably increases the width of the pyramid in relation to its height. However, specimens of a sustained increase in the birth rate of a country are very difficult to find. During the last century only in Japan has the rising birth rate continued long enough to be completely satisfactory, and in this case sufficient supporting demographic data are unavailable to permit adequate analysis.

Variations in Mortality.—A change in the death rates of various age and sex groups also leaves its imprint on the age and sex composition. For example, a prolongation of the expectation of life accomplished, as in the United States during the last century, through the saving of infant and youthful lives broadens the base of the pyramid. However, where the life expectation of older age groups fails to increase or even falls off, a reduction of the proportion in the upper age brackets is the inevitable result.

The level of mortality in conjunction with that of fertility determines in a very large degree the extent to which the age and sex pyramid will be squat or elongated. Where fertility and mortality are both high, as in Brazil, El Salvador, Colombia, and other Latin-American countries, the age and sex pyramid will be broad at the base and will narrow rapidly as the age scale is ascended. Where fertility and mortality are both low, as in Australia, New Zealand, or England and Wales, the pyramid will be narrow at the base and characterized by very sharply inclining sides (see Fig. 50).

Migration.—As will be shown in Chap. 19, the movement of people from one location to another is highly selective with respect to both age and sex. For this reason migration, either to or from a given area, is a very potent factor in the determination of age and sex profile of that area. But not all migration has the same import in this connection, the distance spanned in

[11] More recently, analogous trends have begun in other American countries, with Argentina in the vanguard. *Cf.* Alejandro E. Bunge, "Esplendor y decadencia de la raza blanca," *Revista de economia Argentina*, 39, January, 1940, 10–11.

the movement being very significant in determining the manner in which the age and sex distribution is affected. Thus all migration from an area, unless it be the back-to-the-land movement or the mass movement of a refugee population, carries away the younger adults primarily. But the nature of the migration has a pronounced relation to the proportions of

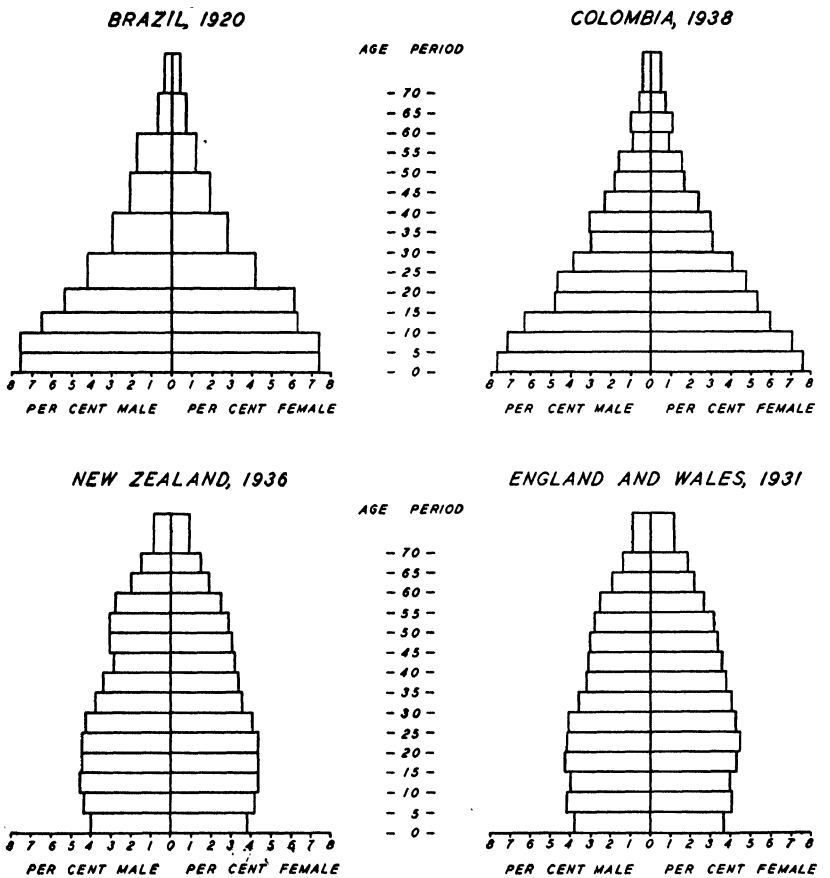


FIG. 50.—Age-sex pyramids for the populations of Brazil, Colombia, New Zealand, and England and Wales.

the sexes among the migrants. Long-distance migration, including emigration, selects excessive proportions of males; short-distance migration is highly selective of females. The predominance of females is especially pronounced in rural-to-urban migration. The net results of migration to or from an area on the age and sex pyramid are as follows: (1) Migration

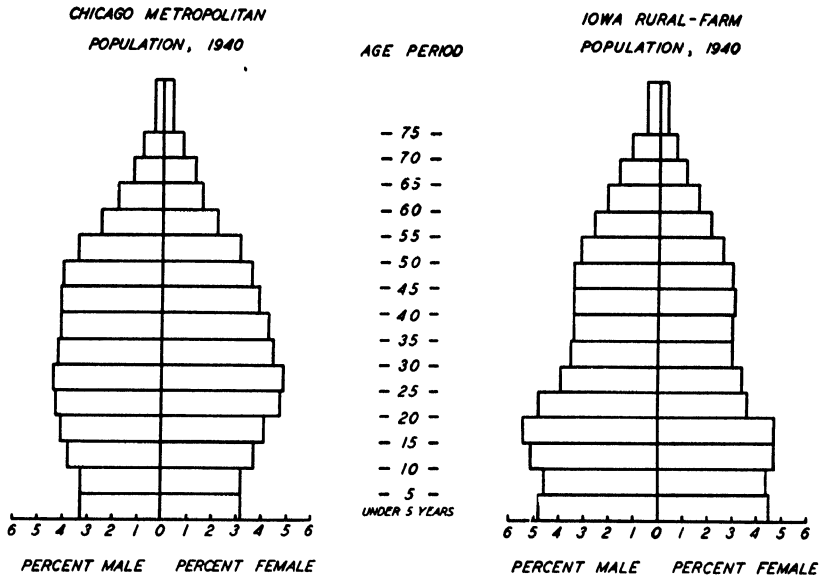


FIG. 51.—Age-sex pyramids for the population of Chicago and the rural-farm population of Iowa, 1940.

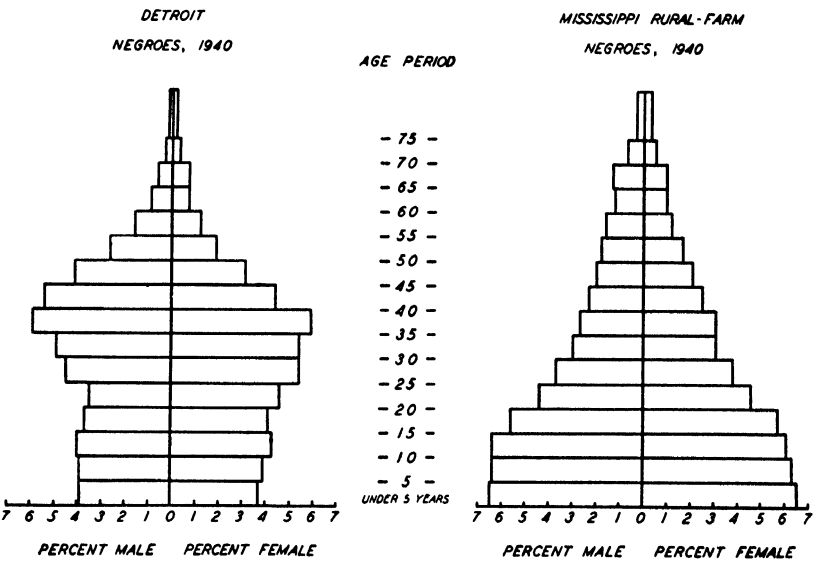


FIG. 52.—Age-sex pyramids for the Negro population of Detroit and the Negro rural-farm population of Mississippi, 1940.

from a rural territory to near-by cities causes the age and sex pyramid of the former to be pinched in the middle (the portion representing the young adult ages); this is particularly true on the female side of the diagram, as in Fig. 51. The converse of this effect is true of the city that is on the receiving end, the newcomers swelling the numbers of young adults, particularly females. (2) Migration from rural areas to far-distant cities reduces the number of adults and cuts in especially heavily upon the male side of the distribution. Figure 52 showing rural-farm Negroes in Mississippi is fairly representative of the effect of this particular type of movement. This illustration demonstrates how migration adds to the younger productive ages in the distant city and shows especially the influence of male pre-

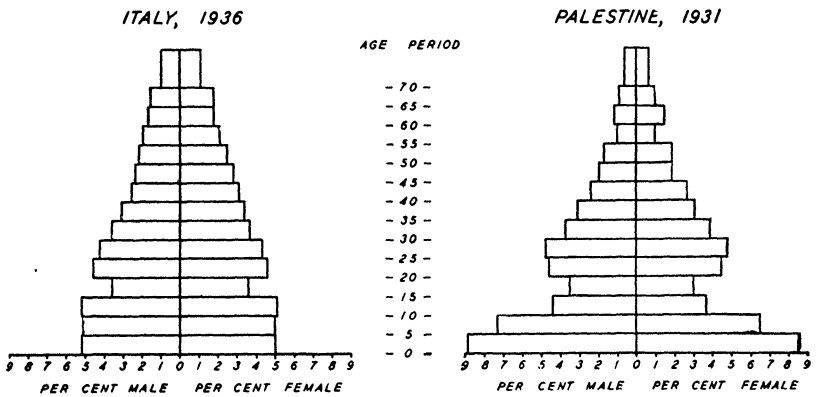


FIG. 53.—Age-sex pyramids for the populations of Italy and Palestine.

dominance in the migration stream. (3) The effects of emigration and immigration are comparable to those of long-distance internal migration, discussed in (2); see Fig. 53 (Italy) for a typical case illustrating losses by emigration and (Palestine) for a striking example of the changes made through gains by immigration.

INDEX NUMBERS OF AGE

There can be no question of the usefulness of the age and sex pyramid as a device for both discovering and portraying differences in the age and sex profiles of various populations. However, for many purposes this pyramid is not sufficiently refined to reveal all of the significant variations in the age make-up of various populations. For example, some of the essential and distinctive features of the rural population and the ways in which these contrast with those of an urban population have long been known. But although separate tabulations of the rural-farm and rural-nonfarm popula-

tions have been available in the United States for more than 20 years, the age and sex pyramid has not been sufficient to make important differences between the two challenge the attention of investigators. In a like manner, probably many other important and significant differences are not brought out when in comparisons of one population with another sole reliance is placed upon the age and sex pyramid.

The reasons for this state of affairs are not hard to find. Largely responsible is the fact that the percentage of the population falling in any one age and sex group is comparatively small. This is the case even when the age group is based on a 5-year interval. When differences in percentage represent only a few points or even a fraction of a point, they tend to be dismissed as being of little or no consequence. For example, on the age and sex pyramids of the rural-farm and rural-nonfarm populations of the United States in 1930 the age group 65 to 69, inclusive, constituted 1.5 and 1.9 per cent, respectively, of the populations. (For purposes of analysis the further division according to sex is omitted.) Neither the average reader nor the average researcher is likely to attach much significance to such a "minor" variation. On the age and sex pyramid it is hardly distinguishable. It tends to be passed over as a difference of less than 1 per cent. In reality, however, these data show not that persons aged 65 to 69, inclusive, were only 0.4 per cent more numerous in rural-nonfarm than in rural-farm areas but that persons of these ages were 26.7 per cent more numerous in the rural-nonfarm population. Furthermore, these percentages are based on very large numbers—the rural-farm population totaling over 30 million and the rural-nonfarm nearly 24 million persons. In populations of this size there is not the slightest possibility that differences of the aforementioned magnitude could have arisen in a purely chance manner; from a statistical standpoint they are highly significant.

In order to overcome such difficulties and to reveal in bold outlines the essential differences among various populations, the author has found useful another type of chart—one based on index numbers. The construction of such a chart (see Fig. 54 for an illustration) is relatively simple and can be described using data from the census of 1930. In line with the preceding discussion suppose that it is desired to determine the significant differences in the age composition of the urban, the rural-farm, and the rural-nonfarm populations. In 1930 in the United States as a whole 9.3 per cent of the population was under 5 years of age. In the urban, the rural-farm, and the rural-nonfarm populations the corresponding percentages were 8.2, 11.1, and 10.5, respectively. Taking the percentage in the total population as a norm, or 100, the corresponding index number for the age group 0 to 4 in the urban population is equal to 88, that for the rural-farm population to

120, and that for the rural-nonfarm population to 113. If children under 5 made up as large a proportion of the urban population as they did of the total population, the index would be equal to 100. Thus the relative number 88 is indicative of a marked deficiency of young children in urban areas. Likewise the index number of 120 indicates a high proportion of children among the rural-farm population. In a similar manner are calculated and interpreted the index numbers representing the relative importance

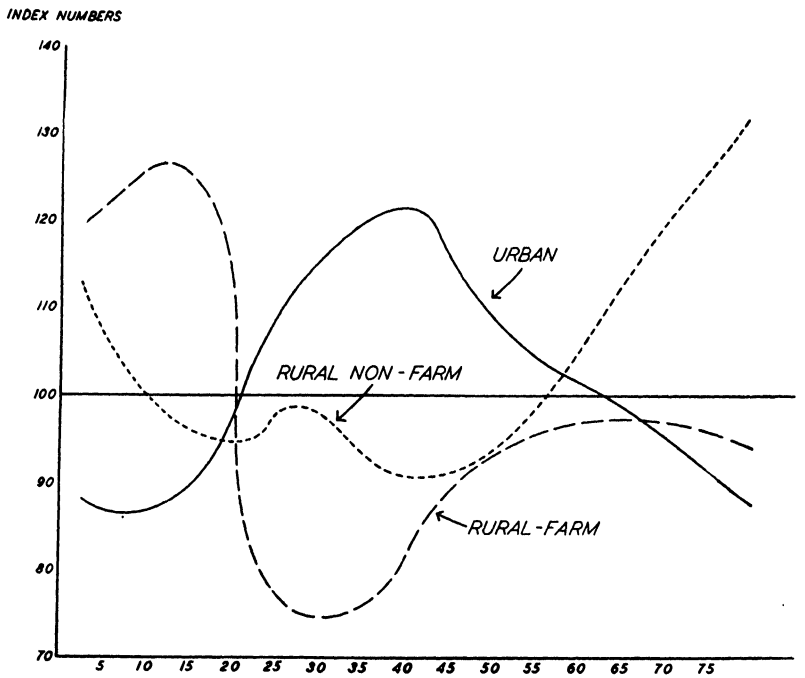


FIG. 54.—Index numbers showing the relative importance of each age group in the urban, rural-nonfarm, and rural-farm populations of the United States, 1930 (U. S. = 100).

of the other age groups in the urban, rural-farm, and rural-nonfarm populations; in all cases the percentage of the total population in the given age group is taken as the base, or 100.

The charting of the data, as in Fig. 54, is according to strictly conventional patterns. It is convenient to represent variations in age on the horizontal scale and variations in the index numbers on the vertical scale. The situation in the total population is, of course, described by a straight line running across the chart at a height corresponding to the index number of 100. For each of the three segments being analyzed, *e.g.*, the urban population, the index numbers are plotted to represent the proper magnitude

directly above the mid-point of the respective age groupings. When all of the points are connected and accepted methods of smoothing are applied, the resulting curve shows the relative importance of persons of any given age in comparison with the situation in the total population. In a similar manner the curves for the rural-farm and rural-nonfarm populations can be constructed. Such a chart makes readily apparent the distinctive features of the age distribution of each of the three parts of the total population. Most noticeable of all is the concentration of children and the scarcity of working-age persons on the farm, the scarcity of children and old persons and the heaping up of persons at the productive ages in the city, and the great concentration of aged persons in the rural-nonfarm population. Since very large numbers are being dealt with, little caution is necessary in interpreting the results. Caution should be used in applying this technique for small populations.

VARIATIONS IN AGE STRUCTURE

It is of primary importance to the student of demography to know the nature of the age profile for each of the principal elements in a population and to understand the factors that have operated to produce the distinctive configurations that are found. Therefore, using data for the United States, we next give attention to the manner in which the age structures of the population vary according to residence and sex. In each case the endeavor has been made to observe the relationship of each of these factors to the age profile, after the effects of the others have been eliminated or averaged out.

Age Differences by Residence.—Children, persons in the working ages, and old people are by no means of equal importance in a nation's cities, on its farms, or in its villages and suburban districts. Each of these residential categories either produces or sifts from the general population persons in specific age groups, so that there develop large and socially significant differences in the age profiles of the urban, the rural-farm, and the rural-nonfarm portions of the population. Few demographic phenomena are of more interest and significance in either their short-time or long-time implications than the differences in the age composition of the rural and urban populations. Likewise it is difficult to find social phenomena that are more constant and more predictible than these very important demographic variations.

The conclusions presented below on this subject have been drawn after a careful examination of the age and sex distributions of a large number of populations. Figures 45 and 55 presenting the latest data for the United States are fairly representative. These charts give the 1940 material for

the urban, the rural-farm, and the rural-nonfarm portions of the population, with data for New York City added in order to show the extreme situation in the nation's largest metropolis. The variations that are readily observable in the age and sex pyramids are thrown into even bolder relief by means of the index numbers utilized in Fig. 55.

As revealed by detailed analysis, the more significant of the differences in the age patterns of the principal residential categories can be summarized

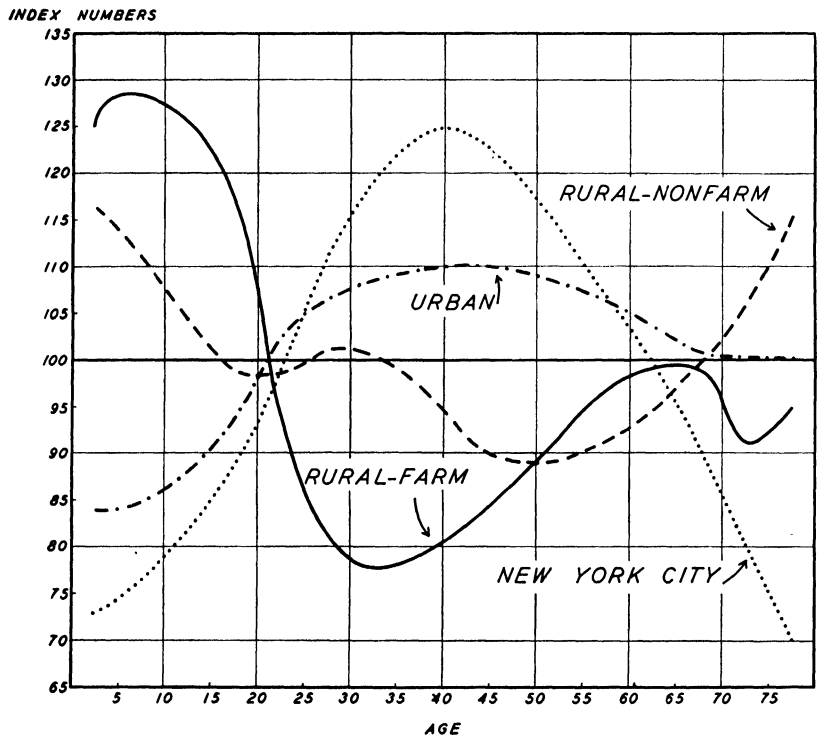


FIG. 55.—Index numbers showing the relative importance of each age group in the urban, rural-nonfarm, and rural-farm populations of the United States and in the population of New York City, 1940 (U. S. = 100).

as follows: (1) In urban districts there is a deficiency of children and of old people and a heaping up of population in the working ages (20 to 60). In comparison with the average for the national population in 1930, the most pronounced deficiency in urban districts came in the age group 5 to 9, inclusive, and the greatest relative excess in the group 30 to 34, inclusive. (2) The rural-farm population is clearly marked by an excessively large proportion of children, a very low proportion of persons in the working

ages, and a slight deficiency of aged people. Among the farm population the greatest departure above the national norm (excess) comes in the age group 10 to 14, and the greatest departure below (deficiency) comes in the age group 25 to 29. (3) The rural-nonfarm (village and suburban) population is typified by slightly more than average proportions of children under 15, a marked scarcity of persons aged 15 to 60, and a very pronounced excess of persons of advanced age. Thus to a very considerable extent population processes in the United States result in the farms producing the children, the cities making use of them during their productive years, and

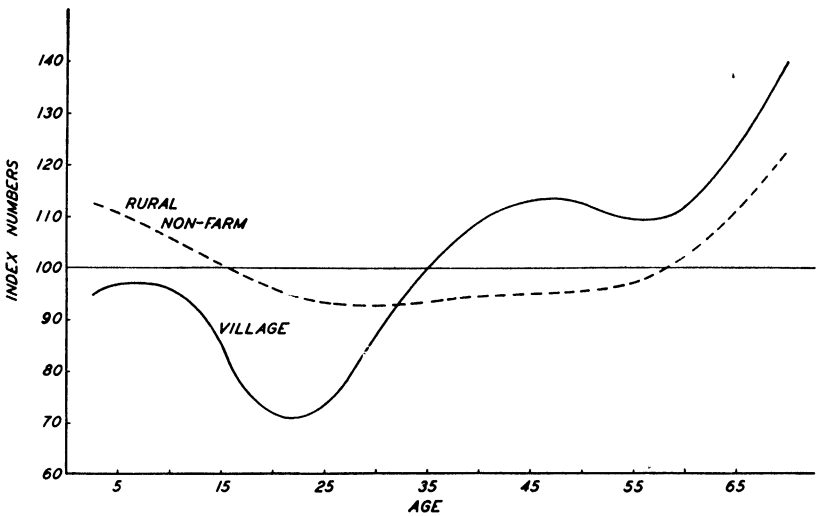


FIG. 56.—Index numbers showing the relative importance of each age group in the rural-nonfarm and village populations of the United States, 1940 (U. S. = 100).

the villages and suburbs serving as resting places in which they spend their declining years.

If the village population is separated from the remainder of the very heterogeneous conglomeration that is styled by the census as rural-nonfarm, some additional insight is gained into the age structure of our national population groups (see Fig. 56). It is evident that the characteristics of the rural-nonfarm population become even more pronounced in the villages. Main Street, used as a designation for population centers of 1,000 to 2,500, contains fewer children than the average of the United States, suffers from a very marked deficiency of young working-age persons, and is the home of an extremely high proportion of persons in the advanced age groups.[12]

[12] See also SMITH, T. LYNN, "Some Aspects of Village Demography," *Social Forces*, 20 (October, 1941), 15–25.

When further studied in relation to race and nativity, these differentials among the rural-farm, the rural-nonfarm, and urban age profiles have a firmer and more significant basis. The distinguishing age features of the urban population (scarcity of children and aged males and abundance of persons in the working ages) are most highly pronounced among the Negro population, closely followed, however, by the whites of native parentage. Although the foreign elements of the population are concentrated in the urban districts, this is much less true of those first- and second-generation persons who have passed the age of 50 than among the younger immigrants and their children.

Negroes of both sexes also exhibit the typical rural-farm characteristics to the greatest degree, closely rivaled again by the native whites of native parentage. It is among these two groups that the disproportion of children is greatest and the scarcity of persons at the working or productive ages is most pronounced. Aged males of both races are also plentiful. But it should be noted that the foreign categories, both first and second generations, show the greatest tendency to concentrate on the farms when they have attained an advanced age. This may be due either to one or to both of two factors: (1) The immigrants who are now in the most advanced aged groups may originally have gone to the farms in larger proportions than the immigrants who came at a later date, or (2) there may be a more pronounced tendency for the foreign born and their children to seek out homes on the land when they attain advanced age than is true of the other elements in the population.

Negroes and native whites of native parentage both exhibit the tendency to concentrate in rural-nonfarm territory (suburbs and villages) during advanced ages, with the Negroes slightly outranking the whites. Among both categories the tendency is greater among females than among males. But both of these racial groups are again below the foreign elements, both first and second generation, in this respect.

These uniform and persistent differences as among the principal residential categories should not obscure the fact that there also are substantial differences within each. For example, such cities as San Francisco have age distributions that accentuate the typical urban characteristics to an extreme degree. Again, in certain rural-farm areas where large-scale operations dominate the rural scene, the factory system in agriculture causes the age profile to take on decidedly urban characteristics.[13]

[13] See SMITH, T. LYNN, *The Population of Louisiana: Its Composition and Changes*, pp. 40–41 and Fig. 17, Louisiana Agricultural Experiment Station Bulletin No. 293, Baton Rouge, November, 1937.

Age Differences between the Sexes.—Because the sex ratio at birth is not equal to 100, because females of all ages have lower mortality rates than males, and since the proportions of males and females among immigrants and emigrants are unequal, any given society may contain considerable differences between the age structures of the male and female elements in its population. It is important for any population to know how the age profiles of males and females compare. For particular residential, racial, and regional divisions it is significant to know the proportions of males and females in each of the age groups. Above all, it is necessary to understand the workings of the demographic processes that bring about such differences.

Taking a nation as a whole it is possible to determine the more important differences between the age distributions of the male and female parts of the population by using the entire population as a base. In the United States in 1930 and 1940 the chief differences observed may be summarized as follows. (1) In the ages under 10 there was a slight preponderance of boys over girls. This is a direct reflection of the high sex ratio at birth that prevails. (2) In the ages 15 to 30 there was a seeming concentration of females. The word *seeming* is used advisedly, since in all probability this is merely a reflection of the error, or skewness, introduced by the understatement of women's ages. This interpretation is borne out by the fact that there was a similar concentration at the same ages in 1920, 1910, 1900, and 1890. Were this not a constant error introduced by some such factor as the one given above, the point of concentration would have been changed from year to year.[14] (3) The age groups 40 to 55 appear to be of considerably more importance in the male than in the female portions of the national population. To a small extent this is merely the concomitant of the seeming concentration of females in the ages 15 to 30, but for the most part it rests upon a firmer foundation. In a large measure the concentration of males in these ages is to be attributed to the phenomenal stream of immigrants (a current that was strongly masculine) that reached a crest in the years 1910 to 1915. And (4) in the ages above 70 are found about the same proportion of all males in the population as is true of all females in the population. By the time 70 years have passed, the greater longevity of females has been sufficient to offset the influences of the sex ratio at birth and the masculinity of the immigrant stream, bringing the female elements of the aged population to the same relative importance as their masculine contemporaries.

In an analysis of sex differences in the major residential categories, the

[14] See also SMITH, T. LYNN, AND HOMER L. HITT, "The Misstatement of Women's Ages and the Vital Indexes," *Metron*, 13 (1939), 95–108.

analysis may well be centered upon the manner in which the situation in each of the sex groups differs from that in the population as a whole. The norms to be used for purposes of comparison have already been established in the analysis of age differences among the various residential categories.

As indicated above, the urban districts are characterized by a scarcity of young children, a massing of persons at the working ages, and a very low

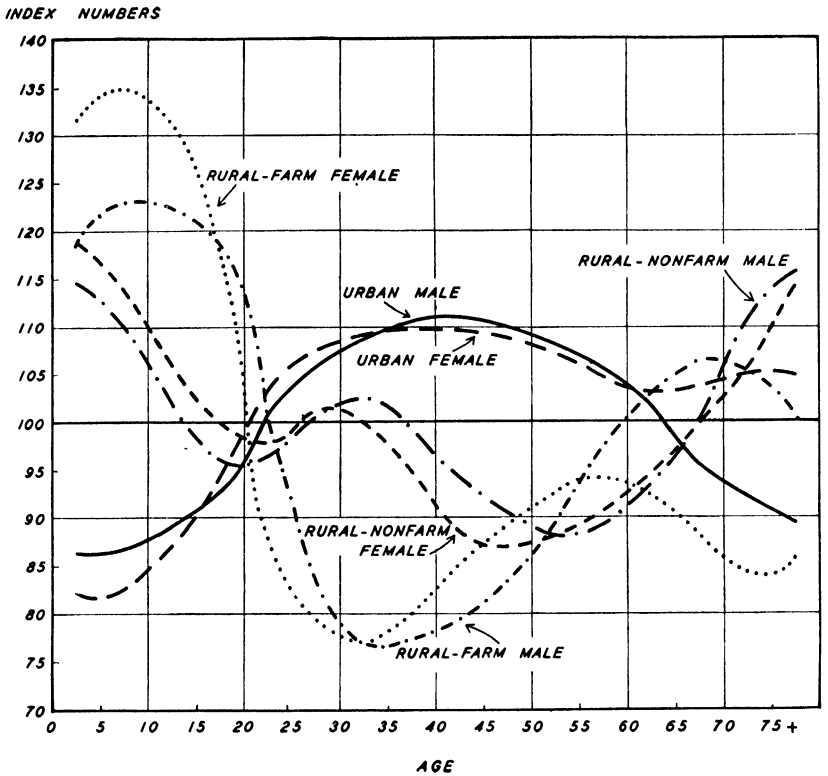


FIG. 57.—Index numbers showing the relative importance of each age group in the urban, rural-nonfarm, and rural-farm populations of the United States, by sex, 1940 (U. S. = 100).

proportion of persons in the advanced-age groupings. In general both males and females exhibit all of these, but there are some significant differences between the sexes in these respects. Males exhibit more tendency to concentrate in the cities during the productive ages than females, although it is also evident that the surge to the city begins slightly earlier among females than among males. Both of these statements are valid for each of the principal race and nativity groups. But females cling more to the cities

during advanced age than is true of males, so that the scarcity of aged females in the urban districts is not so marked as is the deficiency of aged males. In fact, among aged females of native white parentage the urban ratio is equal to that for the nation as a whole. These seem to be the chief differences in the age structures of the urban male and female population. The situation may perhaps be better visualized by observation of Fig. 57. This diagram is based upon data for all race and nativity classes, but similar sex differences are true for each of the major subdivisions, *viz.*, native whites of native parents, native whites of foreign or mixed parents, foreign-born whites, Negroes, and other races.

One important difference is apparent between the age distributions of males and females in the rural-farm population. During childhood and in the working ages the chart for both males and females conforms rather closely to that for the entire population, the very high proportions of children and the very low proportions in the working ages being true for both sexes. However, in the advanced ages there is a pronounced and significant difference between the sexes—aged males on the whole being considerably overrepresented and aged females considerably underrepresented on the farms. It seems fair to say, on the basis of the available data, that after the age 50 has been passed, males become slightly more numerous on the farms than in the nation as a whole. The older women, on the other hand, stick to the urban districts or abandon the farms for the villages, towns, and cities more than is true of males of corresponding ages. At any rate, the elderly females are considerably underrepresented on the farms of the nation. The sex differential is true for both of the principal race and nativity groups—native whites of native parents and Negroes. However, there is one necessary qualification. The presence of aged Negro males on the farms is more pronounced than elderly whites of native parentage. Among Negroes, also, the deficiency of aged females on the farms is not so great as among native whites of native parents. As indicated above, among the foreign born and their children, the farms have a very high disproportion of the aged. However, this is much more true of males than of females.

In the rural-nonfarm population the differences between the sexes, although present, are not very pronounced. Both sexes exhibit the typical curve that shows a slight concentration of children, a marked deficiency of people in the working ages, and a very great concentration of old folks. However, there are three sex differences worth mentioning: (1) Among males the deficiency in the working ages is less pronounced than among females; (2) the concentration of aged Negroes and native whites of native parents is greater among females than among males; and (3) among the foreign born and their children, the elements in which the concentration of

aged persons in rural-nonfarm areas is greatest, there is very little difference between the sexes.

EFFECTS OF THE VARIATIONS

Variations in the age and sex profiles of various populations concern the social scientist in two ways. (1) They represent serious obstacles in the way of making valid comparisons among various societies, the same society at different times, or particular segments of a given society. This is because variations in the age and sex make-up of populations have a direct effect upon almost every significant item of demographic accounting. The distribution of ages and the proportions of the sexes influence the marriage rate, the birth rate, the death rate, the ratio of producers to consumers, the percentages in the school or military ages, the numbers eligible for old-age assistance, and almost every other significant item of national bookkeeping and planning. In social and economic spheres, valid comparisons are possible only if precautions are taken to ensure that comparable age and sex groups are being used. This point must be insisted upon because, so potent are the societal factors sculpturing the age and sex profile, it is very difficult to find a normal age and sex distribution to serve as a specimen. As a yardstick to which other populations are equated before comparisons of fertility and mortality are attempted, the pyramid of England and Wales in 1901 is frequently used. It is commonly referred to as the "standard million." Whether differences are ironed out by the use of this or some other "normal" population, the fact remains that social scientists must exert great care to eliminate possible variations due merely to age and sex differences before they have a basis for asserting that any discovered contrasts are significant. The methods of ensuring comparability will be discussed in connection with each specified characteristic.

(2) Differences in the age and sex profiles are of significance for the social scientists because in them are to be found some of the principal factors initiating social changes or operating to make one part of a society different from another; *e.g.*, the origin of Townsendism, etc., in California was facilitated by the high proportion of old people in that state's population, and likewise it finds most ready acceptance where elderly folk are found in disproportionately large numbers. Again, the problems of rural education grow very largely out of the country's high proportion of children and low proportion of working-age population. And cities such as Washington, D. C., are vitally influenced by their excessive proportions of females; those like Gary, Ind., by their very high percentage of males.

Chapter 5

THE BALANCE BETWEEN THE SEXES

THE balance between the sexes is another very important aspect of population structure. The birth rate, the death rate, the marriage rate, the magnitude and direction of migration, etc., are all significantly affected by the proportions of males and females in the population. Where women are scarce, as on the frontier, in steel towns, in a few of the great ports, or at the mines, life takes on a reckless abandon quite different from that to be found where there is a more equitable distribution of the sexes. The scarcity of men, on the other hand, is a principal determinant in the nature of social activities in textile centers like Lowell and in residential cities, such as Washington, D. C. Furthermore, a careful analysis would probably show that the most distinctive features of small-town life are the result of the concentration of females, especially those of advanced age, in "Main Street."[1] The Bureau of the Census has fully recognized the significance of distributing the population by sex, and in most of its tabulations the sex classification is presented in correlation with the other attributes or characteristics of the population. Similar is the procedure in the censuses of other nations.

RELIABILITY OF THE DATA

Every federal census has ascertained the sex of the white population, and beginning with 1820 the sex distribution for the entire population is also available. Since the inquiry respecting sex is the simplest question on the census schedule, the census officials probably are correct in concluding that the sex classification for the total population is the most dependable of all the classifications.[2] It is correctly indicated that there is no ambiguity about the terms and seldom any motive for misrepresentation. Imperfections do arise in the various race, nativity, and parentage groups, since there is a large floating male population, including many foreign born, for whom

[1] See Ross, EDWARD ALSWORTH, *Outlines of Sociology*, pp. 3–7, D. Appleton-Century Company, Inc., New York, 1924; FRY, C. LUTHER, *American Villagers*, pp. 105, 109, Doubleday Doran & Company, Inc., New York, 1926; and SMITH, T. LYNN, "Some Aspects of Village Demography," *Social Forces*, 20 (October, 1941), 15–25.

[2] *Cf. Fifteenth Census of the United States, 1930, Population*, vol. II, *General Report, Statistics by Subjects*, p. 93.

it is difficult if not impossible to secure complete and accurate returns. Some of the foreign born and more males than females are likely to be incorrectly returned as native born, giving rise to errors in the reported sex distributions. However, the discrepancies introduced in this manner are probably too small to affect the sex ratio significantly.[3]

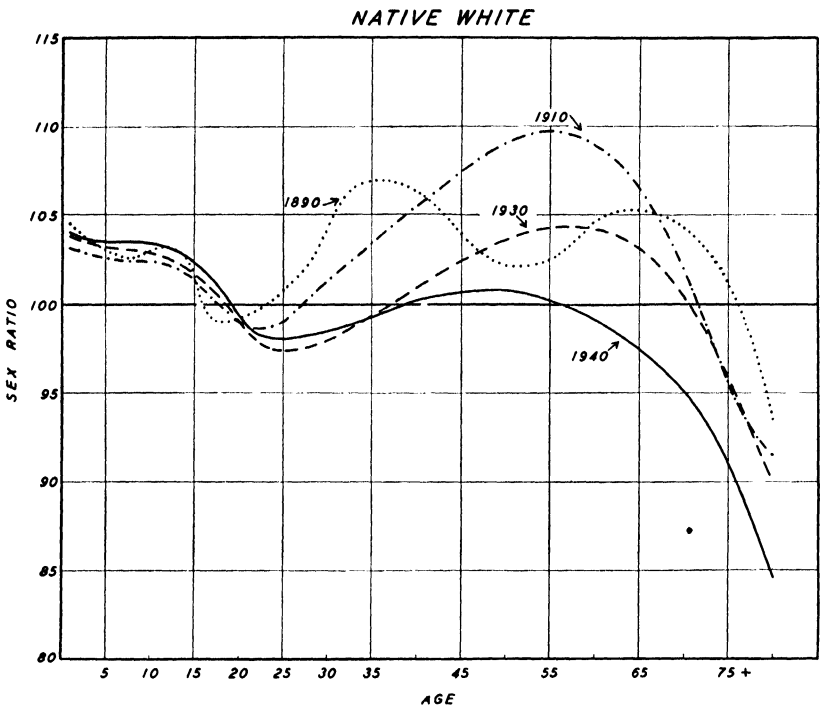


FIG. 58.—Sex ratios by age for the native white population of the United States, 1890 1910, 1930, and 1940.

There is, however, at least one important error in the reported sex ratio that is not due to the above factor, this being the very low sex ratio that is reported among Negro children. In this racial group for children under 5 an excess of females over males is consistently reported in census after census. This is not in accord with the established facts concerning the sex ratio at birth, nor could it come about by the differential mortality that favors females over males.[4] But it does represent a deficiency in the data

[3] *Ibid.*

[4] For a discussion of this see T. Lynn Smith, "Errors in the Sex Classification of Negro Children in the United States Census," *Congrés international de la population*, Vol. V. pp. 97–106, Herman & Cie, Paris, 1938.

necessitating care in the interpretation of facts already secured and plans in the future to eliminate the source of the error.

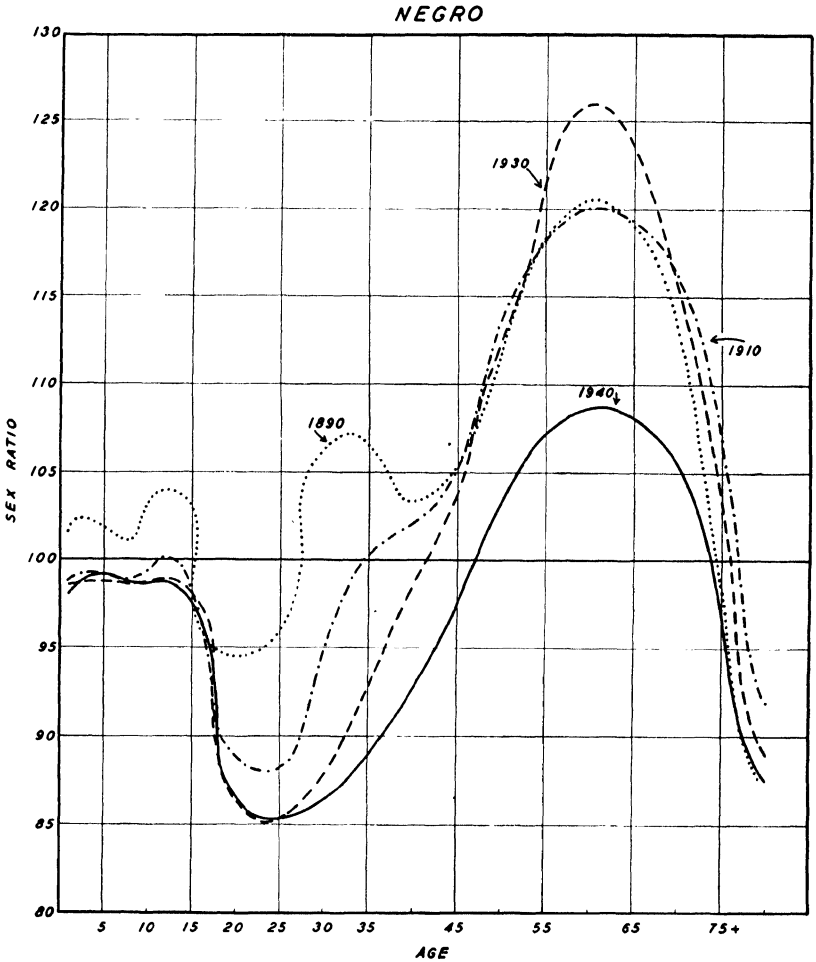


FIG. 59.—Sex ratios by age for the Negro population of the United States, 1890, 1910, 1930, and 1940.

The indexes utilized in the study of sex composition are few and very easily understood. The sex ratio is the device most useful in the analysis and comparison of the sex distribution of various populations. By definition and general practice this is derived and expressed as the number of males per 100 females. Thus for the United States in 1940, when of

131,669,275 persons, 66,061,592 were reported as males and 65,607,683 as females, the sex ratio stood at 100.7. Ten years earlier it was 102.5.

The sex ratio would take on a great deal more significance and lend itself to meaningful correlations with other factors in many more useful ways if it were possible to get reliable sex ratios by age. That this cannot be done is because the popular supposition that women are prone to understate their ages is borne out by an analysis of the data that they give the census enumerator.[5] In Figures 58 and 59 are plotted the sex ratios by age for the native white and Negro populations as derived from the data secured in the censuses of 1890, 1910, 1930, and 1940. These two race and nativity groups are the best for this purpose because the data for them are only slightly affected by immigration or emigration. It is important to observe that for each year (except 1890 when the ages clustering around 50 show the effects of the slaughter of males during the Civil War) the curve depicting the sex ratio resembles a long-drawn-out S. It begins, as should be expected, at age under 1 year, at approximately 105. For the first 10 or 15 years the decline is steady and in accordance with what the differential mortality would lead one to anticipate. Then the curve sags rapidly to an extremely low point at about age 25, after which a recovery sets in that brings it far above 100 by age 55. Following this, another decrease takes place and continues to the oldest age groups, in which the sex ratio is considerably under 100. The general lowering of the curve between 1910 and 1940 was due to the greater increase in life expectation among females than among males.

It is important to observe that the curve for one year closely parallels that for another; neither the dips nor the humps move across the page to the older groups from year to year, as would be the case if they depicted an actual situation and not a constant error introduced into each enumeration. That such a situation is not confined to the United States is indicated by data for other countries presented in Fig. 60.

A norm of use in evaluating the nature of the fluctuations has been secured by the utilization of the known facts about the sex ratio at birth and the age specific mortality rates for each sex group. The procedure was as follows for the native white population:

(1) Assume an infant population of 206,100 of whom 106,100 are males and 100,000 females. The sex ratio at birth for native whites in the United States during the period 1915 to 1933 was 106.1. (2) Apply the specific death rates for the white population in the registration area in 1910 to these groups of infants and, successively, to each group of survivors for the age groups from 1–4 to 75 years

[5] See SMITH, T. LYNN, AND HOMER L. HITT, "The Misstatement of Women's Ages and the Vital Indexes," *Metron*, 13 (1939), 95–108.

and over. (3) Calculate the sex ratios for survivors in each age group and chart them as in Fig. 61. For the native white population of the United States the resulting curve should describe, in an approximate manner, the relationship between

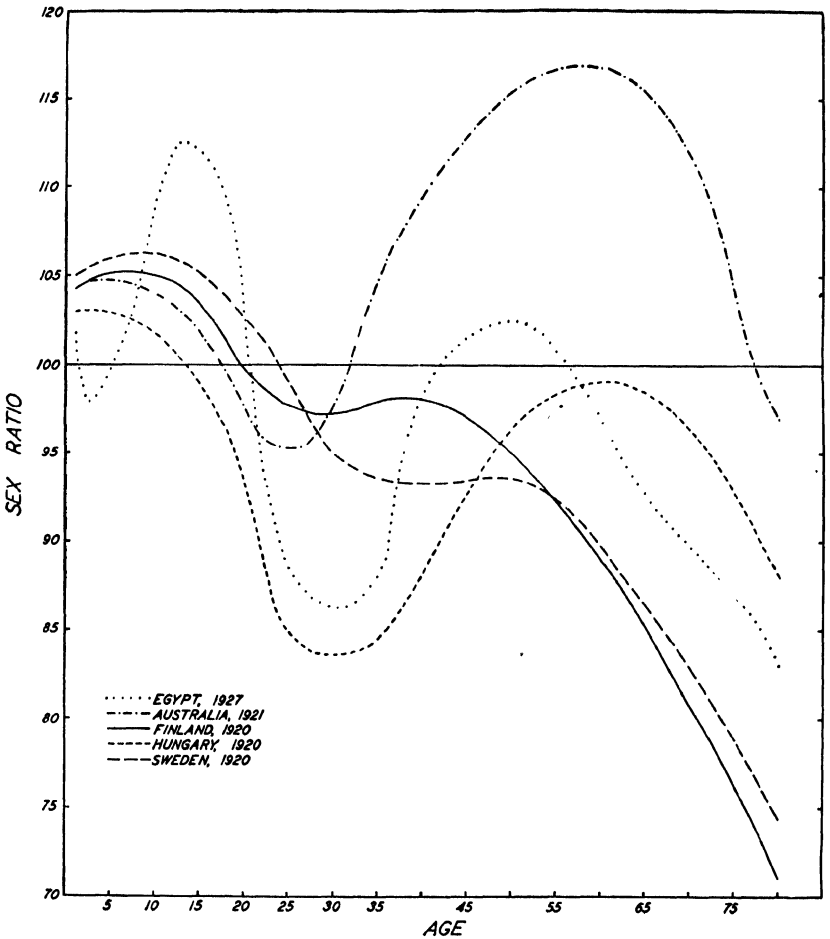


FIG. 60.—Sex ratios by age for the total populations of selected countries. [*Reproduced from T. Lynn Smith and Homer L. Hitt, "The Misstatement of Women's Ages and the Vital Indexes," Metron*, 13 (1939), 100.]

sex ratio and age which would exist if there were no errors in the data. This curve can serve as a norm with which the curve derived from sex ratios as reported can be compared.[6]

[6] SMITH, T. LYNN, *The Population of Louisiana: Its Composition and Changes*, p. 47, Louisiana Agricultural Experiment Station Bulletin No. 293, Baton Rouge, 1937. *Cf.* SMITH and HITT, *op. cit.*, pp. 101–103.

For other groups a comparable procedure may be followed. This was done for Negroes, the results being given along with those for native whites in Fig. 61. A comparison of these results with the curves presented in Figs. 58 and 59 secured by charting the census figures indicates that there is a fundamental source of error in the reporting of the data.

The nature of this error may be readily determined. The S shape of the curve showing sex ratios might possibly arise in two ways: (1) If there were a constant tendency for males 15 years of age and over to overstate their ages, the result would be a sagging of the curve followed by a rise such as is observed in the charts. (2) A similar result would occur if

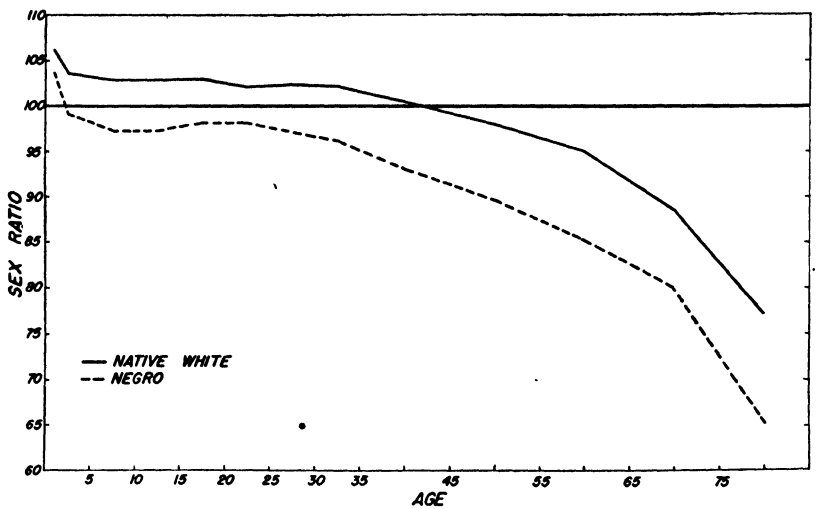


FIG. 61.—Expected variations in the sex ratios by age of the native white and Negro populations of the United States. (*After Smith, The Population of Louisiana, p.* 47.)

there were a tendency for females above 15 to report themselves somewhat under their chronological ages. That the second alternative is the responsible factor and that the ages 15 to 25 are peculiarly popular with females are evidenced by the following facts. Among the native white and Negro populations, the age groups 5 to 9, 10 to 14, and 15 to 19 at a given census should include the same persons as the age groups 15 to 19, 20 to 24, and 25 to 29 at a succeeding census. Table 10 presents data showing the reported changes in these groups occurring between 1920 and 1930. It will be observed that in the course of a decade the number of males of a particular generation decreased in accordance with reasonable mortality rates. Strangely enough, however, the number of females did not decrease in accordance with expectations. This makes it evident that understate-

TABLE 10.—THE REPORTED NUMBER OF MALES AND FEMALES IN SELECTED AGE GROUPS IN 1920 AND 1930*

Native White

Males						Females					
1920		1930		Difference		1920		1930		Difference	
Age	Population	Age	Population	Number	Per cent	Age	Population	Age	Population	Number	Per cent
5– 9	5,013,431	15–19	4,907,316	−106,115	−2.1	5– 9	4,903,930	15–19	4,879,638	−24,292	−0.5
10–14	4,567,998	20–24	4,346,913	−221,085	−4.8	10–14	4,469,962	20–24	4,457,250	−12,712	−0.3
15–19	3,882,561	25–29	3,731,794	−150,767	−3.9	15–19	3,903,652	25–29	3,820,896	−82,756	−2.1

Negro

Males						Females					
1920		1930		Difference		1920		1930		Difference	
Age	Population	Age	Population	Number	Per Cent	Age	Population	Age	Population	Number	Per cent
5– 9	631,341	15–19	595,646	−35,695	− 5.6	5– 9	634,866	15–19	654,882	+20,016	+3.1
10–14	616,251	20–24	553,622	−62,629	−10.2	10–14	620,663	20–24	649,569	+28,906	+4.6
15–19	513,416	25–29	500,520	−12,896	− 2.5	15–19	569,799	25–29	571,267	+ 1,468	+ .3

* SOURCE: *Fifteenth Census of the United States, 1930, Population*, vol. II, *General Report, Statistics by Subjects*, Table 9, pp. 578–580.

TABLE 11.—POPULATIONS BY SEX AND SEX RATIOS OF COUNTRIES WITH ONE MILLION OR MORE INHABITANTS FOR WHICH DATA ARE AVAILABLE*

Area and country	Date	Males	Females	Sex ratio
Africa:				
Egypt	1937	7,967,000	7,954,000	100.2
Union of South Africa	1936	4,837,000	4,753,000	101.8
Gold Coast	1931	1,468,000	1,402,000	104.7
Nigeria	1931	9,214,000	9,944,000	92.7
Sierra Leone	1931	849,000	920,000	92.3
Nyasaland	1931	755,000	849,000	88.9
Uganda	1931	1,710,000	1,843,000	92.8
French Equitorial Africa	1936	1,665,000	1,753,000	95.0
Morocco (French Zone)	1936	3,197,000	3,102,000	103.1
Tunis	1936	1,339,000	1,269,000	105.5
Mozambique	1940	2,416,000	2,670,000	90.5
Tanganyika	1931	2,454,000	2,610,000	94.0
North America:				
Canada	1941	5,901,000	5,606,000	105.3
United States:				
Whites	1940	59,448,000	58,767,000	101.2
Nonwhites	1940	6,613,000	6,841,000	96.7
Mexico and Caribbean:				
Mexico	1940	9,696,000	9,958,000	97.4
Costa Rica	1927	238,000	234,000	101.7
Dominican Republic	1935	751,000	729,000	103.0
Guatemala	1940	1,660,000	1,623,000	102.3
Honduras	1940	556,000	552,000	100.7
Nicaragua	1940	477,000	506,000	94.3
Panama	1940	291,000	276,000	105.4
Salvador	1930	717,000	718,000	99.9
Jamaica	1943	600,000	637,000	94.2
Puerto Rico	1940	938,000	931,000	100.8
South America:				
Argentina	1914	4,227,000	3,658,000	115.6
Bolivia	1900	819,000	814,000	100.6
Brazil	1940	20,845,000	20,720,000	100.6
Chile	1940	2,490,000	2,534,000	98.3
Colombia	1938	4,313,000	4,389,000	98.3
Peru	1940	3,068,000	3,140,000	97.7
Uruguay	1908	531,000	512,000	103.7
Venezuela	1941	1,909,000	1,942,000	98.3

* SOURCE: *Statistical Yearbook of the League of Nations, 1942–1944*, Table 2, pp. 12–23, League of Nations, Geneva, 1945.

TABLE 11.—POPULATIONS BY SEX AND SEX RATIOS OF COUNTRIES WITH ONE MILLION OR MORE INHABITANTS FOR WHICH DATA ARE AVAILABLE.—(*Continued*)

Area and country	Date	Males	Females	Sex ratio
Asia:				
India	1941	201,026,000	187,972,000	107.0
Iraq	1934	1,780,000	1,781,000	99.9
Japan	1940	36,566,000	36,548,000	100.0
Thailand	1937	7,314,000	7,150,000	102.3
Turkey	1940	8,895,000	8,916,000	99.8
Burma	1941	8,576,000	8,248,000	104.0
British Malaya	1931	2,582,000	1,773,000	145.6
Korea	1940	12,266,000	12,060,000	101.7
Formosa	1940	2,971,000	2,901,000	102.4
Kwantung	1940	782,000	586,000	133.4
Netherland Indies	1930	30,005,000	30,587,000	98.1
Palestine	1931	527,000	509,000	103.5
Russia (Europe and Asia)	1939	81,665,000	88,802,000	92.0
Europe:				
Germany	1939	38,762,000	40,614,000	95.4
Belgium	1930	4,007,000	4,085,000	98.1
Bulgaria	1934	3,054,000	3,024,000	101.0
Denmark	1940	1,900,000	1,944,000	97.7
Spain	1940	12,414,000	13,464,000	92.2
Estonia	1934	529,000	597,000	88.6
Finland	1940	1,793,000	1,903,000	94.2
France	1936	19,797,000	21,386,000	92.6
Hungary	1941	7,228,000	7,455,000	97.0
Ireland	1941	1,513,000	1,479,000	103.3
Italy	1936	21,068,000	21,851,000	96.4
Latvia	1935	912,000	1,038,000	87.9
Lithuania	1923	968,000	1,061,000	91.2
Norway	1930	1,372,000	1,442,000	95.1
Netherlands	1930	3,943,000	3,993,000	98.7
Poland	1931	15,619,000	16,488,000	94.7
Portugal	1940	3,712,000	4,010,000	92.6
United Kingdom	1931	22,065,000	23,981,000	92.0
Sweden	1940	3,160,000	3,211,000	98.4
Switzerland	1941	2,061,000	2,205,000	93.5
Czechoslovakia	1930	7,143,000	7,586,000	94.2
Yugoslavia	1931	6,892,000	7,042,000	97.9
Oceania:				
Australia	1933	3,367,000	3,263,000	103.2
New Zealand	1936	799,000	775,000	103.1
Hawaii	1940	245,000	178,000	137.6

ment of female ages is the fundamental explanation of the gyrations in the curve of sex ratios by age. Needless to day, these discrepancies in the data destroy much of the usefulness of the data on sex distribution.

SEX RATIOS THROUGHOUT THE WORLD

For large parts of the globe no information is available relative to the proportions of the sexes in the population. Moreover, for many countries for which some data are to be had, the material is at best a crude approximation. In Table 11 will be found the latest data, for those countries for which reports are available, relative to the distribution between the sexes. In most cases those countries, territories, or dependencies having less than 1 million inhabitants are omitted, although some exceptions to this occur because of the author's special interest in the Latin-American nations.

Observation of this table not only serves to bring out the more significant variations throughout the world in the balance between the sexes but also gives a basis for indicating some of the principal factors that are responsible for the differences. Colonial areas, to which are carried or attracted large labor forces, are, of course, the places where the sex ratios are highest. Note the great preponderance of males in the populations of Hawaii, Kwantung, and British Malaya. Also high are the sex ratios in other possessions such as the Gold Coast, Tunis, Morocco, Burma, Formosa, and Korea. Certain nations also have attracted sufficient immigrants, within a period corresponding to a man's life span, to increase materially their sex ratios. Notable in this respect are Argentina, Canada, Panama, and Uruguay. In Canada the buoying effect of the immigrant tide upon the sex ratio has been partially offset by a very long expectation of life, whereas in the three Latin-American countries comparatively low expectations of life have tended to make the age-sex pyramids squat, or to concentrate their populations in the younger ages of life, where male preponderance is most pronounced. Thus the sex ratio in Canada is lower than it would have been if the expectation of life had been less, whereas in Argentina, Panama, and Uruguay the sex ratios are high, due in part to the low life expectation prevailing in these countries.

Naturally the lowest sex ratios in the world are found in those countries which have been sending out a considerable number of emigrants and whose populations also have relatively short expectations of life. This includes most countries of southern and eastern Europe. Emigration from western and northern Europe has been sufficient to bring about comparatively low sex ratios in most countries, even though life expectation is very high. On the other hand, a large part of Latin America is composed of countries, neither giving many emigrants nor receiving many immigrants, where the

prevailing low sex ratios would be even lower than they are were it not for the relatively short life expectation that prevails.) The most perplexing ratio in the list is the one for Ireland—103.3. Can it be that Irish emigration has been selective of females?

THE SEX DISTRIBUTION IN THE UNITED STATES

Even though it is impossible to utilize the sex ratio by age in an analysis of the association between the proportion of the sexes and residence, race, and nativity and in an analysis of regional variations, some analysis of these correlations is possible using total sex ratios.

Rural-urban Differences.—To begin with, the very obvious, but also extremely important, concentrations of females in urban areas and of males in the rural areas and on the farms should be observed. These relationships are clearly indicated by the data presented in Table 12. The fact

TABLE 12.—SEX RATIOS BY RESIDENCE AND RACE AND NATIVITY FOR EACH OF THE REGIONS OF THE UNITED STATES, 1940*

	Total population	Native white population	Foreign-born white population	Negro population
United States	100.7	100.1	111.1	95.0
Urban	95.5	94.5	106.8	88.1
Rural-nonfarm	103.7	102.8	124.4	99.8
Rural-farm	111.7	112.2	140.3	103.1
The North	100.4	99.4	109.1	93.9
Urban	96.2	94.7	106.1	91.4
Rural-nonfarm	103.8	102.5	118.1	115.7
Rural-farm	116.6	115.5	136.0	128.6
The South	99.6	100.7	118.1	95.2
Urban	91.5	92.8	109.9	85.7
Rural-nonfarm	101.2	101.6	140.7	97.6
Rural-farm	106.6	107.9	134.3	102.7
The West	105.7	102.9	122.2	101.8
Urban	98.3	95.7	111.0	94.4
Rural-nonfarm	114.0	111.3	143.2	151.4
Rural-farm	123.4	119.5	158.2	137.0

* SOURCE: *Sixteenth Census of the United States, 1940, Population, Second Series, United States Summary*, Table 24; *Sixteenth Census of the United States, 1940, Population; Nativity and Parentage of the White Population, General Characteristics*, Table 4, p. 16; *Sixteenth Census of the United States, Population; Characteristics of the Nonwhite Population by Race*, Table 3, pp. 7–16.

that they prevail among all the race and nativity groupings adds greatly to the validity of the generalizations. Naturally the rural-nonfarm population, composed in about equal parts of the village population, suburban population, and nonagriculturists in the open-country population, occupies an intermediate position between that of the urban and the rural-farm populations.

These rural-urban differences in the sex ratios are of tremendous importance. On the farms there are 111.7 males for every 100 females. This is among the entire population. But among the married population and among children the sexes are fairly equally represented. Therefore, such a sex ratio means that the unmarried farmer's chances of finding a mate in the rural areas are much reduced. On the other hand, the young women who live in the city are at a similar disadvantage. If a large share of them marry at all, they must cross cultural or even racial lines and mate with the foreign-born men who are concentrated in the cities. Undoubtedly, both the marriage rate and the birth rate are lowered considerably below what they would be if the sexes were more equitably distributed in the various residential groups.

Differences between Race and Nativity Groups.—There are also very important differences among the various race and nativity groupings revealed by the data in Table 12. Naturally the predominance of males is most pronounced in the "other races" category, since most of these are recent immigrants and since men always greatly outnumber females among such long-distance migrants. For the same reason it is not surprising that the sex ratio of the foreign-born white population is considerably above that of the other groups.

The low sex ratio of Negroes is also striking. As yet no one seems to have given adequate explanation of the prevailing situation, but there are some facts indicative of the major factors. For the most part the low sex ratio of this racial group rests upon the low sex ratio at birth (approximately 103 as compared with 106 among whites); in turn this low sex ratio at birth probably has as one of its chief determinants the high proportion of stillborn births among Negroes.[7] For some as yet unknown reason stillbirths are heavily masculine, the sex ratio being about 110 among all pregnancies and varying between 120 and 170 among stillbirths.[8] Therefore, a high proportion of stillbirths among all pregnancies should reduce the sex ratio at birth among those born alive.

[7] *Cf.* SMITH, T. LYNN, "A Demographic Study of the American Negro," *Social Forces*, 23 (March, 1945), 382–383.

[8] WINSTON, SANFORD, "The Influence of Social Factors upon the Sex Ratio at Birth," *American Journal of Sociology*, 37 (July, 1931), 8–12.

That this low sex ratio at birth, whatever its cause, is the major factor in the femininity of the Negro population seems evident from the following analysis. Among all Negroes, foreign born as well as natives, the sex ratio in 1940 was only 95.0. Eliminating the foreign-born Negroes, the sex ratio among natives was only 94.9. Very few Negroes leave the United States. Therefore, immigration and emigration have no significant influence upon the Negro sex ratio in this country. The other significant factor bearing upon the sex ratio, *viz.*, the length of the expectation of life, exerts a buoying rather than a depressing effect upon the sex ratio among Negroes. This may be indicated from the data in the life tables (1939 to 1941) for whites and Negroes in the United States. If the sex ratios at birth among whites and Negroes were 100 in each case, if the population of each race were stationary, and if no factors other than differences in life expectation were influencing the sex ratios, then there would be only 93.7 males per 100 females among whites as compared with 94.2 among Negroes. Thus, the prevailing low sex ratios among Negroes would be even lower than they are if it were not for the short life span of this colored race. Because neither migration nor life expectation contributes to explain the scarcity of males among the Negro race, the low sex ratio at birth remains as the single factor to which the phenomenon can be attributed.

As indicated above, among the residential groups the data leave little room for doubt of the selective nature of migrations to the cities. Females are greatly preponderant in the urban areas and markedly scarce on the farms. When foreign birth and farm residence are taken in conjunction, the highest sex ratio of all, 140 males for every 100 females, is observed. Also striking to the attention is the fact that the sex ratio among Negroes, even at its highest (or on the farms), is only 103. This racial group also attains the greatest femininity of all in centers of 10,000 to 100,000, where the sex ratio in 1940 was only 94.6.

Regional Differences.—In addition to the preponderance of males in the country and of females in the urban districts, the masculinity of the foreign-born population, and the femininity of the Negro contingent, there are also important regional variations in the sex ratio. Today these are much smaller than they used to be, as will be brought out below, but they remain of considerable significance. In order to make sure that regional comparisons are not merely clumsy ways of revealing residential or racial differences, the data must be classified at least in as much detail as they are given in Table 12. Much more satisfactory are the fuller particulars presented in Figs. 62 and 63. From this tabulation and these maps, it is evident that the West is characterized by high proportions of males and the South by high proportions of females in the population and that the North

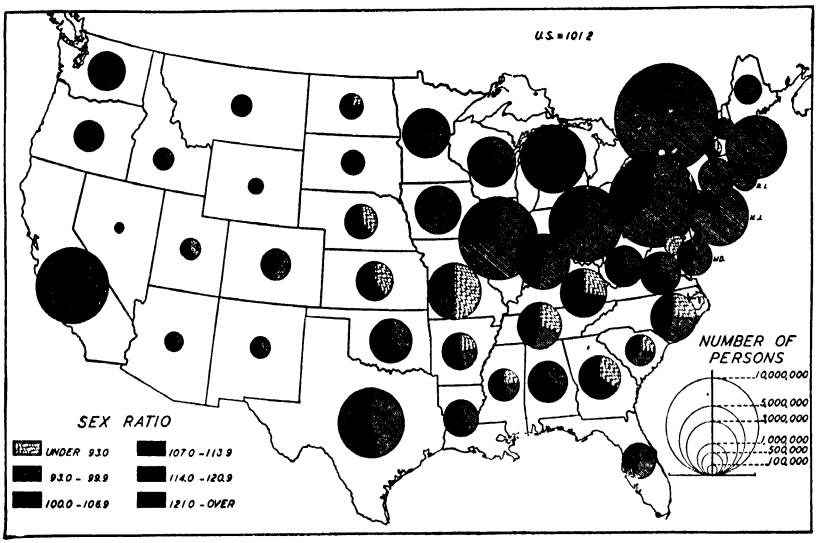


FIG. 62.—Sex ratios among the white population of the United States, by residence, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban, rural-nonfarm, and rural-farm populations, respectively.)

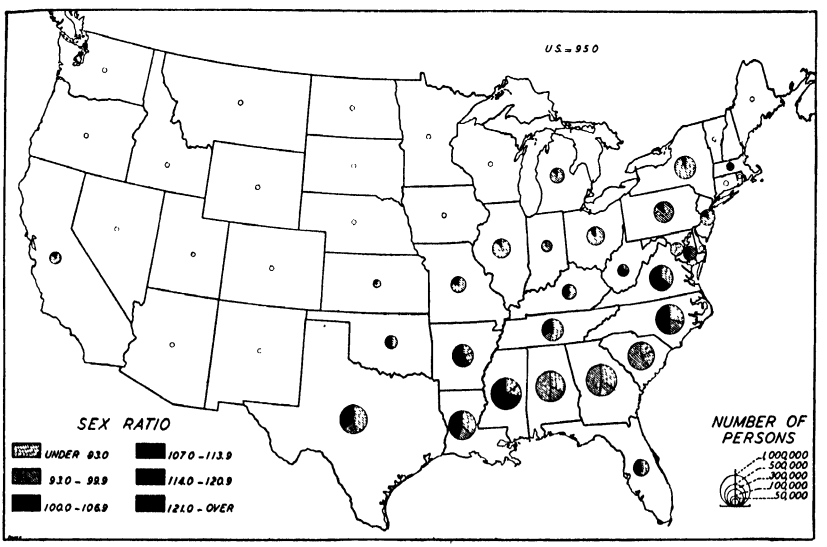


FIG. 63.—Sex ratios among the Negro population of the United States, by residence, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban, rural-nonfarm, and rural-farm populations, respectively.)

occupies the intermediate position in this respect. Thus among the native white, the foreign-born white, and the Negro population, the male excess in the rural-farm population is greatest in the West, least in the South. Similarly among both native whites and Negroes, the preponderance of females in the urban population is most marked in the South and least evident in the West; however, among the foreign-born whites who live in cities, the immigrant group in which males predominate so greatly, the South is in the intermediate position. But this is the only exception to the rule. In the rural-nonfarm category, also, males outnumber females to the greatest degree in the West and to the least extent in the South.

The ratio between the sexes in a given area represents a balancing of the significant influences exerted by type of residence, by immigration, and by the racial make-up of the population. In the South, for example, the great importance of the farm population tends to make for a high sex ratio, but this is more than offset by the presence of the Negro and the relative lack of persons of foreign birth. In fact, the migration of the Negro from the area, more an emigration than a mere movement from country to city, has greatly depressed the sex ratio. The West, on the other hand, is essentially rural and so has the high sex ratios of farming areas. This has been accentuated by the presence of a large contingent of the foreign born. Having less than its proportional share of Negroes, the West has not felt the effect of this factor in lowering the sex ratio. But of most significance is the fact that the effects of frontier days and their great selectivity of males have not yet fully disappeared. The North, which contributed a great many males to the West, recovered from the loss to a considerable extent through immigration. More recently it has received a Negro "immigration," largely male, from the South. Were it not for these factors, the North, the most urbanized section of the nation, would be characterized by the lowest sex ratios in the United States. One may confidently expect that these regional differences will change and that in a few decades the North will replace the South as the region in which the femininity of the population is greatest. However, if the concentration of urban population on the West Coast continues, that section of the nation and the Gulf Coast region may come to be the parts of the nation in which the preponderance of females in the population is the greatest.

Other Factors.—The economic base or organization of a city or other area also has a great deal to do with the proportions of the sexes in its population. Ports, centers of heavy industry, and mining towns tend to have large proportions of males, whereas textile-milling centers, residential cities, and cities that are based largely on distributing services run largely to females. Thus, according to the results of the 1940 census there were

in the urban portion of the United States only 95.5 males for every 100 females. In spite of the fact that this sex ratio refers to persons of all ages, including the children among whom the sex ratio is very high, there were nine population centers of 100,000 or more inhabitants in which the sex ratio was at least five points below the urban average. Besides the city of Atlanta, primarily a distributing center where the sex ratio was only 85.5, Richmond (87.7), and Nashville (87.7), Knoxville, Dallas, Cambridge, Long Beach, New Orleans, and Charlotte all fall in this category.[9] At the other end of the scale there were 13 centers containing more than 100,000 inhabitants in which the sex ratio stood at 100 or above. Highest of all was Gary, Ind., where the sex ratio was 108.3, followed by Richmond Borough (105.8), Detroit (104), San Diego, and San Francisco. Other cities in this category, ranking in the order named, include Norfolk, Sacramento, Youngstown, Tacoma, Flint, Canton, Duluth, and Camden. As mentioned above, the tendency is for great seaports and centers of heavy industry to contain more than their pro rata shares of males.

TRENDS IN THE SEX RATIO

Several factors may affect the sex ratio, but the principal cause of the variations is migration. Changes in the sex ratio of the total population of the United States are due largely to the ebb and flow of the immigrant tide. These long-distance migrants being overwhelmingly masculine, the admission of the large contingents has raised the sex ratio; the enforced restriction of numbers has lowered it. Prior to 1910, when the sex ratio of 106.0 represents an all-time high, the sex ratio among the total population of the United States was at high levels in 1890 (105.0) and 1860 (104.7). Both of these are substantial increases over the lows of 1830 (103.1) and 1870 (102.2). The latter, coming at the end of the immigration-checking domestic war, is the lowest on record except that of 101.7 for 1940. Since 1910 the raising of immigration bars has been largely responsible for the falling sex ratio, 104.0 in 1920, 102.5 in 1930, and 101.7 in 1940. This is most clearly evidenced in the falling sex ratios in the larger centers of population to which the bulk of the immigrants have been attracted. In 1940 there were in the United States 196 centers of population containing 100,000 inhabitants or more. In only 18 of these was there a rise in the sex ratio between 1930 and 1940; one was constant; and

[9] The extremely low sex ratios of the southern cities in this list are accounted for largely by the low sex ratios among their Negro inhabitants. In 1940 the sex ratio among Negroes was 78.7 in Atlanta, 84.9 in Richmond, 82.5 in Nashville, 85.9 in Knoxville, 85.8 in New Orleans, and 83.7 in Charlotte.

in the remaining 177 the number of males per 100 females was lower in 1940 than it was in 1930.

Other than migration the chief elements bringing a change in the sex ratio are three: (1) a change in the birth rate, (2) changing mortality, and (3) a change in the relative importance of such racial groups as native whites and Negro, between whom there is a considerable differential in the sex ratio. When the birth rate falls, it decreases the proportion of children in the population. Since the sex ratio is high among children, this has the additional effect of lowering the sex ratio. A similar result comes from an increased expectation of life. Both of these, with the former probably being the more important, are reflected in the decreasing sex ratio among native whites and Negroes.

Racial Differences.—For native whites the sex ratio was reported as 103.1 in 1850. For the next few years the fluctuations are marked, a low of 100.6 probably being due partially to the depressing effect of the Civil War upon the birth rate and the deaths of male combatants and partially to erroneous recording. Variations in the proportion of foreign born (largely male) erroneously returned as native is probably the chief source of error. By 1890 the ratio had risen to 102.9. From then on the ratio fell steadily, and in line with expectation, to 101.1 in 1930 and 100.1 in 1940.

As indicated above, the femininity of the Negro population is a racial characteristic deserving special attention. In a large measure it rests upon the very low sex ratio at birth among Negroes. Even when the effects of the importation of thousands of slaves were immediate, as in 1820, the sex ratio among Negroes was only 103.4, and by 1830 it had decreased to 100.0. Ever since 1830 the sex ratio among Negroes has been less than 100, the lows being 96.2 in 1870 and 95.0 in 1940. Undoubtedly there is a sizable margin of error in the reported ratio; nevertheless, the index is a very low one. Therefore, the diminution in the relative importance of the Negro from 1790 to the present is a factor that has had a buoying effect upon the sex ratio of the general population.

Rural-urban Differences.—As one decade succeeds another, there is a tendency for the differences in the sex ratios of the cities and the open country to become more pronounced. The two had already drawn apart to a considerable extent in 1920 when the sex ratio of the population living in the urban parts of the United States was only 100.4, compared with 106.6 for the people residing in the rural-nonfarm and 110.8 in the rural-farm portions of the nation. Of course, these differences were due in part to the concentration in the cities of the foreign-born, among whom males greatly preponderate. But among native whites residing in cities the sex ratio in 1920 was only 96.9, whereas in rural-nonfarm territory it was 102.7,

and on the farms 109.5. Among Negroes differences of the same nature prevailed, the sex ratios being 95.4 in urban districts, 103.7 in rural-nonfarm areas, and 100.3 in the rural-farm category. By 1940 these differences had become much more pronounced. During the course of the 20 years there was a steady fall in the urban sex ratio and also in that for the rural-nonfarm group, whereas on the farms the degree of male predominance progressively became greater. Thus among urban native whites the sex ratio fell to 94.5 in 1940, and among urban Negroes, to only 88.1. But whereas already in 1920 there were 109.5 native white males for every 100 females on the farms, in 1940 the ratio had increased to 112.2. The sex selectivity of rural-urban migration also caused the sex ratio of rural-farm Negroes to rise to 103.1 in 1940, an increase of nearly three points from the 100.3 observed in 1920. The net results are clear: Among all the principal race and nativity groupings the concentration of females in the cities and of males on the farms became more acute in the 20-year period 1920 to 1940. Even the decreasing sex ratio in rural-nonfarm areas may be presumed to be due largely to a great increase in the importance of the suburban element in this most heterogeneous of all residential categories.

Regional Differences.—The pushing forward of the settlement of the nation naturally resulted in the creation of serious imbalances between the sexes in the several geographic divisions. To the West, to the frontier, went the males, making the sex ratios in many western states extremely high. On the other hand, in the older areas of the East and to some extent the South, the selectivity of migration to other sections left a considerable excess of females in its wake. As decade has succeeded decade, the tendency has been for these differences to become less, for the sex ratios in the states and geographic divisions to become more closely clustered about the norm for the nation.

Thus in the Rocky Mountain states, the last frontier, as late as 1920 there were 115.7 males for every 100 females. This is counting everyone including the children, among whom the imbalance between the sexes is never very great. By 1930 the sex ratio in this mountainous section had declined to 111.4 and by 1940 to 107.4. Whereas at the close of the First World War the sex ratio in this region was 11.7 points above the national average, at the outbreak of the Second World War it was only 6.6 points above. Similar was the trend in the Pacific states. In 1920 there were on the West Coast 113.9 males for every 100 females, a ratio that fell to 108.7 in 1930 and to 105.0 in 1940. As a result at the last census the Pacific states had a sex ratio only 4.3 points above the national average, whereas 20 years earlier its ratio was 9.9 points above. Likewise in the East North Central, the West North Central, and the West South Central

geographic divisions, where the sex ratios are above the national average, one can observe the tendency for the proportions of the sexes to approach the level for the nation. Thus in the East North Central states the sex ratio declined from 1.7 points above that of the United States in 1920 to only 1.2 points above in 1940. In the West North Central states the corresponding changes were from 2.1 points above to 1.4 and in the West South Central states from 1.8 to 0.1.

On the other hand, in those geographic divisions in which the sex ratios were below that of the nation in 1920, the tendency also was for the variation from the national norm to become less pronounced by 1940. Thus New England, which is the section where females outnumber males to the greatest extent, was only 3.7 points below the national average in 1940, as compared with 5.5 points below in 1920. However, this was actually the result of a lower sex ratio in the nation and not because the sex ratio in New England was trending upward during the 20-year interval. In 1940 the Middle Atlantic, the South Atlantic, and the East South Central states all were characterized by sex ratios 1.6 points below that of the United States as a whole. However, 20 years earlier their ratios were 2.6, 2.8, and 2.9 points, respectively, below the national average. As in New England, the narrowing of the difference was due in each case to the lowering of the national level, and not because males became relatively more numerous in any one of these geographic divisions. The net effect of these trends is readily apparent: Now that the country is settled, as the years pass by the regional differentials in sex ratios are being reduced and all sections of the country are approaching a balance between the sexes that is close to the national average.

Chapter 6

MARITAL STATUS

NATURE OF THE DATA

EVERY modern census includes information concerning marital status in its basic tabulations of population characteristics. In the United States a question concerning this important feature appeared for the first time in the census of 1880. But the data for that year were never tabulated. Beginning in 1890, however, and continuing through 1940, information on marital status has occupied its rightful position in the census tabulations.

The data given generally are limited to the population 15 years of age and over. Excluding persons under 15 is a good procedure in a nation such as ours where very few persons marry before passing through the adolescent state. Thus of the 2,405,730 persons aged 14 as reported in the Sixteenth Census, only 1,247 males and 3,353 females were married. In countries where child marriage is prevalent, there would be less reason for excluding the very young from the tabulations. However, in most countries the inclusion of young children in the tables giving information on marital status introduces unnecessary complications into the classification, analysis, and interpretation of the data. It also wastes a great deal of space and paper.[1]

It has been customary to use four categories in the classification of the population according to marital status: (1) single, (2) married, (3) widowed, and (4) divorced. Fortunately, the United States Census of 1940 improved this procedure by subdividing the married population into those (1) living with the spouse and (2) living apart. That this has not proved entirely accurate or was not fully understood by the enumerators is indicated by the fact that there are reported some 43,000 more married men living with their wives than there were married women living with their husbands (see Table 13). Probably the presence of immigrant men whose wives have remained in the old country is responsible for this discrepancy. Brazil also introduced this fundamental refinement into its 1940 census.

[1] See, for example, the *Censo de Colombia: 1938*, tomos 1–16, Imprenta Nacional, Bogotá, 1940–1942; and *Recenseamento do Brazil, 1920*, vol. 4, 1ª Parte, Typographia da Estatistica, Rio de Janeiro, 1926.

In countries where common-law matings are numerous the separation of those living in such marital relationships from those who are legally married is important.) This was done in the Peruvian census of 1940, in which the conventional categories of single, married, widowed, and divorced were supplemented with one called *convivientes*, *i.e.*, living together. Interestingly enough, the category included 298,152 men and 343,291 women who together made up 18 per cent of the population 15 years of age and over.[2] Such a class would also be useful in the United States, especially in the tabulations of data for the Negroes in the rural South and for residents of the Bohemian sections of our larger cities.

(In all cases the data on marital status refer to the condition at the time of the census, so that a person who has married again after being widowed or divorced is counted merely as married. It has not yet proved practicable to subdivide the data according to the number of times married or to introduce refinements based on the reasons for the termination of previous marriages. Probably some of the persons who actually belong among the

TABLE 13.—MARITAL STATUS OF THE POPULATION 15 YEARS OF AGE AND OVER IN THE UNITED STATES, BY SEX, 1940*

Marital status	Males		Females	
	Number	Per cent	Number	Per cent
Total	49,335,632	100.0	49,361,562	100.0
Single	16,376,595	33.2	12,751,772	25.8
Married:				
Spouse present	28,657,376	58.1	28,514,359	57.8
Spouse absent	1,533,711	3.1	1,572,776	3.2
Widowed	2,143,552	4.3	5,700,092	11.5
Divorced	624,398	1.3	822,563	1.7

* SOURCE: *Sixteenth Census of the United States, Population*, vol. IV, *Characteristics by Age*, Part 1, Tables IX and 9, pp. 5, 25.

divorced are reported as single, married, or widowed. Otherwise, in general, the reporting of marital status seems to be fairly reliable.

To be most useful the data need to be tabulated separately for the various age groups. Most modern censuses have recognized this necessity, and

[2] *Censo nacional de población y ocupación de 1940*, p. 94, Dirección Nacional de Estatistica, Lima, 1944.

that of the United States presents the data on marital status by age in as much detail as could reasonably be expected.

As is to be anticipated, however, one very glaring inconsistency is introduced into the tabulations by the universal tendency of females to understate their ages. Thus, the proportion of women who are reported as single falls rapidly and consistently with age until 29 is reached, when it is 17.7 for the United States as a whole. Then the seemingly impossible happens, and the percentage of single persons rises to 17.9 per cent at age 30. Naturally no such change is to be observed for males, the percentage of those single falling consistently with each step up the age ladder. Interestingly enough, the discrepancy is slightly greater in the data for white females than in those for nonwhite women, the percentage rising from 18.0 at age 29 to 18.3 at age 30 for the former and from 15.3 to 15.5 for the latter, respectively. Among nonwhite males the concentration of population in ages ending in 0 is so marked that at age 30 it is sufficient to bring about a like result.

As indicated above and in spite of all that has been said about postponement of marriage, the prevalence of divorce, etc., it is apparent that life in the married state is the normal condition for the American adult. Furthermore, the proportion of married people who are living apart from their spouses is not so high as might have been expected, being only 3.1 for males and 3.2 for females. Naturally the long expectation of life in the United States results in relatively high proportions of widowers (4.3 per cent) and of widows (11.5 per cent) in the population. In countries where the average length of life is less, these figures are materially reduced. Thus, in Colombia there are only 3.4 widowers per 100 males and only 9.5 widows in every 100 females aged 15 years and over.

Finally, the number of divorced persons who have not remarried is comparatively small; in 1940 they made up only about 1.5 per cent of the adult population.

THE PREDOMINANCE OF MARRIED PEOPLE

The married condition is the normal state for the majority of human beings who have reached the age of adulthood. This statement is peculiarly true in the United States. In this country married women exceed the combined total for the single, widowed, and divorced in all ages from 22 to 66 (the ones that contain the lion's share of the adult population). For men a comparable situation prevails in all ages from 25 to 80. In the ages from 28 to 55 for females and from 33 to 64 for males, more than three-fourths of all persons are included in the married category. Furthermore, in our country only a small proportion of the population live out their lives without

contracting marriage. For example, in 1940 only about 8.0 per cent of the persons, male or female, who had reached the age of 85 had never married.

"Single blessedness" is the second most important marital condition (see Table 13). This is mainly because of the large numbers of single persons in their late teens and early twenties. It should be noted, however, that the proportions of single persons in the population of the United States is much smaller at all ages than is the case in most other countries for which data are available.

The widowed constitute the third largest category. Widows are almost one-half as numerous as their unmarried sisters, while there are almost eight single men for every widower. Undoubtedly the chances for the man who has lost his mate to secure another are much greater than those of a woman. The high expectation of life in the United States is one factor that makes the numbers of the widowed relatively large.

In 1940 divorced persons who had not remarried made up only 1.5 per cent of the adult population of the United States. As in the case of the widowed, divorced females are found in greater numbers than divorced males, the answer undoubtedly being that more of the males have remarried, although the greater expectation of life among females also is partially responsible.

A surprisingly small proportion of persons is classified in the category of married but living apart. Such separations seem to involve only a little more than 3 per cent of the adult population.

SOME INTERNATIONAL COMPARISONS

As indicated above, in the United States the proportion of the adult population who are married, and not single, widowed, or divorced, is relatively high. This is brought out by an examination of the available data, although comparative studies are almost completely lacking. For illustrative purposes, the materials for the United States, England and Wales, Scotland, Germany, Italy, Poland, Japan, Peru, and Colombia have been assembled in Figs. 64 and 65. They can serve as the basis for several significant observations.

American women are more likely to be living in the married condition than those of any of the countries included except Japan. Since these countries are representative of such major world areas as northern Europe, southern Europe, eastern Europe, Asia, and Latin America, this fact is of no little significance. American men, on the other hand, are not so likely to be living in the married condition as those of Japan, Germany, or Poland; and after age 40 has been attained, they are closely rivaled by the English and the Italians. Whether a country is on the giving or the receiv-

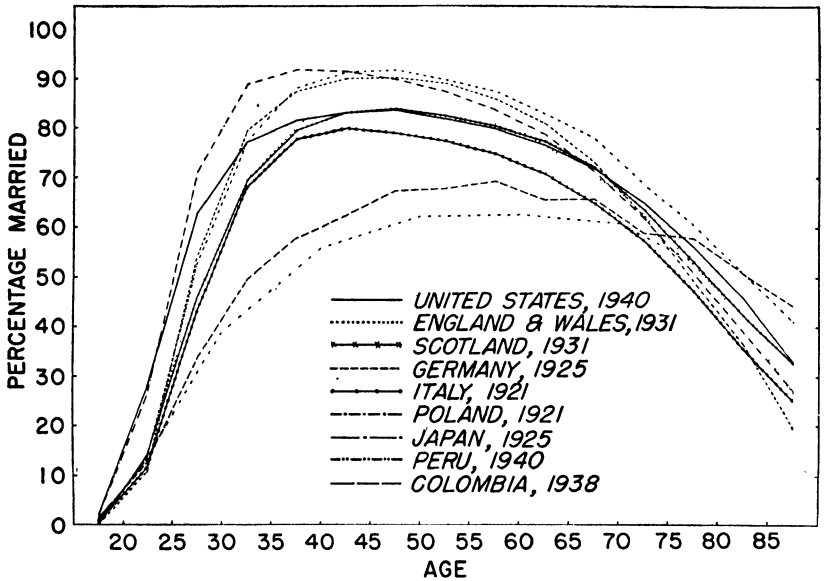


FIG. 64.—Variations in the proportions of married persons among the male populations of selected countries, by age.

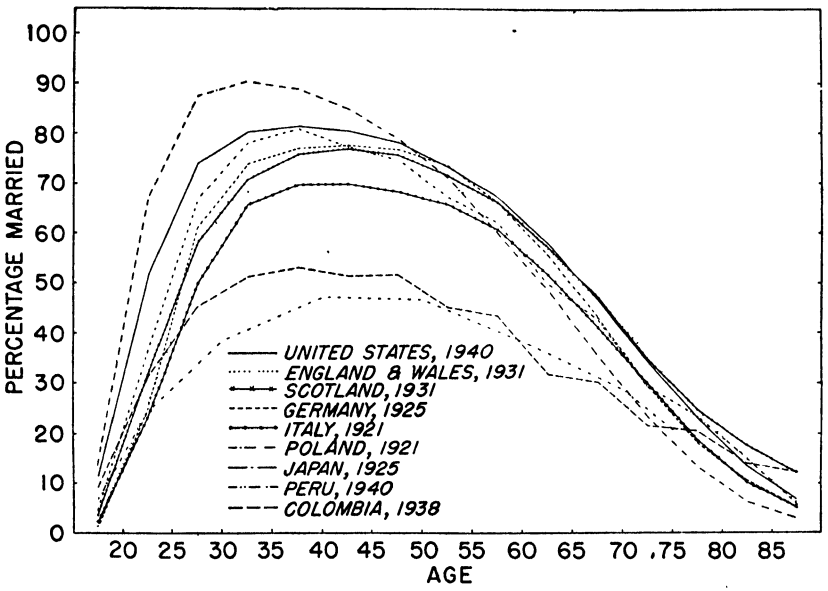


FIG. 65.—Variations in the proportions of married persons among the female populations of selected countries, by age.

ing end of a large number of international migrants, predominantly males, has much to do with these sex differences. In the United States the high sex ratio due to immigration has placed a premium on marriageable females, whereas in Germany, Poland, and Italy the emigration of men by the millions has favored the marriage of bachelors and the remarriage of widowers. The Scotch, both male and female, seem to avoid marriage more than other western Europeans. Latin Americans are in a class by themselves when it comes to shying away from legal matrimonial ties. However, all the evidence points to the prevalence of many types of common-law unions in those countries, not a few of which are probably taken as seriously and endure as well as legal matings.

The youthful age at which Americans marry is another fact that should be stressed. Of the peoples under consideration only the Japanese take the nuptial vows at an earlier age. (This hardly fits the widespread belief that age at marriage is determined largely by climate through its effects upon the age at which women mature.)

AGE AND MARITAL STATUS

The marital status of the population depends more closely upon age than upon any other factor. Thus, in a Western society such as the United States the beginning of adolescence finds 100 per cent of the population in the single category. The first inroads of marriage may begin at about age 12, but it is only after age 15 that the single class loses any significant number of its constituents. However, the proportion consistently falls with advancing age, extremely rapid at first, very slowly later on, until at the age of 85 and over in the United States only 7.9 per cent of the males and 8.0 per cent of the females remain single (see Fig. 66). Of those who attain the age of threescore and ten about one out of ten has never married.

As indicated above, marriage begins to claim a share of the population about the time the age of 15 has been reached. Females leave the single state for the married slightly earlier than males. This married class grows in number rapidly with advancing age, a change accomplished by decreasing sharply the proportion of single persons. Before women have completed their twenty-second year of life, wives come to outnumber their unmarried sisters; but it is only while men are in their twenty-fifth year that the number married overtakes and passes the number single. The proportion married continues to rise with advancing age, the newly married couples being more than enough to offset the households disrupted by death or divorce, until it reaches a maximum for females in the age groups 35 to 39, a class in which 81.7 per cent of the women are married. Among males the increase is less rapid, but the curve continues rising for an addi-

tional 10 years on the age ladder. For men the maximum percentage married is 83.3, observed in the age group 45 to 49.

After reaching these maximum proportions the percentage of married persons falls steadily with advancing age until among women who have passed their eighty-fifth birthday only 5.9 per cent have husbands. This contrasts very sharply with the condition of the elderly men, for of this sex 32.2 per cent of those 85 years of age and over are married. This situation is explained by the facts that women outlive men and widowers and

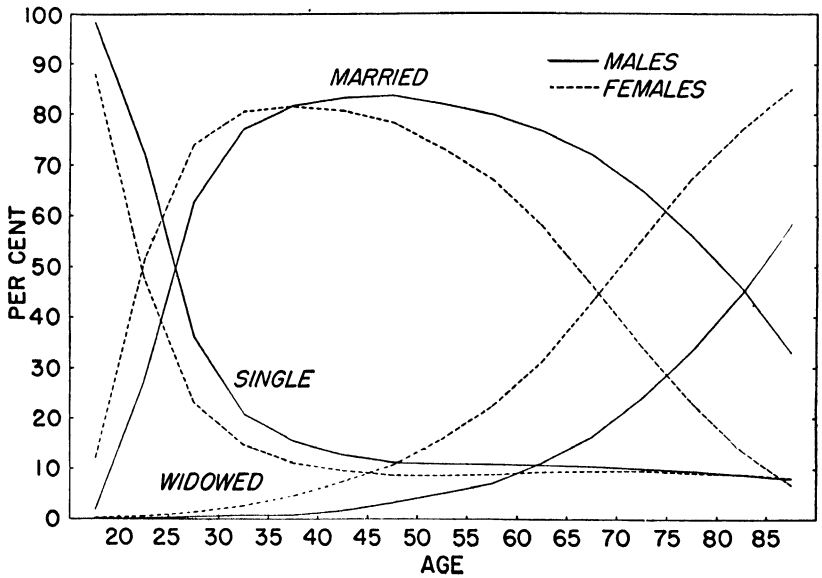


FIG. 66.—The relationship of age to marital status among the population of the United States, by sex, 1940.

divorced males are more likely to remarry than widows and divorced females.

The proportions of widowed in the population are insignificant in the years of early adulthood, but they rise steadily with advancing age. The curve for the females rises much more rapidly and ascends considerably higher on the scale than the one for males. Not until age 45 does the percentage of widows equal that of the single women, and even then it is only about 9 per cent. Among males the proportion of the widowed becomes equal to the percentage single at age 62, when 10.5 per cent of the population falls in each of the two categories. At age 70 one out of five males is a widower and one out of two females a widow.

Since the expectation of life in the United States is now around 65 years, it is interesting to note what the marital condition of the population is at that age. For the man who attains his sixty-fifth birthday, the chances are about one in ten that he will have remained a bachelor, three out of four that he will be married with a wife still living, and less than one out of eight that he will be a widower. For the woman, the probabilities are very different. The chances that she will have remained single are slightly less than one in ten, but the probabilities that she will be living in the married condition are only about one out of two, and those that she will be a widow are almost two in five.

If a man reaches the age of 85, the chances are less than one in ten that he will have remained single, two out of five that he will be living in the married condition, and one in two that he will be a widower. For the woman who attains the age of 85, the corresponding probabilities are as follows: less than one in ten that she will never have married at all, only one out of ten that she will have a husband still living, and four out of five that she will be a widow.

SEX AND MARITAL STATUS

There is a definite relationship between sex and marital status. Relative to their numbers, the female population includes fewer single and more married, widowed, and divorced persons than the male population. Because of the presence in this country of large numbers of immigrants, many of whom are males having wives in the old country, the population aged 15 years and over contains a slightly larger number of married males than females. However, due to the restrictions on immigration this excess was only 103,952 in 1940, compared with more than half a million in 1920. The presence of a large immigrant contingent in this country also accounts for the higher number of married men than women living apart from spouse. In 1940 there was also an excess of males over females in the single category equal to 3,624,813, or 22.1 per cent. Since there actually are a few more females than males in the total population 15 years and over, this reveals the absolute and relative extent to which males more than females remain in the single state.

It has been necessary to bring out some of the other major differences between the sexes relative to marital status in the discussion of how marital condition changes with age. It should also be indicated, however, that at all ages between 15 and 75 a woman is less likely to remain single than a man. Females marry at a younger age than men, with the result that until the age 37 or 38 has been attained, they are more likely to be married than are the males. But if a marriage is disrupted by death or divorce, the man

is much more likely to remarry than the woman, and for this reason after age 40 the proportions of married women rapidly become much smaller than the corresponding percentages for men. Just before age 75 is reached, married persons are only half as numerous, relatively, among the female population as they are among the stronger sex. The lesser likelihood of remarriages on the part of females along with their greater expectation of life causes the percentages of widows to increase more rapidly and to go much higher on the scale than the proportions of widowers. At age 75 the relative importance of the former is more than double that of the latter. Unless she has children or other relatives with whom to live, the woman who lives to a ripe old age must expect to spend the declining years of her life in loneliness. Such is not so true of the man.

RACE AND MARITAL STATUS

As is true of so many other aspects of demography, the associations between race and marital status and residence and marital status are so interdependent that the two must be analyzed simultaneously. To attempt to determine the differences in marital status between whites and Negroes without allowing for the fact that Negroes live in rural districts in larger proportions than whites or to try to discover rural-urban differences in marital status without taking into account the fact that the rural population contains higher percentages of Negroes than the urban is to be discouraged. It is certain to result in another batch of spurious results such as have contributed so much to self-deception in the past. To handle these two relationships at the same time that the essential age and sex classifications are also included is an involved procedure. However, the four charts presented in Figs. 67 to 70, inclusive, enable one to arrive at sound conclusions relative to racial differences, and a companion set given in the following section permits the determination of rural-urban differences.

The nonwhite or Negro population mates at an earlier age than the white, and the former also are far less likely to live out their lives as bachelors than the latter. However, except among males residing on farms, after the age 30 has been attained members of the colored races are less likely to be living in the married condition than are the whites. Largely because of its low sex ratio, the Negro population contains excessively large percentages of widows. The Negro male who lives in the South has abundant opportunities to secure another mate if death or divorce terminates his first union. As a result, at all ages he is more likely to be living in a state of matrimony than is the white man. In northern cities, however, the sex ratio does not operate so greatly in his favor, and after the age 30 he is less likely to be living in the conjugal state than the white man.

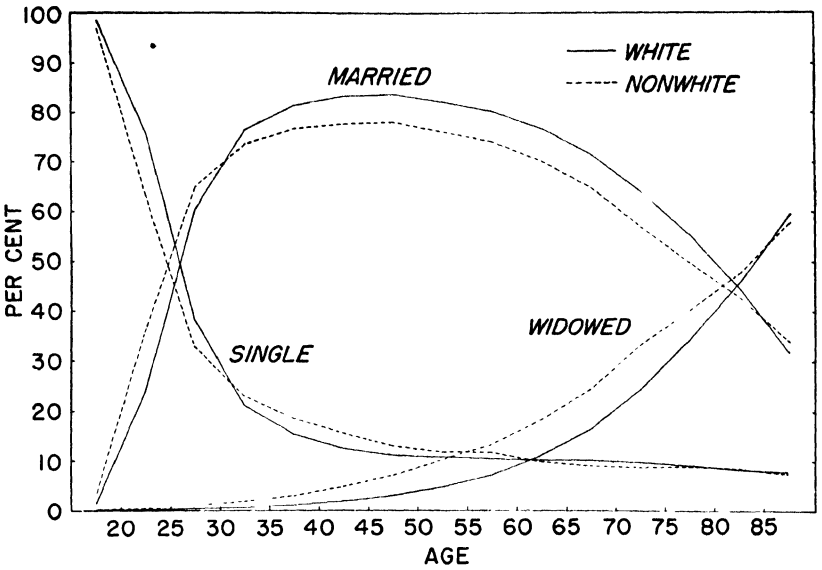


FIG. 67.—A comparison of the marital status of white and nonwhite urban males in the United States, by age, 1940.

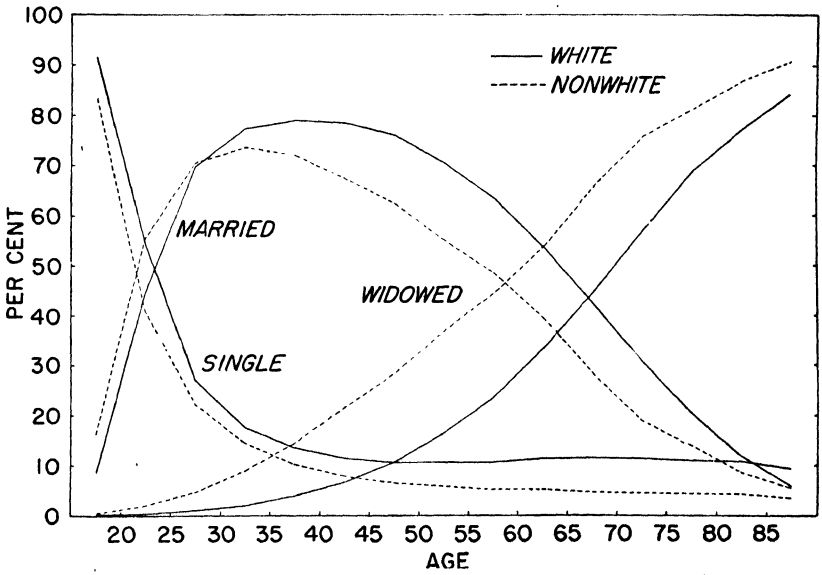


FIG. 68.—A comparison of the marital status of white and nonwhite urban females in the United States, by age, 1940.

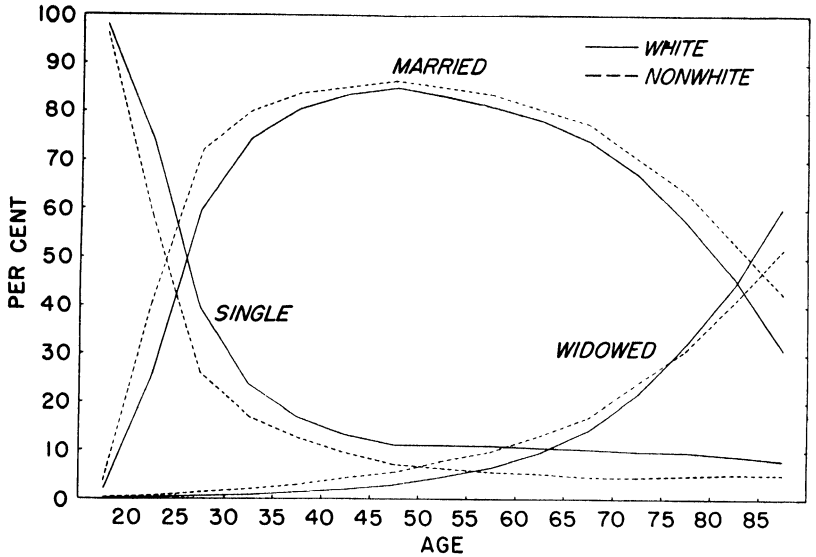


FIG. 69.—A comparison of the marital status of white and nonwhite rural-farm males in the United States, by age, 1940.

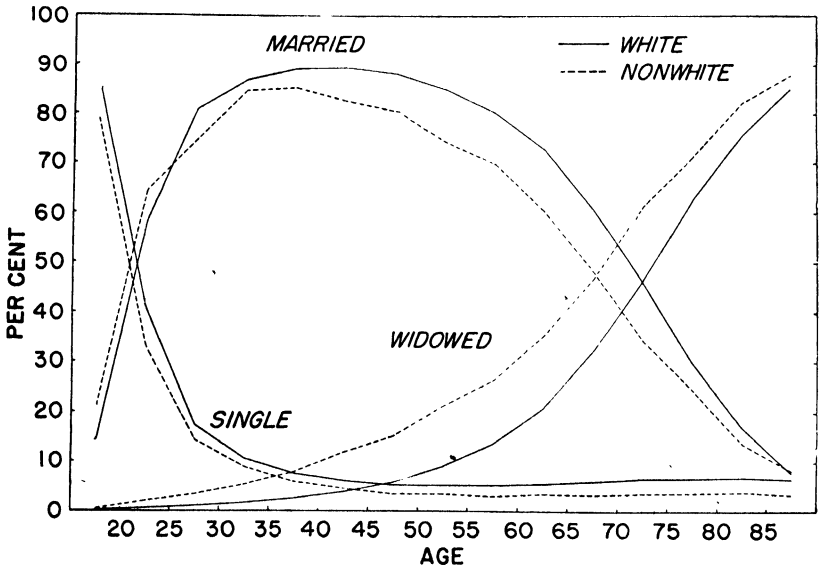


FIG. 70.—A comparison of the marital status of white and nonwhite rural-farm females in the United States, by age, 1940.

The fact that the nonwhites marry earlier than the whites is emphasized by a comparison of the ages at which the percentage of married persons becomes equal to the percentage single. This is the age at which the ascending curve for the married population cuts across the descending curve for the single. In 1940 the married and the single were of equal importance in the urban population at ages 24 and 26 for nonwhite and white males and at ages 22 and 24 for nonwhite and white females, respectively. In the rural-farm population, the corresponding ages were 23 and 26 for the males and 20 and 21 for the females.

Similar comparisons emphasize the fact that widowhood is the lot of the Negro woman to a much greater extent than of the white woman. In urban territory, as early as age 58 colored widows are as numerous as their married sisters, but it is not until age 67 has been attained that a corresponding condition prevails among white women. On the farms the married women and the widows are equal in number at age 67 among the nonwhite population and age 72 among the white.

Males of both races have a great advantage over females on the point under consideration. In both the urban and the rural-farm populations, age 80 has been left behind before the number of widowers rises sufficiently to equal that of the married. The colored men make a slightly better showing than the whites in the rural-farm areas, but in the cities the advantage is with the latter.

RESIDENCE AND MARITAL STATUS

There is a very close association between residence and marital status. City life, town and village life, and farm life vary greatly in their power to hold or attract single, married, widowed, and divorced persons. Furthermore, the nature of the social and cultural environments prevailing in each of these residential categories has much to do with whether or not a person marries and, for those who do marry, with whether or not the marriage will be terminated by death or divorce.

The basic rural-urban differences in the marital status of the white population may be observed in Figs. 71 and 72. The comparisons are limited to the white population, since the data for them are much more accurate than those for the nonwhites. The charts are prepared so as to keep the important age and sex differences from obscuring those associated with residence.

The most striking variations to be observed in these charts are among the females. They are all interrelated and may be summarized as follows: Among all age groups the city contains high proportions of spinsters and widows and low proportions of married women. On the farms, on the

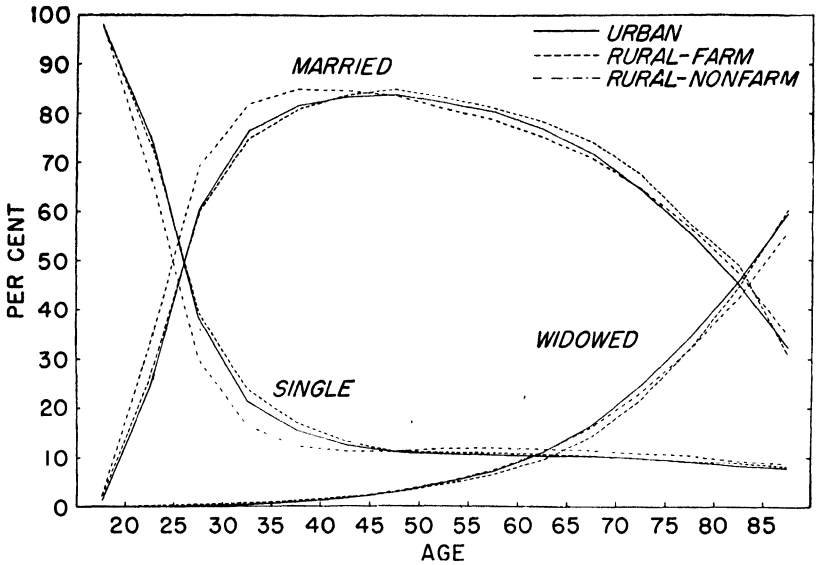


FIG. 71.—A comparison of the marital status of urban and rural white males in the United States, by age, 1940.

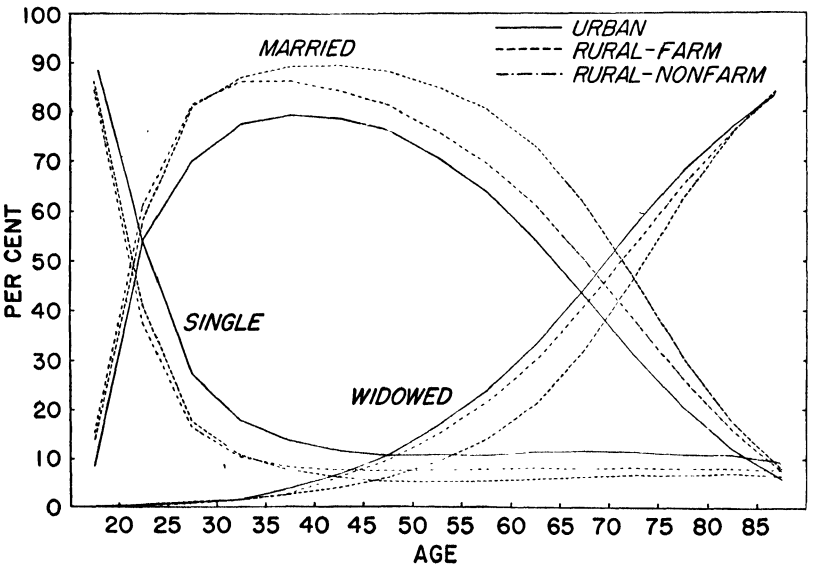


FIG. 72.—A comparison of the marital status of urban and rural white females in the United States, by age, 1940.

other hand, there are in all the age groups very high proportions of married women and relatively few spinsters and widows. The differences, no doubt, are at least partially due to the way in which the sexes are distributed in the various residential groups. In farming areas the excess of males causes wives to be at a premium, so that the woman who lives on a farm has a much better chance of marrying than her city sister. Furthermore, if she should lose her husband, the farm woman is much more likely to find another and less likely to remain a widow than the urban woman. Just the

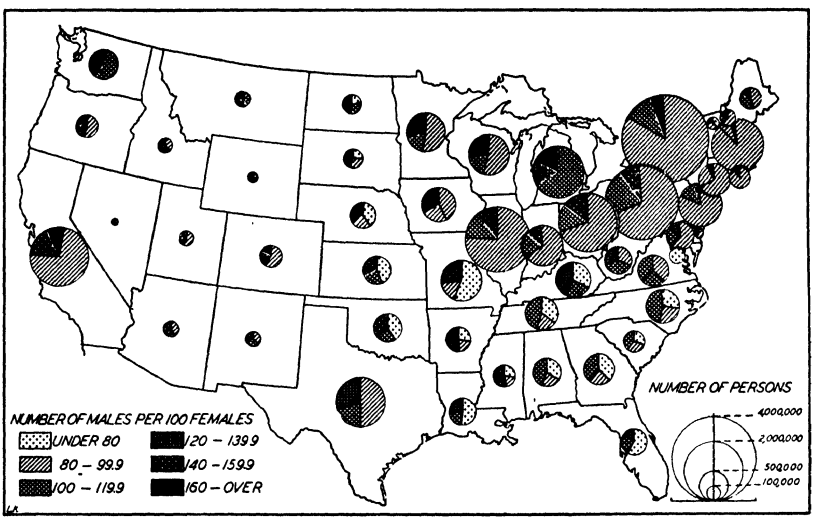


FIG. 73.—Sex ratios among the white population eligible for marriage (15 years of age or more and single, widowed, or divorced) in the United States, by residence, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban, rural-nonfarm, and rural-farm populations, respectively.)

opposite is true in the city where the low proportions of males in the populations means that at all ages there are high percentages of single women. Furthermore, if the city wife loses a husband, the relative scarcity of men makes it harder to secure another. In this we have part of the explanation of why the city contains high proportions of spinsters and widows and low percentages of married women.

The great imbalances in the sex ratio among those eligible for marriage, *i.e.*, amid persons aged 15 years or more who are single, widowed, or divorced, are shown in Fig. 73. Note the great odds in all regions against the single farmer in his search for a wife. Throughout the northern and western states, the rural-farm population contains more than 160 eligible males for each 100 females. (This is one of the chief reasons why the rural

district has such a hard time keeping a schoolteacher.) Even in the South, which has lost so many male migrants to other sections, the ratio is excessively high. On the other hand, in the cities, the meccas of the female population, the odds are all against the unmarried woman who is seeking a mate. Her chances are particularly slim in the urban centers of the southern and the Plains states.

But the rural-urban differences in the marital status of males indicate that more than the sex ratios is involved. Despite the very great disadvantage under which they labor in finding mates, rural-farm men after the age of 40 are more likely to be married than are urban men. The differences are not large; but in view of the tremendous disparity in rural-farm areas between the numbers of males and females eligible for marriage, they should be considered extremely significant. Despite the handicap imposed by the unfavorable sex ratio, the farmer is no more likely to remain a bachelor and quite a little less likely to live out his life as a widower than the city man. This supports the contention often made by the rural sociologist that our family-sized farm system of agriculture in the United States is a way of life and not merely a business enterprise.

The observations may be supplemented with the results of a special study of marital status in the rural-nonfarm and particularly the village population. Owing to the tremendous concentration of the aged in the villages and suburbs, the rural-nonfarm population contains excessively high percentages of the widowed.[3]

NATIVITY AND MARITAL STATUS

The data from the 1930 census makes possible an analysis of the relationship between nativity and marital status and of the similarities and differences between the native whites of native parentage, the native whites of foreign or mixed parentage, and the foreign-born whites. In order to facilitate such an analysis, Figs. 74 and 75 were prepared. They reveal some striking differences among the three categories into which the white population may be subdivided. White males of native parentage marry at an earlier age, are not so apt to remain bachelors for life, and are less likely to be widowed than the immigrant males. Most of these differences probably are due to the great preponderance of males among the foreign-born population. However, the most interesting facts are these pertaining to the status of the second generation, the male children of the immigrants. These native whites of foreign or mixed parentage, who are not handicapped like their fathers by an unfavorable sex ratio, seem to have as much diffi-

[3] SMITH, T. LYNN, "Some Aspects of Village Demography," *Social Forces*, 1941, 15–25.

culty finding mates as the foreign born. The percentage who spend their lives as bachelors is far above that of the sons of native parents. Conversely, at all ages, the former are less likely to be living in the matrimonial condition than the latter. In fact, the sons of immigrant parents are less likely to have a mate than are the foreign born themselves. All of this suggests that the children of the foreign born have a tremendous task in adjusting to life in their parents' adopted country. They cannot, like their

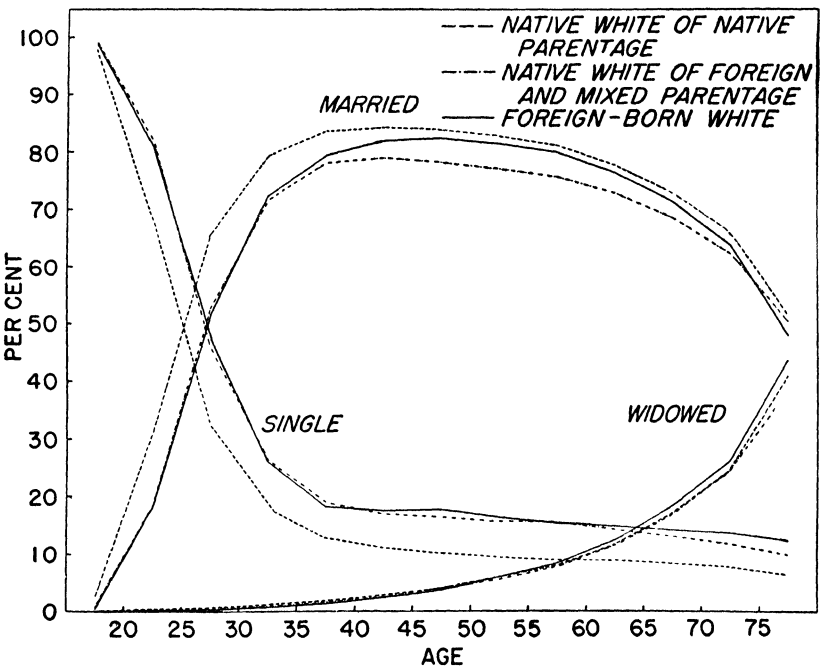


FIG. 74.—A comparison of the marital status of native and foreign-born white males in the United States, by age, 1930.

parents, continue living for the most part in the Old World. Nor can they disassociate themselves completely from many of the social peculiarities that are impressed on them by the cultural heritage which reigns in the homes of many of the foreign born. As a result, there develop severe personality problems and extreme difficulty in gaining complete acceptance into the social groupings that order life in the United States. One expression of these adjustment and personality difficulties is the inability to secure a mate.

The immigrant female is in a much more favorable position from the

standpoint of the chances of marriage than the foreign-born male. For her the sex ratio is extremely favorable. The plethora of eligible males means that very few immigrant women who are in any way suited for marriage will remain spinsters for life. After age 35 the percentage of the single drops to less than 7, a remarkably low proportion. Conversely, the percentage married soars to almost 90 between the age of 35 and 40.

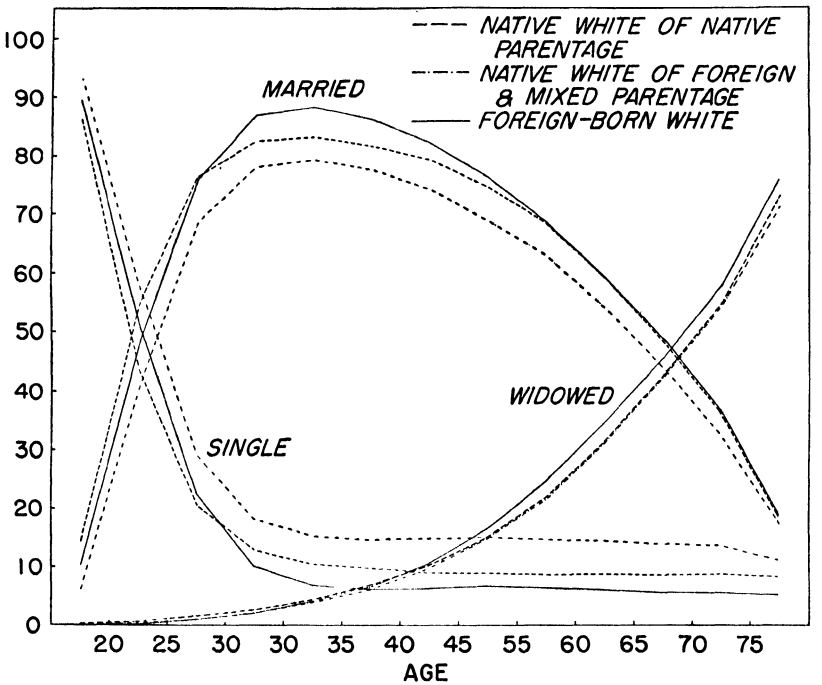


FIG. 75.—A comparison of the marital status of native and foreign-born white females in the United States, by age, 1930.

Because the immigrant females are so unlikely to remain spinsters, the percentage of widows also must be high, even though the eagerness for mates on the part of the immigrant men may make relatively high the widows' chances of remarriage.

The position of the daughters of the foreign born also deserves particular comment. In line with the hypotheses advanced above, large percentages of them are doomed to spinsterhood for life. At all ages they are far more likely to be single and conversely far less likely to be living in the married state than the native whites of native parentage.

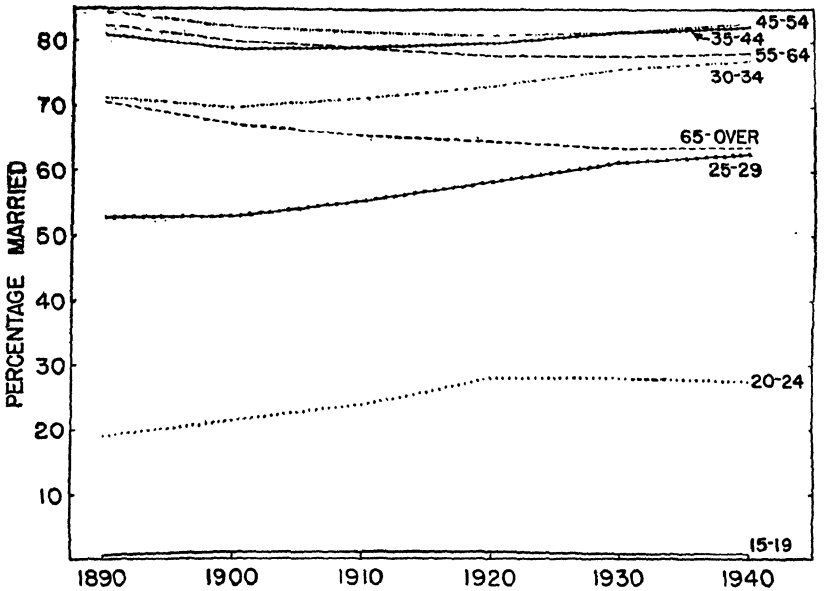


FIG. 76.—Variations in the proportions of married persons in each age group among the male population of the United States, 1890 to 1940.

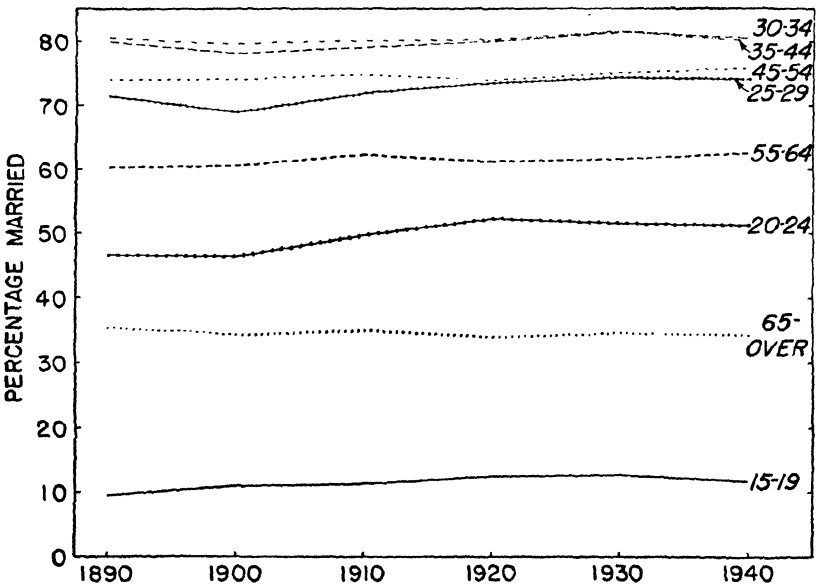


FIG. 77.—Variations in the proportions of married persons in each age group among the female population of the United States, 1890 to 1940.

TRENDS

If the age factor is properly accounted for, it is evident that the proportion of married persons in the population has increased during the last 50 years. However, the gains have not been spectacular, and they were not registered among all age groups (see Figs. 76 and 77). The greatest increases were among males of less than 35 years of age. The percentages

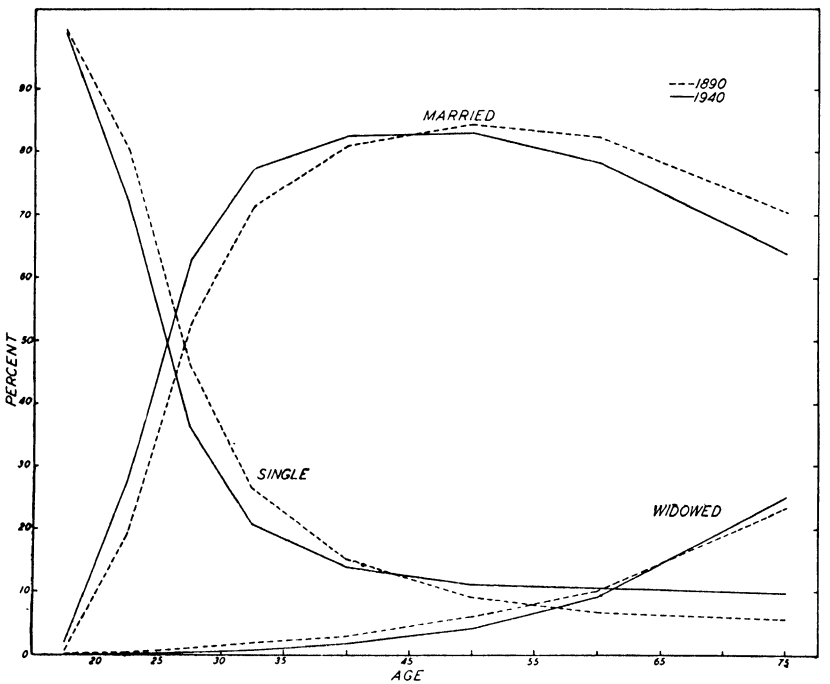


FIG. 78.—Changes in the marital status of males in the United States, by age, 1890 to 1940.

of married men in the more elderly groups actually may be decreasing slightly. Living in the married state may also have increased slightly among females under 30 years of age, but the rise has not been marked. Indeed, for the weaker sex the striking fact is the great stability from one census to another in the proportions falling in the married category.

An increase in the percentage of married persons can occur only if there are compensating changes in the proportions of persons single, widowed, or divorced. The third of these may at once be eliminated from further con-

sideration because the percentage of divorced persons also is increasing and since it is still too small (1.5 per cent in 1940) to account for any great change in either direction. For the other two categories, Figs. 78 and 79 have been prepared so as to allow the detailed information on marital status for the various age groups to be brought to bear upon the proposition under consideration. A study of these two charts should leave no doubt in one's mind but that the married category became more important and the single and widowed groups less important, relatively, between 1890 and 1940.

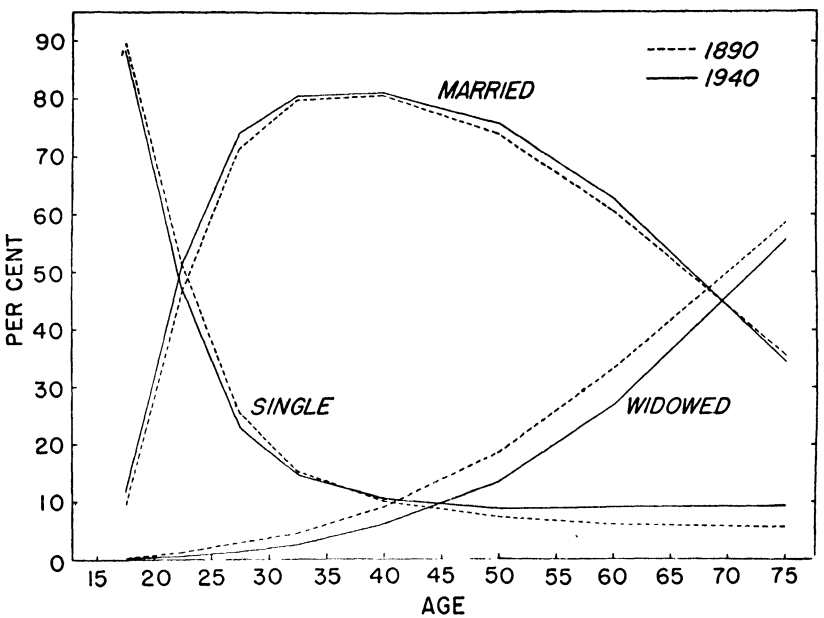


FIG. 79.—Changes in the marital status of females in the United States, by age, 1890 to 1940.

A lowering of the age at marriage seems to have been the big factor. Both men and women, but especially the males, left the state of singleness for one of connubial bliss at an earlier age in 1940 than in 1890. However, by 1940 larger proportions of both men and women were living out their lives without contracting marriage than was the case in 1890. The proportions of widowed showed striking decreases at nearly all ages, a tendency that has been especially pronounced among the women. This suggests that most of the increase in the proportion of married among women of over 35 is due to the reduced mortality among the men of corresponding age. Elderly men were less likely to be living in the married state in 1940 than was the case in

1890. The compensatory change was the increase in aged males of the single category. Although the hypothesis cannot be put to the test, one is inclined to attribute the change to the tremendous immigration that brought millions more males than females to the United States in the opening decades of the twentieth century. By 1940, most of the immigrants who came between 1900 and 1914 would be above 50 years of age.

Chapter 7

EDUCATIONAL STATUS

THE educational status of the population is important as a gauge of the extent to which social telesis is being applied by a given society or any part of it. Modern living takes for granted the ability to read well, write legibly, and facility in making and checking rather involved calculations. This is true for persons in all walks of life—on the farm and in the village as well as in the town or in the city. In the world in which we live the amount of schooling received by the children is a direct reflection of the effort that parents, the community, the state, and the nation are putting forth for the well-being of the oncoming generation. The number of years of formal schooling attained by the general population is the measure of the efficiency in the use of the large class of expenditures in the family budget that specialists designate as for "advancement" or "cultural purposes." It also is closely related to what people receive for the portion of their income going for taxes. For the student of demography, educational status undoubtedly is one of the very best indicators of the quality of the population.

MEASUREMENT AND INDEXES

Until recently the percentage of illiteracy, *i.e.*, the proportion of the population unable to read and write, has been almost the only index available for use in measuring the educational status of a population. On the whole, this has proved to be a most unsatisfactory gauge for determining the educational standing of any one group or for making comparisons between two or more groups. Frequently the percentage has been based on the entire population, the investigators omitting even such an elementary refinement as the exclusion of children who were too young to have acquired the skills involved. Also it is likely that there has been very little agreement upon the criteria used in classifying persons as able to read or to write. Even in the United States it is not unknown for a state or a county to attempt to improve its standing by putting on an extensive campaign to teach enough illiterates to sign their names and read enough letters so that they might be reported as literate in a census soon to be taken. Finally, in some parts of the world such as northwestern Europe, the United States, Canada, Australia, and New Zealand, the proportions of illiteracy have

been reduced to such small figures that the mere percentage has very small value for either diagnostic or comparative purposes. However, as late as the 1930 census the data on illiteracy were the only kind available concerning the educational status of the population of the United States.

At long last, in 1940, the Bureau of the Census included on the regular population schedule a query about the number of years of schooling completed. Fortunately, this question was included and tabulated in such a manner that the data concerning this fundamental personal characteristic could be cross-tabulated with and related to those pertaining to age, sex, residence, race, etc. The published tabulations contain the most complete and accurate data that have ever been available to demographers and students of education in this country. The manner in which they are cross-tabulated with other significant characteristics probably is unequaled in the censuses of any other country.

From now on those interested in the educational status of the population will be able to develop a wide variety of measurements and indexes, some of them specific for almost any particular problem at hand. For general uses, however, some sort of average of the years of schooling obtained is likely to prove most desirable. The median years of schooling obtained is already included in many of the census tabulations and is certain to be the one most widely used. For special purposes such indexes as the percentages of the population who have completed high school or college may be particularly helpful. Those who value comparability above all other virtues in demographic data may be fairly certain that the percentages who have received no schooling at all is a close approximation of the proportion of illiteracy. These three—median years of schooling received, percentage with no schooling, and proportion finishing high school—taken together offer ample opportunity for making many of the important comparisons.

THE WORLD SITUATION

As yet very little that is accurate may be said concerning the relative positions of the populations of various countries upon any scale measuring educational status. At best we have for part of the nations a few data, probably lacking in comparability, relative to the proportions of illiteracy. Even such information has not been assembled and collated in the major compendium of demographic data, the *Statistical Yearbook of the League of Nations*, and it is very fragmentary in the *Apeçru de la démographie des divers pays du monde* of L'Institut International de Statistique. Nor is it included in the various yearbooks of educational information. One looks in vain for comparative materials dealing with educational status in the *Educational Yearbook* put out by Columbia University, the *Annuaire international de*

l'education published in Geneva by the Bureau International d'Education, or *The Yearbook of Education*, for which the Institute of Education at the University of London is responsible. None of these make any pretense of supplying the basic facts about the educational attainments of various populations. They are concerned with organization and methods, obviously not with results. Therefore, anyone attempting a thoroughgoing international comparison of educational status is faced with a long and arduous task. Statements that the population of this or that country are the most literate in the world are relatively easy to find, but the data to check the bases for the assertions are not so readily forthcoming. When some are discovered, a host of questions immediately arise concerning their comparability.

There is one study, however, that provides some basis for comparisons, even though the data are now rather out of date. This is *Illiteracy in the Several Countries of the World* by James F. Abel and Norman J. Bond.[1] The authors were fortunate in being able to conduct the study as official business of the government of the United States. They were thoroughly aware of the inaccuracies in the various ways in which the data were assembled in the several countries, and they spared no pains in making the figures as comparable as possible. We are not likely to have another such complete analysis in the very near future.

Even though their data apply mostly to the year 1920 or thereabouts, it is interesting to note a few of their principal findings. Consider first the omissions. Germany, Austria, Iceland, Albania, Greece, China, French Indo-China, the majority of the countries of the Middle East, and many of the South American republics all helped account for the 40 per cent of the earth's inhabitants for whom no data were available. On the basis of the facts assembled, the authors concluded that the lowest proportions of illiteracy in the world were found in the three Scandinavian countries and in Switzerland. Closely rivaling these four in having little or no illiteracy were Belgium, Czechoslovakia, Eire, England and Wales, France, the Netherlands, North Ireland, and Scotland. Even though the United States had admitted a tremendous immigrant population, 13.1 per cent of whom were illiterate, and had failed to provide schooling for considerable portions of its Negro population, it was still the only nation with as many as 100 million inhabitants in which the proportion of illiteracy was less than 10 per cent. Japan reported a rate of less than 1 per cent, which the authors showed was probably fictitiously low. Canada, Australia, New Zealand, and other European or North American settlements, such as the European

[1] United States Bureau of Education Bulletin No. 4, Government Printing Office, Washington, 1929.

colony in the Union of South Africa, Samoa, and the Canal zone, were the only other areas in which illiteracy was less than 10 per cent.

Areas in which the proportions of illiteracy were between 10 and 20 per cent included Estonia, Hawaii, and Hungary. The group with from 20 to 30 per cent illiteracy embraced Alaska, Argentina, Italy, Latvia, and Newfoundland and Labrador. In Cuba, Finland, Lithuania, Poland, Uruguay, and Yugoslavia, the percentages of illiteracy varied between 30 and 40. The next class, consisting of the areas with 40 to 50 per cent illiteracy, was composed of Bulgaria, Chile, Jamaica, Rumania, and Spain.

In the remainder of the areas for which data were secured, over one-half of the population fell in the illiterate category. Countries and colonies with percentages varying between 50 and 60 included Ceylon, Colombia, British Guiana, British Malaya, Mexico, the Philippine Islands, Puerto Rico, and Russia. The next class below, having from 60 to 70 per cent illiteracy, was made up of Brazil, Nicaragua, Portugal, and Venezuela. The Dominican Republic was credited with 70 per cent illiteracy; Guatemala with 87; the Union of South Africa, 90; India, 91; Egypt, 92; and the Dutch East Indies, 95.

Even though great changes have taken place since these data were assembled, they give a general idea of the variations in educational status throughout the world. They also reveal how much remains to be done in this field. It should be repeated that only when the practice of determining the number of years of schooling obtained by the population is generally included as an integral part of the population census will it be possible to make satisfactory comparisons and judgments.

EDUCATIONAL STATUS IN THE UNITED STATES

Among the population of the United States aged 25 and over, the average (median) years of schooling completed was equal to 8.4 in 1940.[2] This indicates that the nation has gone a long way in putting into practice its philosophy that educational opportunities should be extended to the masses making up its population. It is doubtful that anything comparable to this amount of schooling for the common man in a large population has ever been equaled. Furthermore, the direction of the trends at the time when the inventory was made offer promise that by 1950 an already high educational status will have been considerably heightened. As will be indicated below, there is still much room for improvement, and merely by extending better educational opportunities to the rural districts and to the members of the

[2] The data in this section were assembled from those given in the *Sixteenth Census of the United States, 1940, Population*, vol. II, *Characteristics of the Population*, national and state tables numbered 13.

colored races we may hope to make considerable advances in our general educational standing.

In addition to the different amounts of schooling provided to males and females, the principal variations in educational status are those among the races, the various residential groups, and the different regions of the country. An adequate understanding of the total situation can be secured only after each of these has been analyzed in conjunction with the others.

Differences between the Sexes.—In the United States there is a slight, but consistent, tendency for girls to be given more education than boys. Thus, in 1940, women aged 25 years and over had received an average of 8.5 years of schooling, as compared with only 8.3 for the men. Among both native whites and Negroes the differential favorable to the women prevailed in all three of the residential categories, urban, rural-nonfarm, and rural-farm. It was especially pronounced among rural-farm Negroes, a category in which the males had received only 3.7 years of schooling compared with 4.7 years obtained by the women. The significance of this consistent differential is still further emphasized by the fact that among the foreign-born white population and also among persons of other races, the difference is favorable to the men. Furthermore, there is not a single state in the Union in which the average number of years' schooling received is not greater for the women than for the men. Thus, the differential is established as prevailing among both the principal racial groups, irrespective of whether they live in rural or urban areas, and extending throughout the entire nation. It can truly be referred to as a national characteristic. That it is based on sound assumptions also would be affirmed by the sociologist, who could easily demonstrate that the woman's role in passing on the cultural heritage to the oncoming generation is far more important than that of the man.[3]

Residential Differentials.—Our society is still failing by a wide margin to provide for the farm population educational opportunities equal to those enjoyed by the inhabitants of the towns and cities. Since probably as many as one-half of all the farmers' sons and daughters who attend or fail to attend rural schools will spend the bulk of their lives in some urban area, this is a matter of grave national import. Consider some of the data, especially those based upon the median number of years of schooling, percentages of the population receiving no schooling, and the proportions completing high school, that are presented in the four maps, Figs. 80 through 83. To

[3] In studies of other societies where men are receiving more formal education than the women, the author has had occasion to challenge the validity of the assumptions upon which the differentials were based. See, for example, T. Lynn Smith, Justo Diaz Rodriguez, and Louis Roberto Garcia, *Tabio: Estudio de la organización social rural*, p. 23, Editorial Minerva, Ltda., Bogotá, 1944.

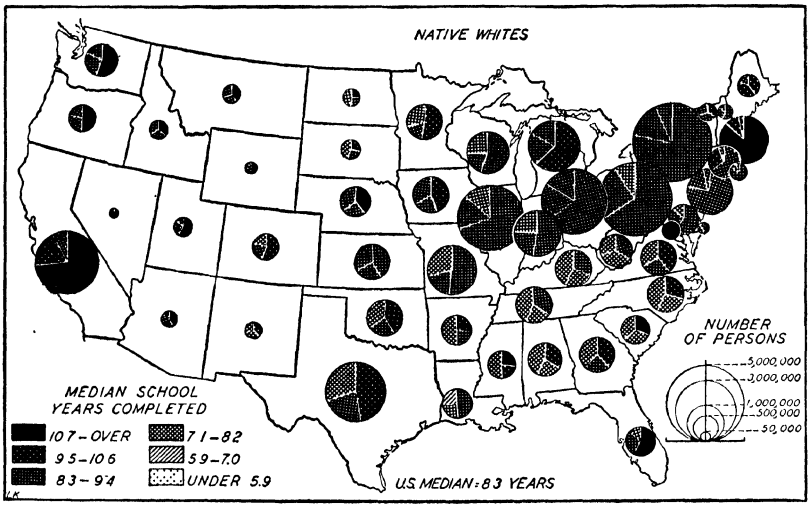


FIG. 80.—Variations in the median number of years of schooling received by the native white population aged 25 years and over, by residence, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban, rural-nonfarm, and rural-farm populations, respectively.) *(Reproduced from a forthcoming Louisiana Agricultural Experiment Station bulletin by T. Lynn Smith and Louise Kemp.)*

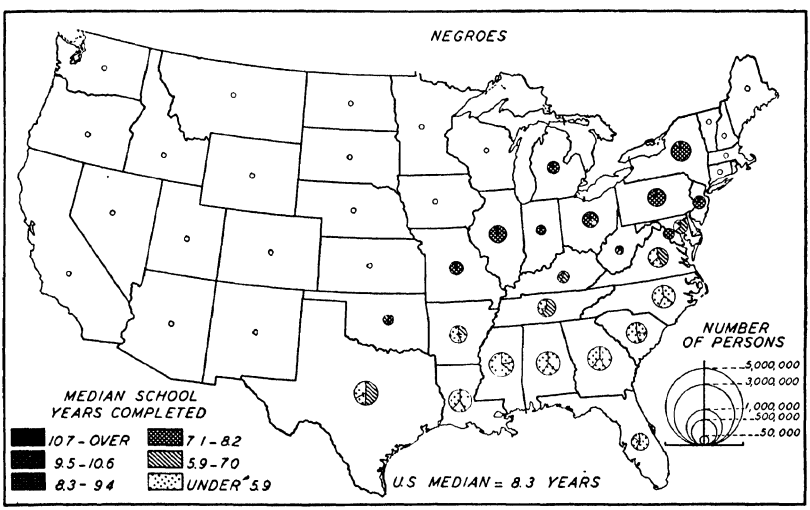


FIG. 81.—Variations in the amount of schooling received by the Negro population aged 25 years and over, by residence, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban, rural-nonfarm, and rural-farm populations, respectively.) *(Reproduced from a forthcoming Louisiana Agricultural Experiment Station bulletin by T. Lynn Smith and Louise Kemp.)*

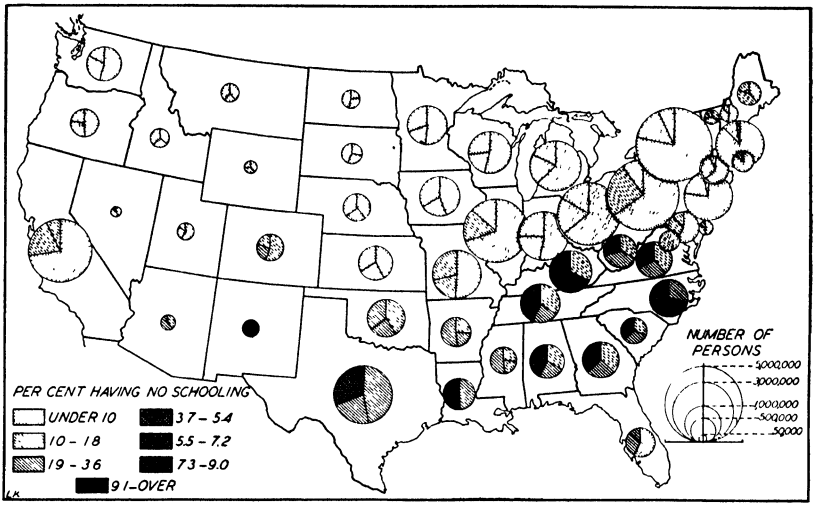


FIG. 82.—Variations in the proportions of the native white population aged 25 years and over who received no formal schooling, by residence, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban, rural-nonfarm, and rural-farm populations, respectively.) (*Reproduced from a forthcoming Louisiana Agricultural Experiment Station bulletin by T. Lynn Smith and Louise Kemp.*)

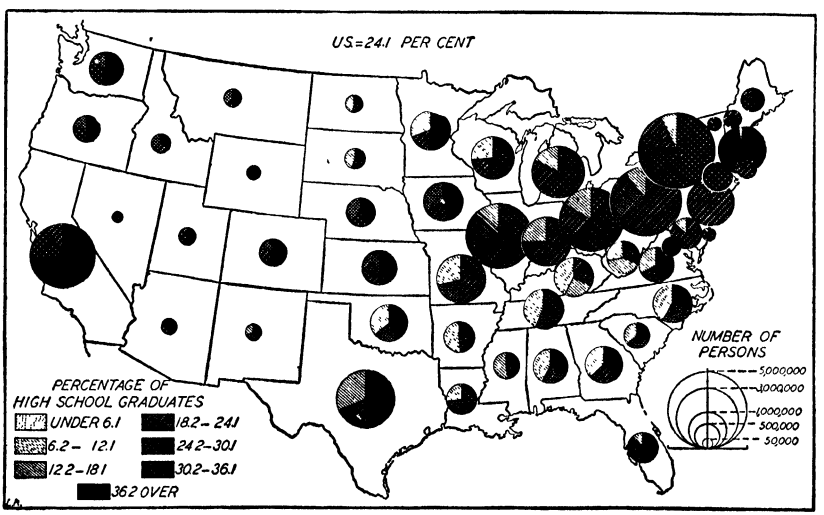


FIG. 83.—Variations in the proportions of the native white population aged 25 years and over who had completed high school, by residence, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban, rural-nonfarm, and rural-farm populations, respectively.) (*Reproduced from a forthcoming Louisiana Agricultural Experiment Station bulletin by T. Lynn Smith and Louise Kemp.*)

facilitate the making of both residential and racial comparisons exactly the same scales were used for both whites and Negroes.

In 1940 among the native whites in the United States those classed as rural-farm had received on the average only 8.0 years of schooling, as compared with 8.6 years for the residential hodgepodge that is called rural-nonfarm, and 9.6 in urban districts. For Negroes these residential differences are even more striking, the 4.1 average in rural-farm areas comparing quite unfavorably with the 5.0 and 6.8 for rural-nonfarm and urban areas, respectively. Much the same is the situation among the persons classed in the other races category, where the averages are 5.4 for the rural-farm, 6.7 for the rural-nonfarm, and 6.8 years for the urban populations. Only among the foreign-born whites is there no pronounced residential differential. Immigrants who settled in rural areas had received about as much education as those who lodged in the cities, for the medians are 7.2, 7.3, and 7.4 years for the rural-farm, rural-nonfarm, and urban populations, respectively. These data leave no doubt about the fact that the farmers of the nation rank far below the inhabitants of villages, towns, and cities in the amount of schooling received. Much the same general picture would evolve if the comparisons were based either upon the percentages of the population receiving no schooling or upon the proportions completing high school. Furthermore, the unfavorable showing of the rural population is true for each of the age groups. It cannot be attributed to the concentration of old people, who as a group received comparatively little schooling, in the rural areas.

Observation of the four maps prepared for the purpose of presenting the state data on this subject in a convenient and usable form indicates that the unfavorable relative position of the farm population is nation-wide, but it also shows that the differential is much less pronounced in some sections of the country than in others. Sure to catch the eye is the great disparity in the South between the average amount of education obtained by the rural-farm and that received by the urban population. This is the least pronounced in the areas east of the Mississippi and north of the Ohio. In such states as New York, Ohio, and New Jersey, the averages for the three residential categories are not far apart, whereas in Louisiana and most of the other southern states there is a much greater contrast. Thus if we consider the native white population, in New Jersey the medians are 8.9, 8.7, and 8.3 for the three categories, urban, rural-nonfarm, and rural-farm, respectively, and in Pennsylvania the comparable figures are 8.8, 8.3, and 8.1 years. In these and most of the other states in that section of the country, the differential between the urbanites and the farmers is less than 1 year. This contrasts very sharply with the situation among the native white population in the southern states. Here are found differences such as those

exhibited in Alabama, where the figures were 10.3 for the urban, 8.2 for the rural-nonfarm, and 7.1 for the rural-farm categories; in Mississippi, where they were 11.7, 9.9, and 8.1; or Louisiana, where they were 9.1, 8.1, and 6.3. In these states and most of the others in the southern region, the average number of grades completed by the farmers is at least 3 years below the figure attained by urban people. These prosaic numerical data indicate the existence of a vast difference in the educational opportunities open to southern farm youth in comparison with those available in other sections of the country and especially in comparison with those open to their fellows in southern towns and cities.

A word is also necessary about the differentials that prevail among the native whites in the Far West. As compared with farm people in other sections of the country, those living in the Rocky Mountain and Pacific areas make a very good showing. However, even though their national standing is favorable, they are at a considerable disadvantage in relation to the urban inhabitants of the same regions.

Analyses of the percentages never completing a single grade of school merely support the conclusions already advanced, but those of the proportions of high-school graduates in the general population bring out several important new points. Figure 83, presenting the data for the native whites, deserves careful attention. It makes evident the fact that rural-farm children are far less likely to be privileged to continue their studies until the high-school course has been completed than are village, suburban, and urban children. This index reveals that the rural child living in the area east of the Mississippi and north of the Ohio, as well as the one born in the South, is at a great disadvantage from the educational standpoint. Only in the Far West is the gap separating the rural and urban categories at a minimum. Taken in connection with the other indexes used, this means that throughout our great midwestern and northwestern sections more than half of our farm children are now completing the eighth grade of elementary schooling, so that the median does not reveal the true extent to which they are at a disadvantage in comparison with their fellows in the towns and cities. It also brings out the point that the median years of schooling is an index which should be used with some caution; perhaps we have already reached the point at which the proportion of persons completing 10 years or more of schooling or even the percentage completing high school would be more satisfactory as a yardstick for use in measuring the educational status of our own population.

There is one more aspect of these residential differences in educational status that should not be passed by without mention. As indicated in Chap. 3, there is a great tendency for the foreign born and their descendants to be concentrated in the urban districts whereas the old American stock,

both white and Negro, is disproportionately represented in the rural areas. In providing better educational facilities and opportunities in the nation's towns an dcities it would seem that we are favoring the children of the immigrants to the disadvantage of the descendants of the old American stocks.

Racial Differentials.—The nature of the differences in the amounts of formal schooling received by the several race and nativity groupings in our population is fairly indicated by the median number of years of schooling completed by the population aged 25 years and over. These are as follows: native whites, 8.8; foreign-born whites, 7.3; Negroes, 5.7; and other races, 6.8. Similar differences would be exhibited were the comparisons based on the proportions never attending school or the percentages of high-school graduates. The relatively poor standing of the Negro population calls for additional analysis and comment.

American Negroes, as a group, rank well among the peoples of the world with respect to the average amount of formal schooling attained. Measured by percentages of illiteracy, median number of years of schooling completed, or proportion of high-school graduates, they do not suffer by comparison with the populations of any part of the world except those of a few countries in northwestern Europe, the white populations of Australia and New Zealand, Canada, and (possibly) parts of the Soviet Union. Certainly they have received much more formal education than the population of any Latin-American country, than the inhabitants of southern and eastern Europe and the peoples of Africa, not to mention the hordes of poorly educated Asiatics. But in comparison with their white fellows in the United States (and this is the single fact which counts most from the standpoint of the individual's self-respect and social adjustment) they have been privileged to receive little formal schooling. Along with the nation's farmers they stand in a disadvantageous position, educationally, in comparison with the other groups that make up our society.

The rural Negro and the urban Negro and both of these in all of the sections of the country have received less schooling than their white countrymen. This is at once apparent if Fig. 80 is compared with Fig. 81. For the United States as a whole, the differentials are clear and sharp. Thus, in 1940, in urban areas the median years of schooling received by Negroes was only 6.8 compared with 9.6 for native whites; in rural-nonfarm areas the corresponding medians are 5.0 and 8.6; and in rural-farm areas they are 4.1 and 8.0 years, respectively. It is also interesting to note that the gap existing between the educational attainments of Negroes and the foreign-born whites or the other races is by no means so great as the one existing between the amount of schooling obtained by either of these categories and that obtained by the native white population.

Regional Differentials.—The new data make necessary some revisions in the stereotypes existing generally in the public mind relative to the educational standing of the various regions or sections of the country. The picture is not so simple as it would be if racial and residential differences were ignored and the judgments based upon the proportions of illiteracy.

A study of the regional variations exhibited in Figs. 80 to 83, inclusive, indicates that the Far West is the region in which the educational status of the population is highest. A serious rival appears only in the single state of Massachusetts. Taking all groups and classes—white and Negro, rural and urban—together, the South ranks at the bottom of the scale. However, in the South the situation is particularly complex. It will come as a surprise to many to find that the urban white population of the South stands very high. In fact, the highest median years of schooling attained by any racial group in any residential category is in much picked-on Mississippi, where the urban native white population in 1940 had received an average of 11.7 years of schooling. This is to be compared with 11.5 years in Utah, the runner-up; 11.4 in California; 11.3 in Nevada; 11.3 in South Carolina; and 11.0 in Florida, North Dakota, and Washington, which follow in the order named. It is also to be compared with the 9.0 in Connecticut; 8.9 in New Jersey, West Virginia, Wisconsin, and Indiana; 8.8 in Missouri, Rhode Island, and Pennsylvania; 8.6 in Kentucky; and 8.5 in Maryland, the states that made the poorest showings. In other words, the South ranks low, not because its urban people are not so well educated as those in other sections of the country, but because the region's large farm population and Negro population are not provided with educational opportunities equal to those enjoyed by their fellows in other sections of the country or to those of the white people living in southern towns and cities.

This indicates the necessity of comparing the regions with respect to the differentials existing between the educational attainments of the rural and the urban populations. It is possible to do this only for the native white population, since the regional and residential concentrations of the Negroes and the foreign-born whites make nation-wide comparisons for them almost meaningless. Observation of the data for native whites, however, indicates that the South is the area in which the great differences appear whereas the section east of the Mississippi and north of the Ohio is the one in which the educational attainments of the farm population is most nearly equal those of urban people. The rural-farm population of the western states stands well in comparison with their fellows in other sections of the country, but even there the very high rating of the urban population makes for a considerable differential between the educational attainments of the farmers and the inhabitants of towns and cities.

Chapter 8
OCCUPATIONAL STATUS

Among all of the social attributes of a given individual or group, occupation is of paramount importance. It is particularly significant for the population analyst, since to a considerable extent the nature of a person's work determines the surroundings, both physical and cultural, amid which he lives. These physical and cultural stimuli react upon man's biological make-up to determine his specific personality traits and also have much to do with most of the fundamental demographic phenomena such as marital status, longevity, and reproduction. The subject is so large, occupies the time and attention of so many specialists, and encompasses such a vast literature that it cannot be treated in detail in a single chapter. An adequate analysis of the labor force alone would necessitate a book fully as large as this one. But the student of population must deal with occupation to some extent, since it exerts such a strong influence upon so many population characteristics and demographic processes.

Immense quantities of data concerning the occupations of the nation's people are collected periodically by the Bureau of the Census. The same is true in other countries where it is not unusual for the enumeration to be called the Census of Population and Occupations. In this country the collection of data on occupations by the Census Bureau was begun in 1820, when information was secured on the number of persons in each family who were engaged in the three fields of agriculture, commerce, and manufacturing. Slaves were considered as part of the family. Following 1820 the work of differentiation went on rapidly. By 1840 the classification included seven industries, *viz.*, mining; agriculture; commerce; manufactures and trades; navigation of the ocean; navigation of canals, lakes, and rivers; and "learned professions and engineers." The differentiation continued as one census after another was taken, and in 1940 the nation's labor force was classified into the following industrial categories: agriculture, forestry, and fishery; mining; construction; manufacturing; transportation, communication, and other public utilities; wholesale and retail trade; finance, insurance, and real estate; business and repair services; personal services; amusement, recreation, and related services; professional and related services; government; and industry not reported.

THE LABOR FORCE

Prior to 1940 our occupational statistics suffered from two serious defects: (1) the failure to make a primary distinction between those persons who were working on their own account and those who were working for someone else and (2) the lack of a thoroughgoing and consistent procedure for classifying the population along both industrial and occupational lines. Moreover, the list of specific occupations had become so long that it filled a large volume and rather successfully defied comprehension. Fortunately, the 1940 census introduced fundamental revisions that helped greatly in the correction of these defects. In the Sixteenth Census, vol. III of the Population Census is devoted to the labor force. In five bulky parts, it gives details of occupation, industry, employment, and income. As yet inadequately analyzed, these reports constitute a rich mine of information. Even though partially outmoded by wartime changes, these materials still merit more study than is being given to them.

In 1940 the number of persons 14 years of age and over in the United States totaled 101,102,924 persons. Of these 52,789,499, or 52.2 per cent, were classed as being in the labor force and the remainder as not in the labor force. This labor force consisted of 39,944,240 males and 12,845,259 females, or 79.0 and 25.4 per cent, respectively, of all males and females 14 years of age and over.

The lion's share of those counted as not in the labor force was classified as "engaged in own home housework." This category included 28,931,869 persons, of whom all but 267,125 were females, or 28.6 per cent of the persons 14 years of age and over. In school is the second largest category of those not in the labor force, the total being 9,010,343 (8.9 per cent of those aged 14 and over), of whom 4,593,630 were males. Another 5,268,727 individuals were counted as unable to work, 1,176,993 as in institutions, and 3,922,494 more as other and not reported.

EMPLOYMENT STATUS

Data from the 1940 census enabled us to know for the first time the relative importance of "employers and own-account workers" and "wage or salary workers" in the occupational structure of the United States. The former numbered only 9,980,832, or 18.9 per cent, and the latter totaled 40,575,682, or 76.9 per cent of the labor force. There were also 1,465,644 persons classed as unpaid family laborers and 767,341 as new workers. Those employed by the government made up 6,737,140 (2,529,606 men and women engaged in public emergency work included) of the wage or salary workers. Women are far less likely to be directing the enterprise in which

TABLE 14.—EMPLOYMENT STATUS OF THE LABOR FORCE IN THE UNITED STATES, BY SEX AND RESIDENCE, 1940*

Residence and sex	Percentage classified as			
	Wage or salary workers	Employers and own-account workers	Unpaid family workers	New workers
All males	73.7	22.6	2.6	1.2
All females	86.8	7.5	3.3	2.4
Urban males	86.0	12.4	0.2	1.4
Urban females	89.7	6.3	1.5	2.4
Rural-nonfarm males	83.1	15.1	0.5	1.3
Rural-nonfarm females	86.4	8.6	2.8	2.3
Rural-farm males	35.4	53.9	10.2	0.5
Rural-farm females	64.2	14.9	18.9	2.0

* SOURCE: *Sixteenth Census of the United States, 1940, Population*, vol, III, *The Labor Force, Occupation, Industry, Employment and Income*, Part 1, p. 7.

they are employed than are men (see Table 14). Only among the rural-farm males are employers and own-account workers in the majority. In urban districts only one in eight males is self-employed, and in the rural-nonfarm areas the proportion is only slightly higher.

CLASSIFICATION OF OCCUPATIONS

The classification of the tens of thousands of particular occupations into eight large groups in the census of 1940 did much to bring order out of the chaos that existed in the previous enumerations. This is not to say that the classificatory system employed is entirely satisfactory. For many purposes, one fundamentally like that used in Great Britain would prove more adequate, one in which the categories correspond in a general way to position on the social scale. In Great Britain the members of the professions make up the first and highest category, and the unskilled laborers are placed in the fifth and lowest one. However, the 1940 classification represents a great advance over earlier procedures. The categories employed and the absolute and relative importance of each among workers of both sexes are set forth in Table 15.

Operatives and kindred workers, it will be seen, make up the largest of the eight categories. Taken alone this is likely to give a faulty impression

concerning the importance of the skilled industrial worker in our society. A more detailed analysis of the group indicates that of 8,252,277 employed persons in this category, only 3,899,633 were engaged in manufacturing. It also included 1,508,421 chauffeurs, truck drivers, and delivery men; 213,315 attendants at filling stations, garages, parking lots, and airports; 651,013 mine operatives and laborers; and all those classed as brakemen and switchmen on the railroads, streetcar conductors and motormen,

TABLE 15.—OCCUPATIONAL CLASSIFICATION OF THE EXPERIENCED LABOR FORCE OF THE UNITED STATES, BY SEX, 1940*

Occupational category	Total		Male		Female	
	Number	Per cent	Number	Per cent	Number	Per cent
Total	52,022,000	100.0	39,482,000	100.0	12,540,000	100.0
Professional and semiprofessional workers	3,549,000	6.8	2,006,000	5.1	1,543,000	12.3
Proprietors, managers, and officials (including farm)	9,027,000	17.4	8,443,000	21.4	584,000	4.7
Clerical, sales, and kindred workers	8,308,000	16.0	4,810,000	12.2	3,498,000	27.9
Craftsmen, foremen, and kindred workers	5,877,000	11.3	5,752,000	14.6	125,000	1.0
Operatives and kindred workers	9,416,000	18.1	7,010,000	17.8	2,406,000	19.2
Protective service workers	741,000	1.4	733,000	1.9	8,000	0.1
Service workers except protective	5,517,000	10.6	1,900,000	4.8	3,617,000	28.8
Laborers, including farm	8,605,000	16 5	8,139,000	20.6	466,000	3.7
Occupation not reported	982,000	1.9	688,000	1.7	294,000	2.3

* SOURCE: *Sixteenth Census of the United States, 1940, Population*, vol. III, *The Labor Force, Occupation, Industry, Employment, and Income*, Part 1, p. 10.

laundry operatives and laundresses (except those engaged by private families), and a host of other miscellaneous activities.

The second largest group, that of proprietors, managers, and officials, is somewhat more satisfactory. The presence of 5,106,711 farmers (owners and tenants) in the groups indicates that the family-size farm continues to be a powerful factor in the preservation of the middle-class nature of our society. However, it should be pointed out that the 328,177 sharecroppers enumerated in the 1940 census are, of course, included in this figure and

that it should be properly discounted to allow for them. Proprietors and managers of retail trade businesses other than eating and drinking places numbered 1,404,322, and those of eating and drinking establishments totaled 265,583. The construction industry accounted for 114,966 of the persons in this category, manufacturing for 420,368, transportation for 140,134, wholesale trade for 234,326, and mining for 30,841. Thus, the class reflects the importance of the small businessman in our social fabric, even though it also includes railroad conductors, postmasters, and miscellaneous government officials, advertising agents, union and lodge officials, and so forth.

In view of the fact that so many occupations which call for a minimum of skill are classed elsewhere, no great importance should be attached to the relatively small numbers of persons in the laborer category. Farm laborers and foremen totaled 3,090,010, or over one-half of the 6,094,138 employed laborers. Of these more than one-third (1,165,120) were counted as unpaid family laborers. Manufacturing, with 1,309,900, is the industry in which the largest proportion of the remainder were engaged, with construction activities accounting for 437,834, the railroads for 213,097, wholesale and retail trade 210,509, and transportation except railroads 84,277.

From the logical point of view, clerical, sales, and kindred workers is one of the most satisfactory of the categories. Of course, real-estate dealers, members of commission firms, insurance agents, and brokers might think that they should be placed with the proprietors, managers, and officials instead of in a class with newsboys, hucksters, and messengers. However, the great bulk of the group is made up of salesmen and saleswomen, 1,745,552; stenographers, typists, and secretaries, 1,056,886; clerical and kindred workers, 1,934,027; and bookkeepers, accountants, and cashiers, 856,448.

The composition of the class designated as craftsmen, foremen, and kindred workers also is closely in line with what the name would lead one to expect. Foremen not elsewhere classified number 522,404, of whom 289,977 were engaged in the manufacturing industry. The numbers in some of the important trades or crafts are as follows: bakers, 129,056; blacksmiths, forgemen, and hammermen, 72,246; carpenters, 558,313; electricians, 197,222; locomotive engineers, 69,496; locomotive firemen, 43,851; machinists, 477,373; masons, tile setters, and stonecutters, 102,436; automobile mechanics and repairmen, 376,985; painters, 322,159; plasterers and cement finishers, 52,140; plumbers and gas and steam fitters, 173,915; shoemakers and repairers (not in factory), 60,195; and tailors and furriers, 121,492.

The class of professional and semiprofessional workers is too heterogeneous to justify placing it at the top of any scale of social status. Not only does it include chorus girls and healers, along with the doctors, lawyers, and engineers, but 463,456 unidentified "semiprofessional workers" have been placed in this category. The number of persons employed in some selected professions is as follows: actors and actresses, 11,692; architects, 20,376; authors, editors, and reporters, 70,059; clergymen, 136,597; chiropractors, 10,629; college presidents, professors, and instructors, 75,007; dentists, 70,121; civil engineers, 80,362; lawyers and judges, 177,643; musicians and music teachers, 129,256; optometrists, 10,237; osteopaths, 6,007; photographers, 33,701; physicians and surgeons, 164,649; religious workers, 34,672; social and welfare workers, 69,677; teachers not elsewhere classified, 1,019,760; and veterinarians, 10,717.

The grouping of service workers except protective is among the most satisfactory of the categories. Persons engaged in domestic service make up almost one-half of the total number of employees of this kind, and of these 1,556,402 were servants, 635,320 housekeepers, and 189,592 laundresses in private families. Other important occupations included in the group, with the number of persons working at each, are as follows: barbers, beauticians, and manicurists, 416,031; charwomen, janitors, and porters, 575,624; cooks, other than private family, 276,646; elevator operators, 76,806; and waiters and bartenders, 640,490.

The class of protective service workers includes only four subgroups: fire-department firemen, 77,782; guards and watchmen, 212,259; policemen, sheriffs, and marshals, 171,568; and soldiers, sailors, marines, and coast guards, 219,925. The wisdom of having these set apart in a separate category might be challenged.

INDUSTRY

The 45,166,083 members of the labor force who were employed other than on emergency work in 1940 were also classified according to the industry in which they were engaged. These are the data on occupations which are most nearly comparable to those secured in previous census enumerations. The industry categories used, along with the absolute and relative importance of each, are presented in Table 16.

Observation of the data in this table indicates that almost one out of every four employed persons gains his livelihood from work performed in the manufacturing industry. Agriculture, including forestry and the fisheries, is in second position, almost one out of every five members of the employed labor force putting forth his productive efforts in one or more of

its branches. Approximately one-sixth of the workers are occupied in activities connected with wholesale and retail trade.

The relative importance of the several industry groups varies greatly from one section of the country to another (see Fig. 84). Manufacturing looms large in the Northeast but furnishes relatively few jobs in the South and in the West. Agriculture dominates the scene in the South, shares a place of prominence with manufacturing in the central states, but is relegated to a minor position in the West and especially in the Northeast. The relative importance of trade, transportation, communication, and other public

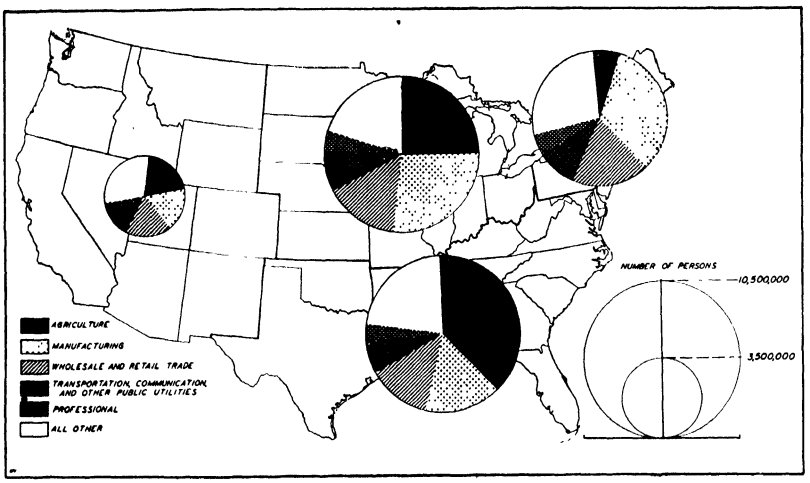


FIG. 84.—Regional differences in the importance of employment in the various industry groups, 1940.

utilities and the jobs classed as professional do not vary greatly from one region to another.

The 12 industrial groups differ greatly in the proportions of men and women employed in each. Mining is almost exclusively a man's industry. Even when the necessary office work is taken into account, 98.8 per cent of the labor force in this industry consists of males. Construction ranks a close second, with 98.3 per cent males among those engaged in this industry, and agriculture, forestry, and fishery with 94.3 per cent males is in third place. At the other end of the scale stands the personal services group, in which the percentage of males is only 28.3 per cent. Because teaching is left largely to women, males make up only 44.4 per cent of the category styled "professional and related services." The percentages of men in each of the other categories are as follows: business and repair services, 91.1; transportation, communication, and other public utilities, 88.9; government,

80.6; amusement, recreation, and related services, 79.9; manufacturing, 78.0; wholesale and retail trade, 73.1; and finance, insurance, and real estate, 69.0.

TABLE 16.—NUMBERS AND PERCENTAGES OF PERSONS EMPLOYED IN EACH GROUP OF INDUSTRIES IN THE UNITED STATES, BY SEX, 1940*

Industry group	Total		Male		Female	
	Number	Per cent	Number	Per cent	Number	Per cent
All industries	45,166,083	100.0	34,027,905	100.0	11,138,178	100.0
Agriculture, forestry, and fishery	8,475,432	18.8	7,988,343	23.5	487,089	4.4
Mining	913,000	2.0	902,061	2.7	10,939	0.1
Construction	2,056,274	4.6	2,022,032	5.9	34,242	0.3
Manufacturing	10,572,842	23.4	8,250,590	24.2	2,322,252	20.8
Transportation, communication, other public utilities	3,113,353	6.9	2,768,267	8.1	345,086	3.1
Wholesale and retail trade	7,538,768	16.7	5,509,228	16.2	2,029,540	18.2
Finance, insurance, and real estate	1,467,597	3.2	1,013,297	3.0	454,300	4.1
Business and repair services	864,254	1.9	787,377	2.3	76,877	0.7
Personal services	4,009,317	8.9	1,133,555	3.3	2,875,762	25.8
Amusement, recreation, and related services	395,342	0.9	316,063	0 9	79,279	0.7
Professional and related services	3,317,581	7.3	1,472,453	4.3	1,845,128	16.6
Government	1,753,487	3.9	1,414,069	4.2	339,418	3.0
Industry not reported	688,836	1.5	450,570	1.3	238,266	2.1

* SOURCE: *Sixteenth Census of the United States, 1940, Population*, vol. III, *The Labor Force, Occupation, Industry, Employment, and Income*, Part 1, p. 11.

Race also is closely associated with the industry in which employment is obtained, as is clearly evidenced from the data of the 1940 census. Thus, of the total number of employed males, except those engaged on emergency relief work, 8.6 per cent were Negroes. This contingent of colored workers was highly concentrated in the personal services and in agriculture, forestry, and fisheries. Although only one male worker in twelve was a Negro, among the men engaged in domestic services 45.8 per cent were Negroes, and of the entire group employed in personal services 21.5 per cent were Negroes. The concentration in agriculture was also great, 15.4 per cent of all males engaged in this industry being Negroes. In the forestry and fishery activities the proportion of Negroes was even higher, or 22.4

per cent. The percentage of Negroes in amusement, recreation, and related services was 8.7, or almost identical with their proportion among all male workers. But in all of the other industry categories the Negroes were underrepresented, as can be seen from the following data on the percentages of Negroes in each of the remaining industry groups: transportation, communication, and other public utilities, 7.1; construction, 7.0; business and repair services, 6.1; mining, 5.8; manufacturing, 5.7; professional and related services, 5.7; wholesale and retail trade, 5.2; finance, insurance, and real estate, 5.6; and government, 3.4. Of course, the concentration of the Negroes in the rural South does much to explain why such large proportions are engaged in agriculture. But it does not account for the much greater tendency for them to gain employment in domestic and other personal services. In fact, it assists in mitigating this propensity.

It is also possible to examine the way in which employment status is related to the class of industry (see Table 17). In manufacturing and mining over 95 per cent of the men work for a wage or a salary, whereas only a small fraction are employers or working on their own account.

TABLE 17.—EMPLOYMENT STATUS IN RELATION TO INDUSTRY FOR ALL EMPLOYED MALES IN THE UNITED STATES EXCEPT THOSE ENGAGED IN EMERGENCY WORK, 1940*

Industry group	Private wage or salary workers	Government workers	Employers and own-account workers	Unpaid family workers
All industries	63.6	7.4	25.9	3.0
Agriculture, forestry, and fishery	24.8	0.5	62.9	11.8
Mining	95.5	0.2	4.3	0.1
Construction	62.7	13.3	23.7	0.3
Manufacturing	95.8	1.1	3.0	0.1
Transportation, communication, and other public utilities	87.4	5.7	6.7	0.1
Wholesale and retail trade	70.2	0.1	28.8	0.8
Finance, insurance, and real estate	82.6	1.1	16.3	0.1
Business and repair services	65.4	0.1	34.0	0.5
Personal services	71.7	0.1	27.8	0.4
Amusement, recreation and related services	82.1	1.6	16.1	0.2
Professional and related services	35.7	35.6	28.6	0.0
Government	....	100.0		

* SOURCE: *Sixteenth Census of the United States, 1940, Population*, vol. III, *The Labor Force, Occupation, Industry, Employment, and Income*, Part 1, p. 196.

Much the same situation prevails in transportation, communication, and other public-service activities, although in these industries the number of government workers is significant. Even in finance, insurance, and real estate and in amusement, recreation, and related activities, more than 82 per cent of the men engaged are wage or salary workers.

Agriculture, forestry, and fishing are the industries in which men still work on their own to the greatest extent. However, business and repair services, the professions, wholesale and retail trade, personal services, and even the construction industry still offer many opportunities for self-employment.

TRENDS

As indicated above, the data on occupations in 1940 are not comparable to those for previous censuses. Since the changes introduced brought

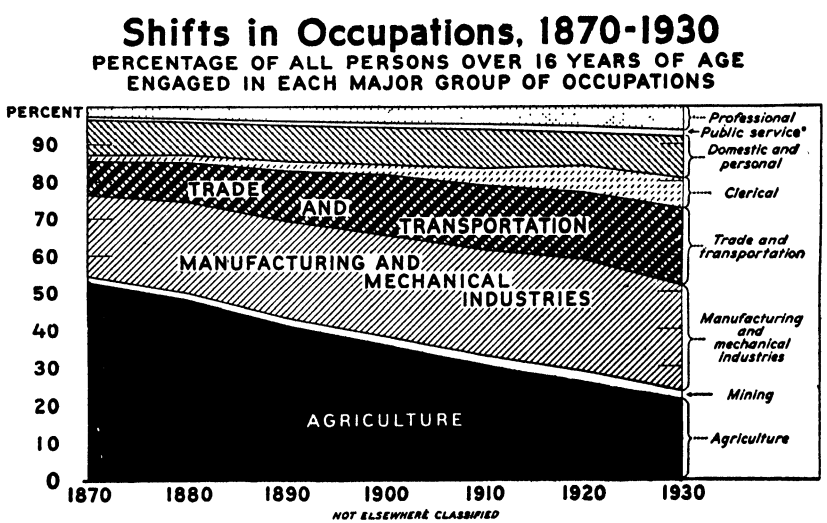


FIG. 85.—Changes in the occupational structure of the United States, 1870 to 1930. (*Reproduced from O. E. Baker, The Outlook for Rural Youth, United States Department of Agriculture, Extension Service Circular* 203, 1934.)

about a material improvement in the information, this is less regrettable than otherwise might be the case. Nevertheless, one interested in trends is forced to rely upon the facts gathered in the earlier enumerations. Those for the period 1870 to 1930 have been carefully analyzed and constitute the best basis for conclusions as to the direction and magnitude of the changes (see Fig. 85).

Occupational trends are so clearly depicted in this chart that little comment is called for. The great change is, of course, the rapid and consistent decrease in the relative importance of the agricultural industry. On this score the data from the 1940 census are probably fairly comparable, and they indicate that the downward trend in the proportion of the labor force employed in agriculture continued until 1940. Trade, transportation, and clerical jobs are the categories that have been increasing most in importance. The gains in manufacturing and professional services also were considerable, as was the increase of public employees. Mining and domestic and personal services retained about the same relative importance that they had in 1870.

Chapter 9
RELIGIOUS COMPOSITION

THERE was a time when religious affiliation or church membership was a person's most important distinguishing characteristic. Whether one was Christian, Jew or Mohammedan, Catholic or Protestant, Puritan or Conformist, Unitarian or Trinitarian counted more than whether he was white or black, educated or illiterate, peasant or artisan. The spirit of religious tolerance fostered in the United States has done much to change this state of affairs, but large portions of the earth's surface remain where religious affiliation still is a person's most important social attribute. Even in our own country, not a little importance is attached to the religious composition of the population.

SOURCES OF THE DATA

Most nations that have advanced in civilization to the point of making regular census enumerations of their populations include religious affiliation or preference, along with age, sex, race, etc., as a primary question in the schedules. The information so gathered may then be related to the remainder of the census materials in the same manner as the other facts secured in the Census of Population. Canada, India, Germany, and Peru, to mention only a few, are among the nations that include the question on religious affiliation among the basic inquiries of the census. Their demographers are not handicapped in trying to determine such things as the relationship between residence and fertility, occupation and the birth rate, migration and economic status, by having the religious factor loosely flapping about, susceptible to little or no control.

In the United States the student of population is not in such a fortunate position. The constitutional provision that restrains Congress from making any "law respecting the establishment of religion, or prohibiting the free exercise thereof" has been ridiculously interpreted to mean that our expensive decennial Census of Population should include no inquiry about church membership or preference.[1] Even after Congress passed the Permanent

[1] *Cf.* CARROLL, H. K., *The Religious Forces of the United States*, p. xiii, The Christian Literature Co., New York, 1893.

Census Act of 1902—the legislation that established our Bureau of the Census—and specified that the data about the religious bodies should be gathered every 10 years, no substantial improvement has been made. There is still no question on church membership or preference included in the Census of Population; instead, a separate compilation of religious data is made for the years ending with the number 6. Up to date we have the Census of Religious Bodies for the years 1906, 1916, 1926, and 1936. But at best these materials are very incomplete, lack comparability, and are almost impossible to correlate with other census data.

Those responsible for the compilation of the data on religion stress the fact that the census is one "of the religious organizations in the United States rather than of individuals classified according to their religious affiliation."[2] In effect this means that complete, accurate, and comparable information about the religious affiliations or preferences of the population is lacking. Furthermore, there seems little prospect of any substantial improvement in the very near future. Any reform, simplification of the procedure, reduction in the cost, and improvement of the data by including the question on church membership or preference in the regular Census of Population probably will have to await concerted effort on the part of those who head the major religious bodies of the nation. For the present, students of population will have to limit themselves to discussions of the relative importance of the various denominations in the nation, to how the membership of the various religious bodies is distributed throughout national territory, and to a few demographic differences among the denominations. In a rough way it may be possible to relate the religious factor to other population phenomena such as the birth rate, the death rate, and migration, but satisfactory analysis of the effect of religion upon population processes and changes must await the time when the questions on religious affiliation or preference are included in the Census of Population.

RELIGIOUS HETEROGENEITY IN THE UNITED STATES

Even a cursory examination of the Census of Religious Bodies demonstrates that the variety of religious organizations, sects, or denominations in the United States is exceedingly great. This may be construed as one of the disadvantages of having no established church supported with state funds and to which all people, dissenters and conformists alike, must contribute; but if so, most citizens of the United States would consider it a very small liability in comparison with the tremendous increase in personal liberty that religious freedom has brought about. In any case, in the United States both religious differentiation and religious freedom, not to

[2] *Census of Religious Bodies, 1936*, vol. I, p. 3.

speak of tolerance, have reached a point far beyond that attained in any other large country in the world. In this chapter our concern is entirely with the religious differentiation of the population.

At the turn of the twentieth century, Carroll, with full justification, wrote of our religious heterogeneity as follows:

> There are churches small and churches great, churches white and churches black, churches high and low, orthodox and heterodox, Christian and pagan, Catholic and Protestant, Liberal and Conservative, Calvinistic and Arminian, native and foreign, Trinitarian and Unitarian.[3]

A few years later the first Census of Religious Bodies, that for 1906, included data for 188 separate denominations; as the counting improved and differentiation continued, the number of religious bodies of which the census took cognizance increased to 202 in 1916, 213 in 1926, and 256 in 1936. However, the religious diversity is even greater than these figures indicate; for in addition to the denominations that lost their identities through mergers with other bodies, 57 of these listed in 1926 were not included in the 1936 count.[4]

To a very considerable extent this multiplicity of sects and denominations is more apparent than real. Many of the religious bodies differ very little from the parent organizations in essential beliefs and practices, the divisions being administrative separations occasioned by disagreements over minor points of doctrine. Not a little of the diversity arose because of the bitter sectional controversy over slavery that preceded the Civil War. The differentiation had proceeded so far that the 1936 census listed 21 varieties of Baptists, an equal number of Methodist bodies, 20 branches of the Lutheran Church, 17 kinds of Mennonites, 10 types of Presbyterians, 15 types of Brethren, 11 divisions of the Eastern Orthodox Church, and 12 sorts of Evangelistic associations. Also of great variety are the many kinds of Churches of God, Friends, Latter-day Saints, Moravians, Pentecostal assemblies, Reformed bodies, and Spiritualists. Furthermore, the differentiation shows little evidence of slowing down; the union that recently occurred between the Christian and Congregational Churches and that between the two principal Methodist denominations are contrary to the trend. Separation seems to be much easier than union.

The 1936 census reported a total of 55,807,366 church members in the United States but then goes on to say that "the total membership in 1936 would have been much larger if all churches had furnished statistics."[5] In

[3] CARROLL, *op. cit.*, p. xiv.

[4] *Census of Religious Bodies, 1936*, vol. I, p. 9.

[5] *Ibid.*, p. 17.

1926 the total reported was 54,576,346. Perhaps no significance whatsoever should be attached to the fact that the proportion of reported church members among the population declined from 46 per cent in 1926 to 44 per cent in 1936. Neither of the figures even roughly represents the relative importance of church members in the general population; both of them are based upon counts that include everyone from babes in arms to centenarians for such groups as Roman Catholics, many types of Lutherans, and the Jewish congregations but are largely limited to adults for others such as the various bodies of Baptists, Presbyterians, Adventists, Unitarians, and Christian Scientists; moreover, the counts for some important groups, particularly the most important branches of the Baptist and Methodist Churches, seem to have been much less adequate for 1936 than they were for 1926.

DISTRIBUTION

The chief value of the fragmentary data at hand is to help the student in visualizing the relative importance of some of the principal denominations and in gaining a knowledge of the sections of the country in which a particular brand of religion is dominant. As yet it is impossible to evaluate properly the relative significance of the reported strength of the various denominations. For example, the raw data indicated that the Roman Catholic Church, with 19,914,937 members reported in 1936, is by far the strongest single denomination in the United States, with membership in Jewish congregations (4,641,184) being second, the Negro Baptist (3,782,464), Methodist Episcopal Church (3,509,763) Southern Baptist (2,700,155), and Methodist Episcopal Church, South (2,061,693), following in the order named. But as indicated above, the data for the first two include infants and children, whereas the others are confined largely to adults; in addition, the counts of Methodists and Baptists are strongly suspect.[6] Therefore, it would appear to be a waste of time to attempt to arrive at a judgment about the relative strength of the various denominations or to determine the significance of reported amounts and rates of change.

Subject to all these limitations, two maps have been prepared to show the distribution in the United States of the persons affiliated with the various religious denominations. In the preparation of these maps, the various Baptist bodies, Methodist denominations, etc., have been grouped

[6] For example, the 1937 *Handbook* of the Southern Baptist Convention reports a total of 24,671 churches and 4,482,315 members. If these figures are compared with the 13,815 churches and 2,700,155 members given by the 1936 Census of Religious Bodies, the explanation of why the membership of the denomination appeared to have fallen from 3,524,378 in 1926 would seem to be fairly apparent. See *ibid.*, vol. II, Part 1, pp. 114–115.

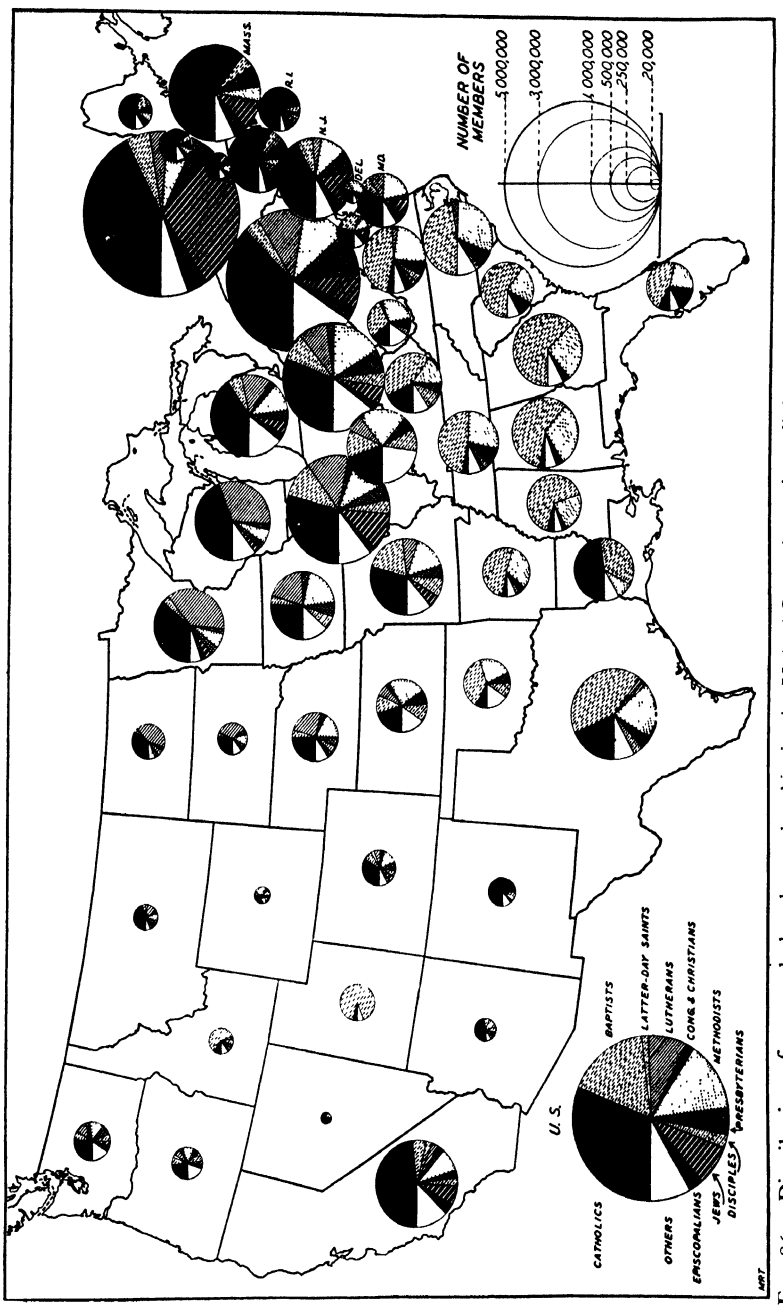


FIG. 86.—Distribution of reported church membership in the United States by major religious groupings, 1936. (Children under 13 excluded.)

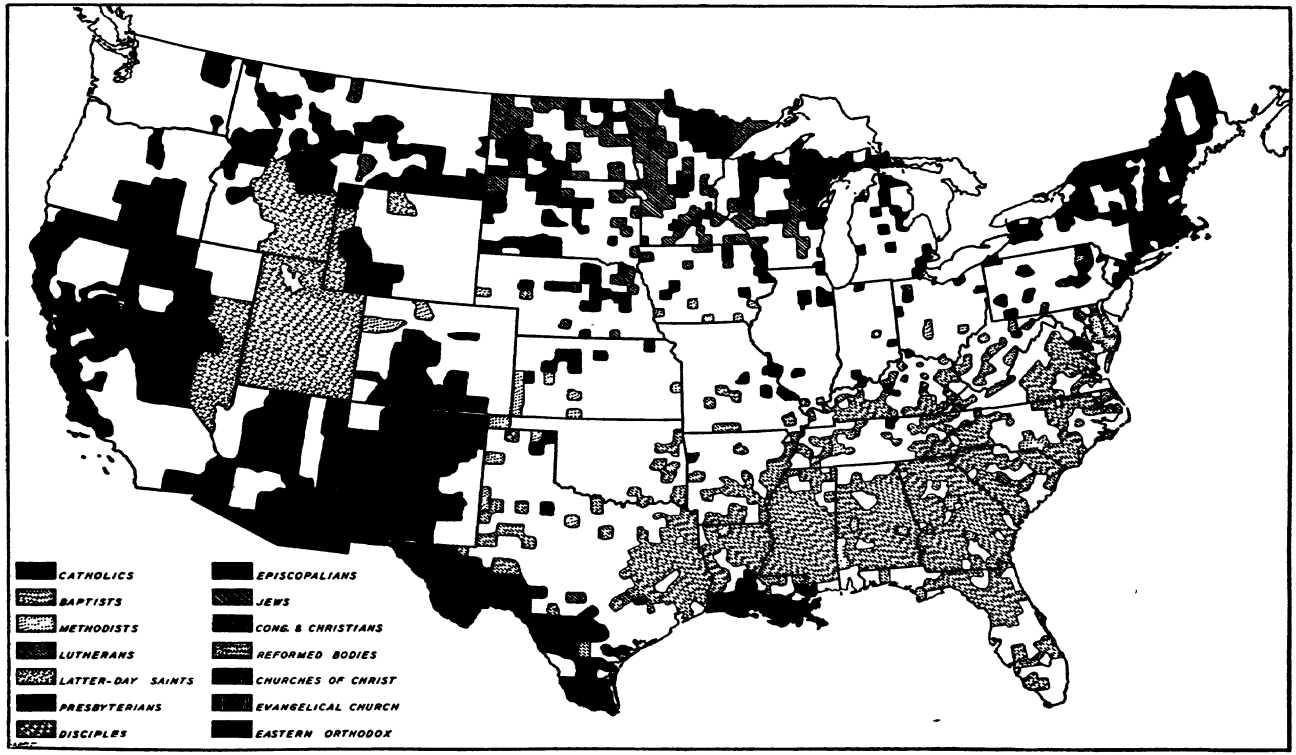


FIG. 87.—Areas in which the members of specified religious bodies constitute a majority of the total reported church membership, 1936. (The blank areas on the map indicate counties in which Protestants outnumber Catholics but where no one variety of Protestants is in the majority.)

together. Figure 86 is made up on a state basis, with the reported members of less than 13 years of age eliminated in an attempt to attain a slightly higher degree of comparability. Even at that, it has been necessary to estimate, conservatively, the number of Jewish children and reduce the reported membership of the Jewish congregations by one-third. Figure 87 is on a county basis, but with all reported members included. It is constructed so as to show at a glance the sections in which Roman Catholics predominate as distinguished from the areas in which others (Protestants with the exception of Baltimore, Maryland, and part of metropolitan New York where Jews predominate and of Pike County, Pennsylvania, where members of the Eastern Orthodox Church are in the majority) constitute more than one-half of the reported church members. The mapping devices used make it possible to determine which faith is predominant in those areas in which any one variety of religion other than the Roman Catholic has a majority of all church members.

Despite the limitations imposed by the faulty nature of the data, the analysis of these maps does much to bring out the significant features of the distribution of the principal religious groups in the United States. By eliminating children under 13 and by combining the data for the several varieties of Methodists, Baptists, etc., as has been done in Fig. 86, it is possible to gain a more adequate knowledge of the relative importance of the principal religious groups. Even though there has been serious under-enumeration for big bodies of Baptists and Methodists, it should be apparent that the Roman Catholic denomination is the largest single religious group in the United States. Alone it embraces 30.9 per cent of all church members 13 years of age and over. This is not at all surprising, nor is the fact that Baptists with 17.2 per cent rank second and Methodists (13.8 per cent) third. But to many it will come as a distinct surprise that Jews, even though reduced a full one-third to eliminate children under 13, make up 7.9 per cent of all reported church members and rank in fourth place ahead of Lutherans (7.7 per cent) and Presbyterians (5.3 per cent). The percentages affiliated with the other four leading faiths are as follows: Episcopalians, 2.9; Disciples, 2.5; Congregationalists and Christians, 1.8; and Latter-day Saints, 1.2. All of the other numerous denominations taken together account for a relatively small proportion (8.8 per cent) of the total church membership.

As indicated by the data in Fig. 86, New England is dominantly Catholic, by far the most Catholic region in the country. In all six New England states, the Catholics make up more than one-half of all church members, the proportion in Rhode Island being 72.0 per cent. This percentage is exceeded only in New Mexico—the remaining state of the seven in which

Catholics are in the majority—where 75.8 per cent of all church members are Catholics. In California, Arizona, Nevada, Montana, and Louisiana the Catholic and Protestant elements are approximately equal. Maryland, traditionally associated with the Catholic faith, ranks rather low; but the whole area north of the Ohio and east of the Mississippi (except Indiana) is characterized by high percentages of Catholics in the population. In addition to the seven states in which Catholics are in the majority, the members of this denomination are more numerous than those of any other single religious variety in New York, New Jersey, Pennsylvania, the District of Columbia, Maryland, Ohio, Michigan, Illinois, Wisconsin, Missouri, Louisiana, Montana, Wyoming, Colorado, Arizona, Washington, Oregon, and California.

The South stands out as a "Baptist belt," with Methodists running a good second and all others far behind. Baptists, who register very lightly in all other regions, are in the majority in South Carolina, Georgia, Alabama, Mississippi, and Arkansas. In addition, they make up almost one-half of the entire religious membership in the other southern states, *viz.*, Virginia, North Carolina, Kentucky, Tennessee, Florida, Louisiana, Oklahoma, and Texas. Methodists, who also are numerous in the southern states, have attained a majority in none, although they have a plurality in the border state of Delaware. (They also have a plurality in Indiana and Kansas.) Catholics are numerically important in the South only in Louisiana, Maryland, and Texas.

In the two sparsely populated Rocky Mountain states of Utah and Idaho the Latter-day Saints, or Mormons, are in the majority.

Except for the Catholics, Baptists, and Latter-day Saints, no one of the faiths includes a majority of the church members in any state. The Jews, almost entirely urban, come close to a plurality in New York, and their presence in large numbers in the big cities makes them weigh heavily in Massachusetts, Connecticut, New Jersey, Maryland, Pennsylvania, Ohio, Michigan, Illinois, Missouri, and California. Lutherans have a plurality in Minnesota and the Dakotas and are heavily represented in Wisconsin, Iowa, Nebraska, Illinois, Ohio, Pennsylvania, Missouri, and Maryland. The strength of the Presbyterians is concentrated in Pennsylvania, Ohio, New York, New Jersey, Indiana, Illinois, and the states of the upper South but never approaches anything like a plurality in any of them. The Disciples are most numerous in the great central portion of the nation, from West Virginia and Indiana to Kansas and Oklahoma, but they are not of great relative importance in any single state. Throughout New England, where they once included a large majority of the population, the Congregationalists and Christians are now reduced to a very small segment of the

total. Even so, their major strength still lies in the states of Massachusetts, Connecticut, New York, New Jersey, and Pennsylvania. Episcopalians, too, have lost much of their former relative importance; at present they also are found in greatest numbers in New England, New York, New Jersey, and Pennsylvania.

Today the areas of greatest religious homogeneity seem to be Catholic New England, the Catholic Southwest, the Baptist South, and the Mormon Great Basin. The greatest heterogeneity is found in the band of middle states extending from Delaware and Maryland to Colorado. The West Coast, except for Catholic predominance in California, also ranks high in religious heterogeneity.

The concentration of population, especially of recent immigrants in large cities, makes it advisable to supplement the analysis based on Fig. 86 with one making use of Fig. 87 which has been constructed on a county basis. Otherwise, several significant features of the nation's religious topography may be overlooked. Furthermore, Fig. 87 enables one to determine more accurately the exact limits of the belts of Catholic and Protestant predominance and, within the latter, makes it possible for one to find the areas in which a particular variety of Protestantism far outweighs all others.

A few comments about the areas in which Catholics predominate may serve as a beginning of the analysis. New England is of more than a little interest in this connection. Already the flow of Irish, Polish, and Italian immigrants into its great cities, coupled with the influx of French Canadians into the rural sections, has made the Catholic Church predominant throughout almost the whole of the region.

The Spanish American population of the Southwest, including the more recent immigration of Mexicans, is responsible for most of the Catholic preeminence in the Southwest. However, Italian and other immigration from the Catholic portions of Europe have helped extend the borders of the area in Colorado. In California, Italian, Portuguese, and other Catholic immigrants from Europe probably have contributed fully as much as the original Spanish influence in determining the prominent position of Catholicism in much of the state. From New York and New Jersey westward to Montana, European immigration, much of it fairly recent, is responsible for the scattered areas of Catholic predominance. This map does not properly emphasize the numerical significance of the Catholic majority in most of the counties that contain cities of any considerable size, although it does enable the observer to note the association. On the other hand, it brings out fairly well the extent to which Polish and other Catholic immigrants spread themselves over the cutover lands in northern Wisconsin and

Michigan and the concentration of German Catholics in portions of Minnesota and the Dakotas.

Figure 87 also reveals more clearly the outlines of the area of Baptist predominance throughout the South and of Mormon strength in the Far West. Furthermore, it shows that there is an important section of the Northwest in which the Lutheran faith outranks all other religions combined. Finally, it indicates that the great interior of the United States —from New York to south central Texas to Northern Wyoming and back to New York—although an area in which Protestantism outranks Catholicism in numbers of adherents, is one in which no single variety of the former predominates. It is the section of heterogeneity within the domain of Protestantism. In many of the counties in Texas, Oklahoma, and Arkansas, either the Baptists or the Methodists would be in the majority were it not for the fact that the Disciples are a strong third. Elsewhere in the area the strength is so divided among Methodists, Baptists, Lutherans, Presbyterians, Disciples, United Brethren, Mennonites, etc., as well as Catholics that no one variety of Protestantism is in the majority.

An analysis of the distribution of membership of the various denominations between rural and urban areas also brings out facts essential to an understanding of the religious composition of the American population. As indicated in Chap. 3, the newer or immigrant elements in a population generally are found concentrated in the cities whereas the older or native stocks are found in greater proportions in the rural sections. For this reason it is not surprising that the percentages of urban residents among the entire membership of some of the denominations reporting 100,000 or more members in 1936 were as given in Table 18.

The Jews, the bulk of whom entered this country rather recently as immigrants from Germany, Russia, and Poland, are most highly concentrated in the great commercial centers of the nation. The members of the Greek Orthodox Church rank second in this respect. The Salvation Army is third. Then comes a recent "native" variety of religion, the Christian Scientist, which so far has appealed particularly to city people, mainly to urban women. Episcopalians, Roman Catholics, the Northern Presbyterians, the Northern Baptists, the Seventh-day Adventists, the Nazarenes, the Lutherans affiliated with the United Lutheran Church of America, and another large body of Presbyterians are the only other denominations with disproportionately large numbers of their members in the cities.

Those denominations which have less than 69.4 per cent of their members in urban centers are more rural than the average. Several varieties of Baptists, Lutherans, Methodists, Reformed and Evangelical bodies, and the

TABLE 18.—TOTAL MEMBERSHIP REPORTED AND PERCENTAGE OF MEMBERS RESIDING IN URBAN AREAS FOR ALL DENOMINATIONS REPORTING 100,000 OR MORE MEMBERS, 1936*

Denomination	Member-ship	Per cent urban
All denominations	55,872,366	69.4
Jewish congregations	4,641,184	99.1
Greek Orthodox Church (Hellenic)	189,368	98.5
Salvation Army	103,038	98.4
Church of Christ, Scientist	268,915	94.9
Protestant Episcopal Church	1,735,335	84.5
Roman Catholic Church	19,914,937	80.6
Presbyterian Church in the United States of America	1,797,927	74.4
Northern Baptist Convention	1,329,044	72.6
Seventh-day Adventist Denomination	133,254	72.4
Church of the Nazarene	136,227	71.1
United Lutheran Church in America	1,286,612	70.0
United Presbyterian Church of North America	170,967	69.6
Presbyterian Church in the United States	449,045	65.4
Congregational and Christian Churches	976,388	64.9
Evangelical Lutheran Augustana Synod of North America	327,472	64.1
Reformed Church in America	184,536	63.8
Assemblies of God, General Council	148,043	62.7
Evangelical and Reformed Church	723,877	62.2
Disciples of Christ	1,196,315	62.1
Evangelical Lutheran Synod of Missouri, Ohio, and Other States	1,192,553	59.1
Methodist Episcopal Church	3,509,763	58.6
African Methodist Episcopal Church	493,357	58.0
Evangelical Church	212,446	55.6
Christian Reformed Church	107,993	53.8
African Methodist Episcopal Zion Church	414,244	51.4
Evangelical Lutheran Joint Synod of Wisconsin and Other States	235,402	50.5
Church of Jesus Christ of Latter-day Saints	678,217	50.3
Negro Baptists	3,782,464	49.5
Methodist Episcopal Church, South	2,061,683	46.1
American Lutheran Church	499,899	45.5
Churches of Christ	309,551	42.8
Colored Methodist Episcopal Church	269,915	42.6
Southern Baptist Convention	2,700,155	37.9
Methodist Protestant Church	148,288	37.0
Church of the Brethren (Conservative Dunkers)	153,516	36.6
Norwegian Lutheran Church of America	516,400	30.0
American Baptist Association	115,022	15.8

* SOURCE: *Census of Religious Bodies, 1936*, vol. I, Table 13, pp. 86–97.

Brethren stand out in this respect. A study of Fig. 87 enables one to understand better the absolute and relative importance of the various faiths throughout rural America.

DENOMINATIONAL VARIATIONS

The data, faulty as they are, still can be used to bring out a few essential differences in the characteristics of the members affiliated with the various denominations. Most of these differences are revealed as well by the partial data as they would be if complete information were available.

Sex Differences.—There are some striking differences in the proportions of males and females among the memberships of the denominations and sects into which the religious community is divided. Among church members in 1936 the number of males per 100 females was only 78.5. Comparing this with a sex ratio among the total population of 102.5 in 1930 and of 100.7 in 1940 demonstrates that the church enrolls a far higher percentage of females than of males. Despite the fact that its name is inseparably associated with the practice of polygamy (or more properly polygyny), the Church of Jesus Christ of Latter-day Saints has a far higher proportion of males in its membership than does any of the other principal denominations. Among its membership there are 99.1 males for each 100 females, whereas in those of its nearest competitors, the Norwegian Lutheran Church of America, the Evangelical Lutheran Joint Synod of Wisconsin and Other States, and the Roman Catholic Church, the corresponding ratios are only 95.8, 93.2, and 91.7, respectively. Furthermore, these three all include among their members disproportionately high numbers of the foreign born, among whom the sex ratio is exceedingly high. The sex ratio for other large denominations in which the scarcity of males is less pronounced than is true generally are as follows: American Lutheran Church, 89.9; Evangelical Lutheran Synod of Missouri, Ohio, and Other States, 89.9; Evangelical Lutheran Augustana Synod of North America, 88.4; Evangelical and Reformed Church, 82.3; and the United Lutheran Church in America, 81.3. It is a striking fact that all of the large denominations which anywhere approach the Mormons in the proportion of males to females are those with large proportions of foreign-born members.

Among the large denominations, the Church of Christ, Scientist, is the most exclusively composed of women, having enrolled only 31.3 males for every 100 females. Next in order are four denominations composed exclusively of Negroes—the Colored Methodist Episcopal Church, the African Methodist Episcopal Church, the Negro Baptist Church, and the African Methodist Episcopal Zion Church, having sex ratios of 56.7, 56.9,

61.0, and 61.1, respectively. The sex ratios for other large denominations in which men are even more sparsely represented than is generally the case are as follows: the Congregational and Christian Churches, 64.5; Northern Baptist Convention, 66.7; Methodist Episcopal Church, 68.1; Presbyterian Church in the United States of America, 69.1; Churches of Christ, 69.6; Disciples of Christ, 69.9; Evangelical Church, 70.9; Church of the United Brethren in Christ, 71.4; Protestant Episcopal Church, 72.8; Presbyterian Church in the United States, 74.3; Southern Baptist Convention, 74.5;

TABLE 19.—SEX RATIOS AMONG MEMBERSHIPS OF PRINCIPAL DENOMINATIONS, 1936*

Denomination	Males per 100 females		
	Total	Urban	Rural
All denominations	78.5	78 6	78.4
Northern Baptist Convention	66.7	66.0	68.6
Southern Baptist Convention	74.5	71 2	76.4
Negro Baptists	61.0	57.9	64.0
Church of Christ, Scientist	31.3	31 4	30.9
Churches of Christ	69.6	67.5	71 3
Congregational and Christian Churches	64 5	64.3	64 9
Disciples of Christ	69.9	68.1	72 9
Evangelical and Reformed Church	82.3	77 9	90.0
Church of Jesus Christ of Latter-day Saints	99.1	94 4	104.1
American Lutheran Church	89.9	82.8	96 2
Evangelical Lutheran Augustana Synod of North America	88.4	83.8	97.2
Norwegian Lutheran Church of America	95.8	88.5	99.1
Evangelical Lutheran Synod of Missouri, Ohio, and Other States	89.9	83.7	99.4
United Lutheran Church in America	81.3	79.1	86.6
African Methodist Episcopal Church	56.9	53.9	60.5
African Methodist Episcopal Zion Church	61.1	58.5	64.0
Colored Methodist Episcopal Church	56.7	53.0	59.9
Methodist Episcopal Church	68.1	68.2	67.8
Methodist Episcopal Church, South	75.2	75.4	75.0
Presbyterian Church in the United States	74.3	72.9	77.1
Presbyterian Church in the United States of America	69.1	68.6	70.8
Protestant Episcopal Church	72.8	73.0	72.2
Roman Catholic Church	91.7	90.6	95.9
Church of the United Brethren in Christ	71.4	70.5	72.3
Jewish congregations			

* SOURCE: *Census of Religious Bodies, 1936*, vol. I, Table 13, pp. 86–97.

and the Methodist Episcopal Church, South, 75.2. It is interesting to note that the southern branches of several important denominations include higher proportions of males than their northern counterparts. However, the sex ratios in most of the older "native" Protestant denominations are exceedingly low.

In view of the great variations in the sex ratio from one denomination to another and the unequal distribution of the membership of these denominations, there is no point in attempting any state or regional analysis of the sex differences. However, some significant features of the rural-urban variations are of interest. On the whole, men are underrepresented to a far greater degree in the rural church than in the urban. In spite of the fact that there were, in 1940, 107.8 males for every 100 females in rural districts, compared with only 95.5 in urban areas, among church members the corresponding ratios were 78.6 and 78.4 (see Table 19). On the basis of these figures, in order to have men properly represented, rural churches need a sex ratio 12.4 per cent higher than that of urban churches. Actually, the sex ratio is slightly lower in rural churches than in urban. The unfavorable relative position of the rural church is most apparent among the Church of Christ, Scientist; Methodist Episcopal Church; Methodist Episcopal Church, South; Protestant Episcopal Church; and Congregational and Christian Churches. It is also marked in the Northern Baptist Convention, Southern Baptist Convention, Negro Baptists, Churches of Christ, Disciples of Christ, Presbyterian Church in the United States, Presbyterian Church in the United States of America, Roman Catholic Church, and Church of the United Brethren in Christ. Rural churches succeed almost as well in getting their quotas of males as do the urban in the following denominations: Church of Jesus Christ of Latter-day Saints, Norwegian Lutheran Church of America, United Lutheran Church in America, African Methodist Episcopal Church, and the Colored Methodist Episcopal Church. On the other hand, rural churches excel their urban counterparts in the attraction of males in the Evangelical and Reformed Church, the American Lutheran Church, the Evangelical Lutheran Augustana Synod of North America, and especially in the Evangelical Lutheran Synod of Missouri, Ohio, and Other States.

Age.—As indicated above, the number of members reported for a particular denomination is highly dependent upon the extent to which young children are included on its rolls. To supply more of the facts on this question, Table 20 was prepared. Observation of the data that it contains will remove this topic from the realm of speculation.

Among all denominations reporting in 1936, 82.4 per cent of the church membership was made up of persons 13 years of age and older. The

Church of Christ, Scientist, heads the list of the denominations, for no children of 12 years or under have been placed on its rolls. Also high in refraining from formally affiliating children with a specific denomination before they have reached the age of responsibility are the Congregational and Christian Churches, the Churches of Christ, the two large Presbyterian denominations, the Baptists, the white Methodists, the Disciples, and the United Brethren. The large denomination with the highest proportion of children on the rolls is the Roman Catholic Church, but it is rivaled closely by several of the Lutheran bodies and by the Latter-day Saints.

TABLE 20.—PERCENTAGES OF PERSONS AGED 13 YEARS AND OVER IN THE PRINCIPAL DENOMINATIONS, 1936*

Denomination	Members Aged 13 Years and Over, Per Cent
All denominations	82.4
Northern Baptist Convention	94.8
Southern Baptist Convention	94.2
Negro Baptists	90.3
Church of Christ, Scientist	100.0
Churches of Christ	96.9
Congregational and Christian Churches	97.4
Disciples of Christ	92.7
Evangelical and Reformed Church	89.8
Church of Jesus Christ of Latter-day Saints	75.1
American Lutheran Church	73.5
Evangelical Lutheran Augustana Synod of North America	76.8
Norwegian Lutheran Church of America	73.9
Evangelical Lutheran Synod of Missouri, Ohio and Other States	72.7
United Lutheran Church in America	78.4
African Methodist Episcopal Church	86.3
African Methodist Episcopal Zion Church	83.5
Colored Methodist Episcopal Church	81.6
Methodist Episcopal Church	92.4
Methodist Episcopal Church, South	89.2
Presbyterian Church in the United States	93.0
Presbyterian Church in the United States of America	96.2
Protestant Episcopal Church	79.9
Roman Catholic Church	72.6
Church of the United Brethren in Christ	92.4
Jewish congregations	

* SOURCE: *Census of Religious Bodies, 1936*, vol. I, Table 13, pp. 86–97.

Part III

The Vital Processes

The reproduction and mortality rates are of such primordial social significance that together they are designated as the vital processes. Each of them deserves detailed analysis. Therefore, Part III is made up of six chapters, three of which deal with the birth rate and three with the death rate.

Chapter 10

FERTILITY: MEASUREMENT AND DATA

THE rapidity with which a population is reproducing is a central fact in all population study. Taken in relation to the definitely limited surface of the globe and the relatively limited amount of natural resources, it has caught the imagination of a great many people. Probably more attention, much of it mere speculation, has been given to this phase of population study than to all other aspects combined. Very likely this lacks a rational basis, and certainly much of the speculation has tended to obscure rather than to clarify understanding of population movements and processes. Nevertheless, it does emphasize the importance of knowledge concerning the speed with which the population is multiplying.

A variety of terms is used to denote the reproduction of the human species. Of these, four are most frequently encountered: birth rate, fertility, fecundity, and natality. It seems that population students are now rather well agreed in using the word *fecundity* to refer to the potential and *fertility* to denote the actual reproduction of the population. The term *natality* as yet has been given no such specific connotation and, when used, may be seen from the context sometimes to refer to potential and sometimes to actual reproduction. The expression *birth rate*, although generalized in popular terminology to refer to reproduction, specifically refers to one particular manner of measuring or gauging the fertility of the population. In this volume fertility, fecundity, and birth rate will be used in the senses indicated above, and the ambiguous term natality will be avoided.

THE MEASUREMENT OF FERTILITY

As mentioned above, the rapidity with which human populations reproduce themselves is the most far-reaching and important of all social and economic phenomena. For this reason devices for accurately gauging human fertility and mortality become of paramount concern in any advanced society. Increasing size and complexity of cultures and civilizations are generally accompanied by the establishment and elaboration of machinery to account for births and deaths in order to measure these vital social processes. As indicators of fertility among human populations, social

scientists, through long experience and much experimentation, have developed three principal indexes. One of these is the birth rate; a second is the fertility ratio; and the third is the net reproduction rate.

The Birth Rate.—In its simplest and crudest form the birth rate is merely the ratio of the number of births occurring to a given population during one year to the number of persons in the population. Multiplying this ratio by 1,000 gives a numerical expression in two digits that is very convenient to use and easy to interpret. Thus, for example, the crude birth rate of the continental United States for 1940 is calculated as follows:

$$\frac{\text{Number of births in 1940}}{\text{Population}} \times 1000 = \frac{2{,}360{,}399}{131{,}669{,}275} \times 1000 = 17.9$$

The population of Apr. 1 is employed instead of that for July 1, but there is little point to the use of such refinements in connection with the crude birth rate.

Whoever makes use of vital statistics should never forget that the crude birth rate is a most unreliable gauge of human fertility. Variations in the age and sex composition of populations are very great, and these are so closely related to the crude birth rate that little scientific study or few valid comparisons of human fertility can be made until either these irregularities are corrected for or allowances have been made for their effects. For example, it has been shown that rural populations contain high proportions of males, children, and aged persons whereas females and persons aged 15 to 45 are concentrated in cities. Obviously a population composed of males, and of children who have not attained and of oldsters who have passed the childbearing stage cannot be expected to produce as many children per 1,000 population as one in which females of childbearing ages make up a disproportionately large share. On the frontier, in the Yukon or in the Amazon, where males constitute almost the entire population, the crude birth rate is bound to be very low even though each woman should bear the maximum number of children. Thus, until allowances are made for the age and sex differences, it is impossible to make valid assertions concerning the fertility of a population or to compare the reproductive tendencies of one population with another.

The process of standardizing a birth rate is as follows. A "normal," base, or standard population is selected as a yardstick to which other populations are to be equated.[1] Next it is necessary to determine the

[1] The population of England and Wales in 1901 is frequently used for this purpose, and it is referred to as the "standard million." But it is by no means a symmetrical pyramid and has little valid claim to use as the norm for purposes of standardization. There seems much more reason for using the age distribution of a life table.

birth rate of each specific age group in the population studied, *i.e.*, the age-specific birth rates for the age groups 15 to 19, 20 to 24, etc. Then these age-specific birth rates are allowed the same weight or importance as they have in the standard population. This enables a calculation to be made that shows, on the basis of these particular age-specific rates, how many births would have occurred to a population of a given size providing its age and sex groupings were the same as those in the standard or base population. The birth rate derived from these data, known as the standardized birth rate, is the one that would prevail if age and sex differences were nonexistent or had been corrected for or eliminated. The use of the standardized birth rate permits a comparison of fertility in two or more populations, without the results' being vitiated by differences in the age and sex make-ups of the populations. The calculation of the standardized birth rate for the rural and urban white populations of the United States in 1940 is illustrated in Table 21. The standard population used in these computations is that of the United States as of 1940.

With the age distributions of urban and rural females (columns 2 and 3) and the number of births according to the age of the mothers (columns 4 and 5), the calculation of the age-specific birth rates for women (columns 6 and 7) is very simple. The number of women of each age group in the standard population and the proportion that they comprise of the total standard population are shown in columns 8 and 9. Applying the percentages in column 9 to the total of the urban and the total of the rural population gives (columns 10 and 11) the number of women of each stated age that there would be in each of these populations if it had the same age-sex distribution as the standard. Then from the age-specific birth rates (columns 6 and 7) it is easy to determine how many children would be borne by each age group of women (columns 12 and 13) if the age-sex distribution corresponded to that of the standard. These hypothetical totals of the births are then used in the usual way along with the total urban and rural populations in the computation of birth rates. The effect of these procedures is to correct for, "iron out," or eliminate the differences in the birth rates that are due solely to variations in the age-sex distribution of the two populations. The necessity of making such refinements before using the birth rates for comparisons of urban and rural fertility is emphasized by the results of this procedure. Thus in 1940 the crude birth rate of the urban population was 16.8 compared with one of only 18.3 in the rural districts. If the differences in the age-sex distributions of the two populations are corrected for, the urban rate is lowered to 15.8 and the rural raised to 19.5. To the extent permitted by our faulty data on births, the difference between the two figures measures the differential between the urban and rural rates of reproduction in the United States.

TABLE 21.—ILLUSTRATION OF THE PROCEDURES INVOLVED IN THE STANDARDIZATION OF THE BIRTH RATES FOR THE URBAN AND RURAL WHITE POPULATIONS OF THE UNITED STATES, 1940*

Age	Number of females of stated ages		Number of births to women of stated ages		Age-specific birth rates		Women in the standard† population		Number of women there would be if standard† age-sex distribution prevailed		Number of births there would be if standard† age-sex distribution prevailed	
	Urban	Rural	Urban	Rural	Urban	Rural	Number	Per cent of the total population	Urban	Rural	Urban	Rural
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Under 10	4,477,944	4,634,505	.....	.....	.....	.....	10,452,515	7.94	5,397,042	3,989,219		
10–14	2,629,977	2,463,711	421	706	0.2	0.3	5,793,606	4.40	2,990,804	2,210,650	598	663
15–19	3,028,611	2,419,516	108,134	121,476	35.7	50.2	6,153,370	4.67	3,174,331	2,346,304	113,324	117,784
20–24	3,246,296	1,980,211	358,700	288,108	110.5	145.5	5,895,443	4.48	3,045,182	2,250,844	336,493	327,498
25–29	3,158,974	1,853,283	348,560	237,310	110.3	128.0	5,645,976	4.29	2,916,034	2,155,384	321,639	275,889
30–34	2,927,168	1,705,994	210,925	153,101	72.1	89.7	5,172,076	3.93	2,671,332	1,974,512	192,603	117,114
35–39	2,699,471	1,562,821	91,889	86,651	34.0	55.4	4,799,718	3.65	2,481,008	1,833,835	84,354	101,594
40–44	2,520,514	1,420,379	23,899	30,104	9.5	21.2	4,368,708	3.32	2,256,698	1,668,036	21,439	35,362
45–49	2,341,743	1,348,400	1,673	2,923	0.7	2.2	4,045,956	3.07	2,086,766	1,542,431	1,461	3,393
50–54	2,028,243	1,200,347	54	68	0.0	0.1	3,504,096	2.66	1,808,077	1,336,438	.....	134
55 and over	5,609,181	3,509,033	.....	.....	.....	.....	9,776,219	7.42	5,043,583	3,727,960		
Total.....	34,668,122	24,098,200	1,144,255	920,447	.....	.....	65,607,683	49.83	33,870,857	25,035,613	1,071,911	979,431

* SOURCE: *Sixteenth Census of the United States, 1940, Population, Second Series, Characteristics of the Population, United States Summary*, Table 7, pp. 16–20; and *Vital Statistics of the United States*, Supplement. 1939–1940, Part III, Tables IV and V, pp. 28 and 40.

† The age and sex distribution of the total population of the United States as of 1940.

It is also interesting to use as a standard a hypothetical population derived by assuming a sex ratio at birth and applying the specific death rates of whites prevailing in 1939 to 1941. The age distribution derived in this manner is the one that would prevail in a stationary population having age-specific death rates corresponding to those of the United States in the period 1939 to 1941. Adjusted to such a standard, the white birth rate in urban areas for 1940 is lowered to 12.8 and that for rural areas to 16.9. The fact that the rates are both lowered by such a standardization is also of importance. In 1940 our age distribution was still favorable to an increase in population.

The use of the birth rate as a measure of fertility has several rather obvious advantages, but it also has some serious shortcomings. Among its advantages may be listed the following: (1) It is simple and easily understood; (2) where a registration system is in vogue, it can be secured annually; and (3) it is the index with which most people are most familiar, the only one with which many are acquainted.

Its most serious disadvantages are as follows: (1) The crude rate is of little validity, while the computation of standardized rates is involved and time-consuming; (2) rarely are birth-registration statistics complete, so that comparisons are frequently more misleading than informing; and (3) births are not reported for small areas, so that many community surveys are completed without showing the all-important fact of how rapidly the population is reproducing. Until registration data are vastly improved, little reliance can be placed upon conclusions based upon birth rates.

The Fertility Ratio.—The second index of use in gauging the rapidity with which populations reproduce is the fertility ratio. This measure is derived from relating the number of young children to the number of women of childbearing age. Ordinarily the number of children under 5 is used. Women of childbearing ages are delimited by taking either the group 15 to 44, inclusive, or those 20 to 44, inclusive. In recent studies the latter limits are most widely used. Usually the ratio so derived is multiplied by 1,000, although the figures thus secured contain three or more digits and are somewhat unwieldy. Computation of the fertility ratio for Negroes in the United States in 1940 is as follows:

$$\frac{\text{Number of Negro children under 5}}{\text{Number of Negro women aged 15 to 44, inclusive}} \times 1{,}000 = \frac{1{,}249{,}080}{3{,}398{,}345}$$

$$\times\ 1{,}000 = 367.6$$

For most purposes this index as it stands is sufficiently refined. By its use in the comparison of two or more populations, sex differences are automatically eliminated, as are the effects of concentrations in the young-

or old-age groups. But if exceptional concentrations of females occur in the ages 15 to 24 or 35 to 44, it is necessary to standardize for this variable. However, this is easily done. Allowances for the underenumeration of children and variations in infant and child mortality also sometimes may be necessary.

As compared with the birth rate, the fertility ratio has several outstanding advantages and also some rather obvious deficiencies. Of primary importance is the fact that it does not depend upon births. Hence it is not affected by underregistration or faulty registration of these. For this reason it is less susceptible to misuse by unpracticed persons than the birth rate. It is much more refined than the crude birth rate, making standardization less essential; and when standardization is desirable, it is rather easily accomplished. Another advantage of some importance is the fact that the customary schedules used in practically all community studies secure the data necessary for its computation, so that with little or no additional effort a reliable index of fertility of the population is available. But the fertility ratio has one serious disadvantage. On a nation-wide scale, fertility ratios can be had only when a census is taken. For the United States this means they are available only at 10-year intervals. The ratio has the further disadvantage that it cannot be applied to nativity groupings, such as native whites and foreign-born whites, in which children come in one category and parents in another. It also is likely to prove defective for comparisons of the rates of reproduction of Negroes in the South. One study indicated a strong tendency for young Negro females to leave their children on the farms with their grandparents while the young women themselves established residence in the cities.[2] But such is the present unreliability of the birth statistics that the fertility ratio is by all odds the most valuable gauge of fertility in the United States.

The Net Reproduction Rate.—In their most useful form the data on the fertility of a population are related to those on mortality and expressed as a percentage of that necessary to maintain a stationary population. This is called the *net reproduction rate.*[3] Either the birth rate or the fertility ratio may be used to supply the necessary data on fertility, but in either case age-specific fertility and mortality rates must be computed and combined in a manner that reveals the extent to which one generation replaces, fails to replace, or more than replaces itself. For the first time in 1940 the

[2] See KEMP, LOUISE, "A Note on the Use of the Fertility Ratio in the Study of Rural-urban Differences in Fertility," *Rural Sociology*, 10 (September, 1945), 312–313.

[3] For details of computation see Robert R. Kuczynski, *Fertility and Reproduction: Methods of Measuring the Balance of Births and Deaths*, pp. 15–20, Falcon Press, New York, 1932.

Bureau of the Census included estimates of the net reproduction rate along with its tabulations on the age and sex distribution of the population. This is a very useful addition. As used by the census in these reports the net reproduction rate is a rather carefully standardized measure of the fertility of the population related to the mortality. The fertility data used in its composition are the same as those utilized in the computation of the fertility ratio, *i.e.*, the number of children under 5. For this reason, strictly speaking, the rate obtained for 1940 really pertains to the period 1935 to 1939, inclusive.

The precise nature of the index requires some additional explanation. As indicated above, it shows how much a given population will increase or decrease during a generation if the age-specific fertility rates and mortality rates remain unchanged. Thus, by assuming no change in fertility or mortality at any age level, the net reproduction rate indicates the number of daughters that would be born during the course of their lifetime to the survivors of 100 new-born females. A rate of 100 indicates that the survivors of the original cohort would in the course of their lifetimes give birth to 100 daughters, just enough to replace the group. Under these circumstances the population would remain stationary. A rate of more than 100 means an increase of population, and one of less than 100 indicates that one generation is failing to replace itself. Of course, since each birth in the United States represents a population fact averaging more than 60 years in duration, and since all age and sex distributions are not symmetrical, the rate of increase or decrease from one generation to another may not correspond exactly to the net reproduction ratio. However, in the long run the rate represents the amount of growth or decline that would occur.

FERTILITY IN SELECTED NATIONS

Only for limited portions of the earth's surface are the demographic data available in sufficient detail and with sufficient accuracy to make possible reliable estimates of the net fertility of the population. On the other hand, there is very little use in considering any other. As indicated above, in their most usable form fertility data are arranged in a manner that shows the ratio between the births in two successive generations of the natural increase or decrease of population that would occur in a generation for a population in which the fertility and mortality was constant. Under such a situation a net fertility just equal to replacement needs would equal unity, a rate of 1.10 would mean an increase of 10 per cent within the generation, and a rate of 0.80 would indicate that the births were 20 per cent too small to offset losses due to mortality in the course of the

TABLE 22.—NET REPRODUCTION RATES OF SELECTED COUNTRIES*

Continent or country	Year	Net reproduction rate
Africa:		
Union of South Africa (white population)	1936	1.264
America:		
Canada	1931	1.319
United States (white population)	1936	0.947
Asia:		
Japan	1930	1.571
Europe:		
Germany	1936	0.934
Austria	1935	0.640
Belgium	1939	0.859
Bulgaria	1933–1936	1.192
Denmark	1931–1935	0.932
Estonia	1933–1935	0.728
Finland	1931–1935	0.956
France	1935	0.866
Hungary	1930–1931	1.011
Ireland	1935–1937	1.162
Italy	1935–1937	1.131
Latvia	1938	0.946
Norway	1939	0.856
Netherlands	1930–1931	1.280
Poland	1934	1.110
Portugal	1930–1931	1.334
England and Wales	1937	0.782
Scotland	1938	0.961
Sweden	1931–1934	0.755
Switzerland	1932	0.850
Czechoslovakia	1929–1932	0.939
Oceania:		
Australia	1937	0.989
New Zealand	1935–1936	0.949

* SOURCE: *Statistical Yearbook of the League of Nations, 1940–1941*, Table 9, pp. 48–49, League of Nations, Geneva, 1941.

generation. In the long run the rate of 1.00 would just maintain constant numbers in the population.

In Table 22 are assembled latest available data for those countries for which reliable information is to be had. Although a large share of the world's population is not included in the countries listed, these data give some basis for assessing the speed with which the peoples of the world are reproducing. In Western society only the peoples of south and eastern Europe—"peasant societies" for the most part—are producing enough children to offset losses through mortality and to bring about a natural increase of population. However, large areas of the earth's surface are inhabited by peoples whose birth rates are very high (see Table 23, which gives data on the situation prevailing just before the Second World War). Were it not for the exceedingly heavy toll of life taken by the high death rates, the world's population would mount at a dizzy pace. This is especially true in those parts of Latin America and Asia for which information is available, and it is probably equally true of China.

Only the very primitive ideas and techniques relative to medicine, hygiene, and sanitation—the most positive checks upon population increase of colored peoples—are preventing the white races of Europe and America from being completely engulfed by "a rising tide of color."

DATA ON FERTILITY IN THE UNITED STATES: NATURE AND SOURCES

The United States has lagged sadly in comparison with other occidental countries in the collection of basic data on the fertility of the population. The gathering of birth statistics was long one of the functions of government that was left entirely in state hands. Although a few of the states and some municipalities went ahead and developed fairly adequate machinery for the registration of births and insisted on good administration of their laws, such was not the case throughout large parts of the nation. As a result of inadequate data on births and because the use of the fertility ratio had not been discovered, only in recent years has it been possible to determine the most elementary facts about the level and trend of fertility in this country. For example, it is now known that the fertility of the population has been falling ever since the opening of the nineteenth century, but not until well along in the twentieth century was this highly significant fact established.[4]

[4] *Cf.* WILLCOX, WALTER F., *Introduction to the Vital Statistics of the United States, 1900 to 1930*, pp. 13, 55, and the literature cited there, Government Printing Office, Washington, 1933.

TABLE 23.—CRUDE BIRTH RATES FOR SELECTED COUNTRIES AT THE OUTBREAK OF THE SECOND WORLD WAR*

Continent or country	Year	Crude birth rate
Africa:		
Egypt	1938	43.4
Mauritius	1939	36.0
Union of South Africa (white population)	1939	25.3
America:		
Canada	1940	21.4
United States	1940	17.9
Mexico	1940	43.5
Argentina	1940	23.9
Barbados	1939	28.3
Brazil†	1940	38.0
Chile	1940	33.4
Colombia	1940	32.4
Costa Rica	1940	42.7
Guatemala	1940	33.4
Puerto Rico	1939	39.8
Salvador	1940	42.3
Surinam	1939	30.4
Trinidad and Tobago	1939	31 0
Uruguay	1939	20.1
Venezuela	1940	37.2
Asia:		
Burma	1939	32.3
Ceylon	1940	35.8
Cyprus	1940	34.6
Federated Malay States	1940	39.7
Formosa	1937	45.6
India	1939	33.0
Japan	1938	27.0
Korea	1937	27.5
Palestine:		
Jews	1940	23.7
Moslems	1940	47.4
Philippine Islands	1938	32.4
Straits Settlements	1940	41.3
Unfederated Malay States	1940	41.4

* SOURCE: *Statistical Yearbook of the League of Nations, 1940–1941*, Table 6, pp. 36–37, League of Nations, Geneva, 1941.

† Author's estimate.

TABLE 23.—CRUDE BIRTH RATES FOR SELECTED COUNTRIES AT THE OUTBREAK OF THE SECOND WORLD WAR.*—(*Continued*)

Continent or country	Year	Crude birth rate
Europe:		
Albania	1939	27.9
Austria	1940	21.8
Belgium	1940	13.4
Bulgaria	1940	22.2
Czechoslovakia	1938	16.8
Denmark	1940	18.3
England and Wales	1940	14.6
Estonia	1939	16.3
Finland	1939	21.3
France	1939	14.6
Germany	1940	20.0
Greece	1939	23.5
Hungary	1940	19.9
Ireland	1940	19.1
Iceland	1939	19.5
Italy	1940	23.4
Latvia	1939	18.5
Lithuania	1939	22.3
Luxemburg	1938	14.9
Malta	1939	33.2
Northern Ireland	1939	19.5
Norway	1940	16.3
Netherlands	1940	20.8
Poland	1938	24.5
Portugal	1940	24.8
Rumania	1940	26.5
Scotland	1940	17.1
Spain	1940	24.0
Sweden	1940	15.0
Switzerland	1940	15.2
Yugoslavia	1939	25.9
Oceania:		
Australia	1940	18.0
Hawaii	1940	21.7
New Zealand:		
European	1940	21.2
Maoris	1940	46.9

The gathering of data on fertility of population in the United States falls into two periods. The first period covers the last half of the nineteenth century, during which attempts were made to determine birth rates from the census enumerations of children under 1; the second includes the years from 1915, when the first federal participation in birth registration was begun, to the present. In this later period the effort has been made to have births registered by the states and the data tabulated and published by the federal government.

The Bureau of the Census was established by the permanent census act, which was approved Mar. 6, 1902. Although this act authorized the collection of birth statistics, it was not until 1915 that the registration of births became a cooperative function of the state and federal governments through the establishment of the birth registration area. Prior to this time federal participation had been limited to the highly unsatisfactory technique of including certain questions concerning births in the decennial census inquiries. This was done for the first time in 1850, when an attempt was made to determine the number of births during the year preceding the census data by means of the reported number of children under 1 year of age. The figure derived from the enumeration—629,444—was corrected to 653,917 on the basis of a spot study in Rhode Island, an experiment designed to determine the number of babies born during the year who also died during the year. This estimate places the birth rate for the year at the absurd figure of 28.2. The table prepared in this manner was admitted to have little value,[5] but it does represent the first compilation of fertility data for each state in the union.

No attempt at all was made to compile birth data in connection with the Eighth Census, but in 1870 the reported number of children under 1 was analyzed again. At this time two serious shortcomings were recognized: (1) The fallacy of considering all children in the first year of life as aged 1 was pointed out, and (2) the omission of as many as 100,000 infants from the census enumeration was frankly admitted.[6] In the next two decades the matter of gauging the fertility of the population received the consideration of a very capable student, Dr. J. S. Billings, who was in charge of the division of vital statistics in the Census Office. In the reports of the census of 1880 Billings stated that the data on the number of children under 1, corrected for infants both born and dying during the preceding year, indicated a birth rate of 31.4. This he thought too low. Taking into account the known defects of the census of 1870, the reported

[5] *Ibid.*, p. 55; *cf. The Seventh Census of the United States, 1850*, p. xxxix, Robert Armstrong, Public Printer, Washington, 1853.

[6] *Ninth Census, Vital Statistics of the United States*, vol. II, pp. 515–524.

increase in population in the decade 1870 to 1880, the death rate, and the data on immigration, he estimated the birth rate at 36 per 1,000 population.[7] Following the census of 1890, in which he had also prepared the reports on vital statistics, Billings severed his connection with the Census Office and published outside official sources his conclusion that "the birth rate has really diminished in the United States."[8] It is interesting to note that this conclusion is greatly at variance with the one published in the *Report on Vital and Social Statistics in the United States at the Eleventh Census, 1890*,[9] which also carries his name as responsible for the report.

As indicated above, the permanent census act authorizing the Census Bureau to collect birth statistics was approved in 1902, but it was not until 1915 that the birth registration area was established. Consequently our birth statistics really may be said to begin with the year 1915, for which the data assembled from the states in the original registration were published in the first of the census reports on *Birth Statistics*. At its inception the birth registration area embraced 10 states—Connecticut, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, New York, Pennsylvania, Rhode Island,[10] Vermont—and the District of Columbia, containing about 31 per cent of the nation's population. Maryland was added in 1916; Indiana, Kansas, Kentucky, North Carolina, Ohio, Utah, Virginia, Washington, and Wisconsin were accepted in 1917. In 1919 California, Oregon, and South Carolina[11] were admitted. Nebraska complied with the requirements for admission in 1920, and Delaware, Mississippi, and New Jersey, in 1921. Three more states—Illinois, Montana, and Wyoming—qualified in 1922, and Florida, Iowa, and North Dakota were admitted in 1924. Only West Virginia gained admittance in 1925, followed by Arizona and Idaho in 1926. Five states—Alabama, Arkansas, Louisiana, Missouri, and Tennessee—gained admission in 1927, and three more—Colorado, Georgia, and Oklahoma—in 1928. With the addition of Nevada and New Mexico in 1929, the registration area had grown to include 46 of the states and nearly 95 per cent of the nation's population by the time of the 1930 census. With the addition of South Dakota in 1932

[7] *Report on the Mortality and Vital Statistics of the United States as Returned at the Tenth Census*, Part II, p. cxl, Government Printing Office, Washington, 1886.

[8] BILLINGS, J. S., "The Diminishing Birth Rate in the United States," *The Forum*, 15 (June, 1893), 467–477.

[9] Part I, "Analysis and Rate Tables," p. 481. In order to keep from admitting that the birth rate of the United States was falling, those finally responsible for this report had accepted an estimate that the enumeration of children under 1 was 25 per cent incomplete in 1890 as compared with only 5 per cent incomplete in 1880.

[10] Dropped in 1919 and readmitted in 1921.

[11] Dropped in 1925 and readmitted in 1928.

and Texas in 1933 the birth registration area became coextensive with the continental United States.

As mentioned above, the first report[12] of fertility statistics for the registration area was that including the data for 1915. In this report were four tabulations, the first of which gave the number of children born (except stillbirths) in the registration area (and its subdivisions) by sex of child and month of occurrence. Subdivisions used include counties, further divided into their urban (10,000 and over) and rural parts. The second tabulation for the same divisions classified the births according to sex, color, and, for white children, nativity of parents. A third tabulation classified white children according to the country of birth of their parents, and the fourth table gave for each division the excess of births over deaths.

The second report,[13] issued in 1918, was similar to the first except that a table was added giving the number and cause of infant deaths, with the length of time that the deceased infants had lived. These data were classified according to sex and color and, for white children, according to the birthplace of the mother.

The third report[14] contained much more detail than the previous ones. Since the system then adopted has formed the basic framework for subsequent reports, it deserves a brief description. The first five tabulations included are comparable to those in the earlier reports. Following these data come (1) a tabulation showing births according to legitimacy, these data subdivided according to sex, age of mother and, for white children, nativity of mother; (2) births by age of mother, crossed with age of father; (3) for the registration area only, births by order of birth subdivided according to color, sex, age of mother and, for white children, nativity of mother; (4) for each state, order of birth by color and for white children by country of birth of the mother; (5) for the entire registration area and for the states, the number of children ever born to mothers, the number of living children by color, and, for white children, by country of birth of mother; (6) for the registration area, states, and cities of 100,000 or more, plural births by color, sex, and, for white children, the nativity of parents, with comparable data for 1915 and 1916; and (7) for the area, states, and cities of 100,000 or more inhabitants, plural births by color, sex, and, for white children, the nativity of the mother, with comparable data for 1915 and 1916.

[12] *Birth Statistics for the Registration Area of the United States, 1915*, Government Printing Office, Washington, 1917.

[13] *Birth Statistics for the Registration Area of the United States, 1916*, Government Printing Office, Washington, 1918.

[14] *Birth Statistics for the Birth Registration Area of the United States, 1917*, Government Printing Office, Washington, 1919.

During the next 4 years changes in the basic tabulations were of minor consequence, but in the *Eighth Annual Report*, that for 1922, the scope of the compilations was considerably enlarged. The publication was renamed *Birth, Stillbirth, and Infant Mortality Statistics for the Birth Registration Area of the United States.*[15] This title was retained for all of the annual reports through 1936. The early reports in the series suffer from four serious deficiencies: (1) the underenumeration of births, (2) the use of 10,000 as the dividing line between rural and urban areas, (3) the recording of births by place of occurrence only and not according to the residence of the mother, and (4) the failure to divide the basic data given in the county tables according to race crossed with residence. The underenumeration of births constitutes a basic difficulty for all who desire to utilize the fertility data. It was especially serious before 1935. Improvement is being made, rapidly after 1935, but great caution must still be utilized in the interpretation of the birth statistics. Especially treacherous is the comparison of rural and urban fertility, although the greatest care must be employed in every interpretation in which data on births are used. For example, the falling infant mortality and maternal mortality rates are to a significant degree merely a reflection of improved birth registration. In the calculation of both of these rates the number of live births is used as a base. For this reason more complete birth registration, other things remaining equal, causes the rates to fall. In 1930 the line of demarcation between rural and urban was changed to 2,500 and thus became consistent with that used in the Census of Population. But it was not until 1937, and in a new series, that birth statistics were published according to the place of residence of the mother as well as by place of occurrence. Beginning with the data for 1935, the births according to race, further subdivided according to residence, are given in the basic county tables for the first time.

In publishing the data for 1937 the Bureau of the Census initiated a new series, *Vital Statistics in the United States*, carrying forth the series of mortality and fertility data previously included on a comparable basis but also including numerous improvements. Probably the most important of these is the tabulation of births according to place of residence of the mother as well as by place of occurrence. In this series fairly satisfactory detail in the county tables was present both with respect to urban or rural characteristics and racial divisions. More nearly complete registration is now the most important goal in the improvement of birth statistics. As soon as this is achieved, demographers will be much more accurate in their inventories of the national population.

[15] All these volumes were published by the Government Printing Office, Washington, D. C.

Chapter 11

DIFFERENTIAL FERTILITY

THERE are tremendous differences in the rates of reproduction of various nations, groups, and classes. Among some peoples the women bear about as many children as physiology permits. Other populations seem to cut across lots in their haste to commit race suicide. This is to say that fertility more nearly approximates fecundity among one people than another. One residential group bears and rears a much larger quota of children than another. Ethnic groups and races differ in respect to the numbers of descendants that they leave. The rapidity of reproduction bears a definite relationship to social and economic status or class, and it also seems to be related to residential stability or its opposite. The fertility of a given population may change radically in the course of time, as is evidenced by the rapidly falling birth rate among Western peoples or by the differences in childbearing proclivities of the colonial population of America and the present generation. Extremely variable among demographic factors are the proportion of childless couples in a population and the percentage of those bearing children who have only one child or only two children. Fecundity, or the physiological possibility of bearing children, probably does not vary widely, but certainly the actual accomplishments, or fertility, are subject to extreme ranges and variation.

Differences in the fertility of the various races, classes, residential groups, and other elements that constitute a population are of great significance. Even a slight differential in the rate of reproduction of two ethnic elements in a given society will shortly bring about a fundamental change in its biological make-up. For example, it might reasonably be contended that persons of southern white stock will soon be the dominant population strain in the United States. In order to show the rapidity with which such important modification might occur, the following data and computations are useful. Illinois had in 1940 a white population of 7,504,202 which was only slightly less than that of the four East South Central states (Kentucky, Tennessee, Alabama, and Mississippi), a geographic division that sends forth such large numbers of migrants into Illinois. Suppose, for illustrative purposes, that the total were exactly 15,000,000, of whom one-half were in Illinois and the other half in the East South Central states.

In Illinois in 1940 the net reproduction rate among the white population was 82; in the East South Central states it was 121. Nearly if not all of this difference is due to the higher rate of reproduction in the East South Central states. Were no changes to occur in the age-specific birth rates and death rates, the present generation of Illinoians would leave 6,150,000 descendants, who in turn would produce 5,043,000 offspring, who in their turn would give rise to a generation numbering 4,135,260. In the East South Central states, the corresponding contingents of progeny would number 9,075,000, 10,980,750, and 13,286,708, respectively. Since the duration of a generation in this country is only a little more than 25 years, these calculations indicate that in about 75 or 80 years the size of the total generation would have increased from 15,000,000 to 17,421,968. However, assuming no intermixture, of these only 23.7 per cent would be the descendants of the present-day Illinoians whereas 76.3 per cent, more than three-fourths, would be the offspring of the southerners. This illustrates the rapidity with which differentials in the rate of reproduction may change the basic ethnic elements of a population. Similar differences if continued over several generations would bring about greatly varying numbers of descendants of persons now in the lower, middle, and upper classes of society; in the proportions of whites and nonwhites in the population; and of the contribution to future populations made up by the descendants of persons now living in the city and on the farms. These three aspects, along with regional differences, constitute the more important phases of the subject that it is feasible to explore on the basis of available data.

RURAL-URBAN DIFFERENTIALS

Magnitude, persistence, and general social significance all stamp the rural-urban differential in fertility as of prime importance. Whenever one takes a bird's-eye view of the rates of reproduction in a given country, as is possible for the United States by observation of Figs. 88 and 89, it is at once evident that the more urban an area the lower the fertility of the population and the more rural an area the more rapidly its population is reproducing. In our own country the highest rates of reproduction prevail in the southern Appalachians, in other of the most rural areas of the southern region, and in the remote portions of the Rocky Mountains. On the other hand, in the great cities and the areas adjacent to them the fertility of the population is very low. Within a given state where smaller subdivisions are possible, the depressing effect exercised by a city or town upon the rate of reproduction is even more apparent.

Such illustrations give a general idea of the magnitude and all-pervasiveness of the rural-urban differential, but the relationship is subject to more

TABLE 24.—REGIONAL DIFFERENCE IN NET REPRODUCTION RATES, BY COLOR AND RESIDENCE, 1940*

Geographic division	All classes			Urban			Rural-nonfarm			Rural-farm		
	Total	White	Non-white	Total	White	Non-white	Total	White	Non-white	Total	White	Non-white
United States	96	94	107	74	74	74	114	114	114	144	140	160
New England	84	83	...	78	77	..	101	101				
Middle Atlantic	77	77	77	69	69	75	103	104	...	117	117	
East North Central	92	92	86	78	78	84	119	119	...	134	134	
West North Central	101	101	...	76	77	..	109	108	...	138	138	
South Atlantic	107	105	112	71	71	73	119	119	118	150	144	159
East South Central	120	121	118	76	79	70	122	128	101	154	150	163
West South Central	109	108	110	78	81	68	114	115	109	146	142	158
Mountain	123	120	...	94	95	..	138	136	...	160	152	
Pacific	85	85	...	73	73	..	112	111	. .	108	108	

* SOURCE: *Sixteenth Census of the United States, 1940*, Series P-5, No. 13.

exact measurement. Thus, as gauged by the net reproduction rate, in the urban districts of the United States the 1930 reproduction level was only 76 per cent of that necessary to meet replacement needs, whereas in rural-nonfarm areas it was 116 and in the rural-farm portions it was 136 per cent of replacement levels. At the same time there was a definite tendency for the fertility to become lower as the size of the center of population increased.

Another set of data important to consider in studying rural-urban (and also racial and regional) differences in fertility are those compiled by the Bureau of the Census from the 1940 materials. These are based on the net reproduction rate and therefore, strictly speaking, apply to the 5-year period 1935 to 1939, inclusive. They are the latest and most comprehensive, as well as probably the most accurate, materials that are available relative to differential fertility in the United States. Table 24 and Figs. 90 and 91 give these net reproduction rates for each of the census geographic divisions, with the data subdivided according to both race and residence. It is necessary to prepare the materials in this detailed manner so as to make it possible to analyze the rural-urban differentials separately from the racial and regional variations. The same materials will be referred to later when these other relationships are being examined.

The nature of the rural-urban differential is readily apparent from Table 24. Without exception among the white population in each of the nine census geographic divisions, the 1940 net fertility was less than replacement levels in urban areas, above replacement levels in rural-nonfarm territory, and high enough in farm sections to make for a rapid increase of population. Among urban Negroes also the fertility was insufficient to meet replacement needs in all areas, whereas rural-nonfarm Negroes were reproducing at rates higher than necessary to maintain numbers, and rural-farm Negroes most rapidly of all.

RACIAL DIFFERENTIALS

Widely diffused are the ideas contained in such semipopular "scientific" works as Lothrop Stoddard's *The Rising Tide of Color.*[1] Thousands, if not millions, of well-educated persons have a haunting fear that the day will come when the representatives of the white race will be completely drowned in the surging masses of the colored peoples. In the United States such phobias have taken the form of a fear that the rapid multiplication of the Negroes will bring a day in the not distant future when the colored elements will be numerically dominant in the American population. To many people this is the greatest of America's social problems. What

[1] Charles Scribner's Sons, New York, 1921.

basis is there for such a belief? On what differentials, if any, in the population are such fears based? What are the rates of reproduction of the basic racial stocks in our population? And what are the prospects for the future?

As has already been shown, at each census from 1790 to 1930 the proportion of Negroes in the total population decreased. In 1790 it was 19.3; by 1850 Negroes made up only 15.7 per cent of the population; by 1900 the proportion stood at 11.6; and by 1930 only 9.7 per cent of the population was classed as Negro. Prior to the last decade, however, it has been impossible to determine the extent to which these differentials in the rates of increase were due to natural increase and the extent to which they were influenced by immigration. For the first time in 1920 net reproduction rates were available for the races, but the census of 1920 left much to be desired, especially with respect to the data about Negroes. Probably 1930 is the earliest year for which reliable indexes are available. Using the 1930 census data the National Resources Committee in 1938 published the materials reproduced in Table 25. These data would seem to indicate a considerable differential between whites and Negroes, with Mexicans and Indians being far above both. However, major interest is attached to the fact that the fertility of Negroes appears to be above that of the native whites.

This again brings out the necessity of subsorting by residence and region before it is possible to determine racial differences. In order that there be no mistaking this point, Table 25 for 1930 is presented for the purpose of enabling one to make a comparison of the races in the rural and urban portions of the various regions. It will be observed that in the rural-farm population the net fertility of Negroes exceeded that of native whites in the Middle Atlantic, East North Central, South Atlantic, and Pacific divisions. Of most significance here, of course, is the South Atlantic division. The greater fertility of Negroes in these states should be weighed against the higher fertility of native whites in the East South Central and West South Central states, the other two divisions in which there are significant numbers of Negroes in the rural-farm population. On the whole, the fair conclusion seems to be that the fertility of Negroes in 1930 approximated that of the native whites only because the former continued to be residents of rural-farm areas to a greater extent than the latter.

By 1940 the net replacement rate of the white population had fallen to 95 (from 110 in 1930) and that of the nonwhite (largely Negro) to 107 (from 110 in 1930). Table 24 and Figs. 90 and 91 presented above give the data. Analysis will show that the higher fertility of the Negroes in 1940 should be attributed to the fact that they are rural dwellers in a larger

TABLE 25.— NUMBER OF CHILDREN UNDER 5 PER 1,000 WOMEN AGED 20 TO 44 YEARS, AND PER 1,000 PERSONS AGED 20 TO 54 YEARS, IN DIFFERENT RACIAL GROUPS, UNITED STATES, 1930*

Group	Number of children under 5 years	Children per 1,000 women aged 20 to 44 years	Children per 1,000 persons aged 20 to 54 years
White	9,927,396	481	186
Negro	1,230,206	497	210
Mexican	214,773	906	335
Indian	46,680	924	230
Japanese	17,696	824	262
Chinese	5,781	1,051	131
Filipino	1,423	1,090	37

* SOURCE: National Resources Committee, *The Problems of a Changing Population*, p. 128, Government Printing Office, Washington, 1938.

TABLE 26.—INDEXES SHOWING THE EXTENT TO WHICH THE FERTILITY OF NATIVE WHITE AND NEGRO POPULATIONS IN RURAL AND URBAN AREAS MET REPLACEMENT NEEDS IN 1930, BY GEOGRAPHIC DIVISIONS*

Geographic division	Rural-farm		Rural-nonfarm		Urban	
	Native white	Negro	Native white	Negro	Native white	Negro
United States	1.69	1.78	1.37	1.21	0.86	0.71
New England	1.41	1.28	1.21	1.34	0.87	1.00
Middle Atlantic	1.47	1.54	1.33	1.14	0.83	0.68
East North Central	1.51	1.59	1.35	1.10	0.90	0.72
West North Central	1.59	1.51	1.21	1.10	0.85	0.64
South Atlantic	1.89	1.97	1.59	1.35	0.93	0.75
East South Central	1.91	1.70	1.61	1.11	0.96	0.70
West South Central	1.79	1.64	1.38	1.05	0.88	0.65
Mountain	1.73	1.43	1.41	0.87	0.93	0.60
Pacific	1.22	1.56	1.08	0.81	0.66	0.53

* SOURCE: Compiled from National Resources Committee, *Population Statistics*, 3, *Urban Data*, pp. 24–25, Table 28, Government Printing Office, Washington, 1937.

proportion than the whites. If the situation for each of the regional and residential categories is studied carefully, this stands out clearly. The net reproduction rates of urban whites are fully as high as those of the non-whites. Among the rural-nonfarm population, the difference seems in

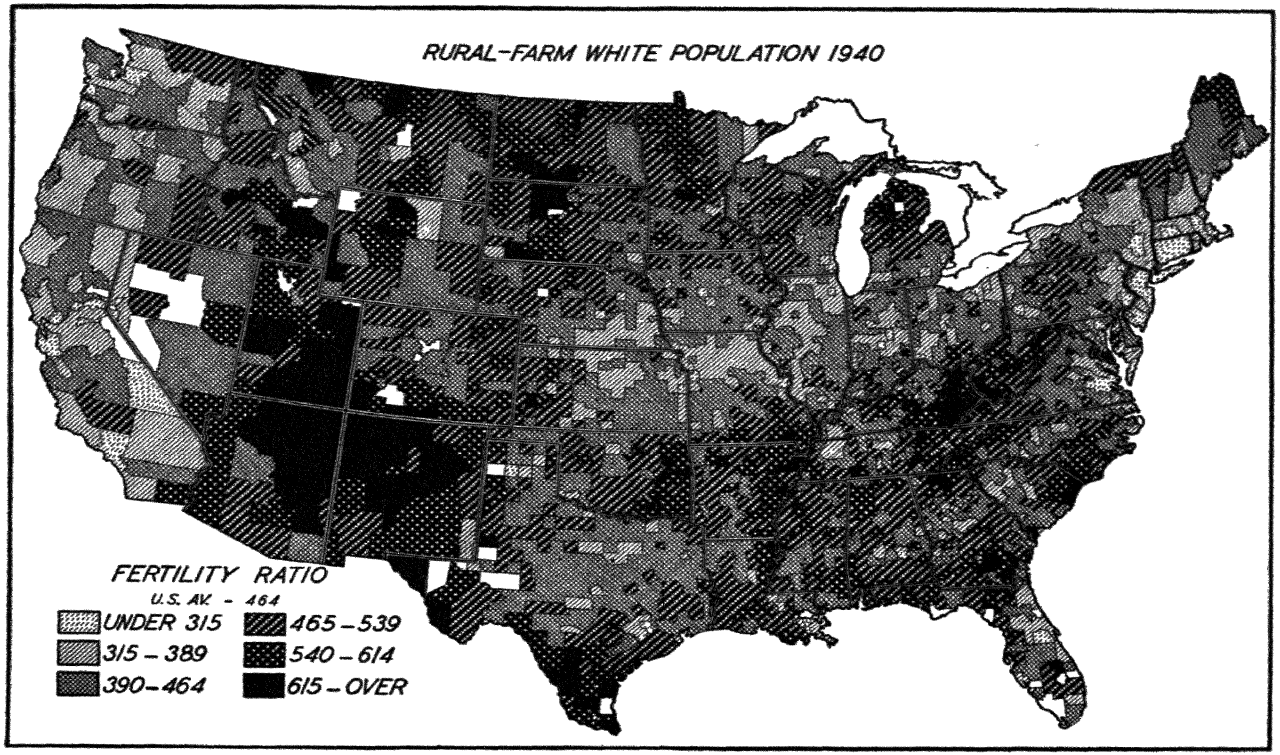


FIG. 88.—Fertility ratios of the white rural-farm population in the United States by counties, 1940. (Counties having less than 100 white rural-farm women aged 15 to 44 are left blank.) (*Reproduced from Beegle and Smith, "Differential Fertility in Louisiana."*)

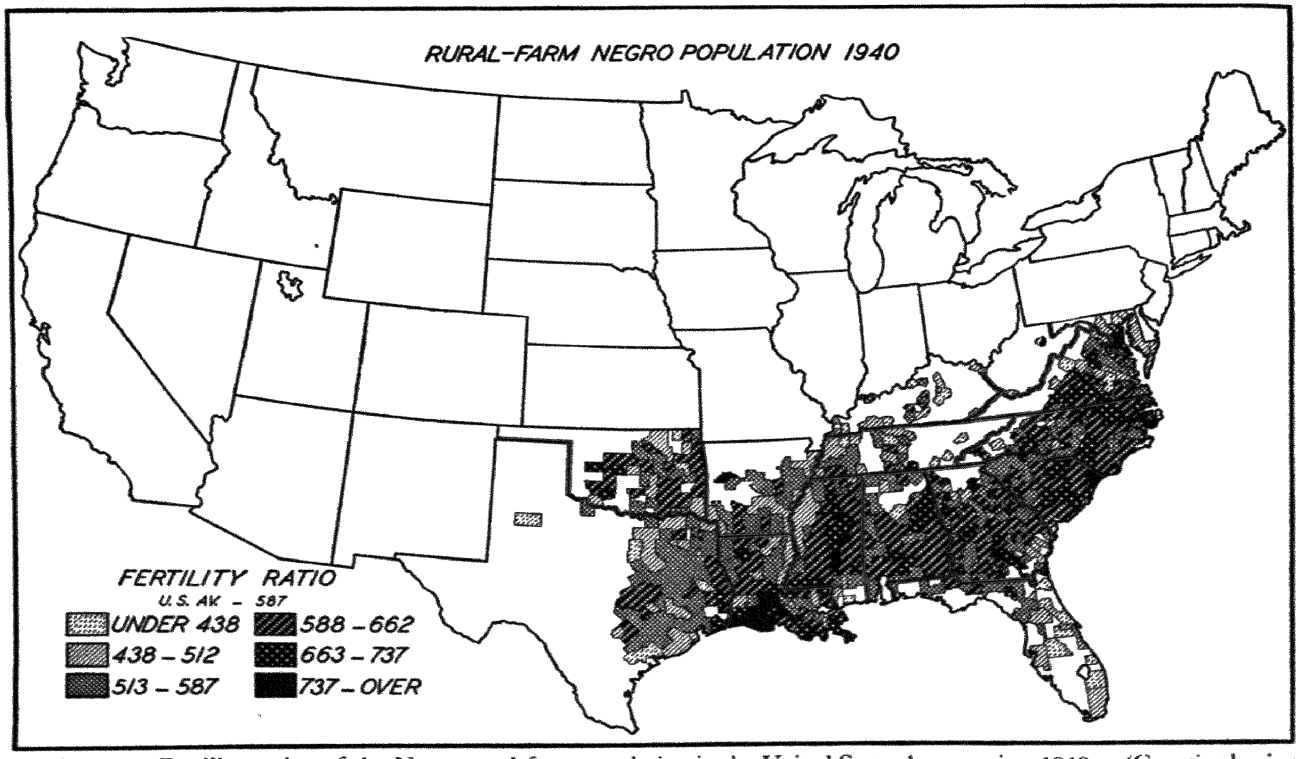


FIG. 89.—Fertility ratios of the Negro rural-farm population in the United States by counties, 1940. (Counties having less than 100 Negro rural-farm women aged 15 to 44 are left blank.) (*Reproduced from Beegle and Smith, "Differential Fertility in Louisiana."*)

favor of the whites. But in the South where the bulk of the nonwhites or Negroes reside, the differential among the rural-farm population is considerably in favor of the Negroes.

This immediately suggests that in the southern states the Negroes continue to reside in the more rural parts to a greater extent than the whites. Therefore, to determine if there is actually a racial differential and not merely a reflection of residential differences, the variations within the southern states must be analyzed carefully in a most detailed manner. The author and one of his former students attempted such a study of the situation in the state of Louisiana.[2] Our analysis was based on a large amount of tabular material, calculations by the tens of thousands, and the preparation of many maps, two of the most significant of which are reproduced in Figs. 88 and 89. A study of these will indicate why we felt justified in writing as follows:

In summary, the following generalizations may be made concerning racial differentials in reproduction rates in Louisiana.

1. In the state as a whole Negroes seem to be multiplying slightly more rapidly than the white population, but this appears to be due to the fact that a higher proportion of the colored population resides amid rural surroundings. To the extent that we have been able to correct for these environmental differences and compare similar residential areas, the racial differences have tended to disappear.

2. In the cities the white population seems to be reproducing more rapidly than the Negro, while on the farms the opposite is true. In rural-nonfarm areas, the advantage also appears to be slightly in favor of the white population. However, in the Delta cotton-plantation sections along the Mississippi River, where such a large share of the state's Negroes are concentrated, the white people who live on farms are reproducing much more rapidly than the Negro.

3. On the whole, the white population of Anglo-Saxon, Protestant north Louisiana is multiplying more rapidly than the Negro, while in French, Catholic south Louisiana the advantage lies with the colored race.[3]

It is very likely that comparable studies in other southern states would yield similar results. If so, the apparent racial differentials are merely reflections of the fact that the Negroes still live amid rural surroundings to a greater extent than the white population. In other words the real cause of the variations is residence and not race.

REGIONAL DIFFERENTIALS

When the data are mapped as in Figs. 88 to 91, the nature of the regional differences stands out rather clearly. There are great variations,

[2] See BEEGLE, J. ALLAN, AND T. LYNN SMITH, *Differential Fertility in Louisiana*, Louisiana Agricultural Experiment Station Bulletin No. 403, Baton Rouge, 1946.

[3] *Ibid.*, p. 27.

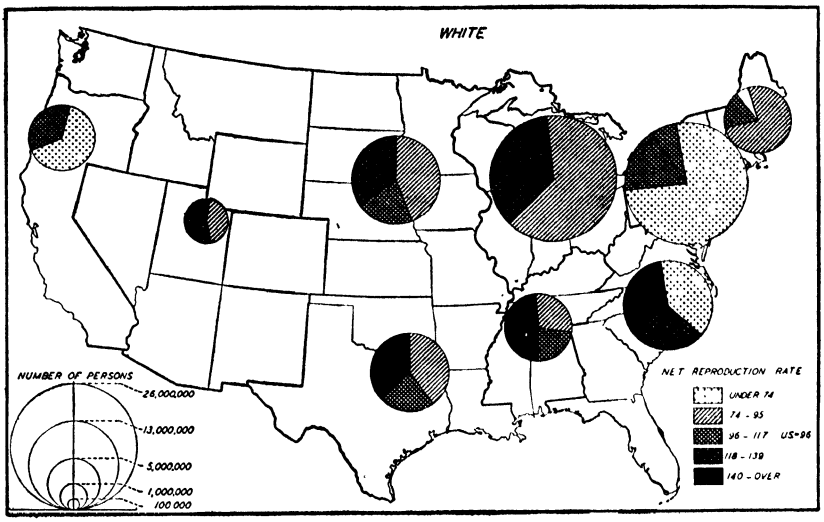


FIG. 90.—Regional variations in the net reproduction rate of the white population of the United States by residence, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban, rural-nonfarm, and rural-farm populations, respectively.)

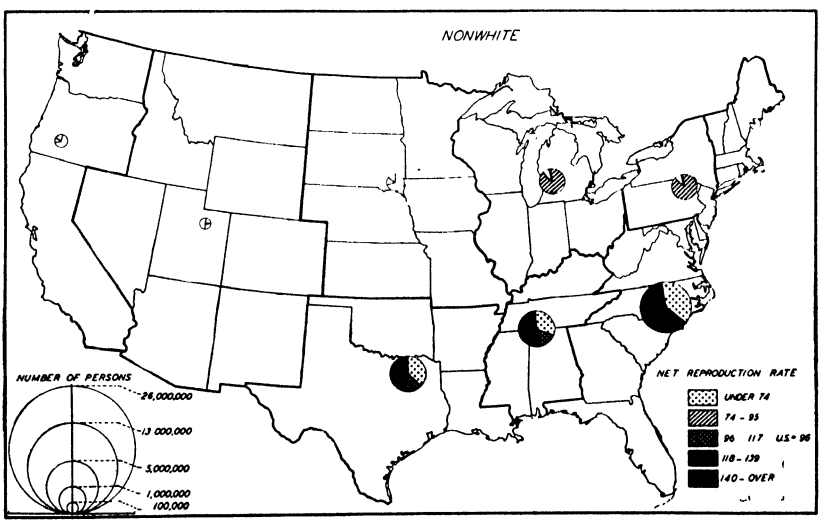


FIG. 91.—Regional variations in the net reproduction rate of the nonwhite population of the United States by residence, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban, rural-nonfarm, and rural-farm populations, respectively.)

but most of them seem due to the fact that the northeastern states are highly urban and industrial whereas the South and the Rocky Mountain region are more rural. Other than these reflections of the urbanity or the rurality of the populations, there seems little to be said about regional differences. In fact, the results of the analysis in this and the two preceding sections may be summed up as follows: Every refinement introduced into the analysis of the data concerning the net reproduction rate in the United States tends to emphasize the importance of the rural-urban differential in fertility and to minimize racial and regional differences in the rate of reproduction. When the residential differentials are fully isolated, there is little if anything left to attribute to other factors.

CLASS DIFFERENTIALS

The determination of differentials in fertility among the several classes or social strata into which society is divided is more difficult in the United States than it would be in countries where the social layers are more sharply differentiated, the caste element stronger, and vertical social mobility less intense. In this country, we have no official data in which the population is classified according to social status and that characteristic related to other social and demographic features. Nevertheless, through the substitution of occupational classifications and the use of the information secured in special soundings that have been made in various parts of the country among the several groups of which our population is composed, we are able to replace mere philosophical speculation and a priori reasoning with some observed facts and partially tested hypotheses.

Interestingly enough, the fundamental relationship demonstrated by most of the studies is not the one that many have deduced from the propositions set down by Malthus at about the time when the modern census was coming into existence. Rarely is it found that the higher the social and economic status the more rapid the rate of reproduction. Rather the popular song current in this country some years ago to the effect that

> The rich get rich, and
> the poor get . . . children!

seems to be a more accurate description of the observed facts. In other words, throughout much of the Western world and in other areas where Western standards are of significance, there seems to be an inverse relationship between economic status and fertility: As social and economic status increases, the rate of reproduction decreases.

Consider some of the data. On the whole, those presented in Fig. 92 are about as comprehensive and satisfactory as are available. In addition

to the all-pervasive rural-urban differential, these data show conclusively that as early as 1910, persons in the higher (more desired, better paid, and most difficult to enter) occupations were reproducing far less rapidly than those in the lower, less desirable, and less highly paid occupations. In fact, based on the number of children ever born to married women who had passed through the entire childbearing period by 1910, this illustration shows that rate of reproduction among professional people was only about one-half that of persons in the unskilled-labor category. This illustration

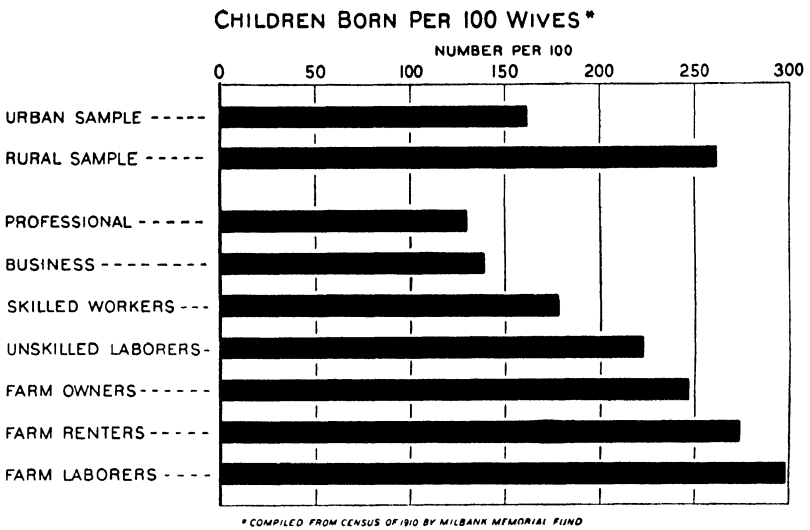


FIG. 92.—Occupational and tenure status in relation to the rate of reproduction in the United States, 1910. (The sample consists of 100,000 married women of native white parentage living in 33 cities and in the rural parts of 74 counties adjoining these cities.) (*Illustration from the Bureau of Agricultural Economics, United States Department of Agriculture.*)

also demonstrates a marked decrease in fertility among the farm population as one passes up the agricultural ladder from farm laborers to farm owners.

Thompson's study of the relationship between economic status and the fertility of the population in Butler County, Ohio, is among the most thorough that have been made. With the cooperation of the Bureau of the Census, data from the census schedules were taken off and tabulated in ingenious ways to bring out much of importance to those interested in differential fertility. Earlier it had been almost impossible to get the census data classified in such a way that they could be brought to bear on the relevant hypotheses. Thompson was careful to study the data for both the rural and urban parts of the county separately. Furthermore,

he classified the data so as to show whether the women were "north born" or "south born." A concise statement of his findings is as follows:

> The findings of this study on the relation of economic status, as measured by family rentals, to average number of children can be summed up very briefly by saying that there was a very close and consistent inverse relation between them—the higher the economic status the lower the average number of children.[4]

Some of Clyde V. Kiser's researches also are of significance in connection with the study of the relationship between occupation or social class and the rate of reproduction. For example, from the data secured in the National Health Survey of 1935 to 1936, he computed standardized birth rates for 16,831 native white women aged 15 to 44 and married to native white men living in Oakland, Newark, Grand Rapids, St. Paul, and Fall River at the time of the survey. Among these women the number of live births per 1,000 women varied according to the occupational class of the head of the family as follows: professional, 101; proprietors, 85; clerks-salesmen, 96; skilled workers, 101; semiskilled workers not in manufacturing, 110; semiskilled workers in manufacturing, 122; and unskilled workers, 137.[5] Since both income and educational status are closely related to occupational class, the same study also found that fertility was negatively related to income and that the birth rate declined as educational status increased.[6] A later study by the same author indicated that essentially the same relationships prevailed among the entire sample covered by the National Health Survey.[7]

All of this recent work in the United States has done little more than substantiate more fully the conclusions reached by Frank W. Notestein in his basic study published in 1933.[8] This thorough analysis of the 1910 census data indicated that in all types of urban communities and in rural areas the lower classes had higher reproduction rates than the upper and

[4] THOMPSON, WARREN S., *Average Number of Children per Woman in Butler County, Ohio, 1930—A Study in Differential Fertility*, p. 9, Bureau of the Census, Washington, 1941.

[5] *Cf.* KISER, CLYDE V., "Variations in Birth Rates According to Occupational Status, Family Income, and Educational Attainment," *Milbank Memorial Fund Quarterly*, 16 (1938), 46.

[6] *Ibid.*, pp. 50, 52.

[7] KISER, CLYDE V., "Birth Rates and Socio-economic Attributes in 1935," *The Milbank Memorial Fund Quarterly*, 17 (1939), 128–151; "Intra-group Differences in Birth Rates of Married Women," *The Milbank Memorial Fund Quarterly*, 19 (1941), 147–170.

[8] "The Differential Rate of Increase among the Social Classes of the American Population," *Social Forces*, 12 (1933), 17–33. Notestein's "Differential Fertility in the East North Central States," *The Milbank Memorial Fund Quarterly*, 16 (1938), 173–191, also should be consulted.

that in all probability the existence of such differentials extended well back into the nineteenth century.

Similar are the results of studies in other portions of the Western world. The data for England and Wales are particularly reliable. In 1931 the number of births per 1,000 married men of less than 55 years of age grouped according to social class were as follows: Class I (members of the leading professions, managers, officials and independents in certain finance and insurance occupations), 98; Class II (employers and managers), 102; Class IIIA (clerical workers), 111; Class III (skilled workers), 140; Class IV (semiskilled workers), 162; and Class V (unskilled workers), 174.[9]

[9] INNES, J. W., "Class Birth Rates in England and Wales, 1921–1931," *The Milbank Memorial Fund Quarterly*, 19 (1941), 75.

Chapter 12

THE DECLINING BIRTH RATE

THE falling birth rate, a trend that has spread throughout all of Western civilization, is probably the most important demographic factor that has influenced social affairs during the nineteenth and twentieth centuries. It was even the antecedent and to a considerable extent the cause of the second most important population trend, the increase in the expectation of life. So pronounced has been the decline in the rate of reproduction since modern census taking began that it may be clearly demonstrated by even such a rough index as the crude birth rate. However, most countries were somewhat slow in developing an adequate system of registration, so one should be cautious about accepting at their face value all of the birth rates that may be given in various official documents. For no country is this advice more to the point than for the United States.

THE DECLINING BIRTH RATE IN SELECTED COUNTRIES

France is frequently credited with being the original center of the declining birth rate, the place from which the phenomenon has diffused over the Western world. Be that as it may, that country early developed a fairly adequate registration of vital statistics, and the data for it give us an idea of what was taking place in one part of Europe during the first half of the nineteenth century. By 1850 several other countries were making considerable progress in the registration of births, so that the basis for our evaluation of trends during the second half of the nineteenth century is a much broader one. Data showing the reported trends in the crude birth rates of selected countries have been assembled and charted in Fig. 93. In interpreting these materials, it would be well to make a liberal allowance for improvement in the registration of births. This means that the declines in the various countries actually were more rapid than would appear from these data. It also means that little or no significance should be attached to an apparent increase in a country's birth rate while it was developing its registration machinery. Americans should take no pride in the fact that comparable information for the United States cannot be included on the chart.

This material serves merely to indicate that the decline in the birth rates of Western countries got well under way during the nineteenth century. For the present century, the data are much more abundant and far more reliable. Those for a few of the most important countries are

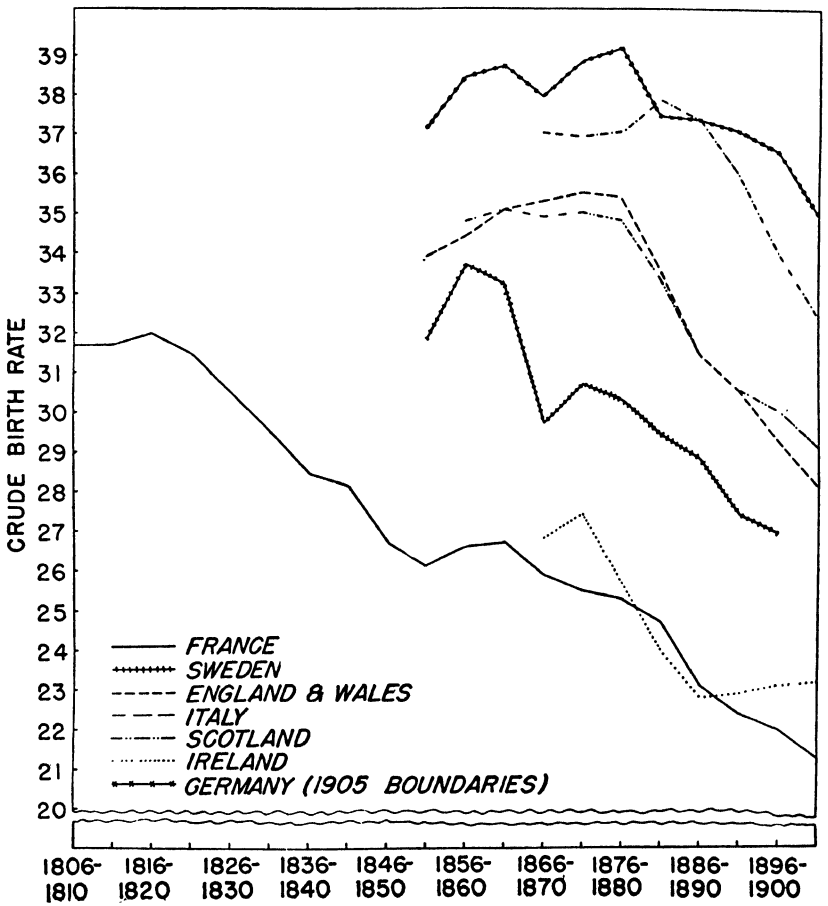


FIG. 93.—Five-year averages showing the trend of the crude birth rate in selected countries during the nineteenth century. (*Source of data: Ministère du travail et de la prévoyance sociale, Statistique internationale du mouvement de la population, p.* 68, *Imprimerie Nationale, Paris,* 1907.)

presented in Fig. 94. The general downward movement of fertility is the point to be emphasized in connection with these trends. Detailed comparisons among the countries should be based on more refined indexes. The effects upon the birth rate of the First World War and the Spanish

Civil War are also clearly evidenced. The result of the Second World War is not so definite. Its onslaught closely coincided with the entrance of the big crop of babies born just after the first conflict into the period of high age-specific fertility. The rise in the German birth rate following the seizure of power by Hitler is unique in demographic annals.

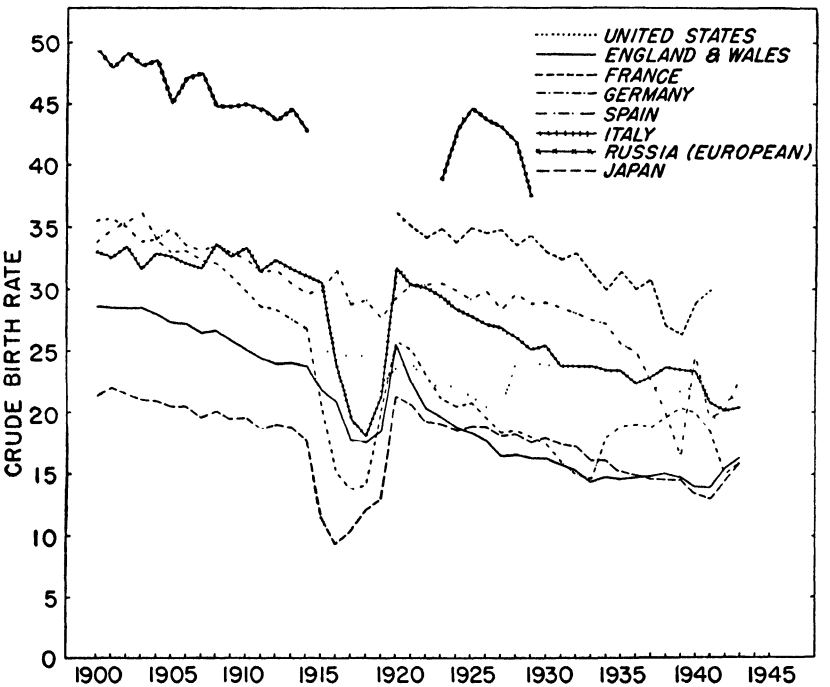


FIG. 94.—Variations in the crude birth rate of selected countries during the twentieth century. (*Sources of data: Statistical Yearbook of the League of Nations*, 1942–1944; *Robert R. Kuczynski, The Balance of Births and Deaths, Vol.* I, *The Macmillan Company, New York*, 1928; *and Vol.* II, *The Brookings Institution, Washington*, 1931; *Robert R. Kuczynski, The Measurement of Population Growth, Oxford University Press, New York*, 1936; *and Ryoichi Ishii, Population Pressure and Economic Life in Japan, University of Chicago Press, Chicago*, 1937 [?].)

The data for most Latin-American countries are so fragmentary that they have been omitted entirely. However, the eminent Argentine scholar Alexandro E. Bunge is authority for the statement that the falling birth rate, which first exhibited itself in the United States and Argentina, has now made its appearance in every one of the American nations.[1]

[1] "Esplendor e decadencia de la raza blanca," *Revista de economia Argentina*, 39 (1940), 11.

THE LONG-TIME TREND IN THE UNITED STATES

Our tardiness in developing a national system of birth registration makes it necessary to rely upon indexes other than the birth rate in order to show the long-continued decline in the fertility of the population of the

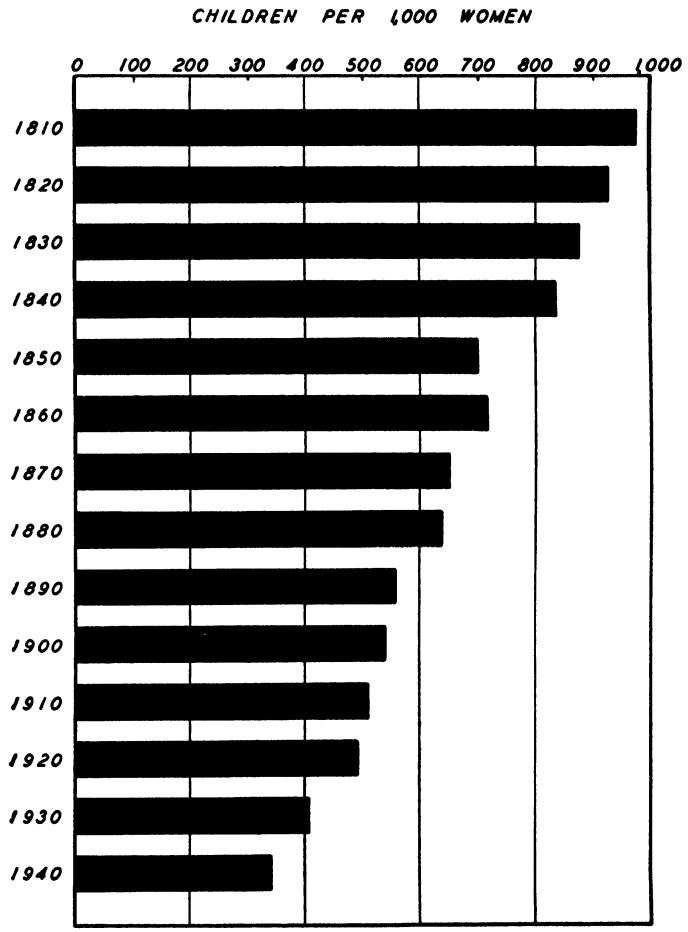


FIG. 95.—Trends in the ratio of children under 5 to women aged 16 to 44 in the United States, 1810 to 1940.

United States. The fertility ratio is the most satisfactory index to use for this purpose. In Fig. 95 are charted the changes since 1810 in the ratio of children under 5 to women of childbearing ages. These data bring out clearly the precipitous decline that has taken place in the reproduction of

Eventual Daughters and Granddaughters of 100 New-Born Girls, According to Mortality and Fertility in the United States for Specified Years

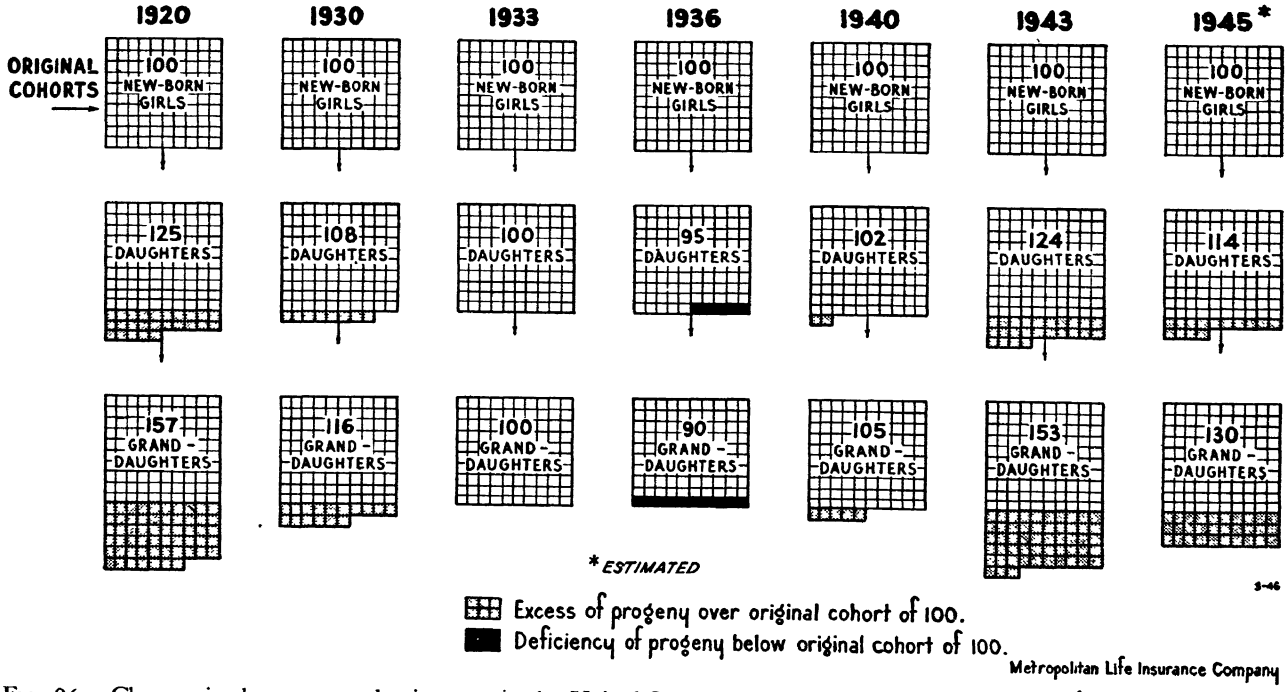


FIG. 96.—Changes in the net reproduction rate in the United States, 1920 to 1945. (*Reproduced through the courtesy of the Metropolitan Life Insurance Company from its Statistical Bulletin, Vol. 27, No. 4, April, 1946, p. 2.*)

our population between 1810 and 1940. In 1810 the index stood at 976 children under 5 for each 1,000 women aged 16 to 44, inclusive. By 1940 the corresponding ratio was only 342. This means that in 1940 the fertility of the population was only 38 per cent of its 1810 level. For the most part the fall was continuous from one decade to another.

There is little point in analyzing in detail the comparative rates of decline in the various sections of the country. The more rapid decreases are in the areas where the downward trend has set in most recently. On the other hand, in the highly urbanized sections, where the birth rate began

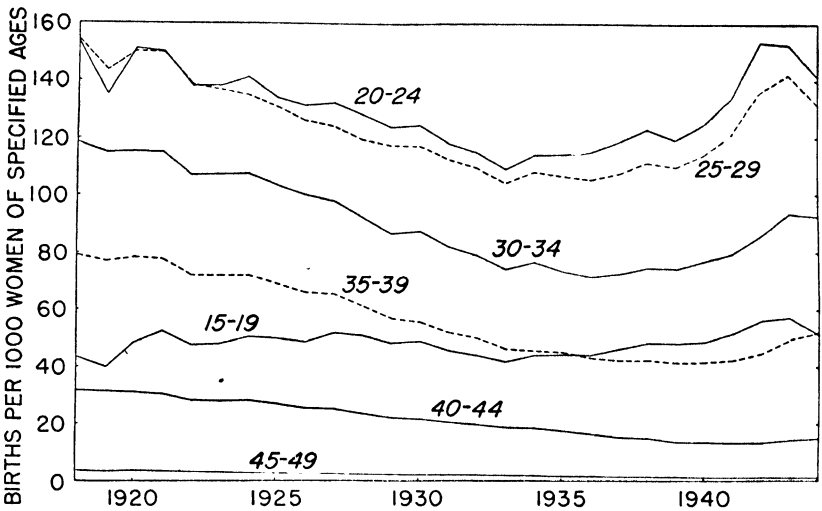


FIG. 97.—Trends in the age-specific birth rates of women in the birth registration area of the United States, 1918 to 1944.

to fall very early, the changes in the last decade were slight—they were already near what might be thought of as the limit.

One should not presume that because the birth rate has been declining sharply for more than a hundred years, it must continue to do so. Our data are still far too unsatisfactory to permit reliable forecasts even for short periods ahead. The years 1946 and 1947 undoubtedly will be the ones in which the number of babies born is at an all-time high. This may be merely the cumulative effect of the return of millions of young men from overseas just at the time when the large number of children born immediately after the First World War were in the ages where the age-specific birth rates are highest. But it may also mean that the assimilation of the huge foreign stocks in our urban centers has progressed to the extent that we may see rises in the urban marriage and birth rates. Even a slight

increase in the fertility of the urban population would offset the continued fall in that of the rural population (which must still be expected). In any case, the calculations of the Metropolitan Life Insurance Company given in Fig. 96 are of considerable interest. Probably the gain that they indicate as taking place between 1936 and 1945 is not wholly fictitious.

The last proposition gains support from the data presented in Fig. 97. In it are shown the trends in specific birth rates for females in the age groups from 15 to 19 to 45 to 49 in the birth registration area of the United States over the period 1918 to 1944. The facts that the registration area was expanding from 1918 to 1930 and that registration of births was becoming more complete during the last decade should be kept in mind when one examines this figure. There also seems to be some indication that the particular women who entered the childbearing period just after the close of the First World War are more responsible than the others for the low point to which fertility fell. Note how the curves generally sag whenever the women who passed through the age group 15 to 19 between 1921 and 1925 are involved. This is especially noticeable in the years 1931 to 1935 when they influenced the age group 25 to 29 and the years 1936 to 1940 when they exerted their effect upon the one from 30 to 34. However, the more important fact evident in the data is that after about 1935 there was a general rise in the specific birth rates of all of the important age groups.

CAUSES OF THE FALLING BIRTH RATE

Demographers must confess that they do not yet fully understand all of the factors involved in the long-time decline of the birth rate. Modern contraceptives are, of course, the techniques employed, and in a limited sense their availability may be part of the cause. But, as numerous writers have shown, various peoples, including many primitive tribes, have developed means of limiting the sizes of their families.[2] Therefore, any explanation of the long-continued fall in the birth rate merely in terms of the availability of modern contraceptives is hardly sufficient. The primary factor is the objective on the part of the parents to restrict the number of offspring; then they will use various methods at hand to accomplish the objective. Hence, in seeking the reasons for the declining birth rate, it is not enough merely to refer to the use of contraceptives. Rather we must grapple with the problem of attitudes. We must seek to know why couples have desired fewer children than formerly was the case.

[2] See especially CARR-SAUNDERS, A. M., *The Population Problem, A Study in Human Evolution*, Chaps. VII–XI, Oxford, Clarendon Press, New York, 1922.

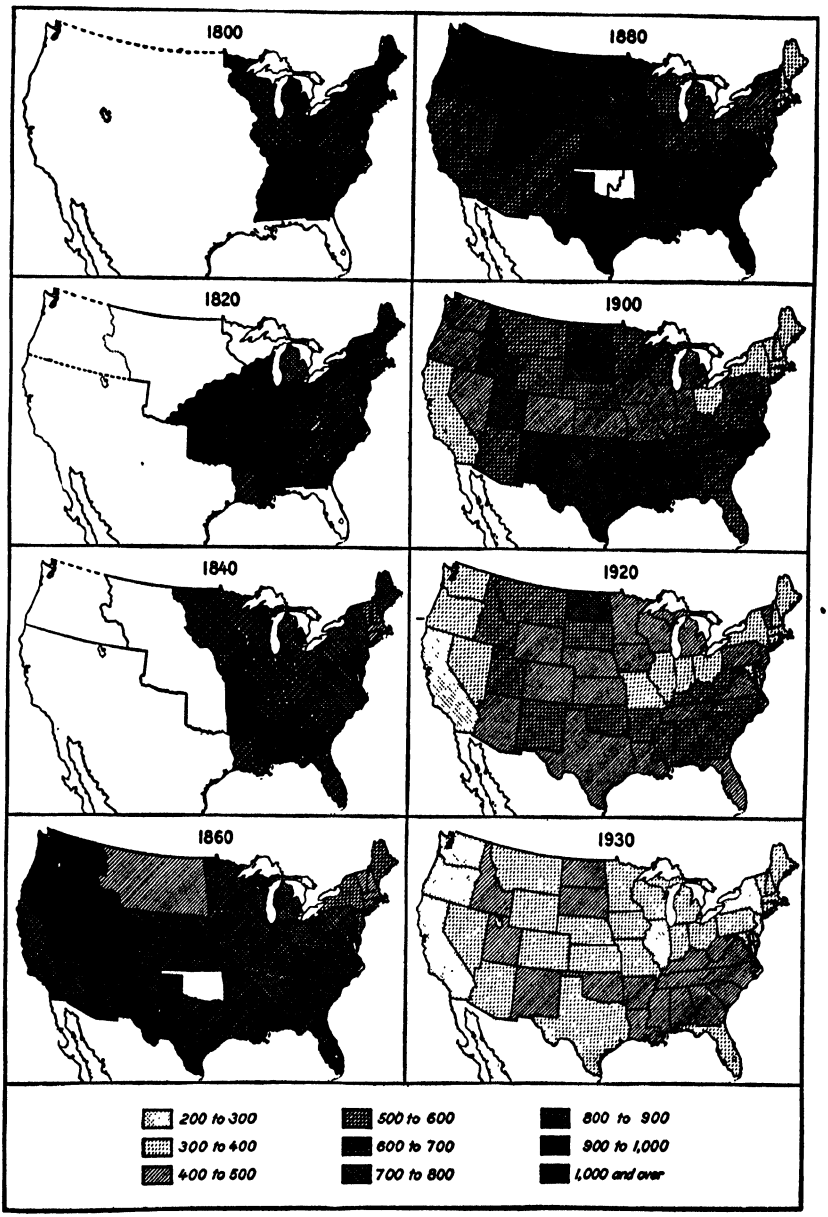


FIG. 98.—The spread of the falling rate of reproduction in the United States, 1800 to 1930. (*Reproduced from O. E. Baker, The Outlook for Rural Youth, United States Department of Agriculture, Extension Service Circular* 203, *Washington*, 1934.)

For the United States much insight into the factors responsible for the precipitous decline in the birth rate is gained through a geographical analysis. It is particularly important to isolate the center of origin and to trace the process of diffusion of this fundamental change in this vital biosocial process. Observation of the series of maps presented in Fig. 98 does much to clarify both of these aspects of the subject. Observe that in 1800 fertility in the United States was uniformly on a high plane, although it was somewhat higher on the frontier than in the older settlements. By 1840 fertility in Massachusetts and Connecticut had declined noticeably and that in the other long-established settlements perceptibly. There can be no doubt that the fertility decline set in first in the stabilized communities of the Northeast and particularly in those which had begun the process of urbanization. Successively in the years following 1840 this phenomenon of a falling birth rate pushed outward from these centers, eventually spreading its influence throughout the entire country. By 1930 only the southern states, three of the Rocky Mountain states, and the Dakotas retained any semblance of their previous high fertility levels. By 1940 the few areas in which fertility remained high stood out like the scattered peaks of an old peneplain (see Fig. 88). Only in the most isolated rural sections of the country had the birth rate remained at the levels of a century ago. On the map the more rural sections of the Rocky Mountains inhabited by the Mormons stand out sharply. The low density of population in these areas make this of comparatively little national importance. The Rio Grande Valley from the Gulf of Mexico to southern Colorado, an area densely populated with Spanish Americans and Mexicans, also shows up conspicuously. Other scattered localities in which the falling birth rate has not yet got well under way are found in parts of Montana, the Dakotas, and northern Michigan. More important (because of the number of people involved) are the high fertility ratios still prevailing in the southern Appalachians, a part of the Ozarks, the hills of southeastern Oklahoma, along portions of the South Atlantic Coast, and among the French-speaking people (particularly the Negroes) of south Louisiana. The only factor in common to all of these areas in which the rate of reproduction has remained high is their geographical and cultural isolation. These illustrations make it evident that in this country the fall in the birth rate was first a function of the developing urban way of life, that as urbanization and industrialization proceeded a depressing effect on the birth rate was exerted, and that only in areas most rural and most removed from urban influences has the birth rate maintained its former high level.

This identification of urbanization as the principal factor in the falling birth rate is supported by the data in the preceding chapter. There it was

shown that the rural-urban differential in the birth rate is the principal one and that racial and regional differences are for the most part merely reflections of it.

It is also borne out by a careful consideration of the changes in the rate of reproduction between 1910 and 1940, the two census years for which our data have been tabulated in the most complete form. Evident from the information assembled in Table 27 is the fact that even since 1910 the fertility of the population in the United States has fallen off by one-third. This decline was most marked among the largest race and residential class, *viz.*, the urban white population. It was least pronounced among the nonwhites living in urban centers, largely because their rate had earlier fallen to an extremely low level. The rural-farm nonwhites, or in less technical words the southern rural Negroes, also were characterized by a decrease far below the national average. This rural group had, in 1940, a reproductive level far above that of any other class. However, this merely reflects the fact that urban influences have been slowest of all in

TABLE 27.—CHANGES IN THE RATE OF REPRODUCTION IN THE UNITED STATES BETWEEN 1910 AND 1940 BY RACE AND RESIDENCE*

Residence and race	Number of children under 5 per 1,000 women aged 15 to 49			
	1910	1940	Decrease	
			Points	Per cent
All classes	425	281	144	33.9
Urban white	336	221	115	34.2
Urban nonwhite	222	198	24	10.8
Rural-nonfarm white	499	347	152	30.5
Rural-nonfarm nonwhite	466	330	136	29.2
Rural-farm white	551	397	154	27.9
Rural-farm nonwhite	558	473	85	15.2

* SOURCE: *Sixteenth Census of the United States, 1940, Population, Differential Fertility, 1940 and 1910*, Tables 7 and 8, pp. 21–22.

permeating the most remote sections of the South. It is in these parts of this region that the birth rate may be expected to fall most rapidly during the years immediately ahead. In other words, the full impact of our urban civilization upon these remote rural regions has not yet been felt. There-

fore, changes are still under way in the rural South that have about run their course in many other parts of the nation.

Probably it is not possible to single out from the hundreds of thousands of traits distinguishing urban living from rural any one or two that will give us a full understanding of the causes of the differential birth rate and, as a result, why the birth rate falls as urbanization proceeds. The fact that children may be an economic asset on the farm and a liability in the city must certainly be one factor. Also important, no doubt, is the urban willingness to forego a family in favor of greater facility in climbing the social ladder, the individualism of the city person, the decreasing importance given to traditional religious beliefs and mores. Probably part of the answer is to be found in the greater "freedom" of the urban woman and in the heterogeneity of the urban population, which makes it necessary for native-born females to cross racial or cultural lines in marriage or to remain single. Possibly some importance should be attached to the marginal position of the children of immigrants, persons who cannot live mostly in the Old World as do many of their parents and who also find it difficult to gain status in the new. But as yet it is difficult to show in a concrete manner exactly the extent to which any of these factors are responsible. At present, we seem to be able to demonstrate that urbanization is the cause of the falling birth rate without being able to isolate and measure the relative importance of the specific city traits that are responsible.

Chapter 13

MORTALITY: MEASUREMENT AND DATA

Few items are of greater general interest or of more importance for societal bookkeeping than the mortality of the population. The measurement of this factor, the analysis of its constituents, and the discovery of its relation to other demographic, economic, and social phenomena are among the most important aspects of population study. From many points of view, these data, which have a bearing on both the quantity and the quality of the population, are primary. Thus, the rate at which people die is one of the principal determinants of the number of people living and whether the size of the population is on the increase or the decrease. This means that the mortality rate is one of the decisive factors influencing the number of inhabitants. Longevity is also one of the important criteria of the quality of a population. Moreover, from analysis of the data on mortality come the most useful information on such matters of universal interest as progress in the control of cancer, the trend of deaths from automobile accidents, the situation with respect to heart disease, the reduction of hazards during infancy, and the changes in the risks of maternity. Because comprehensive data on morbidity are almost entirely lacking, mortality data also have come to be the most commonly accepted measure of the health of a population.[1] Upon indexes of mortality and longevity, society is almost entirely dependent for accurate information concerning the effectiveness and efficiency of medical and sanitary sciences in the improvement of the welfare of mankind. In fact, one of the specific mortality rates, that for infants, is often said to be "the most sensitive index of social welfare and of sanitary improvements which we possess."[2] Finally, mention should be made of the fact that mortality data arranged in the form of life tables make up the scientific basis for one of the most important financial institutions of our times, that dealing in life insurance.

[1] *Cf.* Willcox, Walter F., *Introduction to the Vital Statistics of the United States, 1900 to 1930*, p. 15, Government Printing Office, Washington, 1933.

[2] *Cf.* Whipple, George C., *Vital Statistics*, p. 393, John Wiley & Sons, Inc., New York, 1923.

THE MEASUREMENT OF MORTALITY

The Death Rate.—The principal measures of mortality are two: the *death rate* and the *expectation of life.* The former is comparable in most essentials to the birth rate, being secured by dividing the number of deaths occurring

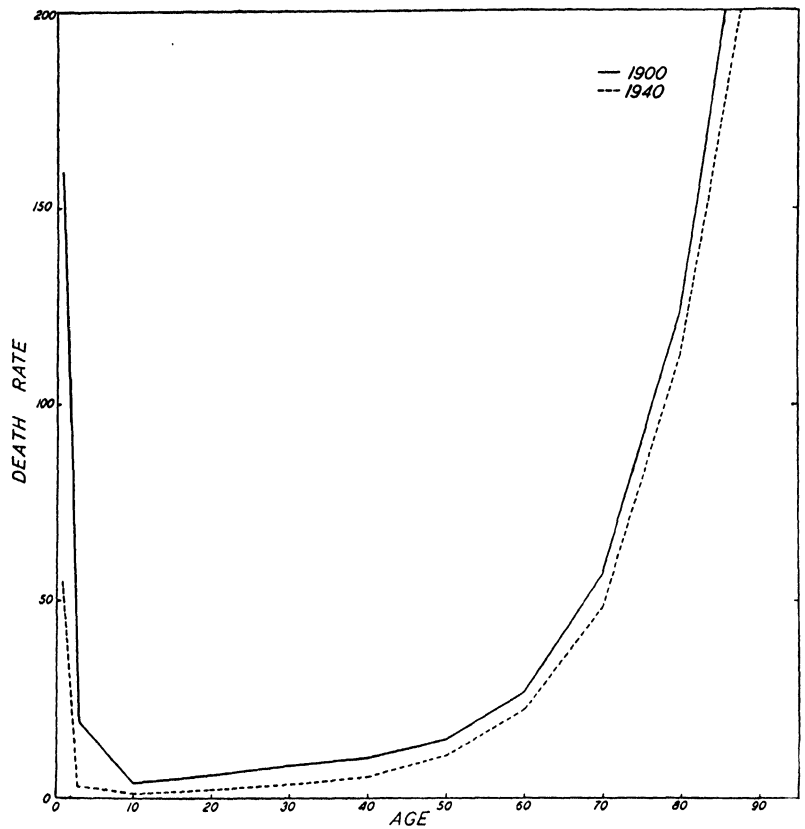


FIG. 99.—Relationship of age to the death rate among the white population of the United States, 1890 and 1940.

during a given year by the population. Multiplying the result by 1,000 expresses it as a convenient figure of two digits and enables one to speak of the ratio as the number of deaths per 1,000 persons. Thus, in the United States, the crude death rate for 1940 is secured by the following equation: 1,417,269/131,669,275 × 1,000 = 10.8. Strictly speaking, the population on July 1 should be employed rather than that of Apr. 1 which

is used in this illustration, but such corrections are hardly worth while in the computation of a crude death rate.

Those who use either the data or the conclusions about the mortality rate should realize that for most purposes, the crude death rate is not sufficiently refined and accurate to give valid results. Especially should one be wary of employing it for the purpose of comparing one population with another or even for contrasting the situation prevailing in a given group of people at two different times. This is because the mortality rates for the two sexes are different and particularly because mortality is so closely related to age (see Fig. 99). Observe in this illustration that mortality is extremely high among infants and even higher among persons of advanced age. It has already been indicated that these age groups predominate in the rural population and are materially underrepresented in the urban population. Therefore, the use of the crude death rate for the purpose of comparing rural and urban mortality is almost certain to lead to spurious conclusions. Again, the restrictions on immigration have greatly diminished the flow of young able-bodied immigrants who, prior to 1915, came to the United States by the millions. For this reason our foreign-born population has now moved up the age ladder to a point where high age-specific mortality rates prevail. It would be absolutely misleading to compare the crude death rate of the foreign-born population in 1940 with that for 1900. Likewise, one is unjustified in comparing the crude death rates of an expanding, growing country with those of one in which a greater stability has been attained.

If any pretense of accuracy is to be made, the specific rates for particular age and sex groups should be calculated. The arithmetic procedure is exactly the same as in calculating the rate for the general population, except that the data used pertain to a specific age and sex segment of the population. For example, the death rate of males of 20 years of age may be determined, or the death rate of females aged 31. If these age-specific death rates are then combined so that the one for each age and sex segment is given the same weight that it would have in a normal or standard population, the results are compressed into what is called the *standardized* (or true) *death rate.* The procedures used in doing this are the same as those employed in the standardization of the birth rate (see Chap. 10).

The Expectation of Life.—Perhaps the most useful manner of combining the age-specific death rates is to construct what is called a *life table.* Such a table shows the average duration of life for persons born at the same time and for persons of any given age who are alive at the same time. It indicates the average number of years that those of any given age from birth on up may expect to live. This average is called the *expectation of*

life. All in all, it is probably the index of greatest significance in the study of mortality.

The precise methods used by actuaries in the construction of life tables are too involved to be of general interest or significance. They suffer from the defects that arise when highly refined mathematical techniques are applied to observations or measurements which themselves are sadly lacking in precision. Until we get better data, less involved procedures based merely on approximations will yield fully as accurate results. Nevertheless, the general outlines of life-table construction are relatively simple. To begin with, one must have a distribution of the population according to age and also a distribution of deaths (during a period of time, usually 1 year) according to age at death. With these in hand the computation of the age-specific death rates is a relatively simple matter, and these in turn can be readily transformed into the conventional life table. One of the main technical difficulties in the actual construction is the determination of the population under 1 year of age and another is involved in the calculation of the mean age at death of those who die before attaining age 1. In other words, the errors in reporting births and the extremely rapid flow of vital events in the first year of life introduce some technical difficulties into the determination of the population and the specific death rate for the group aged under 1. Another obstacle arises because of the obvious errors in the reported ages both of the living persons and of those who died. Therefore, in the construction of life tables the calculated specific death rates are subjected to a rather elaborate smoothing process in order to remove the fluctuations that are due merely to random events or pure chance. As Pearl has said, around this phase of life-table construction has grown up a highly esoteric cult.[3] But in spite of the elaborate mathematics employed by the devotees, many extremely illogical gyrations are still to be observed in the smoothed curves.[4]

Notwithstanding the difficulties inherent in the determination of the infant mortality rate and in the correction of the specific death rates[5] (items that even the most elaborate computations of the actuaries have not yet adequately corrected), the understanding of the life table is not

[3] PEARL, RAYMOND, *Introduction to Medical Biometry and Statistics*, p. 196, W. B. Saunders Company, Philadelphia, 1923.

[4] See, for example, the curves for Negro females in James W. Glover, *United States Life Tables, 1890, 1901, 1910, and 1901–1910*, pp. 245, 248, Government Printing Office, Washington, 1921.

[5] The interested student will find practical and relatively nontechnical discussions of these, along with tables for making precise corrections, in Lowell J. Reed and Margaret Merrell, "A Short Method for Constructing an Abridged Life Table," *Vital Statistics—Special Reports*, 9 (June, 1940), 681–712.

difficult. Table 28 illustrates the method of computation and gives the values derived.[6] Column 1 gives the age classification in single years; column 2 contains the specific mortality rates; column 3 shows the number alive at the beginning of each year of life, starting with a hypothetical number of 100,000; column 4 presents the number dying in each interval, calculated by applying the prevailing specific mortality rates; column 5 indicates the total number of years lived by the survivors during each of the years of age; column 6 expresses the data of the preceding column in cumulative form, starting from the bottom of the table, and indicates the total population living in current and higher age intervals; and column 7 presents a series of computations showing the complete expectation of life for each age group from birth to 109.

The results contained in this table indicate that in 1939 to 1941, of every 1,000 white male infants born alive in the United States, 48.12 died before attaining the age of 1 year. Accordingly, of an infant population of 100,000, only 95,188 would be alive at the beginning of the second year of life. In this group the incidence of mortality was at the rate of 4.87 per 1,000, or in the course of a year 464 of those aged 1 to 2 would die, leaving at the beginning of the third year of life a total of 94,724 survivors. In the same way, by applying the specific mortality rates to each succeeding number of survivors until all are accounted for, we arrive at the entire mortality history of the group.

The determination of the values entered in column 5 presents some difficulties. The 95,913 corresponding to the age group 0 to 1 represents 95,188 years of life contributed to the grand total during the first year of life by those who did not succumb as infants, plus 725 years credited to the 4,812 infants who died before reaching the age of 1. Thus, by the elaborate procedures employed, it has been estimated that 0.171 years is the average length of life of those white males who died at less than 1 year of age. (Such an average could easily be calculated from the distribution of the ages of deceased infants.) Similar are the procedures for the other age groups. At most ages merely adding the number of survivors at the end of the year to one-half the number dying in the course of the year gives a fairly accurate estimate of the number of years contributed to the grand total by the contingent alive at any given age.

Next, begin at the bottom of the table and observe that of the original 100,000, given the specific mortality rates prevailing in 1939 to 1941, 65 persons will celebrate their one hundredth birthday. All told, these 65

[6] *Cf.* DUBLIN, LOUIS I., and ALFRED J. LOTKA, *Length of Life*, The Ronald Press Company, New York, 1936; and DUBLIN, LOUIS I., *Health and Wealth*, pp. 311–319, Harper & Brothers, New York, 1928.

TABLE 28.—LIFE TABLE FOR WHITE MALES IN THE UNITED STATES, 1939 TO 1941*

Year of age	Mortality rate, number dying per 1,000 alive at beginning of year of age	Of 100,000 males born alive		Stationary population		Average future lifetime, average number of years of life remaining at beginning of year of age
		Number living at beginning of year of age	Number dying during year of age	In year of age	In year of age and all later years	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
x to $x+1$	$1{,}000q_x$	l_x	d_x	L_x	T_x	$\mathring{e}_x$
0– 1	48.12	100,000	4,812	95,913	6,281,188	62.81
1– 2	4.87	95,188	464	94,914	6,185,275	64.98
2– 3	2.65	94,724	250	94,592	6,090,361	64.30
3– 4	1.90	94,474	179	94,381	5,995,769	63.46
4– 5	1.53	94,295	145	94,219	5,901,388	62.58
5– 6	1.38	94,150	130	94,085	5,807,169	61.68
6– 7	1.24	94,020	116	93,962	5,713,084	60.76
7– 8	1.14	93,904	108	93,850	5,619,122	59.84
8– 9	1.06	93,796	99	93,747	5,525,272	58.91
9– 10	1.02	93,697	96	93,649	5,431,525	57.97
10– 11	1.00	93,601	93	93,554	5,337,876	57.03
11– 12	1.01	93,508	95	93,460	5,244,322	56.08
12– 13	1.06	93,413	99	93,364	5,150,862	55.14
13– 14	1.14	93,314	106	93,261	5,057,498	54.20
14– 15	1.27	93,208	119	93,148	4,964,237	53.26
15– 16	1.43	93,089	133	93,023	4,871,089	52.33
16– 17	1.58	92,956	147	92,882	4,778,066	51.40
17– 18	1.72	92,809	160	92,729	4,685,184	50.48
18– 19	1.86	92,649	172	92,563	4,592,455	49.57
19– 20	1.99	92,477	184	92,385	4,499,892	48.66
20– 21	2.12	92,293	195	92,195	4,407,507	47.76
21– 22	2.23	92,098	205	91,996	4,315,312	46.86
22– 23	2.32	91,893	214	91,785	4,223,316	45.96
23– 24	2.38	91,679	218	91,571	4,131,531	45.07
24– 25	2.41	91,461	220	91,351	4,039,960	44.17
25– 26	2.43	91,241	222	91,130	3,948,609	43.28
26– 27	2.45	91,019	223	90,908	3,857,479	42.38
27– 28	2.51	90,796	228	90,682	3,766,571	41.48
28– 29	2.59	90,568	234	90,451	3,675,889	40.59
29– 30	2.68	90,334	242	90,212	3,585,438	39.69

* SOURCE: Bureau of the Census, "United States Life Tables, 1939–1941," *Vital Statistics—Special Reports*, 19, (January, 1944) 38–39.

TABLE 28.—LIFE TABLE FOR WHITE MALES IN THE UNITED STATES, 1939 TO 1941.*—(*Continued*)

Year of age	Mortality rate, number dying per 1,000 alive at beginning of year of age	Of 100,000 males born alive		Stationary population		Average future lifetime, average number of years of life remaining at beginning of year of age
		Number living at beginning of year of age	Number dying during year of age	In year of age	In year of age and all later years	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
x to $x+1$	$1{,}000q_x$	l_x	d_x	L_x	T_x	$\mathring{e}_x$
30– 31	2.79	90,092	251	89,967	3,495,226	38.80
31– 32	2.91	89,841	262	89,709	3,405,259	37.90
32– 33	3.06	89,579	274	89,443	3,315,550	37.01
33– 34	3.23	89,305	288	89,161	3,226,107	36.12
34– 35	3.42	89,017	304	88,865	3,136,946	35.24
35– 36	3.63	88,713	322	88,552	3,048,081	34.36
36– 37	3.87	88,391	342	88,220	2,959,529	33.48
37– 38	4.14	88,049	364	87,867	2,871,309	32.61
38– 39	4.43	87,685	389	87,490	2,783,442	31.74
39– 40	4.76	87,296	416	87,088	2,695,952	30.88
40– 41	5.13	86,880	446	86,657	2,608,864	30.03
41– 42	5.54	86,434	479	86,195	2,522,207	29.18
42– 43	6.00	85,955	515	85,698	2,436,012	28.34
43– 44	6.50	85,440	555	85,162	2,350,314	27.51
44– 45	7.06	84,885	600	84,585	2,265,152	26.69
45– 46	7.66	84,285	646	83,962	2,180,567	25.87
46– 47	8.33	83,639	696	83,292	2,096,605	25.07
47– 48	9.04	82,943	750	82,568	2,013,313	24.27
48– 49	9.81	82,193	806	81,790	1,930,745	23.49
49– 50	10.64	81,387	866	80,954	1,848,955	22.72
50– 51	11.55	80,521	930	80,056	1,768,001	21.96
51– 52	12.53	79,591	997	79,092	1,687,945	21.21
52– 53	13.60	78,594	1,069	78,059	1,608,853	20.47
53– 54	14.76	77,525	1,145	76,953	1,530,794	19.75
54– 55	16.02	76,380	1,224	75,768	1,453,841	19.03
55– 56	17.37	75,156	1,305	74,504	1,378,073	18.34
56– 57	18.81	73,851	1,390	73,156	1,303,569	17.65
57– 58	20.34	72,461	1,473	71,724	1,230,413	16.98
58– 59	21.95	70,988	1,558	70,209	1,158,689	16.32
59– 60	23.66	69,430	1,643	68,609	1,088,480	15.68

TABLE 28.—LIFE TABLE FOR WHITE MALES IN THE UNITED STATES, 1939 TO 1941.*—(*Continued*)

Year of age	Mortality rate, number dying per 1,000 alive at beginning of year of age	Of 100,000 males born alive		Stationary population		Average future lifetime, average number of years of life remaining at beginning of year of age
		Number living at beginning of year of age	Number dying during year of age	In year of age	In year of age and all later years	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
x to $x+1$	$1{,}000q_x$	l_x	d_x	L_x	T_x	$\mathring{e}_x$
60– 61	25.48	67,787	1,727	66,923	1,019,871	15.05
61– 62	27.43	66,060	1,813	65,153	952,948	14.43
62– 63	29.52	64,247	1,896	63,299	887,795	13 82
63– 64	31.77	62,351	1,981	61,361	824,496	13 22
64– 65	34.20	60,370	2,065	59,337	763,135	12.64
65– 66	36 85	58,305	2,148	57,232	703,798	12.07
66– 67	39.75	56,157	2,232	55,041	646,566	11.51
67– 68	42.93	53,925	2,315	52,767	591,525	10.97
68– 69	46.43	51,610	2,396	50,412	538,758	10.44
69– 70	50.28	49,214	2,475	47,976	488,346	9.92
70– 71	54.54	46,739	2,549	45,465	440,370	9.42
71– 72	59.24	44,190	2,618	42,881	394,905	8.94
72– 73	64.43	41,572	2,678	40,233	352,024	8.47
73– 74	70.14	38,894	2,728	37,530	311,791	8.02
74– 75	76.37	36,166	2,762	34,784	274,261	7 58
75– 76	83.13	33,404	2,777	32,016	239,477	7.17
76– 77	90.40	30,627	2,769	29,243	207,461	6.77
77– 78	98.18	27,858	2,735	26,490	178,218	6.40
78– 79	106.47	25,123	2,675	23,786	151,728	6.04
79– 80	115.30	22,448	2,588	21,155	127,942	5.70
80– 81	124.71	19,860	2,477	18,621	106,787	5.38
81– 82	134.72	17,383	2,341	16,213	88,166	5.07
82– 83	145.37	15,042	2,187	13,948	71,953	4.78
83– 84	156.68	12,855	2,014	11,848	58,005	4.51
84– 85	168.59	10,841	1,828	9,927	46,157	4.26
85– 86	181.04	9,013	1,631	8,198	36,230	4.02
86– 87	193.95	7,382	1,432	6,665	28,032	3.80
87– 88	207.27	5,950	1,233	5,334	21,367	3.59
88– 89	220.91	4,717	1,042	4,195	16,033	3.40
89– 90	234.82	3,675	863	3,244	11,838	3.22

TABLE 28.—LIFE TABLE FOR WHITE MALES IN THE UNITED STATES, 1939 TO 1941.* (*Continued*)

Year of age	Mortality rate, number dying per 1,000 alive at beginning of year of age	Of 100,000 males born alive		Stationary population		Average future lifetime, average number of years of life remaining at beginning of year of age
		Number living at beginning of year of age	Number dying during year of age	In year of age	In year of age and all later years	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
x to $x+1$	$1{,}000q_x$	l_x	d_x	L_x	T_x	$\mathring{e}_x$
90– 91	248.94	2,812	700	2,461	8,594	3.06
91– 92	263.22	2,112	556	1,834	6,133	2.90
92– 93	277.60	1,556	432	1,340	4,299	2.76
93– 94	292.02	1,124	328	960	2,959	2.63
94– 95	306.42	796	244	674	1,999	2.51
95– 96	320.76	552	177	464	1,325	2.40
96– 97	334.96	375	126	312	861	2.30
97– 98	348.98	249	87	205	549	2.20
98– 99	362.75	162	59	133	344	2.12
99–100	376.23	103	38	84	211	2.04
100–101	389.35	65	26	52	127	1.96
101–102	402.05	39	15	15	75	1.90
102–103	414.29	24	10	18	43	1.84
103–104	425.99	14	6	11	25	1.78
104–105	437.12	8	4	6	14	1.73
105–106	447.60	4	2	4	8	1.68
106–107	457.38	2	1	2	4	1.64
107–108	466.40	1	0	1	2	1.61
108–109	474.62	1	1	1	1	1.57

persons have a total of 127 years still to live, the data being given in column 5. By cumulating, this column from the bottom to the top of the table gives an indication of the total number of years still to be lived by the persons in any given age group. Accordingly, at the age 0, or birth, the entire group of 100,000 persons has a total of 6,281,188 years ahead of them. Dividing this figure by 100,000, or the number in the group, gives the mean number of years of life that each may expect to live. Thus, the

life expectation of white males at birth in 1939 to 1941 was 62.81 years. Similarly, the expectation of life at any other age may be computed and indicated as in column 7.

MORTALITY DATA: NATURE AND SOURCES

The keeping of mortality records has come to be considered an essential function of nearly every modern government. If for no other reason, the value of these data in the control of transmissible diseases more than justifies the organization and expense necessary to secure them. In each country the evolution of vital-statistics registers is a long and involved story. However, experience in the United States illustrates many of the problems that were faced and overcome. Prior to 1900 the United States was practically the only nation of any significance in which there was no attempt to keep a national register of deaths. As is true of the data on births, this was due very largely to the fact that the responsibility for such matters rested with the states. While a few of them maintained fairly adequate machinery for recording vital statistics, in many almost no dependence could be placed upon the reliability and completeness of the data. As was the case with births, attempts were made during the latter half of the nineteenth century to learn something about the levels and trends of mortality by including a query in the decennial census asking if a death in the family had occurred during the previous 12-month period. The data secured in this manner form the basis for rather detailed statistical tabulations in the reports of each census from 1850 to 1890.

In their first presentations of this type of data the census officials were very modest, admitting that the data "can be said to have little value"[7] and including in the tables for each state and territory merely the number of deaths reported in each county. That the responsible officials were well aware of the defects in the data is demonstrated by the following sentences from the introductory remarks.

> Upon the subject of the Deaths no one can be deceived by the figures of the Census, since any attempt to reason from them would demonstrate a degree of vitality and healthfulness in the United States unparalleled in the annals of mankind. . . . The truth is, but a part of the deaths have been recorded.[8]

Those responsible for the preparation of the census of 1860 apparently were not so well acquainted with vital statistics as their predecessors. Although they admitted a deficiency in the count of deaths during the year

[7] *The Seventh Census of the United States, 1850*, p. xxxix, Robert Armstrong, Public Printer, Washington, 1853.

[8] *Ibid.*, p. xl.

preceding the census date, they also stated that the data were "relatively reliable" and published a death rate of 12.8 for the United States as a whole. Furthermore, they gave this in comparison with one of 14.1 for 1850 and attributed the difference to the prevalence of cholera in 1849.[9] The report of this census included five pages devoted to the subject of mortality and contained a tabulation of deaths and rates for each of the states and territories for both 1850 and 1860, an analysis of mortality statistics by natural divisions (regions), a tabulation of deaths by race and sex, and one by age, sex, and color and civil condition (slave or free).

The reports of the 1870 census were far more ambitious in their treatment of mortality data than the earlier ones. Altogether in the reports of this census the tabulation of mortality data filled 423 pages, and additional space was used for introductory remarks and the presentation of a considerable number of maps relating to mortality. At this time, Dr. Billings was in charge of vital statistics, and he was familiar with the defects of the data. Although pointing out that the data were probably not more than two-thirds complete, he also made the point that their value is not solely dependent upon completeness.[10] An interesting feature of the report was the presentation of an "approximate life table" showing a life expectancy at birth in 1870 of 39.254 years. The tables giving the data for states and territories occupied most of the space and are detailed as follows: (1) death by sex for 1850, 1860, and 1870; (2) death by age and sex for 1870; (3) deaths by sex and month of occurrence; (4) deaths by race and nationality of birth; (5) deaths by cause of death, further subdivided by sex and age; (6) deaths by cause of death, divided according to sex and month of occurrence; (7) deaths by cause, subdivided according to race and nationality; (8) deaths by cause of death and occupation; and (9) deaths by race, subdivided according to sex and age.

In 1880 Dr. Billings was still in charge of the vital statistics. This time the report[11] on mortality was published in two volumes with the entire first volume, including 63 pages of introductory remarks and 764 pages of tabulations, devoted exclusively to mortality and the second volume of approximately 150 pages of introductory remarks and more than 650 pages of tables given to the same subject. Billings opens his report with the following statement on the inadequacy of the methodology being followed:

[9] *Population of the United States in 1860*, pp. xli–xlii, Government Printing Office, Washington, 1864.

[10] *The Vital Statistics of the United States*, Vol. II, p. ix, Government Printing Office, Washington, 1872.

[11] *Report on the Mortality and Vital Statistics of the United States*, Government Printing Office, Washington, 1885.

The fact that it is impossible, in any large community, to collect complete and reliable data with regard to births and deaths by means of any inquiry made only at the end of the year for which the data are desired, is well known to all who are practically familiar with the subject of vital statistics; and the experience of the United States census furnishes no exception to this rule. The results of each of the four censuses in which an attempt has been made to ascertain the number of persons who died in the United States during the preceding year, have shown that the enumerators did not obtain and record more than 60 to 70 per cent of the actual number of deaths.[12]

A departure of significance in connection with this enumeration was the substitution of the registrar's records of deaths in Massachusetts and New Jersey for the enumerators' reports. The detailed tabulations of the mortality data for 1880 were very much greater than those for any preceding census, and the mapping of significant features was also continued on a more elaborate scale.

The reports of the census of 1890 are the most voluminous of all those made upon the subject of mortality. They consisted of four volumes containing a total of nearly 4,500 pages. Of these the first volume gives general tables, rates, ratios, and general discussion; the second is devoted to data for cities of 100,000 or more inhabitants; and the third and fourth contain the detailed tabulations of deaths. Numerous maps and diagrams are included in the presentation. In line with the innovation in the Tenth Census, registration records were substituted for the enumerators' reports in six of the states (Massachusetts, Connecticut, New Hampshire, Vermont, Rhode Island, New York, New Jersey, and Delaware), in the District of Columbia, and for 83 cities outside these states.[13] It should be emphasized, however, that these bulky materials were gathered and tabulated with the full knowledge that they were woefully incomplete and that their major value was not to be found in the validity of the rates and ratios to be computed from them.

The Twelfth Census taken in 1900 was the last in which mortality statistics were gathered in connection with the decennial enumeration of the population. In this case the reports on mortality were reduced to two volumes, totaling slightly more than 2,000 pages.[14] In connection with the tabulations for this census extensive checks were made to test how closely the data derived from the interviews of the census enumerators

[12] *Ibid.*, Part I, p. xi.

[13] *Report on Vital and Social Statistics in the United States at the Eleventh Census, 1890*, 4 vols., Government Printing Office, Washington, 1896.

[14] *Census Reports*, vol. III, *Vital Statistics*, Parts I and II, United States Census Office, Washington, 1902.

coincided with the records of deaths kept by the registrars of vital statistics. On the basis of the tests, it was concluded that only in the states of Massachusetts, Connecticut, Rhode Island, and New Hampshire and in certain counties of New York were registrars' records sufficiently "complete and satisfactory." The following quotation shows how imperfect both the enumeration and registration of deaths were judged to be:

> . . . the comparisons . . . indicated that registration was defective in many places where it was supposed to be perfect, a considerable percentage of the deaths reported by the enumerators not being found in the registration record. As the enumerators did not report more than 50 or 60 per cent of the deaths, the presumption is strong that the omissions in the registration record were even greater than indicated.[15]

This analysis is particularly revealing and should be kept in mind when utilizing any data from the previous compilation. This report also looks forward to the future and indicates that forthcoming tabulations were to be issued annually and to be based on the mortality statistics gathered in the newly established registration area.

The new machinery that was set up for the registration of deaths rested entirely upon voluntary cooperation between the states and the federal government. It remains so today. Willcox has given the following excellent summary of the major features of the organization:

1. It recommends a State law and is not satisfied with a municipal ordinance.
2. The model law prohibits disposing of a corpse by burial, cremation, transportation, or otherwise until a burial or transportation permit has been secured.
3. To secure this permit a certificate of death properly made out on the standard form and including a statistical description of the deceased and a professional statement of the cause of death must be filed with the office issuing the permit.
4. The duty of preparing this certificate of death rests upon the undertaker, aided by a relative or friend of the deceased and by the attending physician, the coroner or other qualified person.
5. A standard nomenclature and classification of the causes of death, excluding vague and unsatisfactory ones like fever or old age, has been prepared and periodically revised.
6. Physicians, registrars, and other officers having to do with registration, are given detailed instructions about the nomenclature.
7. The local registrar is the only person authorized to issue a burial or transit permit and he only in exchange for a certificate of death.
8. The local registrar files with the State registrar each month the certificates of death which he has received.

[15] *Ibid.*, Part I, p. xiv.

9. The State registrar examines them and corresponds with the local registrars who are dilatory or send in defective returns.

10. At this point the Federal Government intervenes, for the first time, by purchasing copies of the certificates of death filed in a State or city office, but only if it is convinced that the returns are complete enough to have statistical value.

11. From these copies the Bureau of the Census prepares uniform tables for the registration States and their main divisions.[16]

The first report[17] on mortality issued under the provisions of the census law of 1902 came out in 1906 and gave the data for the 5 years 1900 through 1904. The introduction to this report contains an interesting account of the struggle for the establishment of the death registration, outlines the procedures used, describes the composition of the area, and gives the standard certificate used in the registration of deaths. In the beginning the death-registration area included the states of Connecticut, Indiana, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Rhode Island, and Vermont. It also included the District of Columbia and 153 of the 8,000 or more cities scattered throughout the states not included in the area. The data collected were presented according to race and nativity, month of occurrence, rural or urban (8,000 or over), age, sex, cause of death, and so forth, in a fairly detailed manner.

After 1904 the death-registration area of the United States was steadily expanded until, with the admission of Texas in 1933, it came to embrace every state in the Union. The sequence in which the states met the prescribed standards and their dates of admission to the death registration area are as follows: California, Colorado, Maryland, Pennsylvania, and South Dakota,[18] 1906; Washington and Wisconsin, 1908; Ohio, 1909; Minnesota, Montana and Utah, 1910; Kentucky and Missouri, 1911; Virginia, 1913; Kansas, 1914; North Carolina and South Carolina, 1916; Tennessee, 1917; Illinois, Louisiana, and Oregon, 1918; Delaware, Florida, and Mississippi, 1919; Nebraska, 1920; Georgia,[19] Idaho, and Wyoming, 1922; Iowa, 1923; North Dakota, 1924; Alabama and West Virginia, 1925; Arizona, 1926; Arkansas, 1927; Oklahoma, 1928; Nevada and New Mexico, 1929; South Dakota, 1930; and Texas, 1933. With the admission of Texas all of the continental United States was included in the death-registration area.[20]

The mortality statistics accumulated since 1900 constitute a highly

[16] WILLCOX, *op. cit.*, p. 14.

[17] *Mortality Statistics, 1900 to 1904*, Government Printing Office, Washington, 1906.

[18] South Dakota was dropped in 1910 and readmitted in 1930.

[19] Dropped in 1925 and readmitted in 1928.

[20] *Cf. Mortality Statistics, 1935*, p. 3, Government Printing Office, Washington, 1937.

important body of demographic information. In general, they are much more complete and accurate than the fertility data, but the mortality tabulations also suffer from some of the same general defects as those on fertility. Thus, prior to 1930 the division between rural and urban was at first drawn at 8,000, later at 10,000. This was modified following 1930 to include separate tabulations for groups of places with between 2,500 and 10,000 inhabitants. The early tables included rather elaborate classifications according to nativity, a practice that was greatly modified in 1930. The use of the international list of causes of death has done much to improve the comparability of the data. However, one unobtrusive change introduced in the 1931 report and continued to 1937 greatly reduced the value and usefulness of the data. This was the elimination of the county tables. Probably more people are interested in the number of deaths and death rate for their own counties than in any other mortality data. Admitting that the county data may be badly misapplied unless they are presented in detailed classifications, including a table giving age at death, it still seems extremely unfortunate that from the reports a count of the number of deaths in each of the counties cannot be secured. Fortunately, the reports since 1937 include this highly essential feature.[21]

Another defect in the earlier reports was the tabulation of the data by place of occurrence rather than by place of residence. This swelled the mortality rates for cities containing hospitals and lowered them in rural areas remote from such centers. From 1938 on this has been corrected by separate tabulations, one according to place of residence and one place of occurrence.

The Causes of Death.—A large share of the space in the reports on mortality in the United States and elsewhere is given over to presentation of data concerning the causes of death. This is as it should be, for one must go further than a study of the gross rates for a large part of the most significant facts and relationships in the field of mortality.

The causes of death are as yet lacking in precise scientific definition and standardization. However, considerable progress has been made toward this goal. It has involved the discarding of many formerly reported causes of death and the introduction of new ones; but on the whole, it is leading in the direction of more adequate classification and reporting of deaths according to cause. At the present time in the United States the *International List of Causes of Death* is being used. This list had its inception in 1853, when the First Statistical Congress (convened at Brussels) appointed Dr. William Farr and Dr. Marc d'Espine to develop a system of classifying

[21] *Vital Statistics of the United States, 1938*, Part I, Government Printing Office, Washington, 1940.

deaths that could be used internationally. After it had been revised many times, their system was presented by Dr. Jacques Bertillion to the International Statistical Institute in 1893 and was immediately accepted by several countries. In the United States it was adopted in 1900. Since then the list has been revised every decade at a series of international congresses, held in 1909, 1920, 1929, and 1938.[22]

This international list, intended as a practical guide for health officers, registrars of vital statistics, and research workers, is a convenient and systematic method of classifying the causes of death that are recorded upon the death certificates by physicians. It is particularly praiseworthy for the reason that it provides comparability in time for those persons, communities, and states who are interested in determining and analyzing the situation at various dates. It also does much to improve comparability between one part of a nation and another, and among nations.

As revised in 1938 the present list includes 200 separate causes, which are arranged into 18 major groups. For many purposes, however, it has been useful to tabulate the deaths according to the major causes of death, and currently in use by the Census Bureau is a classification of these 200 causes into 32 categories. For many purposes this modification is more useful than the general classification in the international list. It also is a great simplification of the complex list of 200 causes. Furthermore, the classification is made so that the various categories can be readily transferred into the 18 major groups of the international list.

INFANT MORTALITY

As a simple device for gauging the general welfare of a population the infant mortality rate has few serious rivals. As has been repeatedly pointed out, people that lack the knowledge or the desire to care for their helpless offspring will hardly have the knowledge or the will to care for themselves. Therefore, the infant mortality rate is extremely important as an index for use in public health and other welfare activities.

The infant mortality rate is calculated by relating the number of children of less than 1 year of age dying in the course of a year to the number of live births registered in the same year. Thus, in 1944 the deaths of 111,127 infants and 2,794,800 live births were registered in the United States. Therefore, the infant mortality for the year is calculated as follows: $111{,}127/2{,}794{,}800 \times 1{,}000 = 39.8$.

It is important to note that the infant mortality rate is not a specific death rate, although, of course, it corresponds rather closely in magnitude

[22] *Cf.* Bureau of the Census, *Physicians' Handbook on Birth and Death Registration*, pp. 31–32, Government Printing Office, Washington, 1939.

to the specific death rate for children of less than 1 year of age. The difficulty of getting an accurate count of babies in any census and the lack of any data concerning the population aged less than 1 year in intercensal periods are the chief reasons for using infant mortality rates in preference to the age-specific mortality rates for children under 1. However, since the infants who die in the course of a year consist in part of those born during the same year and in part of those born during the preceding year, adjustments for this fact sometimes are necessary. This is the case when a pronounced fluctuation occurs from one year to the next. Thus, Linder and Grove correct the 1938 infant mortality rate because there was a sharp rise in the crude birth rate—from 17.1 in 1937 to 17.6 in 1938. When 72 per cent of the 1938 births and 28 per cent of the 1937 births is used as a denominator in the calculation of the 1938 infant mortality rate, the rate in question is raised from 51.0 to 51.6. In other words, a change of 0.5 in the crude birth rate resulted in an underestimate of the infant mortality rate.[23] However, the birth rate must be changing very rapidly if this factor is to have much significance.

[23] LINDER, FORREST E., AND ROBERT D. GROVE, *Vital Statistics Rates in the United States, 1900–1940*, p. 45, Government Printing Office, Washington, 1943.

Chapter 14

MORTALITY: DIFFERENTIALS AND CAUSES

It is not difficult to show that the variations in mortality are very great. From country to country, race to race, sex to sex, and class to class and from time to time within the same country, race, sex, or class, the age-specific mortality rates and the expectation of life vary tremendously. Even a cursory study of the differentials and their causes convinces one that much of the loss of life is unnecessary, that some of the responsible factors are susceptible of manipulation or control. In fact, one of man's chief claims to his designation as Homo sapiens, as being an intelligent, rational animal, is the success that has rewarded his efforts at reducing the mortality rate. It has been no mean accomplishment to achieve the lowered proportions of people who fall by the way in the course of the normal life span.

MORTALITY IN SELECTED COUNTRIES

Data on mortality occupy a prominent place in the *Statistical Yearbook* published by the League of Nations. This source contains the most complete and up-to-date summary of mortality data for the various countries of the world that is available. From the 1945 edition, supplemented with other sources readily at hand, have been taken the latest available figures on expectation of life, which are given in Table 29.

A lengthy essay might well be written on the differentials revealed by these data and the reasons for their existence. Only a few of the more important may be noted here. Most striking is the great contrast between the long expectation of life at birth in northwestern Europe, the United States, Canada, Australia, and New Zealand and the low life expectancy in India and Egypt. Whereas in the former countries, children at birth have on the average more than 60 years of life ahead of them, in Egypt it is only about 34 years and in India approximately 27 years. The countries of southern and eastern Europe, the Latin-American representatives, and Japan rank considerably below the first group mentioned above. Negroes in the United States make a poor showing in comparison with their white countrymen but have a much greater expectation of life than their fellows

in South Africa or indeed that of the colored races anywhere else. As a matter of fact, in this respect they do not suffer by comparison with the populations of southern and eastern Europe and are far superior to those of Latin-American countries.

As age increases, the differentials are greatly decreased. Thus, at birth the extreme range is from 68.7 years for Canadian females to 26.6 years for females in India, whereas at age 20 the greatest disparity is that between the 52.0 year calculated for New Zealand females and the 27.1 years arrived at as the average number of years of future lifetime left to women in India. At age 50 the differences are even more sharply reduced, the extremes registered in the table being 25.9 for females in Norway and 14.3 for males in India. At age 70 the highest of the calculations is the 11.8 for Negro females in the United States; the lowest, 6.4 for males in India. This means that a large part of the differences in life expectation are due to the varying levels of the infant and child mortality rates.

In passing, it should be pointed out that these data offer little support for the thesis that high infant and child mortality rates eliminate the weaklings, leaving only the strong, virile to live. Generally speaking, the nations with high expectation of life at birth maintain their superiority in the older age groups. Only in a few cases does a country with a poor showing in the early ages of life make a superior one at the more advanced ages.

The almost universal tendency for the female to enjoy a longer expectation of life than the male also deserves comment. This holds true at all ages. The only exception, on the basis of the data in Table 29, is India, for the ages less than 50 years.

MORTALITY IN THE UNITED STATES

A study of mortality in the United States does much to bring out the factors responsible or variations in the death rates and expectation of life generally. Certainly the data now available for this country offer great opportunities for the demographer to explore many hitherto obscure phases of the subject, as well as to set forth the more generally known relationships.

Age and the Mortality Rate.—The close relationship between age and the mortality rate has already been pointed out (see Fig. 99). The hazards of life are great during infancy, especially during the first hours and days of life, but they decline precipitously for 2 or 3 years and continue falling gradually to the age of 10 or 12 years. By the time a person has attained early adolescence, the chances that he will be carried away by death in a given year reach their minimum. About halfway through the "teens," the age-specific mortality rates begin to rise slowly. Henceforth, the trend is ever upward, although not until age 55 or thereabouts has been

TABLE 29.—EXPECTATION OF LIFE IN SELECTED COUNTRIES*

Country	Years	Sex	Age			
			0	20	50	70
Africa:						
Egypt	1917–1927	M	31.0	32.9	18.1	9.6
		F	36.0	35.8	19.4	10.3
Union of South Africa:						
Whites	1935–1937	M	59.0	46.4	21.7	9.3
		F	63.1	49.7	24.3	10.5
Colored		M	40.2	38.8	19.7	9.5
		F	40.9	39.1	21.0	10.2
America:						
Canada	1940–1942	M	66.1†	49.5	23.5	9.9
		F	68.7†	51.8	25.5	10.9
United States						
Whites	1939–1941	M	62.8	47.8	22.0	9.4
		F	67.3	51.4	24.7	10.5
Negroes		M	52.3	39.5	19.1	10.1
		F	55.6	42.0	21.0	11.8
Brazil:						
14 cities	1920	M	35.6	34.1	16.4	7.6
		F	39.7	39.2	20.9	9.2
Federal district	1939–1941	M	40.8	36.2	17.2	7.7
		F	46.3	42.3	22.3	10.1
São Paulo	1939–1941	M	46.7	41.3	18.9	8.1
		F	51.8	46.4	23.1	10.0
Costa Rica	1927	M and F	40.7	37.9	17.5	7.0
Asia:						
India	1931	M	26.9	29.6	14.3	6.4
		F	26.6	27.1	14.7	6.7
Japan	1935–1936	M	46.9	40.4	18.9	7.6
		F	49.6	43.2	22.2	9.0

* SOURCES: *Statistical Yearbook of the League of Nations, 1942–1944*, Table 15, Geneva, League of Nations, 1945; Bureau of the Census, "United States Life Tables, 1939–1941," *Vital Statistics—Special Reports*, 19 (January, 1944) 38–39; and Giorgio Mortara, "Tábuas Brasileiras de mortalidade e sobrevivência," *Estudos Brasileiros de demografia*, Ano I, 1 (1946), 44–47, 64–67, and 78–81.

† Data are for age 1.

TABLE 29.—EXPECTATION OF LIFE IN SELECTED COUNTRIES.*—(*Continued*)

Country	Years	Sex	Age			
			0	20	50	70
Europe:						
Austria	1930–1933	M	54.5	45.2	21.0	8.6
		F	58.5	48.0	22.9	9.2
Belgium	1928–1932	M	56.0	46.0	21.6	8.7
		F	59.8	48.4	23.6	9.6
Bulgaria	1925–1928	M	45.9	45.8	23.2	10.9
		F	46.6	45.4	24.3	11.1
Czechoslovakia	1929–1932	M	51.9	45.3	21.2	8.7
		F	55.2	47.4	22.8	9.2
Denmark	1936–1940	M	63.5	50.3	23.7	9.6
		F	65.8	51.1	24.5	10.0
Estonia	1932–1934	M	52.1	43.7	20.9	9.0
		F	59.6	49.8	25.3	10.7
Finland	1931–1940	M	54.5	43.3	20.9	9.5
		F	59.6	47.9	24.0	10.1
France	1928–1933	M	54.3	43.3	20.3	8.3
		F	59.0	47.4	23.4	9.6
Germany	1932–1934	M	59.9	48.2	22.5	9.1
		F	62.8	49.8	23.9	9.6
Greece	1928	M	49.1	44.3	22.6	10.6
		F	50.9	46.4	24.9	11.0
Hungary	1930–1931	M	48.3	43.8	20.4	7.8
		F	51.3	45.8	22.4	8.7
Ireland	1935–1937	M	58.2	46.8	22.4	10.0
		F	59.6	47.3	23.3	10.6
Italy	1935–1937	F	57.5	49.1	24.0	9.6
Latvia	1934–1936	M	55.4	45.6	21.5	9.3
		F	60.9	50.3	25.6	11.0
Netherlands	1931–1940	M	65.7	51.0	24.1	9.8
		F	67.2	51.5	24.7	10.2

TABLE 29.—EXPECTATION OF LIFE IN SELECTED COUNTRIES.*—(*Continued*)

Country	Years	Sex	Age			
			0	20	50	70
Norway	1921–1931	M	61.0	47.7	24.4	10.6
		F	63.8	49.9	25.9	11.4
Poland	1931–1932	M	48.2	43.7	20.3	8.3
		F	51.4	45.7	22.4	9.2
Russia (Europe)	1926–1927	M	41.9	43.2	21.0	9.7
		F	46.8	47.4	24.4	11.0
Scotland	1930–1932	M	56.0	46.0	21.3	8.4
		F	59.5	48.3	23.3	9.6
Sweden	1936–1940	M	64.3	49.7	24.0	9.9
		F	66.9	51.3	25.1	10.4
Switzerland	1933–1937	M	60.7	46.5	21.3	8.7
		F	64.6	49.6	23.7	9.6
United Kingdom	1937	M	60.2	47.1	21.4	8.6
		F	64.4	49.9	24.3	10.0
Oceania:						
Australia	1932–1934	M	63.5	48.8	22.8	9.6
		F	67 1	51.7	25.6	11.0
New Zealand	1934–1938	M	65.5	49.9	23.6	9.8
		F	68.5	52.0	25.5	10.7

attained is the rapidity of the ascent greatly accelerated. Eventually, after the "threescore years and ten" have been passed, the rates soar to points far above those of early infancy.

Sex and the Mortality Rate.—That sex is closely linked to expectation has already been indicated. Very few are the exceptions to the rule that females of every age group enjoy a lower death rate than the corresponding males. Most of the charts and tables in this section permit this relationship to be tested, and the necessary comparisons always demonstrate the greater longevity of the feminine sex. Especially enlightening in this respect are the data mapped in Figs. 100 and 101. But irrespective of the approach used, it can be asserted without fear of reasonable contradiction that among both whites and Negroes (regardless of whether they live in cities or in the

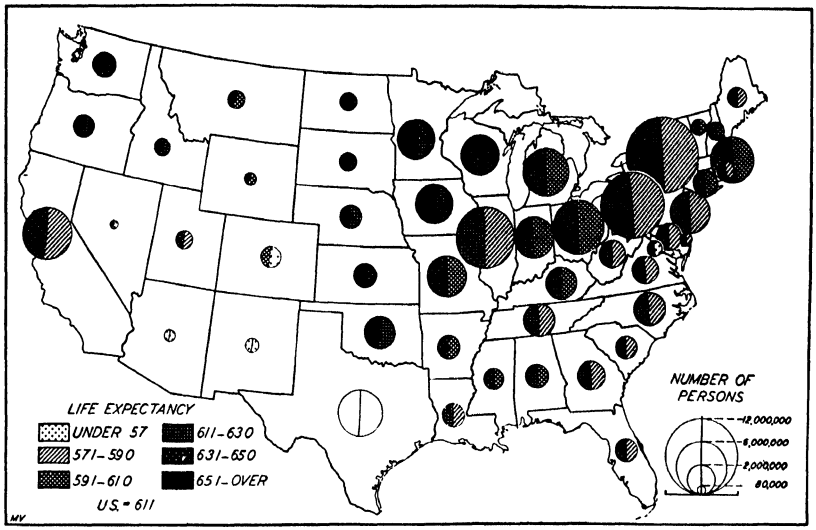


FIG. 100.—Variations in the expectation of life of the white population, 1930. (Starting at 12:00 on the circles and reading clockwise, the segments represent the male and female populations, respectively.)

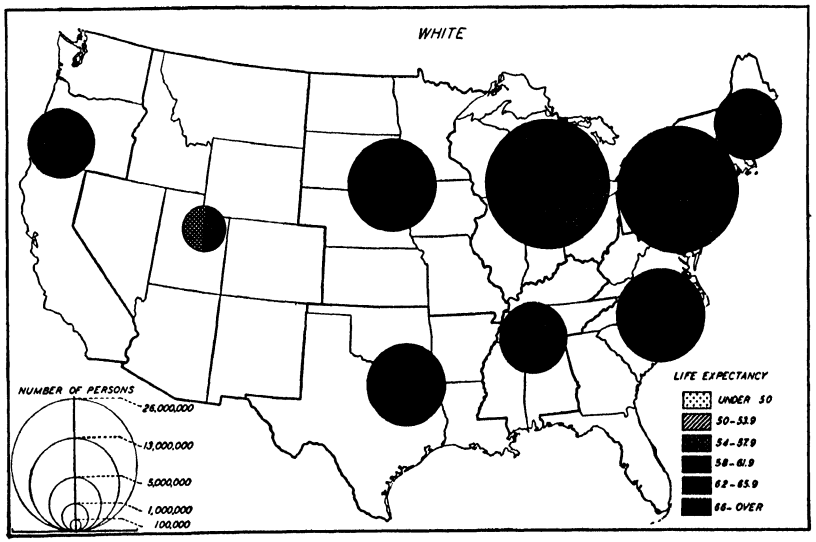


FIG. 101.—Variations in the expectation of life of the white population, 1939 to 1941. (Starting at 12:00 on the circles and reading clockwise, the segments represent the female and the male populations, respectively.)

open country), and in all sections of the country, the age-specific death rates of females are lower than those for males. For this reason the mortality data should be subdivided by sex before most other comparisons are attempted.

Race and the Mortality Rate.—The white population of the United States enjoys a distinct superiority over the Negro population and over persons of other races from the standpoint of longevity. This was true in 1901, the year for which our first life tables were computed, when the life expectation of Negro males in the original registration states was only

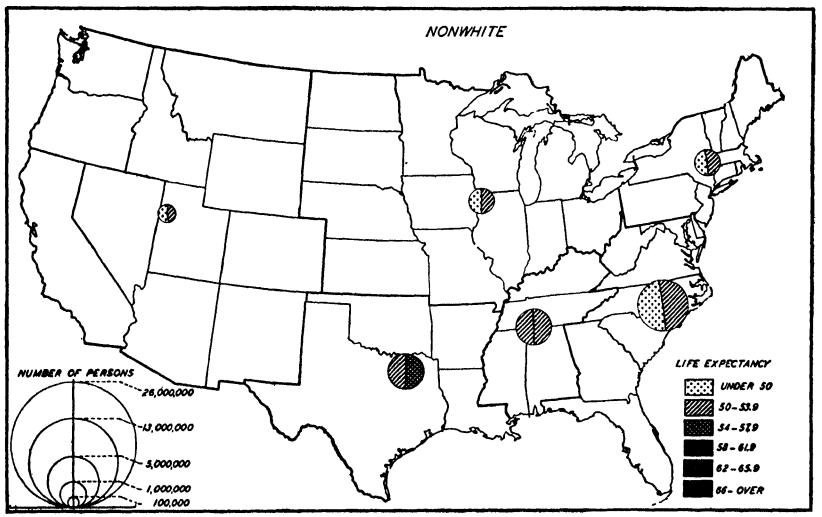


FIG. 102.—Variations in the expectation of life of the nonwhite population, 1939 to 1941. (Starting at 12:00 on the circles and reading clockwise, the segments represent the female and the male populations, respectively.)

34.05 compared with one of 50.23 for white males. The corresponding averages for Negro and white females for the same date are 35.04 and 51.08 years, respectively. The same pattern prevailed in 1939 to 1941, the period on which our latest life tables are based, when the expectation of life at birth in the United States was 52.3 for Negro males, 62.8 for white males, 55.6 for Negro females, and 67.3 for white females. Even though the increases in life expectation on the part of Negroes of both sexes were greater, absolutely as well as relatively, than those for whites, in 1939 to 1941 the racial differentials were still substantial. At that time, white males averaged 10.5 years and white females 11.7 years more than Negroes of the corresponding sexes. Unfortunately, the data cannot be further subdivided according to rural and urban categories. However, a com-

parison of Figs. 101 and 102 indicates that a longer average life span is characteristic of whites in all sections of the country.

Residence and the Mortality Rate.—Not enough attention in the preparation of life tables and other indexes of mortality has been given to detailed classifications that would enable the residential factor to be taken into account simultaneously with race and sex. In addition to making it difficult to compare the mortality of city and country, this reduces somewhat the validity of any racial and regional comparisons that are attempted.

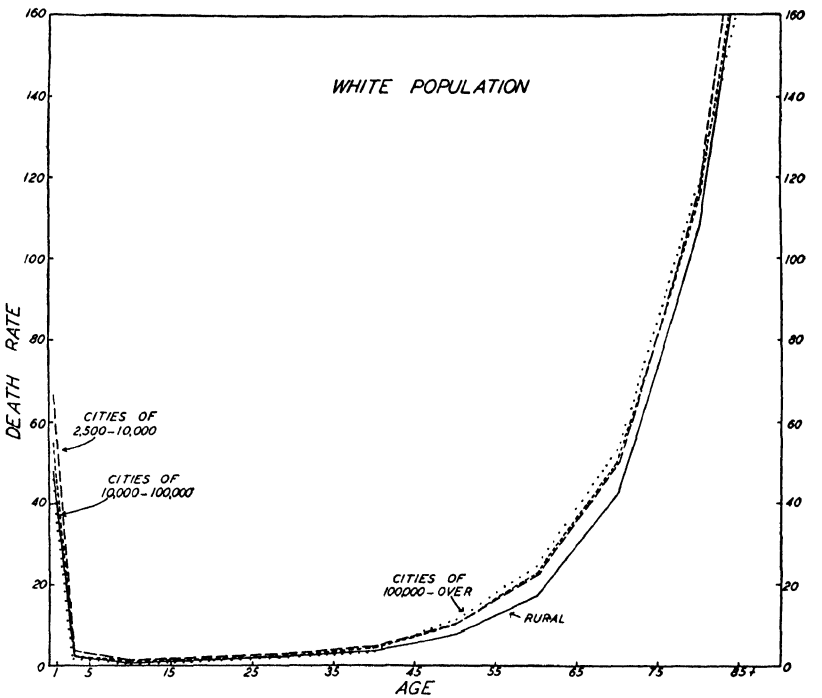


FIG. 103.—Age-specific death rates of the white population of the United States by Residence, 1939 to 1941.

Among both males and females expectation of life has been and remains greater in rural than in urban areas (see Table 33). However, a study of Fig. 103 indicates that the age-specific death rates of the rural population are not uniformly lower than those of all sizes of urban centers. As a matter of fact, for the ages less than 35 the large cities make a better showing than the rural areas. From 35 to 84, however, the scores are decidedly favorable to the rural category, irrespective of the size of the centers with which comparisons are made. On the whole, the smallest

urban centers, those having between 2,500 and 10,000 inhabitants, are characterized by higher mortality rates than the larger urban centers and the rural areas.

Marital Status and the Mortality Rate.—That married people have a lower mortality rate or a longer expectation of life than the single, the widowed, or the divorced is rather generally known. If anyone were inclined to question this generalization, the data for 1940 should remove every reasonable doubt (see Fig. 104). For males and for females at each group from 20 to 24 to 75 years and over, the age-specific death rates of

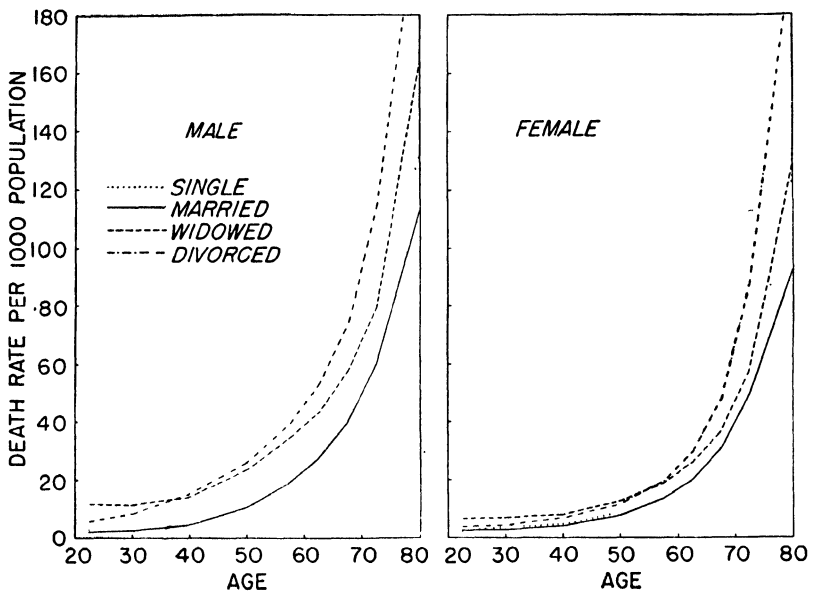


FIG. 104.—Age-specific death rates in the United States by sex and marital status, 1940.

married persons are lower than those for the other three categories. The second lowest position is consistently held by the single persons. Highest of all are the rates for the divorced, although among males of less than 35 and among females under 50 the death rates of the widowed are above those of all other categories.

This tendency for the age-specific death rates of married persons to be less than those of the single, widowed, and divorced portions of the population is true of both whites and nonwhites, irrespective of whether they reside in rural or in urban areas. Likewise, with very few exceptions, in each of these racial and residential categories at all age groups the marital

categories rank as follows with respect to the death rates: married, single, widowed, and, highest of all, the divorced.[1]

The exact reasons for these differences as yet are not entirely known. Probably the avoidance of marriage by persons affected with various ailments is part of the answer. A better adjustment on the part of the married to prevailing patterns of living also is surely of importance. It is interesting to note also that for a large share of the causes of death, the specific rates for those who have never married and for those whose marriage has been disrupted by death or divorce are higher than those for married persons. This is especially true among males. The advantage of the married is greatest of all with respect to mortality from tuberculosis, syphilis, homicide, and suicide.[2]

Occupation and the Mortality Rate.—There is a close relationship between occupation and the mortality rate or the expectation of life. The nature of the work that a man does, the type of environment in which he spends a large share of his time, and the wages or salary that he receives for his labor largely determine his living conditions. Thus, occupation has an important bearing on one's housing, food, clothing, recreation, amount of physical exercise, and many of the other items that affect health and determine the length of life.

Unfortunately, the detailed data available for examining the effects of specific occupations upon longevity still leave a great deal to be desired. They are much less satisfactory than those showing the relationship of age, race, sex, residence, and marital status to the mortality rate. In fact, in order to treat this subject at all, one must piece together materials from various sources, many of which are already somewhat out of date.

Probably the most thoroughgoing study ever made in this country of the differential mortality of various socioeconomic or occupational groups is the one for 1930 published by the National Tuberculosis Association.[3] The results of this important piece of research indicated that workers engaged in agriculture were characterized by the lowest standardized death rate of any of the occupational groups. In the 10 states included in the study (Alabama, Connecticut, Illinois, Kansas, Massachusetts, Minnesota, New Jersey, New York, Ohio, and Wisconsin), the standardized death

[1] See PITNEY, ELIZABETH H., "Mortality by Marital Status, by Age, Race, and Sex, Urban and Rural: United States, 1940," *Vital Statistics—Special Reports*, 23 (July, 1945), 50–51.

[2] *Cf.* MORIYAMA, IWAO M., "Deaths from Selected Causes, by Marital Status, by Age and Sex: United States, 1940," *Vital Statistics—Special Reports*, 23 (November, 1945) 122–123.

[3] WHITNEY, JESSAMINE S., *Death Rates by Occupation, Based on Data of the U. S. Census Bureau, 1930*, National Tuberculosis Association, New York, 1934.

rate among males engaged in agriculture was only 6.2 per 1,000 population. Professional men with a rate of 7.0 were their nearest competitors. The rates for the other groups were as follows: proprietors, managers, and officials, 7.4; clerks and kindred workers, 7.4; skilled workers and foremen, 8.1; semiskilled workers, 9.9; and unskilled workers, 13.1. These differentials stand out most clearly among men of 45 years and over. On the basis of some special studies, it would appear that among the professional classes, clergymen and teachers have the highest expectation of life of all.[4]

The validity of these differentials in the United States is somewhat strengthened by the fact that similar differences prevail in England. Based on data for the years 1930 to 1932, the expectation of life at birth of males of the several social classes in England and Wales was calculated to be as follows: professional men, 63.1 years; farmers, 63.0; managers, clerks, etc., 60.8; skilled workers, 60.0; semiskilled workers, 57.3; unskilled workers, 55.7; and coal miners, 55.7.[5]

Regional Differences.—The available data suggest that life expectation does not vary greatly from one region to another (see Figs. 100 and 101). After racial differences are eliminated, the contrasts among the regions are not marked. Among the white population the West North Central states and the Pacific geographic division seem to enjoy a slight superiority over the rest of the country, and among the nonwhites the West South Central states appear to be the ones in which expectation of life is greatest. However, the data for 1930, which are available for states, indicate the necessity of using caution in arriving at such conclusions. Undoubtedly, the low expectation of life in the southern portion of the Rocky Mountain region, an area famed as a health resort, is largely due to the fact that persons die in the region from diseases contracted elsewhere. Likewise, the superiority of the Plains states probably means only that many ailing persons go elsewhere in search of health before death. All in all, it appears that the data are still not sufficiently trustworthy to enable regional variations in expectation of life to be determined.

Seasonal Variations.—The death rate throughout the year is highly responsive to sudden changes in the weather, the outbreak of epidemics, and other temporary factors. In addition to this, there are some important seasonal variations that are repeated year after year. Thus, at the present time in the United States the death rate reaches its maximum in the winter

[4] *Cf.* DUBLIN, LOUIS I., AND ALFRED J. LOTKA, *Length of Life: A Study of the Life Table*, pp. 225–226, The Ronald Press Company, New York, 1936.

[5] TIETZE, CHRISTOPHER, "Life Tables for Social Classes in England," *The Milbank Memorial Fund Quarterly*, 21 (1943), 186.

months, generally in January or February, and declines rather steadily until it reaches its lowest point of the year in August or September. Then a gradual rise again sets in which once more carries the curve to its maximum in January or February (see Fig. 105).[6]

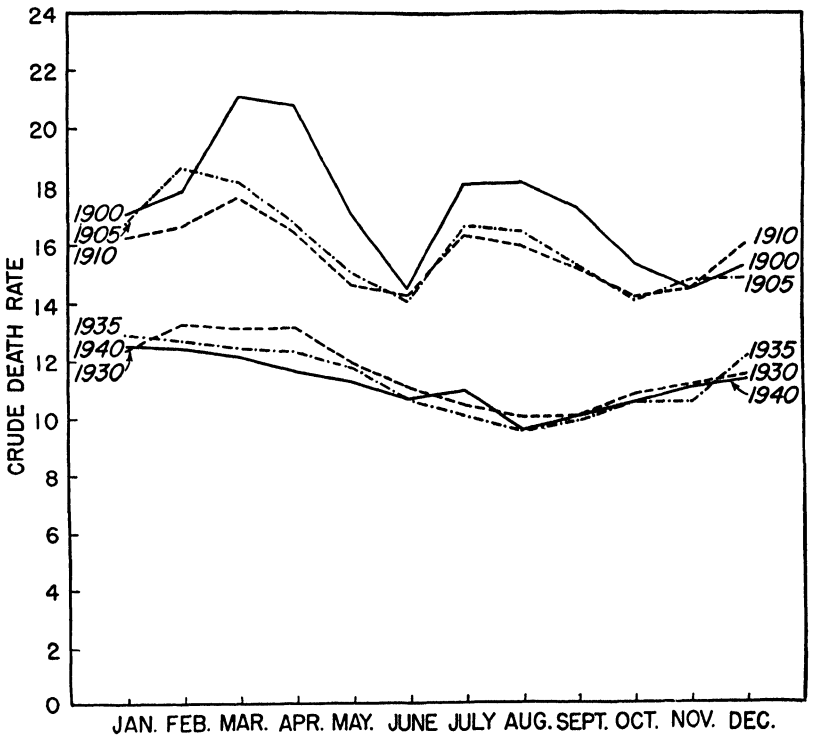


FIG. 105.—Seasonal variations in the crude death rates in the United States, 1900, 1905, 1910, 1930, 1935, and 1940.

The cyclical movement of the death rate today is very different from that which prevailed at the opening of the twentieth century. Not only has the curve been greatly reduced throughout its entire extension, but a great midsummer rise that used to take place has been eliminated. Whereas only 30 years ago the death rate during July and August reached levels high enough to rival those of midwinter, by 1930 these months came to be the ones in which it sank to the low points of the year.

[6] The comprehensive data arranged in convenient form for analytical purposes will be found in Forrest E. Linder and Robert D. Grove, *Vital Statistics Rates in the United States, 1900–1940*, Government Printing Office, Washington, Table 2, pp. 125–126, 1943.

TABLE 30.—DEATH RATES IN THE UNITED STATES FOR THE LEADING CAUSES OF DEATH, BY COLOR AND SEX, 1944*

Cause of death	Rates per 100,000 population				
	Total	White		Nonwhite	
		Male	Female	Male	Female
All causes	1,064.7	1,225.7	876.7	1,392.0	1,102.9
Diseases of the heart	315.4	398.6	254.2	274.3	220.6
Cancer and other malignant tumors	129.1	135.5	133.3	75.6	92 2
Intracranial lesions of vascular origin	93.7	93.8	90.0	107.0	113.4
Nephritis	69.2	72.4	57.9	115.5	97.7
Pneumonia (all forms), influenza	61.7	67.1	47.1	122.1	88.4
Accidents excluding motor-vehicle accidents	53.5	75.2	33.6	78.2	30.2
Tuberculosis (all forms)	41.3	45.0	23.3	122.7	91.3
Diabetes mellitus	26.4	21.1	32.9	13.2	24.7
Premature birth	25.0	28.1	19.3	41.8	33.6
Motor-vehicle accidents	18.3	30.0	7.7	30.1	6.6
Congenital malformations	12.6	14.9	11.4	10.3	7.0
Syphilis	11.3	12.4	3.8	57.8	23.0
Suicide	10.0	16.1	5.9	4.9	1.4
Diarrhea, enteritis, etc	9.9	10.0	7.5	21.6	18.2
Hernia and intestinal obstruction	9.0	9.5	8.3	11.3	9.9
Cirrhosis of the liver	8.7	12.1	6.1	7.4	4.1
Ulcer of the stomach or duodenum	6.6	11.7	2.2	8.4	2.7
Appendicitis	5.9	7.0	4.5	8.4	6.4
Diseases of the prostate	5.8	12.3	.....	11.3	
Biliary calculi, etc	5.2	3.8	7.2	1.3	2.8
Homicide	4.9	4.0	1.2	43.5	9.6
Diseases of pregnancy, childbirth, and puerperium	4.8	.....	7.5	.....	23.6
Cerebrospinal meningitis	2.1	2.6	1.5	4.3	2.4
Exophthalmic goiter	2.0	0.7	3.3	0.5	2.9
Measles	1.5	1.4	1.4	2.2	2.2
Whooping cough	1.4	1.1	1.1	4.1	4.9
Alcoholism	1.4	2.5	0.3	2.6	0.5
Dysentery	1.4	1.3	1.1	3.2	2.7
Acute rheumatic fever	1.1	1.1	0.9	2.0	2.4
Poliomyelitis, polioencephalitis	1.0	1.4	0.8	0.6	0.4
Diphtheria	0.9	0.9	0.8	1.2	0.9
Pellagra	0.8	0.5	0.7	1.6	3.2
Malaria	0.4	0.3	0.2	2.1	2.2
Scarlet fever	0.3	0.4	0.3	0.2	0.2
Senility, ill-defined and unknown causes	22.3	19.3	14.4	77.0	62.8
All other causes	99.5	111.4	85.1	122.5	106.8

* SOURCE: *Vital Statistics—Special Reports*, 25 (1946), 286–299.

Causes of Death.—The number of deaths in the United States now runs around 1,420,000 per year. In 1944 the total reported was 1,411,338, and in 1940 it was 1,417,269. These figures correspond to crude death rates of 10.6 in 1944 and 10.8 in 1940. An examination of the causes that are assigned for these deaths is another very important aspect of the study of mortality. In the preceding chapter the classification employed was described and its development traced. Here we present the data that show the absolute and relative importance of each of the leading causes and indicate the extent to which each of them contributed to the crude death rate of 10.6 for 1944. In line with this objective the basic materials, arrayed from the most important to the least important cause of death, are presented in Table 30. In order to permit detailed comparisons, the materials for whites and nonwhites, males and females, are given separately.

One out of every three deaths in the United States is attributed to diseases of the heart. Cancer and other malignant tumors are in second position, being assigned as the cause of almost 8 per cent of the losses. Nervous ailments rank third, being responsible for slightly less than 6 per cent of the fatalities. Nephritis ranks fourth and accounts for the decease of about 4 per cent of the persons who die in the course of a year. All four of these are what may be called degenerative diseases, ailments that are especially prevalent among aged persons. Together the four, at present, account for more than 56 per cent of all deaths in the United States.

Pneumonia and influenza are much less deadly than they used to be, but this category now occupies fifth place among the killers, followed by accidents other than those in which motor vehicles are involved, tuberculosis, diabetes mellitus, premature birth, and motor-vehicle accidents, in the order named. These 10 leading categories together account for 78 per cent of all deaths in this country.

Also worth noting is the very low mortality from many of the contagious or transmissible diseases which once snuffed out lives by the thousands. Largely under control are scarlet fever, malaria, diphtheria, and whooping cough.

Females, both white and nonwhite, enjoy decidedly lower rates from most of the causes of death than do the males. In fact, other than the ailments peculiar to their sex, *i.e.*, the diseases of pregnancy, childbirth, and puerperium, the only causes of death that are significantly higher among females than males are diabetes mellitus, biliary calculi, exophthalmic goiter, and possibly pellagra. For some of the relatively unimportant causes of death such as scarlet fever, malaria, diphtheria, acute rheumatic fever, whooping cough, and measles and also for cancer and other malignant

tumors and intracranial lesions of vascular origin, there seem to be no significant sex differences. But the list of causes for which the rates for males are considerably higher than those for females is a long one. It includes diseases of the heart, nephritis, pneumonia and influenza, syphilis, diarrhea, hernia, cirrhosis of the liver, ulcers of the stomach, appendicitis, cerebrospinal meningitis, and poliomyelitis. In addition to the fact that the stillbirths include disproportionately large shares of males, it is interesting to note that the rates for both premature birth and congenital malformations are much higher for males than females. Men are more apt to commit suicide, more likely to fall victims to homicide, and in greater danger of dying from alcoholism than are women. They also run greater risks of being killed in accidents, both those in which motor vehicles are involved and those of other types.

There are also great differences between the races. The rates among nonwhites appear to be definitely lower than those of whites for the following causes of death: diseases of the heart, cancer, diabetes mellitus, congenital malformations, suicide, cirrhosis of the liver, biliary calculi, and poliomyelitis. On the other hand, in comparison with the whites the nonwhites make a relatively poor showing with respect to intracranial lesions of vascular origins, nephritis, pneumonia and influenza, tuberculosis, premature birth, syphilis, diarrhea, homicide, diseases of pregnancy and childbirth, and cerebrospinal meningitis. Such things as measles, whooping cough, dysentery, rheumatic fever, pellagra, and malaria also take proportionately higher tolls of Negro than of white lives. The Negro's propensity for homicide and his avoidance of suicide both are so great as to call for special emphasis.

INFANT MORTALITY

The deaths of children under 1 year of age make up such a large fraction of the total mortality that infant mortality deserves special attention.

Infant Mortality in Selected Countries.—The Statistical Yearbook of the League of Nations is the best source of current data on infant mortality throughout the world. From that important source the latest available materials have been assembled in Table 31. Lest it be thought that many of these rates are unduly high because of the war, it should be pointed out that in many of the warring countries infant mortality rates in 1942 generally were lower than in 1938. Some of the specific changes are between 1938 and 1942 as follows: Germany, an increase from a rate of 62 to one of 68; Belgium, an increase from 73 to 77; Bulgaria, a decrease from 144 to 127; Denmark, a decrease from 59 to 47; Finland, a decrease from 68 to 67; France, an increase from 65 to 71; Italy, an increase from 106 to 108;

Malta, an increase from 225 to 345 (it seems a wonder that any babies survived 1942); the Netherlands, an increase from 37 to 40; and the United Kingdom, a decrease from 55 to 54.

The variations in the infant mortality rate from one part of the world to another are tremendous. In Chile and some of the other Latin-American countries, in Barbados, and in Burma and some other parts of Asia, nearly one baby out of five dies during the first year of life. In these areas a very large share of the woman's lifeblood is exhausted in the bearing of children who have no chance whatsoever of surviving, let alone of contributing to the welfare of mankind. At the other extreme, in Iceland, Norway, New Zealand, Australia, and the Netherlands, the infant mortality rate is less than 40. The infant mortality rates of Surinam and Hawaii should be studied by those who would attribute the differences in the high rates prevailing in many parts of the world to climatic rather than to cultural factors.

Infant Mortality in the United States.—In 1944 the infant mortality rate in the United States was 39.4, less than one-half of what it was in 1920 and only 39 per cent of the 1915 level. The reduction of infant mortality from 99.9 in 1915 to less than 40 in 1944 was a magnificent accomplishment. More than any other fact, it exhibits the wisdom of transferring part of the vital energy that women formerly exhausted in the biological process of bearing children to the proper care and feeding of the smaller number of babies which the average woman now brings into the world. Of course, there would be no room for optimism on this point if the advocates of natural selection could point to vigorous races and physical specimens produced in the parts of the world such as India, China, or Egypt, where infant mortality and other selective forces have held almost unbridled sway.

The racial differences in infant mortality are considerable, and there may be some residential differences as well. Even though the rate of 62.5 for nonwhites in 1943 is below those of most of the countries in the world, it is still almost double that for whites. However, in 1916 nonwhites had an infant mortality rate of 184.9 compared with one of 99.0 for whites, demonstrating that the gains on the part of the Negroes and other colored races are being made more rapidly than those among the white population.

The differences between urban and rural areas are not clear cut. For the white population the rural areas occupy an intermediate position, the rural rate being above that of the larger cities and below those of towns and cities of less than 25,000. Among the nonwhites the rural areas have a lower infant mortality rate than the cities, regardless of their size. The nature of these differences suggests the necessity of making the rural-

TABLE 31.—INFANT MORTALITY RATES IN SELECTED COUNTRIES*

Country	Year	Number of infants dying per 1,000 live births
Africa:		
Egypt	1942	168
Mauritius	1942	163
Union of South Africa (whites)	1942	48
America:		
Canada	1942	54
United States	1942	40
Mexico	1942	118
Argentina	1942	84
Barbados	1942	175
Chile	1942	195
Colombia	1942	154
Costa Rica	1942	157
Ecuador	1942	141
Guatemala	1942	132
British Guiana	1942	97
Jamaica	1942	98
Nicaragua	1942	130
El Salvador	1942	117
Surinam	1942	70
Trinidad and Tobago	1942	119
Uruguay	1942	93
Venezuela	1942	115
Asia:		
Ceylon	1942	120
Cyprus	1942	185
Straits Settlements	1940	144
Federated Malay States	1940	134
Unfederated Malay States	1940	139
British India	1942	163
Burma	1939	204
Japan	1938	114
Palestine:		
Jews	1942	58
Moslems	1942	140
Philippine Islands	1938	139

* SOURCE: *Statistical Yearbook of the League of Nations, 1942–1944*, pp. 44–45, League of Nations, Geneva, 1945.

TABLE 31.—INFANT MORTALITY RATES IN SELECTED COUNTRIES.*—(*Continued*)

Country	Year	Number of infants dying per 1,000 live births
Europe:		
Austria	1940	72
Belgium	1942	77
Bulgaria	1942	127
Denmark	1942	47
Spain	1942	103
Estonia	1938	77
Finland	1942	67
France	1942	71
Germany	1942	68
Greece	1938	99
Hungary	1942	151
Ireland	1942	69
Iceland	1942	51
Italy	1942	108
Latvia	1939	70
Lithuania	1939	122
Luxemburg	1938	82
Malta	1942	345
Norway	1939	37
Netherlands	1942	40
Poland	1938	140
Portugal	1942	131
Rumania	1942	183
United Kingdom	1942	54
Sweden	1942	29
Switzerland	1942	38
Czechoslovakia	1938	121
Yugoslavia	1938	144
Oceania:		
Australia	1942	39
Hawaii	1942	39
New Zealand:		
Whites	1942	29
Maoris	1942	98

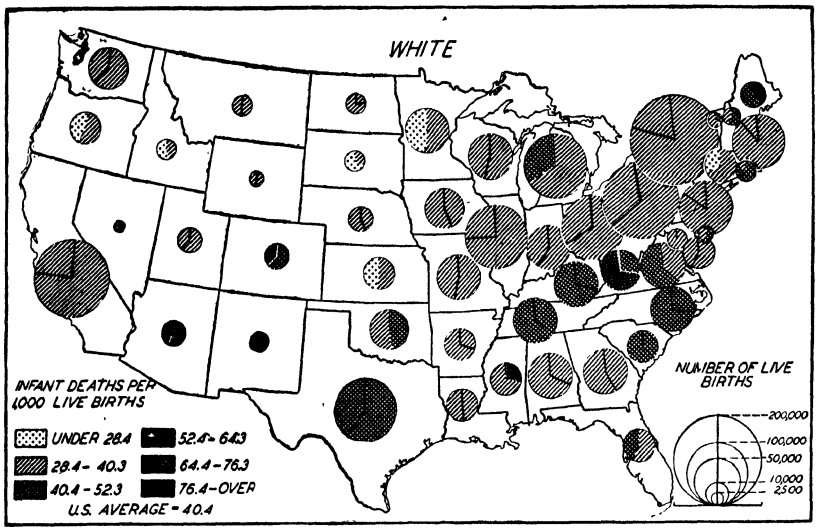


FIG. 106.—Variations in the infant mortality rate of the white population of the United States, 1943. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban and the rural populations, respectively.)

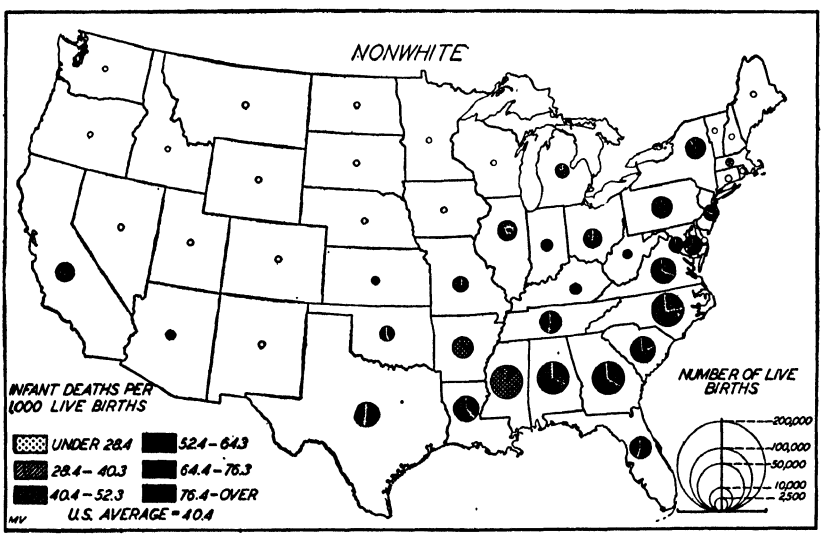


FIG. 107.—Variations in the infant mortality rate of the nonwhite population of the United States, 1943. (Starting at 12:00 on the circles and reading clockwise, the segments represent the urban and the rural populations, respectively.)

urban comparisons on a state-to-state basis. Accordingly, Figs. 106 and 107 were prepared. Among the white population in most states there is no clear-cut rural-urban differential. However, the advantage, if any, is with the rural population, since in 14 states the urban infant mortality rate falls in a class above that of the rural whereas in only four states is the reverse true. Among the nonwhites, or Negroes, the infant mortality rate in the rural districts is definitely below that in the urban centers.

These maps, particularly Fig. 106, also bring out the existence of several regional differences in the infant mortality rates. On the whole, the Northwest, from Minnesota to Oregon, seems to be the area in which the newborn baby has the best chance of survival. On the other hand, his chances are poorest in New Mexico and other parts of the Southwest. This is due in a large measure to the presence of the large Spanish American population in this area. Higher than average infant mortality rates also prevail in the upper part of the southeastern region and in four of the New England states.

Chapter 15

MORTALITY TRENDS

WESTERN society has been characterized by a long-time, downward trend in the mortality rate. Even though until recently the data for many countries, including the United States, have been fragmentary, there can be no doubt of the soundness of this conclusion. In fact, the fall in the death rate has been so pronounced that it may be demonstrated merely by the use of the crude death rate, a procedure followed by Carr-Saunders for such countries as England and Wales, Australia, New Zealand, and Sweden.[1]

It is always more satisfactory, however, to base conclusions upon refined measures such as the expectation of life, the standardized death rate, and the age-specific death rate. Fortunately, for a considerable number of the Western countries there are available calculations of the expectation of life extending back to the middle of the nineteenth century and, in the case of France, back to the period 1817 to 1831. From the *Aperçu de la démographie des divers pays du monde*[2] and the *Statistical Yearbook of the League of Nations, 1942–1944*,[3] some of the data for the male population have been assembled and charted in Fig. 108. They may be regarded as representative of the most reliable and comprehensive data on this subject that are available at present, and they leave no room for questioning the soundness of the basic proposition that has been advanced.

The spectacular increases in life expectation took place only during the last 75 years. During most of the nineteenth century, the expectation of life, though trending upward, did not show the phenomenal increases that were to come later. But following 1875 great and rapid gains were registered in all of the countries for which we have data. From levels of between 35 and 45 years at the time of the Franco-Prussian War, the average expectation of life of males in countries possessed of Western culture rose to heights of from 55 to 65 years or more at the outbreak of the Second World War. Notable were the achievements in the Netherlands, New Zealand, Sweden, and Australia. Of all the countries included

[1] *Cf.* CARR-SAUNDERS, A. M., *World Population*, pp. 61, 68, Oxford, The Clarendon Press, New York, 1936.

[2] L'Office permanent de l'Institut International de Statistique, The Hague, 1929.

[3] League of Nations, Geneva, 1945.

in Fig. 108, France showed the least progress in the extension of the expectation of life. Both Italy and Germany made substantial gains, the latter moving from second lowest position on the chart in 1880 to a median position by 1933 and the former moving from a position far below all

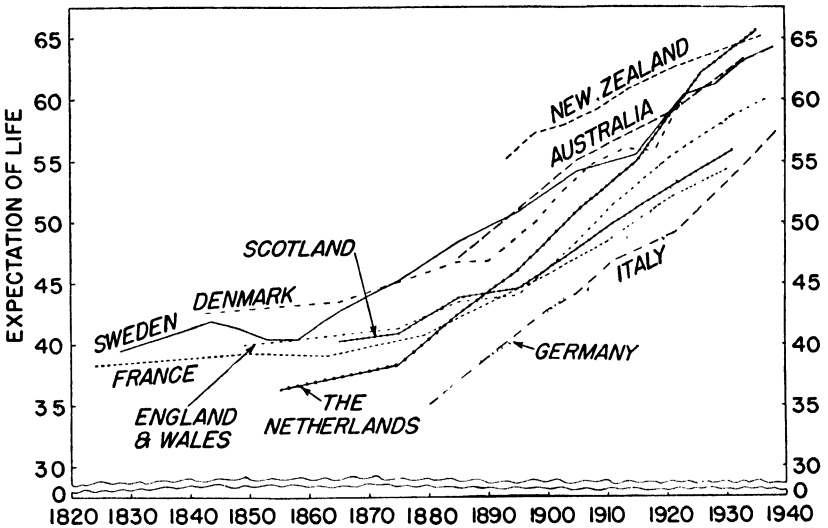


FIG. 108.—Increases in the expectation of life in selected countries during the nineteenth and twentieth centuries.

countries except Germany in 1880 to a parity with France and Scotland in the 1930's.

TRENDS IN THE UNITED STATES

Trends in mortality in the United States are best reflected in the extension of life expectation that has occurred since 1900, the year for which our first official life tables were constructed. The available data for the white population subdivided according to sex are presented in Table 32.

These data give ample evidence of a phenomenal increase in life expectation in the United States during the first 40 years of the twentieth century. For white males the expectation of life at birth increased by 14.6 years (30 per cent) between 1901 and 1940, whereas the corresponding increase for white females was even greater—16.2 years (32 per cent). Since, as is well known, the greater part of the increased life expectation was due to the lowering of infant and child mortality, the gains at the various adult ages were less spectacular. Nevertheless, they have been substantial, as is evidenced by the data for the white population. Thus, during the 40-year

TABLE 32.—THE INCREASING EXPECTATION OF LIFE AMONG THE WHITE POPULATION OF THE UNITED STATES, 1900–1902 TO 1939–1941, BY SEX*

Year	Average future lifetime							
	At birth		Age 20		Age 45		Age 70	
	Males	Females	Males	Females	Males	Females	Males	Females
1900–1902†	48.2	51.1	42.2	43.8	24.2	25.5	9.0	9.6
1919–1921‡	56.3	58.5	45.6	46.5	26.0	27.0	9.5	9.9
1929–1931	59.1	62.7	46.0	48.5	25.3	27.4	9.2	10.0
1930–1939	60.6	64.5	46.8	49.7	25.5	28.1	9.3	10.2
1939–1941	62.8	67.3	47.8	51.4	25.9	28.9	9.4	10.5

* SOURCES: *United States Life Tables, 1930–1939* (Preliminary), Bureau of the Census, Washington, 1941; *United States Abridged Life Tables, 1930–1939, by Geographic Divisions* (Preliminary), Bureau of the Census, Washington, 1942; and "United States Life Tables, 1939–1941," *Vital Statistics—Special Reports*, 19 (1944), 38–41.

† Data are for registration area (Connecticut, the District of Columbia, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York, Rhode Island, and Vermont).

‡ Data are for the death registration area of 1920 which did not include the states of Alabama, Arizona, Arkansas, Georgia, Idaho, Iowa, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, West Virginia, and Wyoming.

period under consideration, the life expectation for white males aged 20 increased 5.6 years, or 13 per cent, and that for white females 7.6 years, or 17 per cent. At age 45 the corresponding figures for the males were 1.7 years (7 per cent), and for the females 3.4 years (13 per cent). Even at age 70 some improvement was registered; the average number of future years of lifetime for males increased by 9.4 years (4 per cent), and that for females 0.9 years (9 per cent). These data make it evident that greatly increased proportions of the white population and especially the females are living out man's allotted "threescore years and ten" and that even at age 70 the average expectation of life is slightly greater than it was at the opening of the present century.

The data for Negroes, even though less complete and far less reliable, are in accord. For the decade 1920 to 1929 the expectation of life at birth for Negro males was 46.9, that for Negro females 49.5. By 1939 to 1941 these averages had risen to 52.3 for males and 55.6 for females. Thus, in the intervening 15 years the expectation of Negro males increased 5.4 years (10 per cent); that of Negro females 6.1 years (12 per cent).

The recent data for the United States also may be used to further our understanding of the factors responsible for the changes that have taken

place. A satisfactory analysis would be possible if the data on expectation of life were made available by sex, race, and residence for each of the states in the Union. If such materials were at hand for the various census years, it would be possible to determine the relative changes in the expectation of life of white and Negro persons of either sex in the rural and urban portions of the several states. Then one could speak with assurance about the comparative amounts of improvement registered in rural and urban areas, on the part of the white population and the Negro, and in the various states and regions.

It is to be regretted that the data are not sufficiently complete to permit such a detailed analysis of trends. As yet, very few life tables have been prepared for the individual states; and with the exception of those for Ohio in 1930, none give the data separately for rural and urban whites and Negroes. The residential groups are separated only in the tables for the original registration area for the years 1901, 1910, and 1930. Even then the complete series is available only for the white population. Some of the most pertinent of the data contained in these tables have been assembled in Table 33.

Observations of this table reveals some of the important rural-urban differences in recent mortality trends. Important points to which attention should be directed are as follows: (1) For the white population the average gain in life expectation at birth over the 30-year period was approximately 13 years in the cities and 9 years in the rural parts of the original registration area. This represents an increase in the mean age at death in urban areas of 28 per cent and in the rural areas of over 16 per cent. Except among urban males, the life expectation at birth in 1930 of all white classes was in excess of 60 years. (2) Not only was there a sex differential favorable to females at the beginning of the century, but with the passage of time the superiority of the women became more pronounced. On an absolute basis this was true without exception in both rural and urban areas and at all ages. On a relative basis the feminine gain also exceeded the masculine, except for expectation at birth in urban areas, where the percentage gain among males was slightly above that among females. Thus, urban females gained a total of 13.15 years, a percentage increase of 27.5; urban males gained but 12.76 in total life expectation, but on a relative basis this equaled 29 per cent. In the higher ages the female superiority held on a relative basis as well as on the absolute. In the rural areas the gain in life expectation at birth was 9.58 (18 per cent) years among females and only 8.06 (15 per cent) among males. As age increased, the differential gain became more and more pronounced. By the time age 60 was reached, the 30-year gain among urban white males

TABLE 33.—CHANGES IN THE EXPECTATION OF LIFE OF THE WHITE POPULATION OF THE ORIGINAL REGISTRATION AREA, 1901, 1910, AND 1930, BY RESIDENCE AND SEX*

Age and class	Expectation of life		
	1901	1910	1930
At birth:			
Urban males	43.97	47.32	56.73
Urban females	47.90	51.39	61.05
Rural males	54.03	55.06	62.09
Rural females	55.41	57.35	65.09
At age 20:			
Urban males	39.13	40.51	44.20
Urban females	41.86	43.51	47.35
Rural males	45.97	45.92	48.32
Rural females	46.09	46.86	50.37
At age 50:			
Urban males	18.56	18.59	19.78
Urban females	20.28	20.53	22.40
Rural males	22.78	22.43	23.39
Rural females	23.54	23.27	24.77
At age 70:			
Urban males	8.20	8.14	8.50
Urban females	8.97	8.99	9.70
Rural males	9.56	9.36	9.88
Rural females	10.10	9.76	10.43

* SOURCES: GLOVER, JAMES W., *United States Life Tables, 1890, 1901, 1910, and 1901–1910*, Government Printing Office, Washington, 1921; and the *Statistical Bulletin* of the Metropolitan Life Insurance Company, 16 (July, 1935). Urban in 1901 refers to cities of 8,000 or more inhabitants and in 1910 and 1930 to those with 10,000 or more residents.

amounted to only 0.64 years, that among urban females to 1.31 years. On a percentage basis this represents an increase of 5 for males, 9 for females. In rural areas the corresponding percentage gains were less than 3 and over 4. Thus, the tendency for females to have a longer expectation than males, observed at the beginning of the century, had become even more pronounced as one decade succeeded another. (3) The reduction in mortality has been much more pronounced in the urban than in the rural areas of the original death registration area. At the turn of the century the rural parts had a very pronounced superiority over the cities in life expectation. Among white males at birth there was a difference favorable to the country of 10 years or about 23 per cent. Urban females con-

sistently fare better than males; nevertheless rural females enjoyed a 7½-year (15 per cent) advantage over their city sisters. However, urban improvement was so much more rapid than rural that by 1930 the advantage of the rural male had been reduced to slightly over 5 years (less than 10 per cent) and that of the rural female to 4 years (about 6 per cent). The rural population continued to hold a greater relative advantage in the older than in the younger ages. At 60 the advantage of rural white males over the urban was reduced only from 21 per cent in 1901 to 19 per cent in 1930. However, among females the corresponding reduction was from 16 per cent in 1901 to 10 per cent in 1930.

In accounting for the fact that the cities have made a more pronounced showing in the reduction of mortality than the country, one should not lose sight of the fact that the relatively rapid urbanization of the countryside during the period is probably one factor of significance. But in all probability the manner in which the public health program has developed is the principal factor. Until recent years this program was confined almost exclusively to urban areas.

Since 1930 life expectation in the United States as a whole has been still further increased, as is evidenced by the data presented in an earlier section. However, the tables for 1939 to 1941 were not published for rural and urban areas separately, so that it is not possible to continue the residential comparisons beyond 1930.

From some points of view the most satisfactory data on which to base conclusions about mortality trends are those showing the changes in the age-specific death rates. For the registration area of the United States, such materials are available for the census years 1900, 1910, 1920, 1930, and 1940. From these the data for the white population were selected, in order to eliminate complications due to the racial factor, and plotted in Fig. 109.

It is well known, of course, that the trend of the crude rate was downward during the first four decades of the twentieth century. It is also fairly well known that our aging population will cause it to rise before many more years have passed. Not so widespread is a knowledge of the more basic trends, the changes in the age-specific death rates. A study of Fig. 109 shows that age is all-important in the discussion of mortality trends. Thus, the decline in the mortality of children under 1 between 1900 and 1930 was precipitous; it was still rapid, but less so, from 1930 to 1940. Less striking, but also sufficient to exert a powerful influence upon the general death rate, was the decline in the mortality of children aged 1 to 4. Also for the other young age groups were the decreases highly significant. The older groups made important but less spectacular gains.

The relative decreases in the specific death rates between 1900 and 1940 are as follows: ages 5 to 14, 74 per cent; ages 15 to 24, 70 per cent; ages 25 to 34, 69 per cent; ages 35 to 44, 51 per cent; ages 45 to 54, 36 per cent; ages 55 to 64, 22 per cent; ages 65 to 74, 22 per cent; and ages 75 to 84, 8

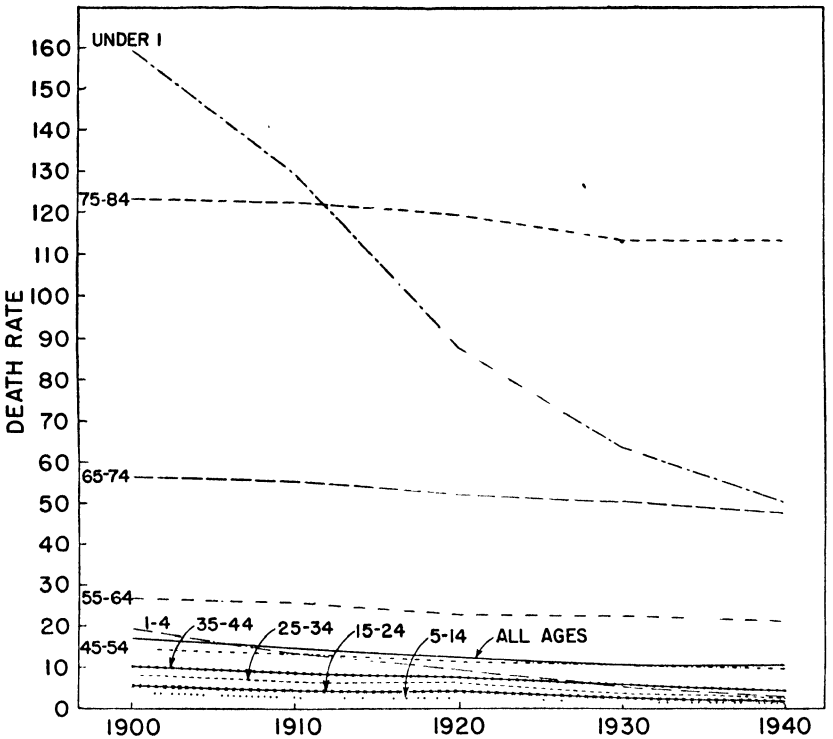


FIG. 109.—Trends in the age-specific death rates of the white population of the United States, 1900 to 1940.

per cent. It is important to note that headway is being made in the reduction of mortality even among the aged groups.

CAUSES OF DEATH

Of particular interest and significance in the study of mortality trends is an analysis of the changing importance of the different elements or constituents that help make up the mortality rate. These are the various causes of death. At the present time, such an analysis must necessarily be based largely upon the crude death rate because complete data are not available according to age at death for most of the specific causes. Only this information would enable adequate standardization to be made. Since

such data are lacking, it must be recognized that the changes observed in the magnitude of the specific mortality rates are due to two sets of causes or factors: (1) the antecedents making for an actual increase or decrease in the risks from any particular cause of death and (2) the changing age distribution, or, specifically, the aging of the population. Thus, the decreasing proportion of children in the population should cause the total mortality rate from children's diseases to fall, even though such dangers were not being brought under control, and the aging of the population should increase the mortality rates from the degenerative diseases, even though a given person's risks from them had not grown greater. More will be said about this below.

It also should be pointed out that there seems to have been great improvement in the diagnosis of cause of death and a greater standardization of reporting cause of death. At the beginning of the century the death rate due to ill-defined and unknown causes was above 70 per 100,000. For the last 30 years it has hovered about 15 and has rarely exceeded 20. In 1944 this rate plus the mortality attributed to senility was only 22.5. Other things remaining equal, the reduction in the proportion of deaths from ill-defined or unknown causes should have brought about a proportionate increase in the rates for which the causes were known. In a like manner the total annual mortality from the causes of death not sufficiently important to merit separate treatment has shown a marked decrease, falling from around 90 per 100,000 in the opening years of the century to about 50 in the years following 1930. This means that all the minor causes taken collectively have been responsible for a much lower proportion of the deaths as the years have gone on.

The preceding remarks indicate that a fuller understanding of the mortality trends and their significance is gained by an analysis of the changes that have taken place in the specific causes of death. In a comprehensive study published by the Louisiana Agricultural Experiment Station[4] we found this to be an involved undertaking and one that, as yet, is not entirely satisfactory. This is because the data for the years prior to 1939 are not tabulated so that the desirable refinements in the analysis of the trends can be employed. For example, it probably is absolutely impossible to determine the mortality of rural (either persons living outside of centers 2,500 or more or those living in places having less than 10,000 inhabitants) whites or Negroes in the United States for the years between the First and Second World Wars. Only in 1939 did the Bureau of the Census begin a detailed tabulation of deaths by residence. Prior to that

[4] KEMP, LOUISE, AND T. LYNN SMITH, *Health and Mortality in Louisiana*, Louisiana Agricultural Experiment Station Bulletin No. 390, Baton Rouge, 1945.

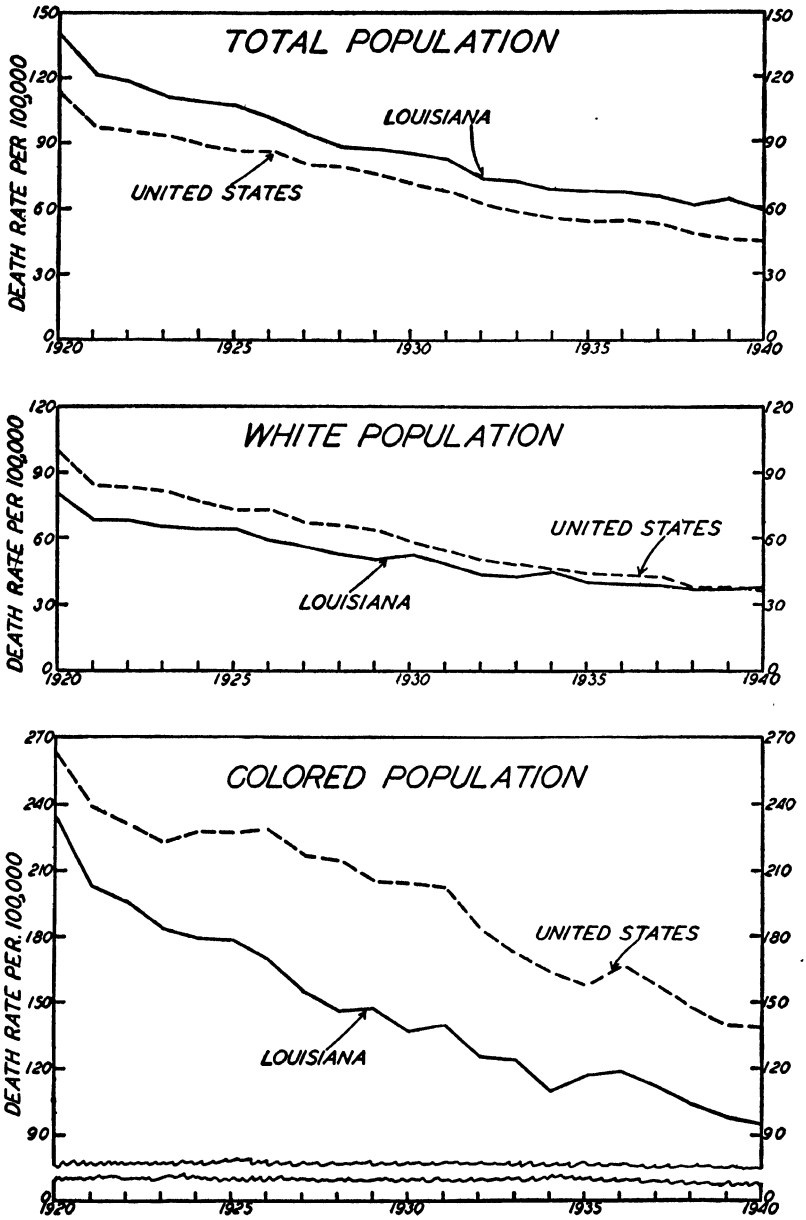


FIG. 110.—Annual death rates from tuberculosis, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 33.)

the compilations were by place of occurrence. Since the residential factor cannot be properly controlled, all of the other comparisons are far from satisfactory.

Almost a million and a half persons in the United States die during the course of a year. The lion's share of the deaths are attributable to the

TABLE 34.—MORTALITY RATES FROM SELECTED CAUSES OF DEATH IN THE REGISTRATION AREA OF THE UNITED STATES, 1944, AND BY RACE FOR 1940 AND 1920*

Causes of death	Rates per 100,000 population						
	Total			White		Nonwhite	
	1944	1940	1920	1940	1920	1940	1920
Diseases of the heart	315.4	292.5	159.6	297.6	159.5	248.5	160.7
Cancer	129.1	120.3	83.4	125.0	86.5	78.4	48.5
Intercranial lesions of vascular origin	93.7	90.9	93.0	88.6	93.4	111.7	87.7
Nephritis	69.2	81.5	88.8	76.6	86.7	124.7	111.1
Pneumonia and influenza	61.7	70.3	207.2	64.0	198.4	125.4	304.4
Accidents (other than motor-vehicle)	53.5	47.4	60.7	46.7	59.6	53.4	72.9
Tuberculosis	41.3	45.9	113.1	36.6	99.5	128.0	262.4
Diabetes mellitus	26.4	26.6	16.1	27.6	16.9	17.9	8.0
Premature birth	25.0	24.6	43.6	23.1	42.7	37.5	53.6
Motor-vehicle accidents	18.3	26.2	10.3	26.5	10.8	23.8	5.3
Congenital malformation	12.6	10.0	15.2	10.4	15.7	6.1	8.9
Syphilis	11.3	14.4	16.5	9.9	14.5	54.3	38.8
Suicide	10.0	14 4	10.2	15.5	10.8	4.6	3.6
Diarrhea, enteritis, etc.	9.9	10.3	53.7	9.1	52.1	21.1	71.4
Hernia and intestinal obstructions	9.0	9.0	10.5	8.8	10.3	10.9	12.2
Cirrhosis of the liver	8.7	8.6	7.1	8.9	7.1	5.8	6.8
Ulcer of stomach or duodenum	6.6	6.8	3.6	6.8	3.6	6.4	3.8
Appendicitis	5.9	9.9	13.2	9.8	13.2	10.4	12.4
Disease of the prostate	5.8	6.7	4.2	6.7	4.2	6.1	3.2
Homicide	4.9	6.2	6.8	3.1	4.8	33.3	28.5
Puerperal causes	4.8	6.7	19.0	5.6	17.7	16.8	32.9
All causes	1,065	1,076	1,299	1,042	1,256	1,383	1,768

* SOURCES: LINDER AND GROVE, *op. cit.*, Table 20, pp. 330–331, 366–367; and *Vital Statistics—Special Reports*, 25 (Nov. 22, 1946).

20 principal causes for which data have been assembled in Table 34. They are for the years 1920, 1940, and 1944, subdivided according to race for the first two mentioned and arranged in the order of their importance in 1944. Along with those presented in Figs. 110 to 124, drawn from the Louisiana Agricultural Experiment Station study mentioned above, they

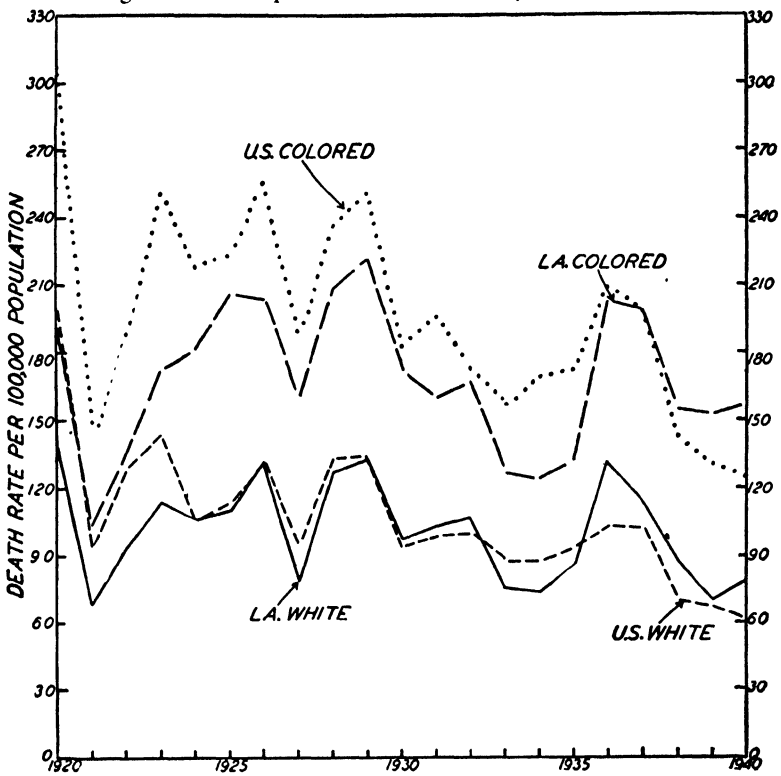


FIG. 111.—Annual death rates from pneumonia and influenza, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 34.)

bring out the main features of the trends in mortality rates from specific causes. Since it has not been possible to control the residential factor, those interested in the racial comparisons will do well to place a greater reliance upon the curves for Louisiana than upon those for the nation as a whole.

As late as 1920 pneumonia and influenza were the most deadly diseases in the United States; tuberculosis annually took a toll almost as large as diseases of the heart; and there were 15.3 deaths from diphtheria, 12.5 from whooping cough, 7.6 from typhoid, 4.6 from scarlet fever, 3.4 from malaria,

and 8.8 from measles for each 100,000 population. Since that time great progress has been made in the reduction of deaths from most of these. Pneumonia and influenza now rank only fifth, and the rate at which they take lives is less than one-third of that prevailing in 1920. At present tuberculosis snuffs out only about one-third as many lives per 100,000 population as it did in 1920 and has fallen from third to seventh place among the causes of death. And the death rates from diphtheria, whooping cough,

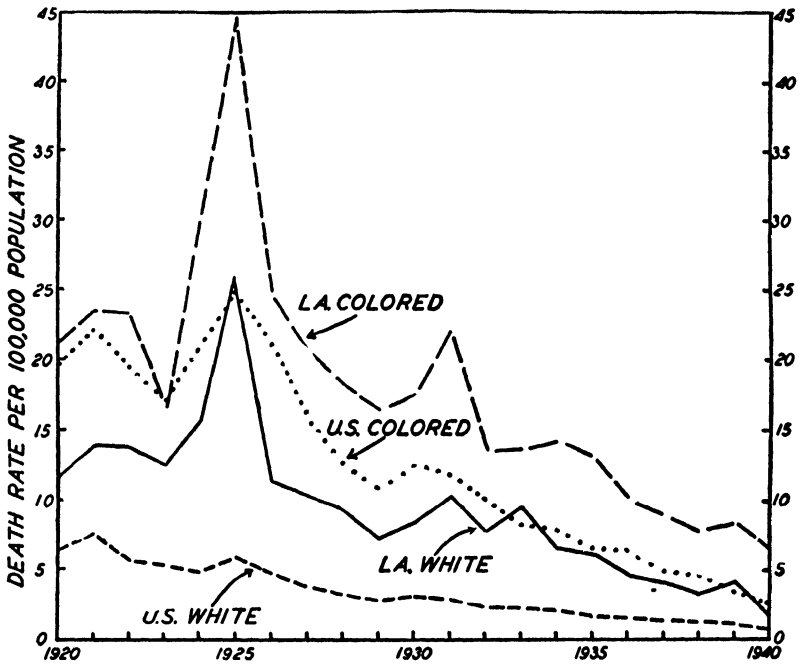


FIG. 112.—Annual death rates from typhoid and paratyphoid, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p. 35.*)

typhoid, scarlet fever, malaria, and measles are only small fractions of those prevailing 25 years ago. Encouraging also is the progress that has been made in the reduction of mortality from premature birth, puerperal causes, diarrhea and enteritis, and even syphilis.

On the other hand, some causes of death, particularly those which might be classed as due to the deterioration of bodily organs, have materially increased. Most spectacular, of course, is the greater annual toll now taken by heart disease, the number one killer, to which almost one-third of all the deaths now occurring in the United States are attributed. Cancer, another degenerative disease, is in second place and kills people off at a rate

of 129.1 compared with only 83.4 in 1920. Diabetes and ulcers of the stomach or duodenum also account for much higher proportions of deaths than was formerly the case.

The rise in deaths from accidents in which motor vehicles were involved has been spectacular, and this category now ranks tenth in the list. In 1920, it was only fifteenth. Suicide, which, as was to be anticipated, was sharply reduced by the Second World War, may be expected to mount to a level higher than ever in the next few years.

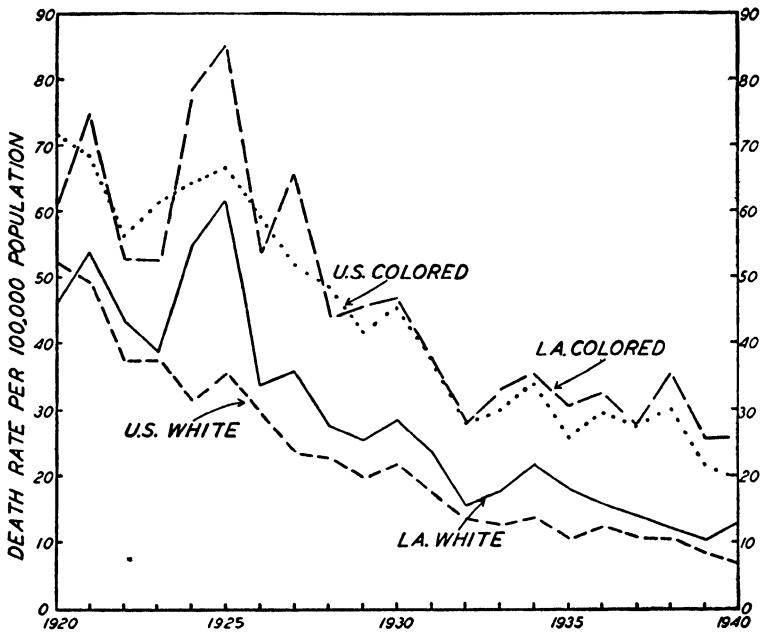


FIG. 113.—Annual death rates from diarrhea, enteritis, ulceration of the intestines, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 36.)

Racial differentials are numerous, both in the magnitudes of the rates and in the rapidity of the changes. In general, the Negroes and other nonwhites have profited most from the better control of transmissible diseases. This was to be expected, since their relative showing in 1920 was very poor. For most causes of death the rates among the colored populations remain considerably above those for whites, even though the trends are in the same direction. However, for syphilis the rate for colored seems to be rising, whereas that of whites is declining. Also interesting are the strong homicidal tendency among the Negro population and the very low suicide rate characteristic of this group.

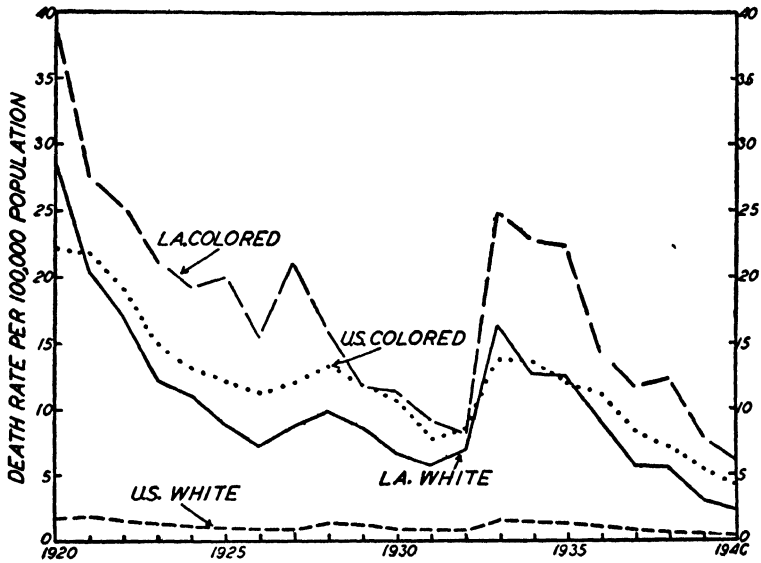


FIG. 114.—Annual death rates from malaria, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 36.)

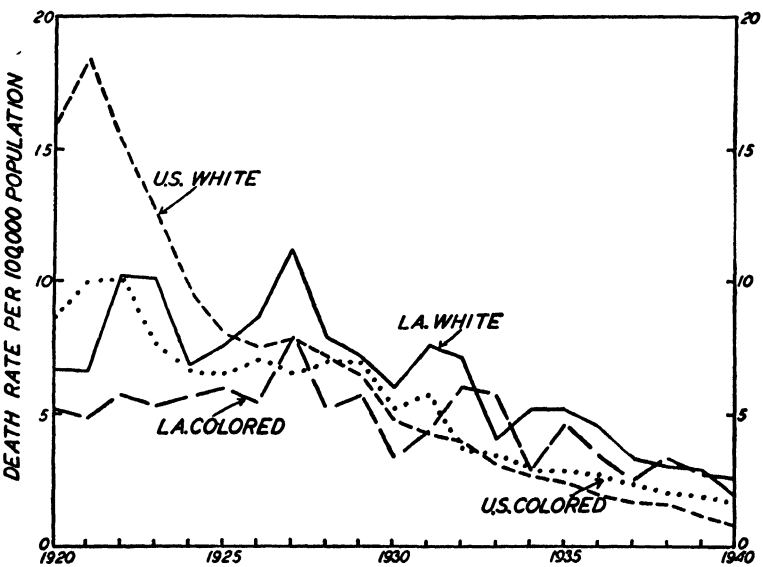


FIG. 115.—Annual death rates from diphtheria, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 37.)

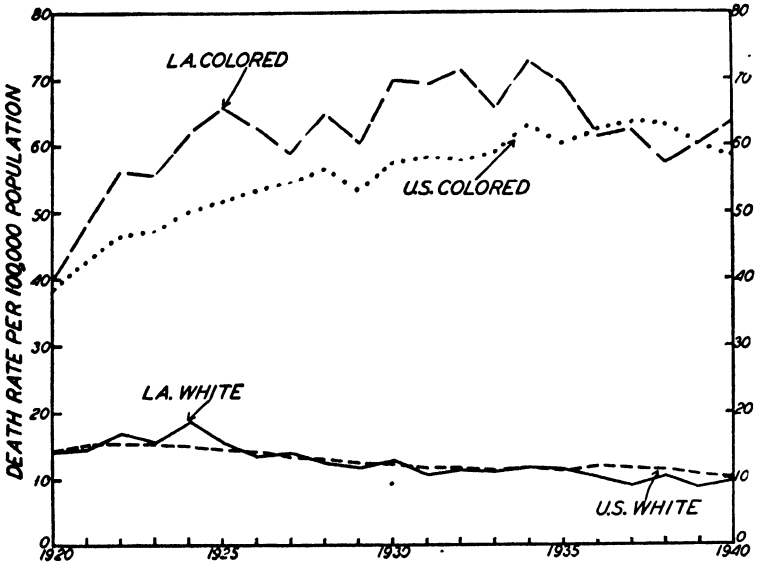


FIG. 116.—Annual death rates from syphilis, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 37.)

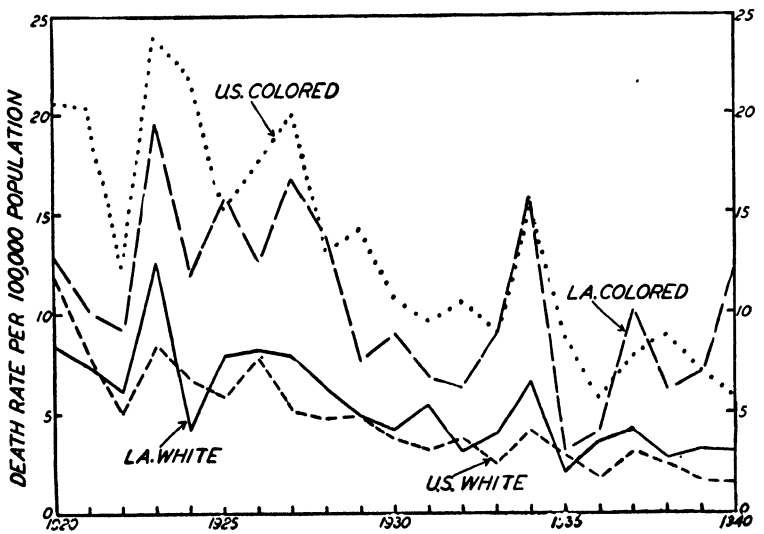


FIG. 117.—Annual death rates from whooping cough, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 38.)

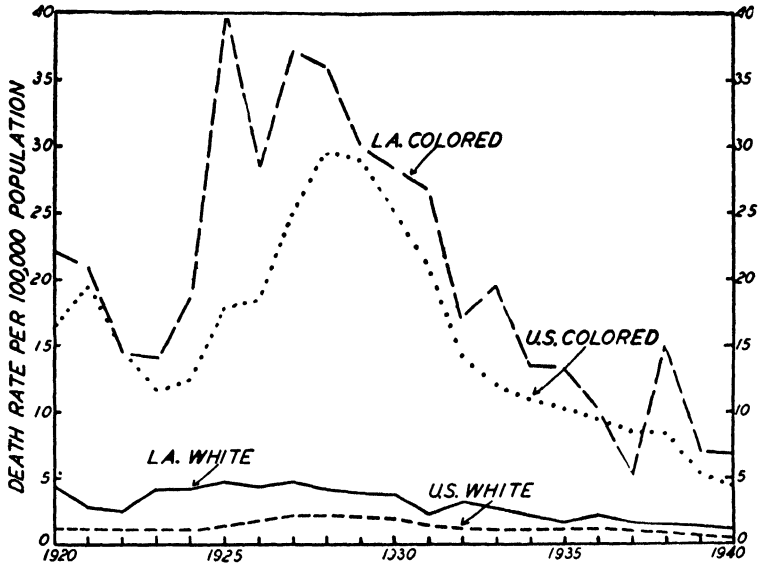


FIG. 118.—Annual death rates from pellagra, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 38.)

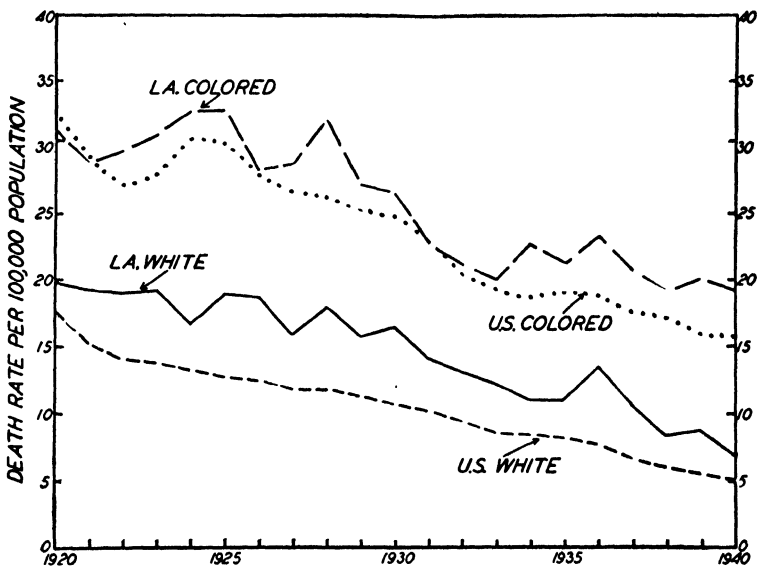


FIG. 119.—Annual death rates from puerperal causes, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 39.)

As was suggested above, a few words more are necessary about the increased mortality from such causes as diseases of the heart, cancer, and diabetes mellitus. These degenerative diseases are all ailments from which, predominantly, old people suffer and die, and it may be thought that the increased proportions of aged persons in the population account for the

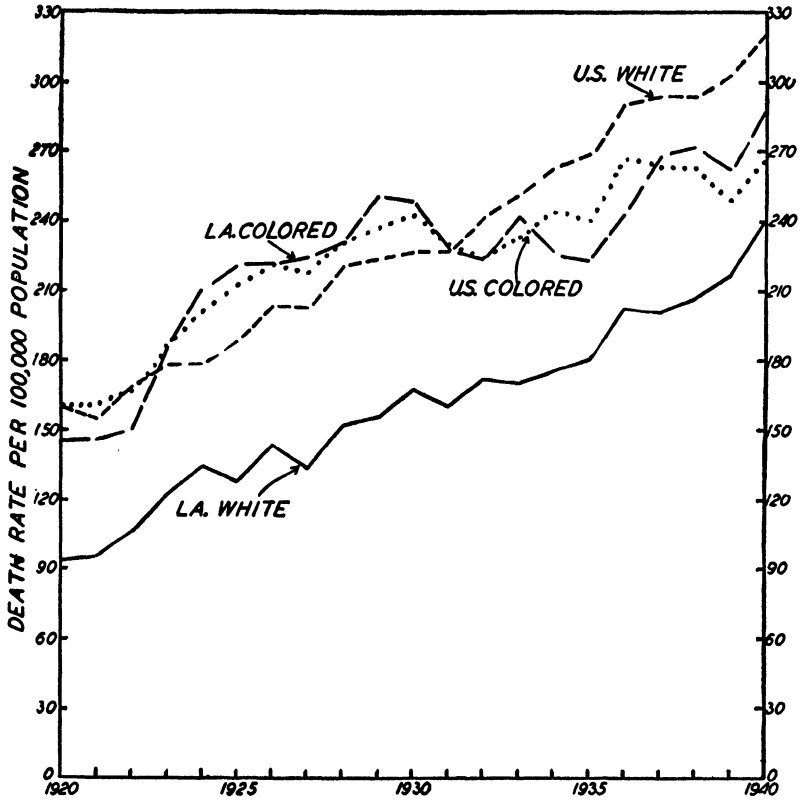


FIG. 120.—Annual death rates from diseases of the heart, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 41.)

rising rates. Undoubtedly, this factor does exert a powerful influence. However, when the data are standardized by age, very considerable increases are still to be observed. For example, among persons aged 65 to 74 the following increases took place between 1920 and 1940: diseases of the heart, from a rate 1,201 per 100,000 population to that of 1,724; diabetes mellitus, from 114 to 189; and cancer and other malignant tumors, from 608 to 695.

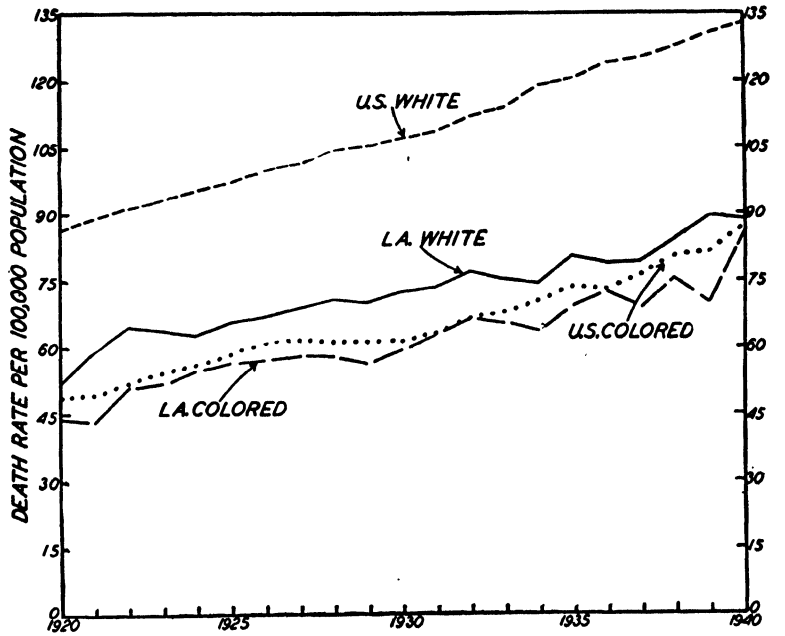


FIG. 121.—Annual death rates from cancer, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 42.)

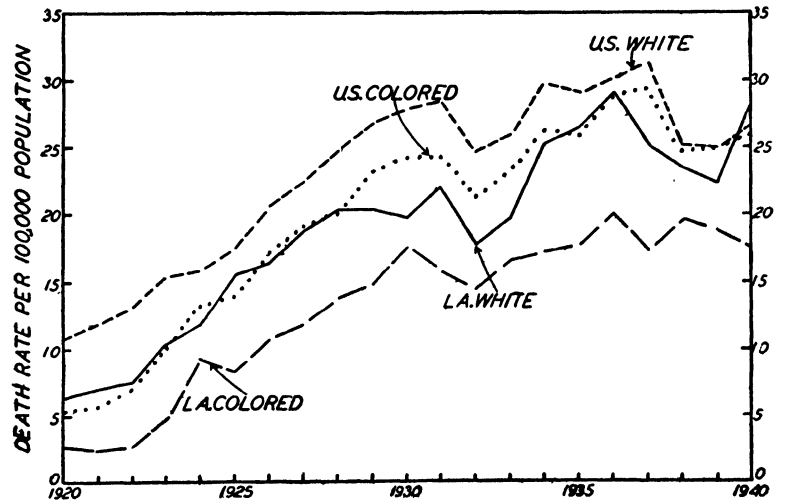


FIG. 122.—Annual death rates from motor-vehicle accidents, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p.* 46.)

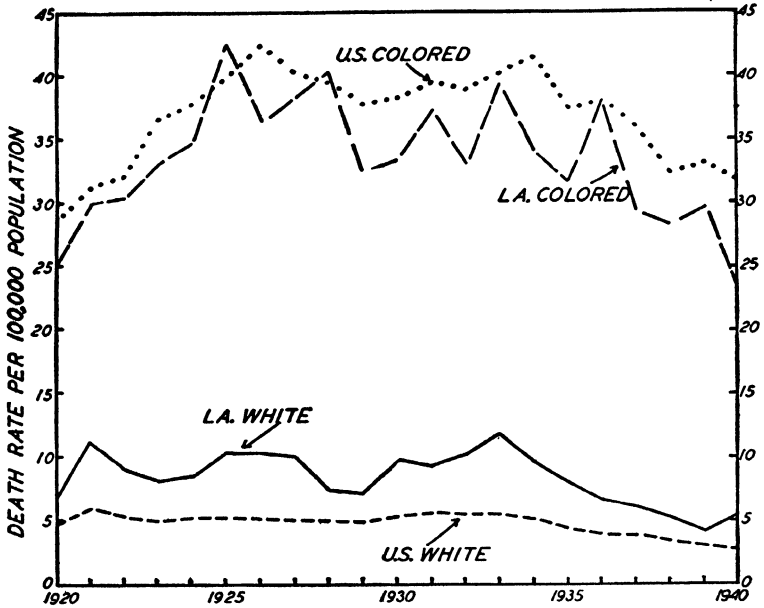


FIG. 123.—Annual death rates from homicide, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p. 47.*)

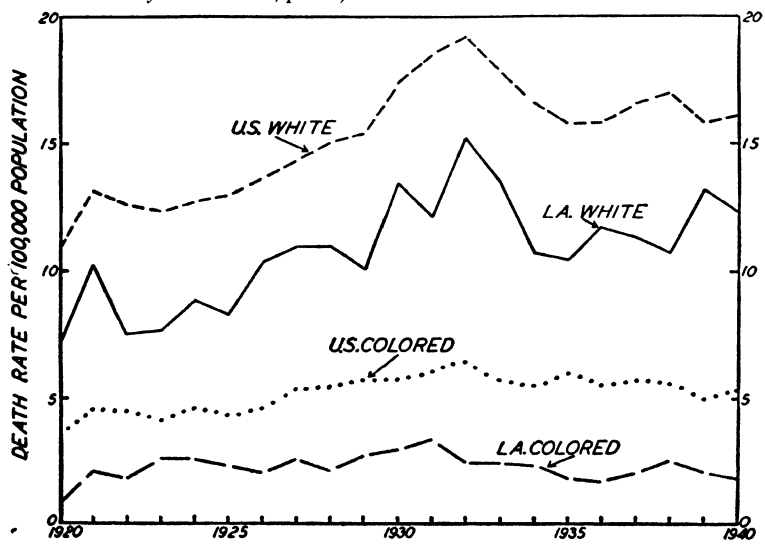


FIG. 124.—Annual death rates from suicide, Louisiana and the United States death registration area of 1920 for 1920 to 1940, by race. (*Reproduced from Kemp and Smith, Health and Mortality in Louisiana, p. 47.*)

Part IV

Migration

General treatises on population problems or demography seldom give more than a cursory treatment of migration. This neglect is not justified. The movement of persons from one place to another is per se of tremendous social significance. Furthermore, residential stability or instability also exerts a powerful conditioning influence upon all other demographic phenomena and processes. For these reasons, the four chapters of Part IV are devoted to migration.

Chapter 16

MIGRATION: SIGNIFICANCE AND TYPES

MIGRATION is the third factor that helps account for the number of inhabitants and distribution of the population. The other two, the birth rate and the death rate, have already received consideration. In this section attention is concentrated on migration. But at the outset it should be indicated that the importance of migration is not confined to its influences on the number and distribution of the inhabitants.

SOCIAL SIGNIFICANCE

The movement of people from one place to another is of great social significance. Migration affects directly not only the physical constitution and health of the population but also the social structures and processes of society, and it exerts tremendous influences upon the personalities of individuals. All of these effects of migration are at a minimum in a nomadic society where a wandering existence is normal. However, it should be observed that among nomadic groups continuous or periodic movements from place to place are made by the social group as a whole; each of these groups of wanderers carries along with it all of the institutional accoutrements of its particular society. Consequently very little social disruption is brought about because of the movement of persons in physical space, and migration's influences upon the individual are reduced to a minimum. But even under these circumstances the individuals must adjust to new or constantly varying physical surroundings. Very little understood as yet are the precise social effects of geographic factors; but to the extent that they exert a determining influence upon the behavior of man, nomadism allows these forces to impinge upon him in a never-ending variety. Furthermore, in wandering societies man's devices for sheltering himself from the weather, along with other portions of the protective shield of man-made environment or culture that the members of social groups place between themselves and the natural environment, are naturally not so highly developed as they are in more stable groups.

A wandering existence also sets definite limits upon the nature and type of the social structures that may be developed and put into use. For example, wandering groups must necessarily be small—the limitations

of securing enough food for man and beast dictate this. In turn, the limitation of numbers precludes the high development of specialization by tasks and industries and an elaborate division of labor, in either the economic or other social sphere. Therefore, among such groups the economy necessarily must be a comparatively simple one. Again, elaborate systems for communication and transportation cannot be developed by a people always on the move. The telephone, radio, superhighway, telegraph, etc., hardly could be contrived by nomads. Great and enduring institutions, universities, churches, and cathedrals, all of these and many other familiar portions of the social structure created by our own sedentary society are made absolutely impossible by the wandering type of existence of the nomad. It is not necessary to say more in order to indicate that even in nomadic society the role of migration is by no means a small one.

When a sedentary type of living is the normal situation for a large proportion of the population, then such migration as takes place is of even more importance. As in nomadic society, migration subjects the individual to the impact of new and varied physical influences. The precise significance of these is as yet unknown. But migration's most important effects probably are those which it exerts upon societal structures and social processes and through them upon the personalities of the individuals. In a society where permanent settlements are the norm the movement of persons from one place to another results in the severing of the most significant social bonds and ties. Emigration entails disruption of the established social structures in the communities of origin. But immigration also plays its part by introducing new and oftentimes conflicting ethnic and cultural elements into the social groups at the place of settlement. Thus migration makes social adjustments inevitable on the part of both the groups losing members and those receiving additions. Furthermore, it also invariably brings about change and adjustment on the part of the persons who move from one place to another. The community of origin, the one into which the newcomer intrudes, and the migrant himself are never again the same. If the number of people involved in the outward flow or the inward tide is very great, the repercussions may be paralyzing[1] in their effects.

As suggested above, upon the individual and his personality the effects of migration are tremendous. By moving from one place to another the individual severs most of the bonds or ties that held him to his old social groupings and gave him status in them. Through migration the individual sheds most of his social obligations, and in turn he is shorn of nearly all the

[1] As, for example, the exodus from the dust bowl and the flight to California and the more recent flocking to centers of war industry.

benefits of group association. For him position and status in the groups and classes of the new community do not come automatically, but his place must be determined during a period of trial and testing. The migrant's status in the new community may be vastly different from what it was in the old. Cut adrift from all his former primary and special-interest groups, separated from his class identification, the individual must gain a place for himself in new groups, establish his position in the vertical, or class, structure of the new community. The migrant abandons the role of "native" and assumes that of "stranger," and the process of becoming accepted, *i.e.*, of gaining a place in new social groupings, and finding a position in the class system may be neither rapid nor pleasant.

Whenever migration involves a shifting between radically different groupings and cultures, and especially if it necessitates a change of language, a complete adjustment may be impossible for the migrant and even for his children. At best the assimilation is a slow, difficult, and painful process. Thousands if not millions of immigrants to new countries, such as Argentina, Brazil, Canada, or the United States, have never succeeded in becoming fully attuned to the new society. As long as they live, they bear some of the physical or social distinctions of the foreigner, never completely understand their social surroundings, and are unable to adapt themselves completely to the changed cultural environment. Many of them continue to live for the most part in the Old World. Frequently the carryover to the second generation is tremendous, the older generation remaining enmeshed in the cultural patterns of the old country, the children trying to break away, throw off all traces of their heritage, and achieve acceptance into the new. Such situations are fruitful sources of maladjustment, both within the family circle and in the relations of the second generation to the larger society.

DEFINITION OF TERMS

Little attention has been given to the precise meaning and definition of migration. The verb *migrate* is given three shades of meaning in the New Merriam-Webster Dictionary as follows: (1) to move from one place to another, especially to move from one country, region, or place of abode or sojourn to another, with a view to residence; (2) to pass periodically from one region or climate to another; and (3) to transfer. In accordance with these definitions the term *migration* is used to refer to all movements in physical space—with the assumption (more or less inherent in the definitions) that a change of domicile or residence is involved. Obviously the dictionary definitions and current usages are adjusted to a society in which settled living is the normal situation and in which nomadism is absent or

rare. In a society in which a wandering type of existence is waxing in importance, technical and scientific purposes necessitate that more shades of meaning be developed if precise understanding is to be attained. In sociology, where the practice of using migration and mobility (and even social mobility) as interchangeable terms is almost universal, this is particularly essential.

Whelpton has called attention to the difficulty of using change of residence and migration as synonymous. Many changes of residence involve merely moving from one apartment to another in the same building. He indicated that every family which has migrated has changed its residence but that the reverse is not true—not every family has migrated that has changed its residence.[2] This authority accepts beyond question that an immigrant family moving from Poland to Chicago and a Negro family leaving Georgia and settling in Harlem have both moved and migrated, but he contends that families which merely move to similar residences in comparable areas of a township have moved—but not migrated. In general, Whelpton seems to accept the proposition that a change of domicile is a migration if a political boundary is crossed, but he stresses the need for more careful thought and research in order to determine where to draw the line between migration and other types of residential instability.[3]

There is much point to this suggestion. There can be little doubt of the wisdom of retaining the term migration for application to the more important moves or residential changes and employing some other designation for the less important. Furthermore, as Lively has indicated, after a great deal of patient empirical study, even the crossing of political boundaries is not of uniform significance. His painstaking study of changes in the residences of farm families shows that the great bulk of the movements consisted of milling around in local areas (a finding confirmed by many other studies)—to which he applied the designation "law of limited circulation of population."[4] According to Lively's studies, such a large portion of residential changes by farm families are confined to local eddies that only about 53 per cent of them involved the crossing of county lines; passing from one county to another occurred as frequently and seemingly

[2] WHELPTON, P. K., *Needed Population Research*, p. 123, The Science Press Printing Company, Lancaster, Pa., 1938.

[3] *Ibid.*, p. 124. In her doctoral dissertation written at Chicago under the direction of William F. Ogburn, Jane Moore indicated some of the inadequacies of defining a person as an internal migrant merely because he happens to cross some "arbitrary administrative boundary." See her *Cityward Migration: Swedish Data*, pp. 16–17, University of Chicago Press, Chicago, 1938.

[4] LIVELY, C. E., "Spatial Mobility of the Rural Population with Respect to Local Areas," *The American Journal of Sociology*, 43 (1937), 89–102.

engendered no more resistance than moving a distance of 10 miles within the county. In view of this, the question very naturally arises concerning the significance of movement across township lines. But although neither township nor county lines seem to constitute barriers to the territorial circulation of the farm population, it should be added that state boundaries definitely serve as deterrents.

TYPES OF MIGRATION

The types of migration are many. For analytical purposes it is well to classify them first into international and internal migrations. International migrations, emigration from the standpoint of the country sending out population and immigration from the point of view of the nation on the receiving end, have not been differentiated into any significant subcategories or types. Internal migrations, on the other hand, fall into a number of sharply different varieties. The mention of some of these serves to emphasize the immense amount of work that remains to be done before the various movements of people from one place to another within a nation will be classified into clearly defined types.

During the nineteenth and twentieth centuries, the mass movement of population from rural districts into the large cities has been going on all over the world. As a matter of fact, the phenomenal growth of cities since the middle of the nineteenth century was possible only because of the great flow of people from the rural to the urban districts. The continued migration of population from farm to city became a primary characteristic of Western civilization. It remains as the most widespread and significant kind of internal migration.

In many parts of the world the pushing forward of the frontier looms large. The gradual movement that in the United States edged settlement forward across the entire continent in a couple of centuries, mostly in the nineteenth, has its parallels elsewhere. The westward and northwestward trend of settlement in Canada, the push to the north in Australia, the "march to the west" in Brazil, the advancement of settlement down the eastern Cordillera and out into the Montaña in Peru, a comparable edging down to and out on the Llanos in Colombia, the pushing forth of settlement along the crests and slopes of the central Cordillera through Antioquia and Caldas and into El Valle in the same country, the crowding of settlers northwestward into the Argentine Chaco are only a few of the important cases of recent or current expansions of the frontier.

Nor is the mass exodus of people from a region, whether propelled by unbearable circumstances in their old locations or attracted by the glittering prospects of a new home, to be relegated merely to the realm of history.

The flight from our dust bowl is still fresh in the memory of thousands who participated in the movement. Even more recent is the wholesale abandonment of southern plantations by the hundreds of thousands of Negroes who were lured to the West Coast by jobs in war plants. Such phenomena are matched in Brazil by the periodic flights from the *sêcas*, the terrific droughts that every 10 or 15 years make life almost impossible in a vast area in the northeastern part of that country. Undoubtedly, these examples could be matched with many others, some of them in the great human reservoirs of China and India, and the redistribution of population in the Soviet Union might well be the theme of a monumental volume.

Nomadism is still to be reckoned with, even in such countries as the United States. When the Second World War broke out, there were hundreds of thousands of persons in this country who led a wandering existence "following the crops," or moving from one section to another in order to participate in the harvests. The war greatly reduced this type of migration, but with the cessation of hostilities it is certain to wax in importance. Furthermore, the high degree of specialization achieved in some industries, such as bridge building and other construction activities, makes seminomads out of large numbers of highly skilled workers. For example, the men who handle the steelwork on a bridge over the Mississippi may have their next jobs on the West Coast or in New England, or the technicians who instruct Minneapolis workers in the use of a new machine during the first quarter of a year may be engaged in similar activities in Atlanta in the fall.

Finally, there is always a great deal of shifting from one farm or plantation to another on the part of the agricultural population. In the United States this is particularly important in areas where a sharecropping labor system is employed, but it also is prevalent where a large proportion of the farm families are renters.

In our own country the fragmentary nature of the data determines to a large extent the categories into which internal migrations may be classed. Such sources as we have make it possible to advance our understanding of the subject somewhat by dividing these migrations into the rural-to-urban, urban-to-rural, state-to-state, and farm-to-farm varieties. Not all of these categories are mutually exclusive, but along with immigration and emigration they represent about the best classification that is feasible at the present time.

SOURCES OF DATA

Data on immigration and emigration leave a great deal to be desired. The two generally fail to check, the records on immigration usually being

more accurate than those on emigration. International movements in which the journey is made by sea or by air, so that the immigrant must debark or land at a port of entry, are more likely to be registered than those involving only overland journeys. Frequently, the count of debarkations from cross-Atlantic ships have been assumed to be a record of immigration. Still used in some of the Latin-American countries is the practice of classifying as immigrants all third-class passengers disembarking at national ports. The evolution of our own procedures is explained rather fully in the next chapter.

The records of internal migrations are even less satisfactory than those on the international movements of population. As yet, the census of no country has yielded basic and trustworthy information on the migration from farm to city, the back-to-the-land movement, the migration from farm to farm, the surge of population from one region to another, or any of the other important types of internal migration. Perhaps the most ambitious endeavor so far made was the attempt in the Sixteenth Census of the United States to determine residence in 1940 in relation to residence 5 years earlier.[5]

The data secured seem to be faulty in many respects, the most serious defect being their incompleteness. For example, according to this enumeration the amount of migration from rural-farm to urban areas between 1935 and 1940 was only 765,797, a total slightly less than the number (814,872) counted as moving from urban centers to farms during the 5-year period. In view of what is known about the levels of natural increase in city and country and the fact that the urban population increased rapidly between 1930 and 1940 while the rural-farm population remained stationary, these results are open to serious question. Further analysis makes one even more skeptical of their validity. Thus, if the rural-nonfarm areas are grouped with the urban, the amount of movement from farm to nonfarm areas may be calculated. The total secured by summing the reported data is 1,411,573 persons. That for the movement from nonfarm to farm residence between 1935 and 1940 is 1,180,295. In other words, these data show a net loss of farm population due to migration of only 231,278 persons for the entire 5-year period.[6] For the years 1935 to 1939 the estimates of the Bureau of Agricultural Economics indicate a movement from farm to nonfarm areas of 6,816,000 persons and a movement in the reverse direction of 4,044,000 people, or a net migration from farms of

[5] *Cf. Sixteenth Census of the United States, 1940, Population, Internal Migration 1935 to 1940, Color and Sex of Migrants*, and subsequent volumes dealing with *Age of Migrants, Economic Characteristics of Migrants*, and *Social Characteristics of Migrants*.

[6] *Ibid.*, p. 27, Table 16.

2,772,000.[7] This estimate is in line with what is known about the natural increase of our urban and rural populations and about recent changes in the numbers of inhabitants in rural and urban areas.

Part of the error in the census enumeration probably is due to the fact that persons who had migrated between 1935 and 1940 were not in a position to give information about their 1935 residence that fitted accurately into the Census Bureau's technical categories. No doubt many persons making a transfer from the unincorporated suburban fringes of some cities to homes within the corporate limits of others were counted merely as moving from one urban center to another, and not as migrating from rural-nonfarm to urban territory. Possibly this type of error extended even into the reports on movements from farm homes in the zone surrounding a city to distant urban centers. In any case the results seem to be highly untrustworthy. However, perhaps they will lead to a perfection of methods for securing data about migration in our future decennial enumerations. Even at present they probably can be used to advantage in helping clear up some of the broader questions in the field, questions in which the characteristics of the migrants and not numbers are involved.

Prior to 1940, one interested in internal migration was limited to the tabulations showing state of birth crossed with state of residence; the responses to two questions in the 1930 and one in the 1935 Census of Agriculture; data on number of years the farm families had been occupying their present farms; the age-sex distributions; and other comparable series which could be used as the basis for making some inferences about the volume, directions, and characteristics of internal migrations. On the whole, the data have been faulty, so much so that the considerable advances which have been made in our understanding of internal migration reflect a great deal of credit upon the ingenuity of the sociologists and demographers who have been working in the field. With these new data, faulty though they may be, we can look forward to considerable advance in our understanding of internal migration. It hardly needs to be mentioned that the 1940 data are still awaiting analysis.

As indicated above, both the 1930 and the 1935 Censuses of Agriculture contained inquiries on migration. In 1930 each farm family was asked to report the number of persons who had moved to that particular farm from a city, village, or other incorporated center during the preceding year and also the number of persons who had left that specific farm for a city, village, or other incorporated place during the same 12-month period. Very little

[7] Data taken from Bureau of Agricultural Economics, *Farm Population Estimates, United States and Major Geographic Divisions, 1910–1946*, United States Department of Agriculture, Washington, June, 1946 (mimeographed).

reliance can be placed on the results. In 1935 each farm family was asked to indicate the number of persons on that farm on Jan. 1, 1935, who had moved to it from a nonfarm residence during the preceding 5 years. No attempt was made to account for the departures. The data from this enumeration appear to be more adequate than are those from the 1930 census. Both sets are, however, of limited usefulness.

Much of our most satisfactory information on internal migration is found in the annual estimates made in the Bureau of Agricultural Economics, United States Department of Agriculture, regarding the amount of movement of persons to and from farms. These data are secured along with and in the same manner as the facts upon which the crop estimates are based. This is to say that they come from thousands of farmers throughout the country who voluntarily fill in questionnaires for their own farms and those of their neighbors. For example, the estimates for 1945 were based upon reports from approximately 10,000 farmers from all over the nation who sent in information for about 53,000 farms. The materials from such sources are carefully assembled, analyzed, and weighted, so as to eliminate as many sources of error as possible. Then they are used as a basis for the estimates. To date we have estimates of the movement to and from farms for each year from 1920 to 1945. These data, however, are entirely quantitative and do not give us any information about the characteristics of the migrants.

Beginning in 1850 and continuing to 1930, the United States Bureau of the Census secured and tabulated data on the state of birth of the native population in relation to the state of residence. Such materials have proved of considerable value in the study of internal migration, especially of state-to-state movements.

The comparison of age distributions at two successive censuses, especially if age-specific death rates are applied for the purpose of determining the expected number of survivors, also has proved useful in migration studies.

Finally, the data gathered by the Census of Agriculture relative to the period of occupancy of the farms enable one to gain some information about the relative frequency of farm-to-farm movements of population. These tabulations have not been used nearly as much as they deserve.

Chapter 17

IMMIGRATION AND EMIGRATION

THE WORLD SITUATION

THERE have never been adequate data concerning the international movements of the world's population. For large portions of the earth's surface and a very large proportion of its people, there are absolutely no reliable data on either emigration or immigration. As for the past so at the present time, it is impossible to determine the annual flow of migration among the various countries of the world. The most serious shortcomings are the lack of data for China, Soviet Russia, a large part of Africa, and some portions of Central and South America. However, for most of Europe, South Africa, India, New Zealand and Australia, and large portions of North and South America, the data for the decades immediately preceding the Second World War are fairly complete and reasonably accurate. The most trustworthy data are for the period following the First World War and prior to the tragic displacements of population that again set in about 1936. By piecing together the available materials it is possible to obtain a fairly accurate knowledge of the extent and trends in the movements of people from one country to another during this limited period. The years 1926 to 1936, inclusive, are the ones for which data are most complete and most accurate, and for them the available material is presented in Table 35. In another tabulation, Table 36, the data are summarized for each country in a manner to indicate the total immigration, emigration, and migration balance for the years 1926 to 1936, inclusive. Observation of these data reveals the broad general outlines of the subject.

Exclusive of Russia and Turkey there was an annual emigration of approximately 1 million persons from the various European countries during the period 1926 to 1930. The onslaught of the depression brought about a sharp curtailment in the numbers of persons emigrating from one European country to another or to an overseas destination, and the number dropped to slightly over 600,000 in 1931 and to approximately 380,000 in 1936. The data for 1936 do not include those for Spain where already the fires were burning.

At the beginning of the period, in 1926 and 1927, some 700,000 persons

annually were immigrating to these same European countries, either by leaving one for another or by returning from overseas. The first years of depression greatly accelerated these movements, and the number of immigrants entering European countries rose to above 1 million in 1930. Then the figure gradually declined until by 1936 these European countries were receiving less than 400,000 immigrants. The result attained by the balance of emigration and immigration in the European countries was a loss of population prior to 1930 (the loss was greatest in the early part of the period) amounting to 68,000 in 1929. By 1930 emigration almost exactly balanced immigration, but in 1931 and 1932, the severe depression years, returning Europeans so swelled the immigrant tide that it outweighed the stream of emigrants by some 200,000 per year. Then the annual net gain fell off until by 1936 emigration and immigration in Europe were fairly balanced, although both of them were at a level much below that of 1926.

Considerable significance is attached to the standings of the various European countries. Observation of Table 36 indicates that Italy was the source of far more immigrants than any other country during the period under consideration. More than 1½ million persons emigrated from Italy during the years 1926 to 1936, inclusive. Poland was next with approximately 1¼ million, followed by Great Britain and Northern Ireland, France, Germany, and Czechoslovakia in the order named. On the receiving end France outranked all other European countries, it alone permitting the entrance of 1,140,544 immigrants in the 11-year period. Italy and Germany were also heavy takers, each receiving more than 1 million immigrants between 1926 and 1936. Ranking next to them were England and Northern Ireland and Poland, where the immigration to each country was approximately ¾ million persons. Then came little Switzerland, almost negligible as a source of emigrants, but receiving in the 11 years under consideration more than ½ million immigrants. Unable to explain this otherwise, one is likely to wonder if many of the immigrants did not later leave without the fact being recorded. The Netherlands and Spain each also received more than ½ million immigrants. Of most significance, of course, is the balance of immigration and emigration; this is the computation that reveals which countries are areas of absorption, which areas of dispersion of population. Among the countries gaining by the excess of immigration over emigration Germany led the list with a net gain of over 600,000. Strangely enough, Switzerland was second with slightly over ½ million, and France ranked third with nearly 450,000. Then followed Belgium and the Netherlands, but both of them were far below the others. Among the countries losing by the excess of emigration over immigration, Poland took first rank with a net loss of over 515,000 persons. Czecho-

TABLE 35.—EMIGRATION, IMMIGRATION, AND MIGRATION BALANCE FOR SPECIFIED WORLD DIVISIONS AND COUNTRIES (THOUSANDS)*

Year	Europe†			Asia‡			Africa§		
	Emigrants	Immigrants	Migration balance	Emigrants	Immigrants	Migration balance	Emigrants	Immigrants	Migration balance
1936	380‖	392 ¶	+ 12	333	473	+140	3.4	136.5	+133.1
1935	457	511**	+ 54	337	537	+200	2.5	111.5	+109.0
1934	426	519**	+ 93	432	591	+159	2.7	97.6	+ 94.9
1933	431	563**	+132	367	365	− 2	3.4	83.2	+ 79.8
1932	489	675**	+186	491	413	− 78	5.3	80.2	+ 74.9
1931	628	858**	+230	599	476	−123	4.7	95.4	+ 90.7
1930	1,068	1,070**	+ 2	713	748	+ 35	5.7	100.0	+ 94.3
1929	1,033	965	− 68	680	841	+161	5.0	87.8	+ 82.8
1928	971	859	−112	644	828	+184	7.9	82.8	+ 74.9
1927	990	646	−344	675	634	− 41	7.3	53.0	+ 45.7
1926	1,051	762	−289	704	574	−130	6.1	47.5	+ 41.4

*SOURCE: *Vital Statistics—Special Reports*, 9 (1940), Tables 35 and 36, explanatory notes and footnotes, pp. 452–455, 461.

† Excluding U.S.S.R., Turkey, etc.

‡ Excluding U.S.S.R., China, Turkey, Iran, Siam, French Indo-China, Dutch East Indies, etc.

§ For Union of South Africa only.

‖ Excluding Spain.

¶ Excluding Spain and Norway.

** Excluding Norway.

TABLE 35.—EMIGRATION, IMMIGRATION, AND MIGRATION BALANCE FOR SPECIFIED WORLD DIVISIONS AND COUNTRIES (THOUSANDS).*—(*Continued*)

Year	America‡‡			United States			Latin America§§			Oceania‖‖		
	Emigrants††	Immigrants	Migration balance	Emigrants	Immigrants	Migration balance	Emigrants	Immigrants	Migration balance	Emigrants	Immigrants	Migration balance
1936	373	394	+ 21	40.0	41.6	+ 1.6	333	336	+ 3	15.3	15.5	+ 0.2
1935	328	374	+ 46	48.6	34.9	− 13.7	279	321	+ 42	15.7	12.6	− 3.1
1934	311	369	+ 58	50.5	34.4	− 16.1	261	315	+ 54	15.8	13.4	− 2.4
1933	307	346	+ 39	73.0	23.9	− 49.1	234	298	+ 64	16.1	12.5	− 3.6
1932	405	414	+ 9	131.5	28.0	−103.5	273	347	+ 74	17.4	11.4	− 6.0
1931	418	525	+107	109.6	43.4	− 66.2	308	434	+126	24.2	12.7	−11.5
1930	487	893	+406	73.4	180.3	+106.9	413	576	+163	29.8	24.5	− 5.3
1929	461	1,052	+591	76.6	268.9	+192.3	384	586	+202	24.7	38.0	+13.3
1928	504	1,040	+536	99.0	290.3	+191.3	405	549	+144	23.3	54.6	+31.3
1927	312	1,022	+710	75.1	323.9	+248.8	236	497	+261	22.1	78.4	+56.3
1926	337	960	+623	98.6	336.3	+237.7	238	425	+187	20.0	77.3	+57.3

* SOURCE: *Vital Statistics—Special Reports*, 9 (1940), Tables 35 and 36, explanatory notes and footnotes, pp. 452–455, 461.

†† Excluding Canada.

‡‡ Including Argentina, Brazil, Canada, Chile, United States, Mexico, Uruguay, Venezuela.

§§ Including Argentina, Brazil, Chile, Mexico, Uruguay, Venezuela.

‖‖ Including Australia and New Zealand.

TABLE 36.—IMMIGRATION, EMIGRATION, AND MIGRATION BALANCE FOR SELECTED COUNTRIES, 1926 TO 1936*

Division	Country	Years	Emigration	Immigration	Migration balance
Europe.....	Germany	1926–1936	361,439	1,000,175	638,736
	Austria	1928–1936	25,839	63,091	37,252
	Belgium	1926–1936	256,391	365,303	108,912
	Bulgaria	1930–1936	108,963	14,342	— 94,621
	Denmark	1929–1936	80,924	103,387	22,463
	Spain	1926–1936	472,958	503,902	30,944
	France	1926–1936	693,713	1,140,544	446,831
	Great Britain and North Ireland	1926–1936	880,768	779,834	—100,934
	Malta and Gozo	1926, 1928–1936	20,954	12,285	— 8,669
	Greece	1929–1936	215,475	138,416	— 77,059
	Hungary	1926–1936	33,786	7,724	— 26,052
	Irish Free State	1926–1936	126,742	31,828	— 94,914
	Italy	1926–1936	1,587,746	1,081,500	—506,246
	Norway	1926–1929	38,073	4,204	— 33,869
	Netherlands	1926, 1928–1936	476,053	526,409	50,356
	Poland	1926–1936	1,247,573	735,951	—511,622
	Portugal	1926–1935	317,025	329,203	12,178
	Sweden	1926–1936	70,771	70,959	188
	Switzerland	1926–1936	62,977	578,718	515,741
	Yugoslavia	1926–1936	226,246	95,150	—131,096
	Czechoslovakia	1926–1936	315,328	49,282	—266,046
	Rumania	1926–1936	163,519	79,289	— 84,230
Asia.....	British India	1926–1936	998,335	1,087,926	89,591
	Philippine Islands	1926–1936	326,095	360,331	34,236
	Japan	1926–1933	199,765	103,966	— 95,799
	Palestine	1926–1936	171,678	222,350	50,672
	Ceylon	1926–1936	2,149,926	2,187,109	37,183
	French India Settlements	1928–1936	25,280	16,090	— 9,190
	Malay Peninsula	1926–1936	1,785,273	1,862,555	77,282
Africa.....	Union of South Africa	1926–1936	54,161	975,505	921,344
America...	Argentina	1926–1936	515,914	939,152	423,238
	Brazil	1927–1936	369,797	678,206	308,409
	Canada				
	Chile	1929–1936	239,119	250,387	11,268
	United States	1926–1936	876,200	1,605,808	729,608
	Mexico	1926–1936	324,434	697,956	373,522
	Uruguay	1926, 1928–1936	1,520,100	1,624,320	104,220
	Venezuela	1926, 1928–1936	157,475	168,263	10,788
Oceania....	Australia	1926–1936	186,755	291,106	104,351
	New Zealand	1926–1936	37,711	61,695	23,984

* SOURCE: *Vital Statistics—Special Reports*, 9 (1940), 452–455.

slovakia was next; then Yugoslavia, Great Britain, and Northern Ireland.

Unfortunately, the data for Asia, which contains such a large share of the earth's inhabitants, are very incomplete. Of the Asiatic countries data are available for only British and French India, the Philippines, Japan, Palestine, Ceylon, and the Malay Peninsula. On the whole, these countries have been areas of absorption during the period for which data are available. Prior to 1930 the annual emigration from these countries totaled approximately 700,000. Since 1930 it has been reduced to about 400,000 per year, the lowest figure (333,000) being that for 1936. In 1926 immigration to these countries exceeded the outward flow of population by 130,000, but a rise in immigration coupled with the decreased emigration created a migration balance in favor of these parts of the world during the 3 years 1928 to 1930. During the depth of the depression, 1931 to 1933, both immigration and emigration were considerably reduced, but the net effect was a loss of population by migration, and this was particularly true in 1931. Following 1933 a sharp upturn in immigration, coupled with a continued decline in emigration, contributed a favorable migration balance of some ½ million for the 3-year period. Over the entire span for 1926 to 1936, the net gain was slightly over ½ million.

Of the Asiatic countries for which we have data, Japan was the principal loser. But for every two persons leaving Japan, one returned, so that the net loss was but slightly under 100,000. The flow of population out of and into British India was very large, involving nearly 1 million emigrants and 1 million immigrants in the course of the 11 years. However, there was a near balance between the two, and the net gain amounted to less than 90,000. To Palestine over the period of years under consideration went nearly ¼ million immigrants. However, the emigration from Palestine was also very large, with the net result that the favorable migration balance was reduced to only slightly more than 50,000.

In Africa data are available for only the Union of South Africa. This continues to be an area of absorption. Emigration from South Africa is negligible, averaging only about 6,000 for the years prior to 1930 and only 3,000 or 4,000 in the years immediately following. On the other hand, immigration to this southern portion of the Dark Continent has been considerable, amounting to nearly 50,000 in 1926 and steadily increasing to 100,000 in 1930. Immediately following 1930 there was a lull, and by 1932 the number of immigrants had dropped to 80,000. Then a steady rise began, and immigration amounted to over 136,000 in 1936. Thus South Africa's net gain by migration was nearly 50,000 in 1928 and 1929; it rose to 90,000 in 1930; and, after declining until 1933, rose again to more than 133,000 in 1936.

Latin America has long been one of the principal takers of international migrants. But large numbers of persons also emigrate from these countries going either to others in the New World or returning to their birthplaces. Fortunately, data are available for Argentina, Brazil, Chile, Mexico, Uruguay, and Venezuela, which include the major share of the Latin-American population. Prior to 1930 this group of nations received about 500,000 immigrants annually. Following 1930 the number of immigrants dropped sharply, and in 1933 they numbered less than 300,000; a subsequent rise increased the figure to 336,000 in 1936. As indicated above, the emigration from these countries is also considerable. In 1926 nearly 240,000 persons emigrated from this part of Latin America, and the number rose rather steadily to 413,000 in 1930. During the early depression years the number of emigrants decreased, falling to 234,000 in 1933, and then it rose again to 333,000 in 1936. As a net result of these migratory movements, these Latin-American countries gained from 150,000 to 200,000 persons per year prior to 1930. Following this, however, the favorable balance fell off very rapidly and amounted to only 3,000 in 1936.

Since Latin America has constituted one of the chief areas of population absorption, the data for these countries are particularly interesting. Among them, Uruguay is distinguished by the largest amount of migration, both into and out of the country. During the 11 years, 1926 to 1936, this little country actually received more immigrants than the United States. However, emigration from it was also very rapid, and the net gain for the period amounted to barely over 100,000. That in the United States was nearly ¾ million. Argentina gained most through the excess of immigration over emigration, the net being well over 400,000. Mexico ranked second, with a favorable migration balance of nearly 375,000. Next came Brazil, which gained over 300,000. The net gains in Chile and Venezuela were around 10,000.

Australia and New Zealand gained over 150,000 persons because of a favorable migration balance in the years 1926 to 1929. From 1930 to 1936, however, the number of persons leaving these countries exceeded the number of comers by a total of 31,000. In 1936 there was almost a balance, some 15,000 migrants entering and the same number of emigrants leaving these countries. The net migration balance during the 11 years was in favor of these two countries by slightly over 125,000 persons.

THE UNITED STATES

To those who live in the Americas, immigration is a subject of more than usual interest, for to new nations in general and to those of the Western Hemisphere in particular, immigration is one of the most important com-

ponents of the national life history. Except for the Indians, who are of minor importance in the larger American nations such as Argentina, Brazil, Canada, and the United States, the inhabitants of the New World are either themselves immigrants or the descendants of persons who have migrated from one of the other continents. Even in Bolivia, Mexico, Colombia, Peru, Chile and Central America, the upper classes generally are persons of European ancestry. The growth of population in the United States in the decades immediately following the establishment of the new nation would have been much slower had there been no immigration; the ethnic composition of our people would have been quite different had we never permitted free immigration; and it would still be changing radically had we not put the Immigration Act of 1924 into effect.

Thus immigration has been so significant in the national history of the United States that it is well to consider in some detail the history of the process.

History.—It is convenient to divide the history of immigration to the United States into five periods.[1] The first of these embraces the years from the establishment of the first settlements to the emergence of the national state in 1783; to distinguish this from the later periods it is usually referred to as the colonial period or the era of colonization. The second period, that of free immigration, ended around 1830. From then until 1882 there was a period of agitation and state regulation. The passage of the first national immigration act in 1882 opened the fourth period, that of federal control and the attempt to select individual immigrants. In 1917 the present stage of restricting immigration began.

The Colonial Period.—The first comers to the northern portions of the Western Hemisphere were in a vastly different situation from those who arrived later. They came to an unclaimed wilderness and not to an established nation with fixed boundaries, laws, established customs, and a definite status in the family of nations. To the colonists must go the credit for securing independence, establishing the national state with its distinctive government forms, laws, and institutions. As Mayo-Smith has indicated, in a very real sense these founders of the state and their descendants are the proprietors of the nation, possessing the right and even the obligation of guarding American institutions against any alien influences of a subversive nature.[2]

[1] FAIRCHILD, HENRY PRATT, *Immigration: A World Movement and Its American Significance*, rev. ed., The Macmillan Company, New York, 1928.

[2] *Cf.* MAYO-SMITH, RICHMOND, *Emigration and Immigration*, pp. 35–36, Charles Scribner's Sons, New York, 1895; DAVIE, MAURICE R., *World Immigration*, p. 19, The Macmillan Company, New York, 1939.

Unfortunately, there are no reliable data concerning the numbers of persons coming to what is now the United States during the colonial period.[3] During this period natural increase of population undoubtedly was very high; but on the other hand, there were large influxes of population through such important migrations as the coming of the Scotch-Irish during the early years of the eighteenth century. Natural increase and immigration combined were sufficient to account for a population of nearly 4 million at the time of the first national census in 1790.

The Era of Free Immigration.—The years between the adoption of the constitution and approximately the year 1830 constitute a second important period in the history of immigration to the United States. Rarely in any nation has the privilege of ingress been so completely free and unregulated as it was in the United States during the early years of national existence. During the infancy of the republic the immigrants who came to the shores of America north of Mexico were very similar in kind and heritage to those who had preceded them. For decades there was little or no thought given to the advisability of limiting in any way the number of newcomers or even to placing restrictions upon the types of persons who should be permitted to land. This situation continued for nearly half a century, only gradually waning as some of the more obvious defects of unlimited and unrestricted immigration began to force themselves upon the attention of the inhabitants of the country. But not until 1830 had some of the drawbacks to complete freedom of ingress pushed themselves to the fore sufficiently to justify its selection as the date of closing for the second period, or the era of free immigration. Of the numbers coming to our shores in these early years we lack precise data. Official estimates place the number of persons admitted during the years 1783 to 1820 at 250,000, a figure thought by some to be too low.[4] For the years following 1820 data are available (see Fig. 125).

Interest in immigration was gradually awakened, and by 1820 it was sufficiently great that the practice of keeping annual data on the number of arrivals was undertaken. Even then, however, no distinction was made between visitors with avowed intentions of a limited stay in the New World and those who came to establish homes here. Other than counting the number of debarkations, there was little or no attention paid to the subject. During these early years the immigration was slight, and the arrival each year of a few thousand additions from the old countries was of

[3] An excellent summary of available estimates of colonial populations prior to the census of 1790 will be found in Evarts B. Greene and Virginia D. Harrington, *American Population before the Federal Census of 1790*, Columbia University Press, New York, 1932.

[4] FAIRCHILD, *op. cit.*, p. 57.

little concern to those already here. It was not until 1825 that the number of arrivals reached 10,000 per year. Thereafter immigration increased rapidly; and as the incoming tide swelled in volume, there came a gradual development and diffusion of the belief that the newcomers were partially responsible for some of the nation's pressing social and economic problems. By degrees, recognition of the problems inherent in unlimited and unrestricted immigration became widespread. It is difficult to determine the precise date by which national consciousness had been sufficiently aroused to justify saying that the old period of free immigration had passed, but concensus of opinion agreed that it was around 1830. The disadvantages of unrestricted and unregulated immigration pressed themselves to the fore, and with this popular awakening came an end to the period of free immigration and the beginning of a new era.

The Period of Agitation and State Control.—Following the development of widespread recognition of the disadvantages inherent in absolutely unrestricted and unregulated immigration came a period of agitation and activity on the part of the states in an attempt to deal with the problems of migration. This period of agitation and state effort constitutes a third distinct era in our immigration history. Roughly it may be dated as beginning in 1830 and ending with the first general federal legislation of immigration in 1882. At best the immigration policy of this period must be characterized as a very piecemeal affair.

The need for control was beyond the stage of argument before the second quarter of the nineteenth century was well under way. Among all the factors leading to the regulation of immigration by the states, none was more important than the tendency for paupers and criminals to immigrate either on their own accord or by means of subsidies supplied by their home communities or parishes, which wished to be rid of them. As early as 1830 *Nile's Register* protested vigorously because the British ship *Anacreon* left in Norfolk 168 passengers of whom more than three-fourths were said to be transported paupers. By 1838 the immigration of paupers, large numbers of whom were duped into migrating to the New World by means of a subsidy[5] paid by the overseers of their home parishes in England, was of such moment that it formed the subject of a voluminous report by the then Secretary of State John Forsyth.[6]

But there were also other factors propelling the states' attempts to select the immigrants and limit the privilege of ingress. Economic competition of immigrant workers with low standards of living, opposition to the

[5] *Cf.* HANSEN, MARCUS LEE, *The Atlantic Migration, 1607–1860*, p. 281, Harvard University Press, Cambridge, Mass., 1940.

[6] *Cf.* FAIRCHILD, *op. cit.*, p. 70.

Roman Catholic religion of the Irish who were swarming to the United States, the clannishness of the Irish and the Germans—all were effective in the genesis of opposition to continued unrestricted immigration. They were crystallized in the Nativist political movement which made considerable headway in this country in the period just before the conflict over slavery entered its final stages.[7]

The depression of 1857 followed closely by the Civil War pushed immigration problems into the background temporarily. The low immigration of 1862 was never again equaled until the great depression was well under way in 1932. They were soon revived, largely through opposition to the Irish, publicized by the Molly Maguire disturbances in the Pennsylvania coal-mining districts, and the alarm on the West Coast over the immigration of Chinese. The agitation culminated in 1882 in federal legislation, not merely laws excluding the Chinese, but the act of Aug. 3, 1882, designed to keep paupers, criminals, and diseased persons from immigrating to this country. By these acts the federal government took the control of immigration into its own hands, thus ushering in the fourth period in the history of immigration to the United States.

Federal Control, Individual Selection.—Federal control of immigration, which got underway immediately after the passage of the act of Aug. 3, 1882, came in a year that saw 788,992 immigrants arriving on our shores. Immigration had never been greater; but while the federal government was developing an immigration policy, it was destined to soar to much higher levels. In 1884, Congress corrected the discrimination in favor of persons arriving overland at our borders in comparison with those coming by sea. In 1885 it was made

". . . unlawful for any person, company, partnership, or corporation, in any manner whatsoever, to prepay the transportation, or in any way to assist or encourage the importation or migration of any alien or aliens, any foreigner or foreigners, into the United States, its Territories, or the District of Columbia, under contract or agreement, parol or special, express or implied, made previously to the importation or migration of such alien or aliens, foreigner or foreigners, to perform labor or service of any kind in the United States, its Territories, or the District of Columbia:"[8]

In piecemeal fashion Congress continued year after year to develop legislation regulating immigration. Minor additions in 1887 and 1888 were followed by more substantial provisions in 1891 and 1893. Other revisions were thought necessary in 1894, 1895, and 1900, and in 1903 very substantial new prohibitions were approved. These included the exclusion of

[7] *Ibid.*, p. 74.

[8] From Act of Feb. 26, 1885, Section 1, quoted in *ibid.*, p. 113.

the mentally ill, beggars, anarchists, prostitutes, and procurers. Also at this time the period during which the immigrants were liable to deportation was extended from 2 years to 3 years. Again in 1904 Congress was at the job of filling gaps in the legislation, and the same occurred in 1906. In 1907 Congress passed what was aimed to be an inclusive immigration law, including all of the principal features of the previous ones and repealing those not consistent with the new act. In general, this act enlarged the excluded classes, contained more stringent provisions respecting prostitutes and their managers, extended the penalties for bringing in inadmissible aliens and provided for the recording of information about departing aliens.

Federal Control, Restriction.—We now see that the hopes of achieving a definitive immigration policy at this time were futile. The number of immigrants arriving in the United States annually was averaging 1 million, being well over that figure in 1906, 1907, 1908, 1910, 1913, and 1914. Their coming aroused an intense popular demand for restriction of immigration, for group selection and not merely individual selection. But to restrict immigration meant a fundamental change in a basic, long-standing national policy. However, public sentiment was alarmed, and the members of Congress were responsive to the wishes of their constituents. In order to stop the flood of immigration from southern and eastern Europe, the particular device proposed was the literacy test. Thirty-two times between 1882 and 1917, an act establishing such a test passed in either the House or the Senate. Four times it was passed by both houses of Congress, only to be vetoed in 1897 by Cleveland, in 1913 by Taft, in 1915 and 1917 by Wilson. Finally on Feb. 5, 1917, over Wilson's veto the House and the Senate passed a bill providing for the exclusion of "all aliens over sixteen years of age, physically capable of reading, who cannot read the English language, or some other language or dialect, including Hebrew or Yiddish," with exceptions for near relatives and refugees from religious persecution. In his veto Wilson correctly stated that its intended purpose was "restriction not selection." Its enactment over his veto represented a triumph for the forces urging restriction of immigration and thus marked the end of the period of individual selection.[9]

The literary test soon proved ineffective, for with the First World War over and transportation once more available the United States again was deluged with immigrants. Having won their case and having a clear support of majority opinion, the proponents of restriction quickly set about the passage of legislation that effectively would reduce the numbers of immigrants to the United States and secure most of those who were allowed to come from the countries of northern and western Europe. The quota

[9] *Ibid.*, pp. 369–393. gives the details of the struggle.

system, under which immigration is still controlled, was put into effect temporarily by an act of 1921, and more definitively by that of 1924.

As a temporary measure for limiting the amount and controlling the source of immigration into the United States, Congress passed in May, 1921, a quota limit act fixing the number of persons that might be admitted from certain parts of the world during any fiscal year. This legislation placed the number of alien immigrants admissible from any country in Europe, the Near East, Africa, and Australia, at 3 per cent of the number of such nationals as were resident in the United States as reported by the 1910 census. It further provided that no more than 20 per cent of any country's quota could be admitted during any one month of the fiscal year. Not within the scope of this law were countries such as Japan and China, immigration from which was otherwise regulated, or Canada and the independent countries of the Western Hemisphere.

On May 26, 1924, Congress passed the most important legislation in the history of the United States. Officially known as the "Immigration Act of 1924" this legislation supplanted the makeshift legislation of 1921 and made basic changes both in our immigration policy and the manner in which it was administered. This legislation contains the basic law under which we have been operating ever since. Under the 1924 act regulations were placed upon immigration from all quarters of the globe, except from the countries of the Western Hemisphere. The number of each nationality that might be admitted annually was limited to 2 per cent of the number of such nationals resident in the United States in 1890 as reported by the Eleventh Census.[10] The law specified that the nationality of immigrants should be determined by country of birth. Except in those cases where the quota was less than 300 per year, only 10 per cent of any annual quota might be admitted during one month of the fiscal year. The law defined an immigrant as "any alien departing from any place outside the United States destined for the United States," except (1) officials of foreign governments, members of their families, their servants, attendants, etc.; (2) visitors admitted temporarily for business or pleasure; (3) aliens on continuous transit throughout the United States; (4) aliens who have previously been legally admitted to the United States and who go from one part of the country to another through foreign territory that is contiguous

[10] Under the provisions of the act as signed and promulgated by President Coolidge, the total permissible immigration was set at 164,667 persons per year. The quotas assigned to some of the principal countries are as follows: Germany, 51,227; Great Britain and Northern Ireland, 34,007; Eire, 28,567; Sweden, 9,561; Norway, 6,453; Poland, 5,982; France, 3,954; Italy, 3,845; Czechoslovakia, 3,073; Denmark, 2,789; Russia, 2,248; Switzerland, 2,081; and the Netherlands, 1,648.

to the United States; (5) bona fide alien seamen serving on vessels that call at United States ports and enter temporarily in pursuit of their calling; and (6) aliens permitted to enter the United States solely to carry on trade under the provisions of treaty agreements. For all intents and purposes the act divided immigrants into those who came under the terms of the quotas and nonquota immigrants. Those privileged to enter as nonquota immigrants are as follows: (1) an unmarried child under 18 or the wife of a citizen who is residing within the United States at the time when the application is made; (2) an immigrant previously legally admitted who is returning from a temporary absence; (3) immigrants born in Canada, Newfoundland, and the independent countries of the Western Hemisphere; (4) ministers and professors who have been practicing their professions for 2 years immediately preceding application for entry and who enter solely for the purpose of professional activities; and (5) immigrants of 15 and over who are bona fide students and who enter solely for study at accredited schools that also are approved by the Secretary of Labor. The law also contained several other important provisions. It avoided much of the confusion and hardship prevailing under the previous regulations by requiring that the immigrant must obtain a visa from a United States consul before he could gain admittance. This had the effect of controlling quotas and visas in the consulates abroad and preventing the turning back of thousands of applicants after they had already gone to great trouble and expense to get to this country. Also included was a provision prohibiting entrance, with very few exceptions, to all aliens who are ineligible for citizenship in the United States. Since the naturalization laws "apply to aliens being free white persons and to aliens of African nationality and to persons of African descent," only members of the Caucasian and black races are eligible for citizenship and consequently to enter this country as immigrants. Ineligible are Japanese, Chinese, East Indians, and other indigenous Asiatic peoples.[11]

The Number of Immigrants.—Data on immigration to the United States leave a great deal to be desired. Prior to 1820 there were no records kept, and those begun that year pertained only to alien passengers arriving on our shores from overseas. Reporting was continued on this basis until after the Civil War, in 1868, when the procedure of reporting immigrants arriving was adopted. Following 1907 these were subdivided into immigrant and nonimmigrant aliens arriving, and this practice is being continued at the present time. It was in 1907, also, that records of departures were begun.

[11] For the provisions of this immigration act of 1924 and their application, see the *Annual Report of the Commissioner General of Immigration*, pp. 24–30, Government Printing Office, Washington, 1924.

Charted in Fig. 125 are the data for the years 1820 to 1945. These are by single years. Observation of this chart enables one to identify the peaks and depressions in the movement of persons born abroad into the United States. Thus the number of immigrants arriving in this country increased rather slowly until 1844 and then suddenly shot up to a peak by 1855. The temporary lull associated with economic depression and the Civil War was succeeded by another period of mounting immigration, one that reached a peak in 1873 when more than ½ million immigrants came to the United States. The slack period of 1875 to 1880 was followed by heavy immigration for about 15 years, the highest number of entries during

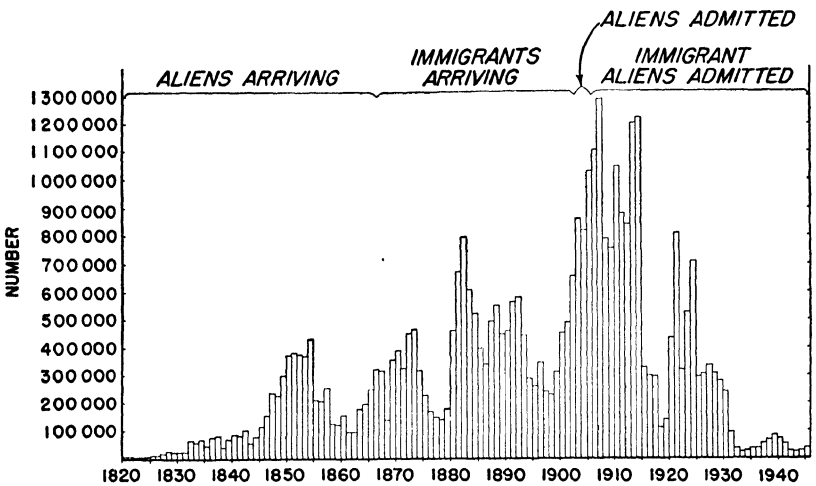


FIG. 125.—Immigration to the United States, 1820 to 1945.

any one year being in 1882, when almost 850,000 were admitted. The slump in the closing decade of the nineteenth century was followed immediately by a period extending to the outbreak of the First World War in which the flow of immigrants to this country swelled to heights far above anything the world has ever seen before or since. More than 1,300,000 immigrants were admitted to the United States in 1907, and the figure was only slightly lower in 1913 and 1914. The World War checked this influx; and after peace was established, the advocates of restricted immigration were successful in establishing effective checks on the numbers and nationalities coming to our shores. With the onslaught of the great economic depression, immigration sagged to a level comparable to that prevailing 100 years earlier.

The Balance of Immigration and Emigration.—Our information on emigration from the United States also leaves much to be desired. As indi-

TABLE 37.—IMMIGRATION AND EMIGRATION, UNITED STATES, 1908–1945*

Year	Aliens admitted		Aliens departed		Migration balance†
	Immigrant	Nonimmigrant	Emigrant	Nonemigrant	
1908	782,870	141,825	395,073	319,755	209,867
1909	751,786	192,449	225,802	174,590	543,843
1910	1,041,570	156,467	202,436	177,982	817,619
1911	878,587	151,713	295,666	222,549	512,085
1912	838,172	178,983	333,262	282,030	401,863
1913	1,197,892	229,335	308,190	303,734	815,303
1914	1,218,480	184,601	303,338	330,467	769,276
1915	326,700	107,544	204,074	180,100	50,070
1916	298,826	67,922	129,765	111,042	125,941
1917	295,403	67,474	66,277	80,102	216,498
1918	110,618	101,235	94,585	98,683	18,585
1919	141,132	95,889	123,522	92,709	20,790
1920	430,001	191,575	288,315	139,747	193,514
1921	805,228	172,935	247,718	178,313	552,132
1922	309,556	122,949	198,712	146,672	87,121
1923	522,919	150,487	81,450	119,136	472,820
1924	706,896	172,406	76,789	139,956	662,557
1925	294,314	164,121	92,728	132,762	232,945
1926	304,488	191,618	76,992	150,763	268,351
1927	335,175	202,826	73,366	180,142	284,493
1928	307,255	193,376	77,457	196,899	226,275
1929	279,678	199,649	69,203	183,295	226,829
1930	241,700	204,514	50,661	221,764	173,789
1931	97,139	183,540	61,882	229,034	— 10,237
1932	35,576	139,295	103,295	184,362	—112,786
1933	23,068	127,660	80,081	163,721	— 93,074
1934	29,470	134,434	39,771	137,401	— 13,268
1935	34,956	144,765	38,834	150,216	— 9,329
1936	36,329	154,570	35,817	157,467	— 2,385
1937	50,244	181,640	26,736	197,846	7,302
1938	67,895	184,802	25,210	197,404	30,083
1939	82,998	185,333	26,651	174,758	66,922
1940	70,756	138,032	21,461	144,703	42,624
1941	51,776	100,008	17,115	71,362	63,307
1942	28,781	82,457	7,363	67,189	36,686
1943	23,725	81,117	5,107	53,615	46,120
1944	28,551	113,641	5,669	78,740	57,783
1945	38,119	164,247	7,442	85,920	109,004

* SOURCE: *Vital Statistics—Special Reports*, 9 (1940), 456; *Statistical Abstract of the United States, 1946*, Table 118, p. 107, Government Printing Office, Washington, 1946.
† Balance of total aliens admitted and total aliens departed.

cated above, the departures of aliens from this country first became a matter of record in 1908. In the recording those admitted to the country have been classed into two categories, immigrant and nonimmigrant; those leaving separated into emigrants and nonemigrants. Except for the known importance of illegal entries into and unrecorded departures from the United States, the official data should give a fairly accurate accounting of immigration and also of the emigration of aliens. But they do not tell us anything about the emigration of natives of this country or of the departures of naturalized citizens. The available data are summarized in Table 37.

In the decade immediately preceding the First World War, approximately 1 million aliens annually were admitted to the United States. The great bulk of these were classed as immigrants. At this time the departure of aliens was approximately one-half the number of admissions. Consequently during these years there were more nonemigrant aliens leaving the country than there were those classed as nonimmigrant aliens entering. As a net result the migration balance showed an annual gain of population averaging well over ½ million per year.

The war years, 1915 through 1919, were characterized by marked decreases both in the number of arrivals and in the number of aliens departing from these shores. Admittances were only 434,244 in 1915 (three-fourths of whom were classed as immigrants) and fell off to about one-half of this in 1918 and 1919. During the war years the percentage of nonimmigrant aliens among those admitted continued to rise. The departure of aliens was also greatly reduced during the war period, the absolute low for the entire 31-year period being in 1917. Of those departing from the United States approximately one-half were classed as emigrants. The migration balance for the years 1915 to 1919, inclusive, was favorable to the United States, but the annual net gain was far below that of previous years and averaged less than 100,000 per year.

Admissions shot up in 1920 and 1921, attaining a number near their prewar level in the latter year. As indicated above, the Quota Act of May 19, 1921, limited the number of immigrants from a given country in any fiscal year to 3 per cent of the foreign born of that nationality already in the United States. This act seems to have proved a retarding factor during 1922, but the number of arrivals quickly increased again in 1923 and 1924. In May, 1924, new legislation set the quota for each nation at 2 per cent of the number of foreign-born persons of that nationality reported in the United States Census of 1890. Under the new restriction from 1925 to 1930 they hovered about the mark of ½ million annually. Immediately following the war immigrants constituted the great bulk of the new arrivals, but by 1930 approximately one-half of the newcomers were classified as

nonimmigrants. Although the postwar period was one of increased migration to the United States, it was not a period of marked increase in the movement away from this country. Except in 1920 and 1921 the period from the close of the war to the onslaught of the depression was one in which the annual number of departures fluctuated about the 250,000 level. Of these well over two-thirds were classified as nonemigrant, and the proportion of these was over three-fourths of all by 1930. The net migration balance resulting from these movements amounted to a gain of approximately 300,000 per year, or approximately three times that of the war years. However, this average is considerably affected by the high balances of 1921, 1923, and 1924.

The depression had drastic effects upon the entry of aliens into and departure from the United States. From 1931 to 1936, inclusive, there was a net loss due to the excess departures over entries, probably the only years in the history of the nation in which this has been true. In 1931 the 280,679 aliens admitted to the United States constituted but one-fourth of the number entering in 1910. It was a decrease of 36 per cent from the 1930 level. The number continued to sag until it reached the all-time low of 150,728 in 1933. This was far under even the low of the war years. Following 1933 the entry of aliens rose slightly, but in 1938 it was only 252,697. Furthermore, the great majority of these were nonimmigrants, the porportion of these increasing as the years passed from about two-thirds in 1931 to approximately three-fourths in 1938. The immediate effect of the depression was to swell the tide of aliens quitting the United States. The number of emigrants was low, except for 1932 and 1933 lower than ever before, but nonemigrant aliens quitted the country at the rate of ¼ million per year. As a net result the migration balances for 1931 to 1938 show a loss of 203,694, more than one-half of which is attributable to the mass departures during 1932. The loss was also nearly 100,000 in 1933, but so small during the remaining years that the small favorable balances for 1937 and 1938 were more than large enough to compensate for them.

Summarizing the data for the entire period 1908 to 1938 shows that there were reported arrivals of aliens (immigrants and nonimmigrants), 7,678,872 in excess of departures. For the same period the excess of those arriving who were designated as immigrants over those departing who were designated as emigrants was considerably higher, 8,366,924. In other words, for this 31-year period the reports show an excess of nonemigrant alien departures over nonimmigrant alien arrivals amounting to 688,044. Without doubt, this indicates that some persons who on their arrival were classified as immigrants on their departure were classed as nonemigrants.

Were allowances made for the nonimmigrant aliens who died while in the United States, the discrepancy would be still further increased. Undoubtedly this indicates that the reported immigration and emigration data are not entirely trustworthy even with respect to the legal entry and departure of foreign-born persons. Because of these discrepancies the data on the arrival and departure of all aliens probably enable us to gain a more adequate

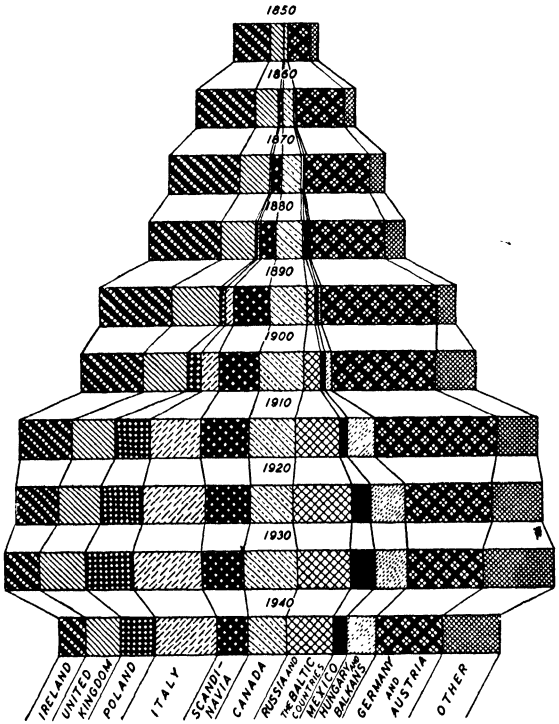


FIG. 126.—Country of birth of the foreign-born population of the United States, 1850 to 1940.

understanding of the net migration balance between the United States and the other nations of the world than do the data relating solely to the persons who are classified as immigrants and emigrants. This is a point to be borne in mind when interpreting data on emigration and immigration such as are presented in Table 37.

Composition of the Immigration Stream.—For information concerning the origins of the immigrants to the United States, the data on country of birth of the foreign-born population collected in the decennial census are superior to those recorded by the immigration authorities. This is because of many

illegal entries and because before 1908 no record was kept of aliens departing from our country. But beginning in 1850 each census has gathered and tabulated materials on the country of birth of all of the foreign-born persons residing in the United States. These materials may be used to supplement the data on numbers which have already been given. In using these data in the study of immigration, two precautions are necessary: One should remember that they refer to the net balance of immigration and emigration and also that the results for a given census year sum up more than half a

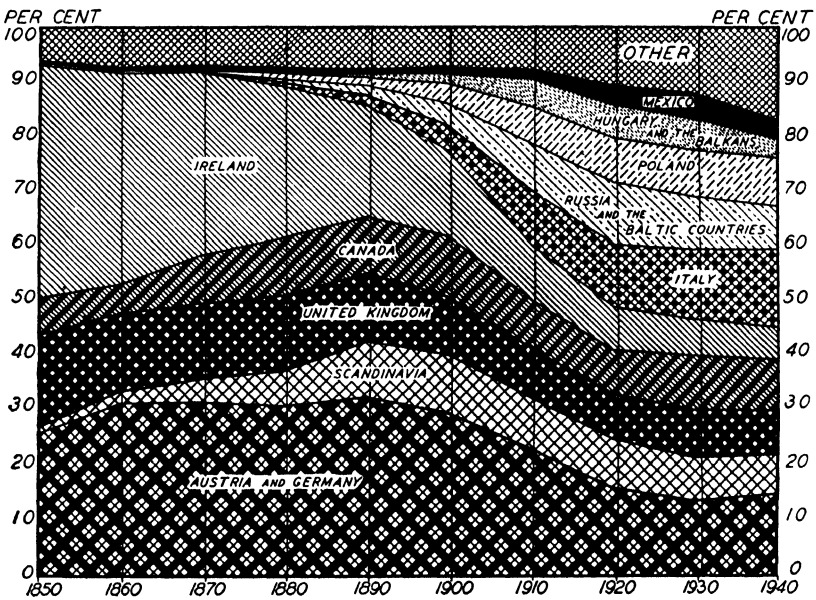


FIG. 127.—Percentages of the foreign-born population of the United States who were born in specified countries, 1850 to 1940.

century of experience. The three dates of most importance in the analysis of the make-up of the immigrant population are 1850, 1890, and 1930. The first is the year when a classification of the population according to national origins was first introduced into the United States Census; the census of 1890 is the one selected for use in the Immigration Act of 1924 which established quotas for the various countries; and the census of 1930 is the one in which the immigrant population had reached its maximum.

There were already 2,244,602 persons of foreign birth residing in the United States in 1850, when they made up 9.7 per cent of the population. Up until this time the small island of Ireland had contributed the lion's share of those immigrating to these shores; for of the total, 961,719 (42.8 per

cent) of the foreign born gave it as their country of birth (see Figs. 126 and 127). Germany had sent the bulk of the remainder, for 583,774 (26.0 per cent) indicated that country as their birthplace. From England had come 278,675 (12.4 per cent), and from Canada, 147,711 (6.6 per cent). No other nation had given as many as 100,000, although Scotland had sent 70,550; France, 54,069; and Wales, 29,368. Switzerland, Mexico, and Norway had supplied 13,358, 13,317, and 12,678, respectively. When interest in immigration and the nativity of the foreign-born population became sufficiently acute that data on the matter were collected by the census, there were only 3,679 Italians, 86 Greeks, and 758 Chinese residing in the United States. These data make it evident that during the first half of the nineteenth century only the British Isles and Germany had made numerically important contributions of immigrants to the United States.

Since 1850, each census has included the fundamental tabulations that classify the foreign-born according to their national origins. It is worth repeating that the make-up of the immigrant population in 1890 is of basic importance, since the 1924 Immigration Act assigned quotas to the various nations that were based on the numbers which they had contributed to our population as of that year. In 1890, too, the immigrant population had attained a total of 9,249,560, or 14.7 per cent of the total population. This percentage has never been exceeded in the history of the United States, although it was equaled again in 1910. That the idea and practice of immigrating to the United States had diffused widely throughout Europe and Asia is indicated by the very marked increase in the heterogeneity of the immigrant stream that took place between 1850 and 1890. For these reasons an analysis of the make-up of the foreign-born white population as of 1890 is of fundamental interest.

Although the Irish continued to flock to our shores all through the 40-year period 1850 to 1890, the Germans came even more rapidly. Already in 1880 the latter had taken over first place, and by 1890 they totaled 2,784,894 (30.1 per cent of all) compared with 1,871,509 (20.2 per cent) of the former. It also is interesting to note that this year marked the all-time high of Irish immigrants residing in the United States. Being among the early comers they were subject to the high death rates of the advanced ages, and hereafter the number of arrivals was not sufficient to replace those who passed away. Canadians were in third place, totaling 980,938 (10.6 per cent), and English in fourth with 908,092 (9.8 per cent). Immigration from the Scandinavian countries was at its height around 1890, and the census of that date enumerated 478,041 Swedes (5.2 per cent) and 322,665 Norwegians (3.5 per cent), enough to make them rank fifth and sixth, respectively. There were also 132,543 Danes. Other nationalities

numbering 100,000 or more included not only the Scotch (252,231), Welsh (100,079), French (113,174), and Swiss (104,069), but also the Austrians (241,377), Russians (182,644), Italians (182,580), Poles (147,440), and Chinese (106,701). Totals of 81,828 Dutch, 77,863 Mexicans, and 62,435 Hungarians also deserve mention. The Greeks and the Japanese had not yet arrived on our shores in any considerable numbers, the former numbering only 1,887 and the latter, 2,292.

The foreign-born population reached its all-time high in 1930, when there were 14,204,149 persons born elsewhere residing in the United States. The restrictions of the 1924 Immigration Act were already making their influence felt, however, for the proportion of foreign born in the population had fallen to 11.6. Providing the basic law is not changed, the proportion will fall rapidly in the future. It was 8.8 per cent in 1940: for the millions of immigrants who came in the opening years of the twentieth century are among those exposed to the high mortality rates that prevail among elderly people. Therefore, it is particularly significant to examine the make-up of the foreign-born population in 1930. Changes from 1930 to 1940 and those to be expected in the near future will tend to make the composition of the foreign-born population more as it was in 1890.

Italians came in such droves between 1900 and 1915 and for a few years after the close of the First World War that persons born in Italy numbered 1,790,429 in the census of 1930. This was 12.6 per cent of the total foreign-born population. Because immigration from both Ireland and Germany had long since passed the peak, this was sufficient to give first place to the Italians. German immigrants living in the United States had decreased constantly from the high in 1890, but they still numbered 1,608,814 (11.3 per cent) and occupied second place. Russians, including persons born in the Baltic States, numbered 1,371,457 (9.6 per cent) and were third in importance. Canadians were 1,310,369 in number (9.2 per cent) and slightly outranked the 1,268,583 Poles (8.9 per cent). The Irish had dropped to less than 1 million for the first time since 1850 and with 923,642 (6.5 per cent) persons ranked only sixth. English immigrants living in the United States in 1930 were 809,563 (5.7 per cent), and Mexicans had increased to 641,462 (4.5 per cent). Swedish immigration had passed its peak, the foreign born of this origin being only 595,250 (4.2 per cent), but the number of persons from Czechoslovakia had increased sharply to 491,638 (3.5 per cent).

Restrictions on immigration, the depression, and the high mortality rates affecting those who had immigrated in the last half of the nineteenth century brought about significant changes in the composition of the immigrant population of the United States by 1940. Because of these factors

the Italians' preponderance was greater than before, whereas those who had immigrated earlier, such as the Irish and the Swedes, fell rapidly in numerical and relative importance. Many Mexicans returned to their native country. Of the 11,419,138 foreign-born whites enumerated in the 1940 census, the 12 leading countries of origin with the percentages contributed by each are as follows: Italy, 14.2; Germany, 10.8; Russia, 9.1; Canada, 9.1; Poland, 8.7; Ireland, 5.9; England, 5.4; Austria, 4.2; Sweden, 3.9; Mexico, 3.3; Czechoslovakia, 2.8; and Hungary, 2.5. As the years pass, we may expect this distribution gradually to become more as it was in 1890, although if restrictions are not modified, the relative importance of our immigrant population will continue to decline rather rapidly.

Also of interest are more of the details relative to the period of migration of each of the principal nationality groups that have helped to enlarge numbers of immigrants to the United States.

Irish.—As indicated above, prior to 1850, nearly all of the immigrants reaching our shores had come from the British Isles, Germany, and Canada (see Figs. 126 and 127). Particularly important had been the immigrations of the Irish. But although there were nearly a million persons born in Ireland enumerated in the 1850 census, when they made up 43 per cent of all the foreign born, the immigration from the Emerald Isle had not yet reached its peak. In the next decade the number of Irish in the United States nearly doubled; and despite the necessity of recruiting large replacements for the earlier immigrants who were dying off, it was 1890 before the all-time high (1,871,509) of persons born in Ireland and residing in the United States was reached. Over the 50-year period 1890 to 1940, the immigration of the Irish has not been sufficient to replace the considerable numbers dying, so that the number as well as the percentage has consistently declined. Nevertheless, the very large numbers that came to this country throughout the entire nineteenth century have done much to give the Irish stock a primary place in the ethnic composition of the United States.

Germans.—Throughout the entire life span of our republic, the immigration of Germans comes nearest ranking alongside that of the Irish in importance. Actually more Germans than Irish have come to our shores, but the Irish came first in greater numbers and, consequently, have made large contributions to the present composition of the national blood stream. To the more than 1½ million persons born in Germany who were living in the United States in 1850, the Civil War decade added almost 700,000 more, and the number continued to rise until in 1890 a total of 2,784,894 was enumerated in the United States. This was the crest. In the next 50 years, the Germans, as well as the Irish, did not immigrate in sufficient numbers to replace those who died off, and the numbers fell off rapidly.

English and Canadians.—The immigration of the British has been characterized by the steady flow throughout the entire period of our national history rather than by the enormous contributions compressed within a few decades. Thus the 278,675 English in 1850 increased rather steadily to 909,092 in 1890, the all-time high. But thereafter the number did not fall off sharply as was the case with the Germans and the Irish. Rather, many of the elderly ones who were claimed by death were replaced by new arrivals, and the number of immigrants from England was 809,563 in 1930 and 621,975 in 1940. The influx of Canadians has been similar to this, except that it got under way more slowly and has held up well. However, there were slumps between 1910 and 1920 and following 1930.

Scandinavians.—Immigration from the Scandinavian countries got under way more slowly than that from other parts of northeastern Europe. But between 1880 and 1890, immigrants from Norway, Sweden, and Denmark came in considerable numbers. Their number in this country continued upward until 1910 and then fell off sharply. If replacements do not arrive, our immigrants of these nationalities will be a thing of the past, for the high mortality rates of the advanced ages are now bearing heavily upon them.

Southeastern Europeans.—By 1900 the idea of immigrating to the United States had spread throughout southern and eastern Europe, and large numbers of persons born in Italy, Poland, Russia, Greece, and other Balkan countries began arriving on our shores. The influx of Italians continued unabated until the Immigration Act of 1924 became effective, but even then by 1940 Italians were second in numbers only to our immigrants from Germany. The immigration of the Poles mounted less spectacularly than that of the Italians, but it, too, was curbed only by the restrictions on immigration. The flow of Russians to this country seems to have been checked by the Russian Revolution even before the Immigration Act of 1924 became effective, for after 1920 immigration of the Russians declined.

Mexicans.—Mexico is the only Latin-American country that has sent any considerable number of immigrants to the United States. Mexican immigration goes back many years, but it was most important in the decade 1920 to 1930. Although not limited by quota, economic conditions in the two countries exerted strong controls. Between 1930 and 1940 the number of Mexicans in the United States fell off sharply.

Chapter 18
INTERNAL MIGRATION

THE most significant internal migrations of people in the United States can be conveniently grouped in three categories: the rural-urban exchange of population, state-to-state movements, and farm-to-farm migrations. To an analysis of these three this chapter is devoted.

RURAL-URBAN MIGRATION

The migration of population from rural areas to urban districts plays an indispensable role in modern society. As early as 1662 John Graunt, "Citizen of London," observed upon the basis of this study of the "bills of mortality" for the City of London "that, let the *Mortality* be what it will, the City repairs its loss of Inhabitants within two years which Observation lessens the Objection made against the value of houses in *London*, as if they were liable to great prejudice through the loss of Inhabitants by the *Plague*."[1] The data on fertility and mortality already presented demonstrate that the modern city also would dwindle away were its numbers not replenished constantly by migration from the country. The twentieth-century city is still a kind of a colony which must be repopulated each year by the rural parts of the nation. The bulk of the people who live in cities are either migrants from the country or the children of migrants. Few families, very few indeed, have been urban residents for as many as three generations.

Prior to 1920 we have for the United States no comprehensive data on the annual movement of persons from farms to cities or any concerning the shifting of people from urban centers to homes on the land. That the country was suffering a net loss of millions of people we know well; for although the rate of natural increase in the country was extremely high, the farm population did not grow; and although the rate of natural increase in urban centers was very low or even negative, the nation's cities were growing by leaps and bounds. For example, between 1910 and 1920 the entire population classed as rural, including the mushrooming suburban portion termed rural-nonfarm, increased only 1,579,313, or 3.2 per cent. In 1910

[1] The most convenient edition of Graunt's work is that prepared by Walter F. Willcox (ed.), *Natural and Political Observations Made upon the Bills of Mortality by John Graunt*, The Johns Hopkins Press, Baltimore, 1939.

the census did not distinguish between rural-farm and rural-nonfarm, but a later estimate by the Bureau of Census placed the rural-farm population for 1910 at 32,076,960. Since the rural-farm population enumerated in 1920 totaled only 31,393,262, it appears the farm population fell off by almost 700,000 during the decade. In the meanwhile the urban population gained by 12,159,041, or 29.0 per cent. This was the decade of the First World War, when only a small part of the urban increase properly may be attributed to immigration.

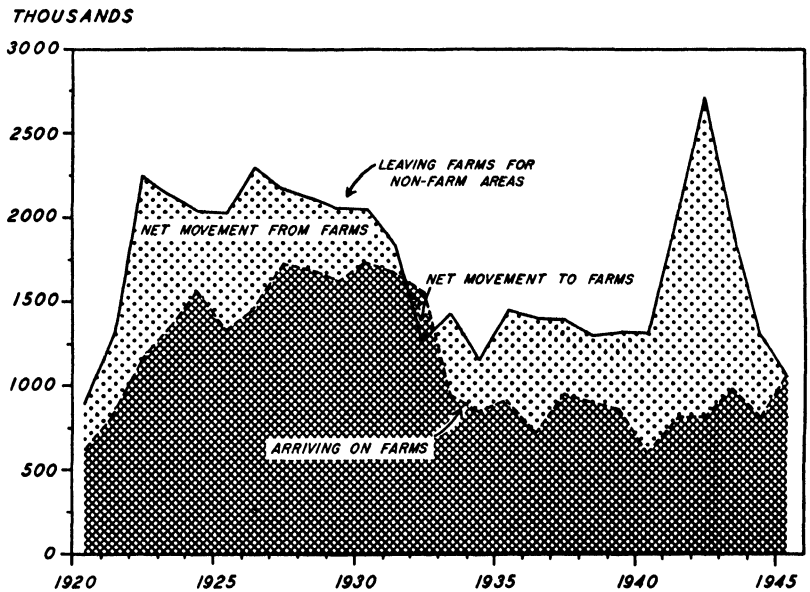


FIG. 128.—Migration to and from farms in the United States, 1920 to 1945.

From 1920 to 1945 we have the annual estimates made by the Bureau of Agricultural Economics, United States Department of Agriculture, of the movement of persons to and from farms.[2] By analyzing them we are able to gain considerable understanding of the rural-urban exchange of population. To begin with, it is well to know the annual flow of migrants from the country to the city and vice versa. Accordingly, Fig. 128 was prepared. Observation of these data indicates that shortly after the close of the First World War, approximately 1 million persons left the farms for the cities in the course of a year. Probably the number had been much higher

[2] See Bureau of Agricultural Economics, *Farm Population Estimates, United States and Major Geographical Divisions, 1910–1946*, United States Department of Agriculture, Washington, June, 1946 (mimeographed).

during the war years, but of that we cannot be sure. With the onslaught of the hard times which plagued many of the nation's agricultural districts throughout the 1920's the number of departures from farms shot up abruptly to more than 2¼ millions per year. The figure remained well over 2 million annually until the impact of the great industrial depression about 1931 when it fell sharply to around 1,200,000 in 1932. From then until 1940 the yearly total hovered around 1,300,000. As the tremendous defense and later the war programs got under way, the flow of people from the farm to the city again was greatly stimulated. It reached an all-time peak in 1942 when it is estimated that 2,739,000 persons moved from the farm to nonfarm areas. As the war plants were manned and mobilization drained the farms of their young men and women, the annual loss decreased rapidly. In 1945 it was only 1,081,000, the smallest number since 1920. For the 26-year period the total of the estimated departures from farms amounts to the staggering sum of 46,521,000 persons.

Frequently overlooked is the fact that there is also a large movement in the reverse direction, a shifting of population from city to country. In 1920 the arrivals on farms totaled 560,000. The number moved upward, keeping step with the increase in departures, to 1,581,000 in 1924, and then after a slight recession it climbed to 1,705,000 in 1927. This is the all-time high during the period covered by the records, except for 1931, when the estimate of the number of persons migrating from nonfarm areas to farms was slightly greater, or 1,740,000. The industrial depression had an effect upon "back-to-the-land movement" exactly the opposite of that loudly proclaimed in many places. The number of persons leaving the cities for residences on the farms did not increase; rather it decreased, slowly at first to 1,683,000 in 1931 and to 1,544,000 in 1932. Then it fell off abruptly to only 730,000, less than half of its level during the 1920's by 1934. From that year until 1945 it fluctuated between 719,000, registered in 1936, and 1,081,000 in 1945, the only year after 1932 in which the migration to the land passed the 1 million mark. Altogether, for the entire 26-year period, the total estimated number of arrivals on farms is equal to 29,943,000 persons.

The net effect of the movement away from the land was a loss of farm population during every one of the 26 years, except in 1932 when the decline in the curve of departures from farms was so much more rapid than that in the curve of arrivals on farms that there was a slight gain (363,000) in the farm population attributable to migration. In sharp contrast to this are the extremely great net changes in favor of the nonfarming areas: 1,137,000 in 1922, 1,146,000 in 1941, and 1,920,000 in 1942. In 12 of the 26 years from 1920 to 1945, inclusive, the farms suffered a net loss due to migration of more than 500,000 persons per year. During the 26 years

taken together, the farms contributed a net total of 16,578,000 persons to the nation's towns and cities. This is allowing each person arriving on farms to offset one of those departing; qualitatively this may not be justified, for in all probability a large share of the former are past their prime, whereas most of the latter are merely on the threshold of the productive life.

From 1920 to 1940 the natural increase of the farm population was sufficient to give the cities this heavy tribute and still maintain numbers on the farms. The enumerated rural-farm population was 31,393,262 in 1920, 30,157,513 in 1930, and 30,216,188 in 1940. But the heavy migration from the farms that again set in after 1940 meant the partial depopulation of the rural areas. It drew away not only the natural increase but part of the "seed stock" as well. The estimated number of persons on farms sagged to only 25,190,000 by 1945. The return of large numbers from the armed services brought the figure up to 25,990,000 by Jan. 1, 1946.

The origin of the migrants is another aspect of the subject that can be analyzed on the basis of the materials available. In Fig. 129 the data have been mapped by census divisions to show the origins of the persons who left the farms and in addition the extent to which this loss was compensated for by the migration of persons from nonfarm to farm areas. Immediately apparent is the fact that the agricultural sections of the South contributed the lion's share of the persons who migrated to towns and cities after 1920. The farms of the West South Central states alone gave up a total of 8,663,000 persons; those of the South Atlantic states, 7,421,000; and those of the East South Central states, 6,205,000. Together, these three southern divisions accounted for 22,289,000 of the migrants from farms, almost one-half of the nation's total. The North Central states also made heavy contributions, that of the West North Central states amounting to 7,774,000 and the one of the East North Central states to 7,174,000 migrants. The volume of the movement from the farms of New England and the Middle Atlantic, the Mountain, and the Pacific states pales into relative insignificance in comparison with the tremendous exodus from those of the southern and central states.

Not only did the South contribute almost one-half of the migrants who left the farms between 1920 and 1945, but the region stood alone in the extent to which the loss was not compensated for by the movement of persons back into the farming areas. In the United States as a whole the amount of movement back to the farms was 64.4 per cent of the departures. In the Pacific division the arrivals on farms failed by only 7.2 per cent to offset the departures; in New England by only 12.4 per cent; and in the Middle Atlantic states by only 22.7 per cent. Likewise, in the North Central states and in the Rocky Mountain division a large share of the loss

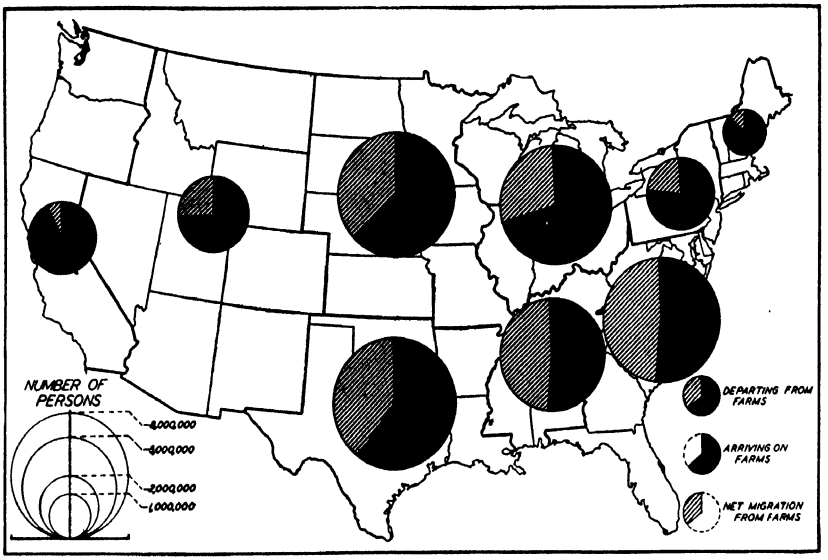


FIG. 129.—Migration to and from farms by census divisions, 1920 to 1945.

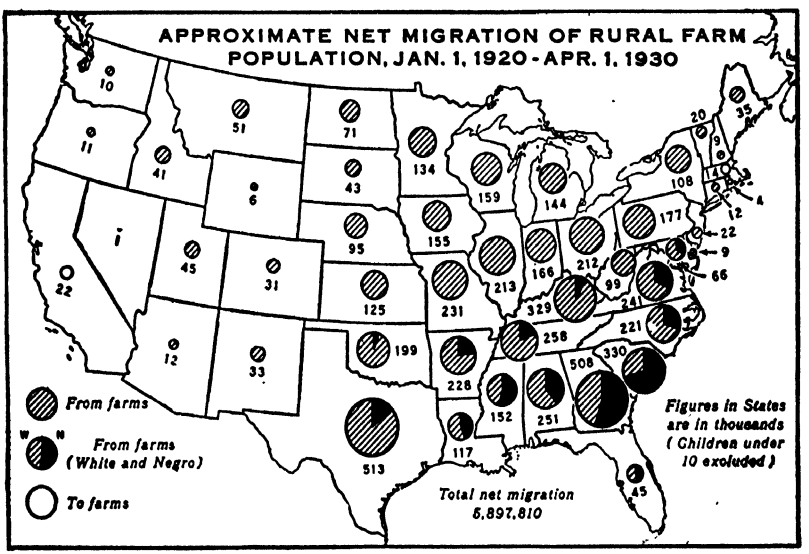


FIG. 130.—Migration to and from farms in the United States by states, 1920 to 1930. (*Reproduced from J. C. Folsom and O. E. Baker, A Graphic Summary of Farm Labor and Population, Washington: Government Printing Office*, 1937, *p.* 30.)

was compensated for by persons moving to farms. But in the South the number of arrivals on farms failed by a large margin to equal the departures. The net losses were as follows: 47.5 per cent in the South Atlantic, 48.4 per cent in the East South Central, and 39.9 per cent in the West South Central states.

Not susceptible to analysis with these data, but evident in those on state of birth, is the fact that a large share of the migrants from southern farms contributed not to the growth of urban centers in the South but to the maintenance and growth of northern cities. In most other sections, the

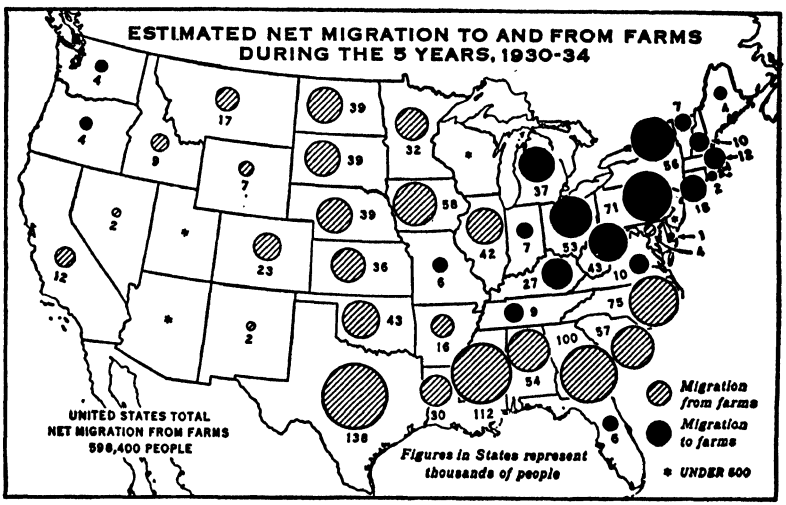


FIG. 131.—Migration to and from farms in the United States by states, 1930 to 1934. (*Reproduced from Folsom and Baker, A Graphic Summary of Farm Labor and Population, p.* 31.)

migrants from the rural areas helped swell the populations of the cities of the same region.

For the decade 1920 to 1930 and also for the period 1930 to 1934, it has been possible to map the data on net migration to and from farms on a state basis (see Figs. 130 and 131). These materials also emphasize the extent to which the major contributions of population by the farms to the cities have come from the southern states. Also apparent is the fact that the back-to-the-land movement during the great economic depression of the early 1930's was confined largely to the states which lie to the north and east of Tennessee. From the Carolinas to Texas the losses continued to be heavy. Also during this period came the heavy decreases of farm

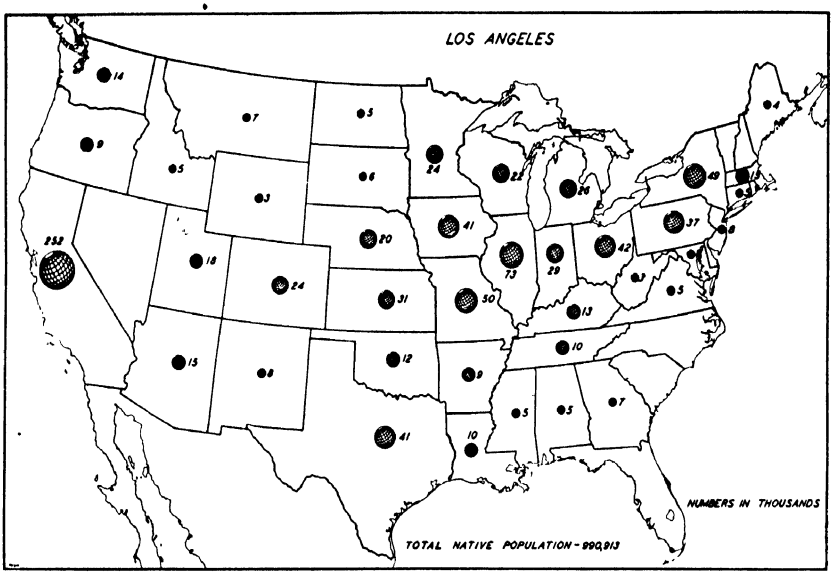


FIG. 132.—State of birth of the native population of Los Angeles, 1930.

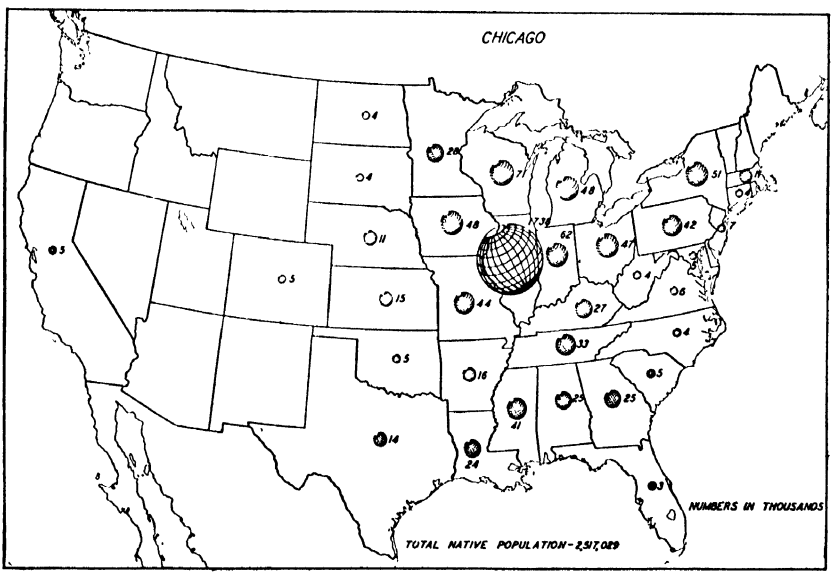


FIG. 133.—State of birth of the native population of Chicago, 1930.

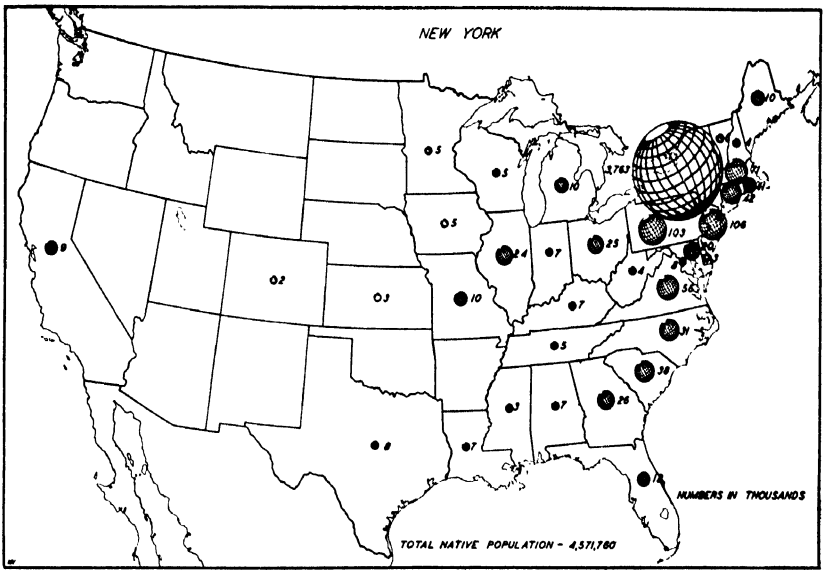


FIG. 134.—State of birth of the native population of New York City, 1930.

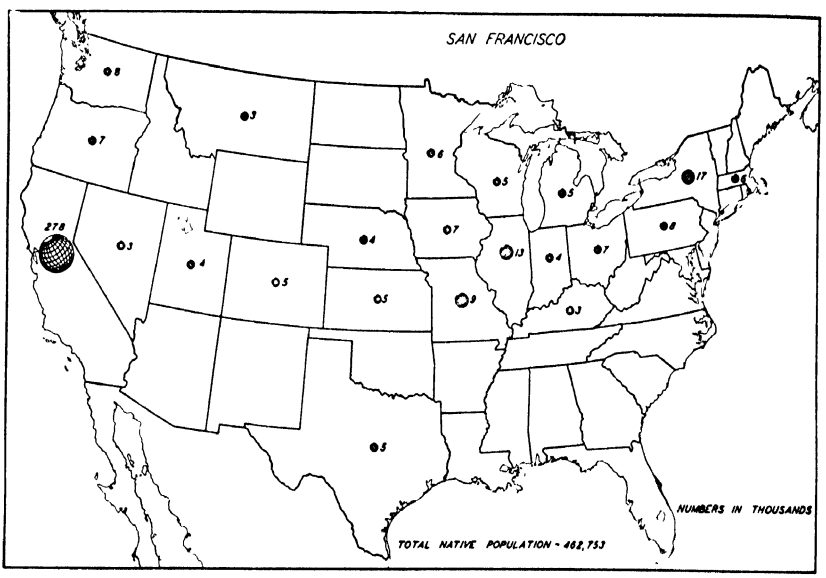


FIG. 135.—State of birth of the native population of San Francisco, 1930.

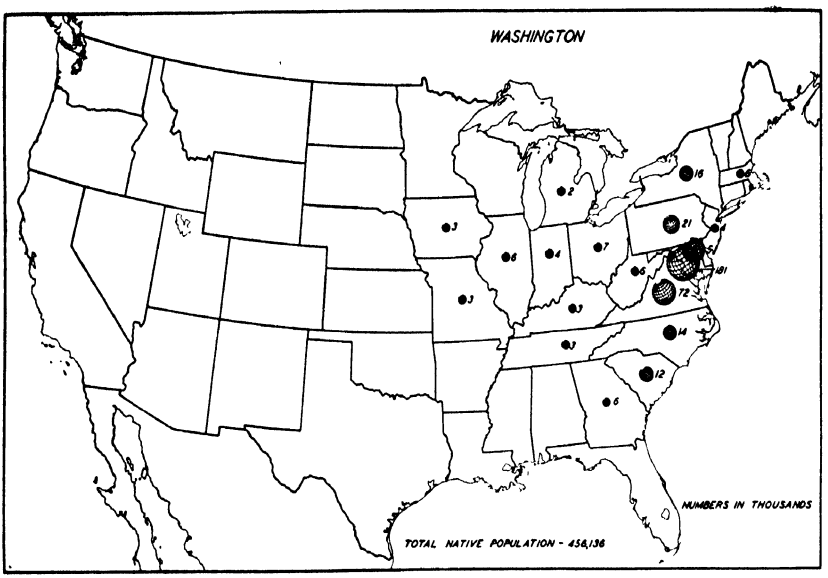


FIG. 136.—State of birth of the native population of Washington, D. C., 1930.

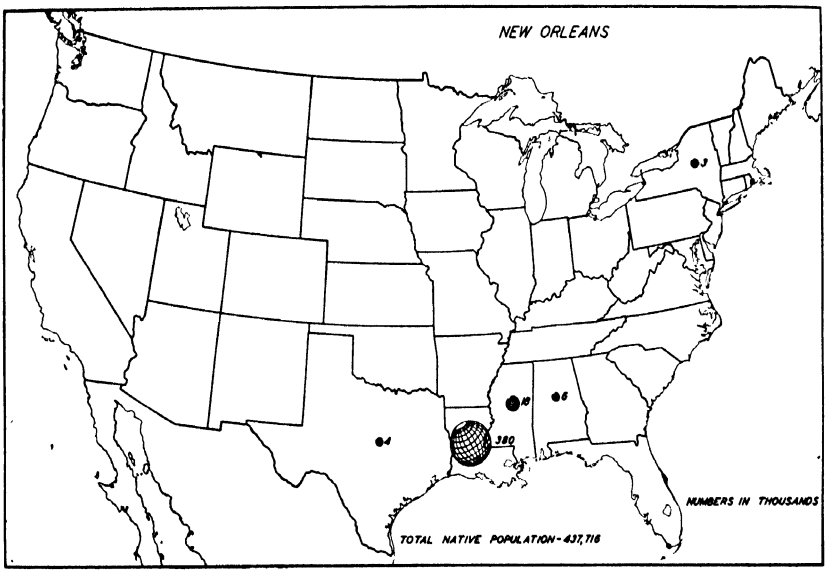


FIG. 137.—State of birth of the native population of New Orleans, 1930.

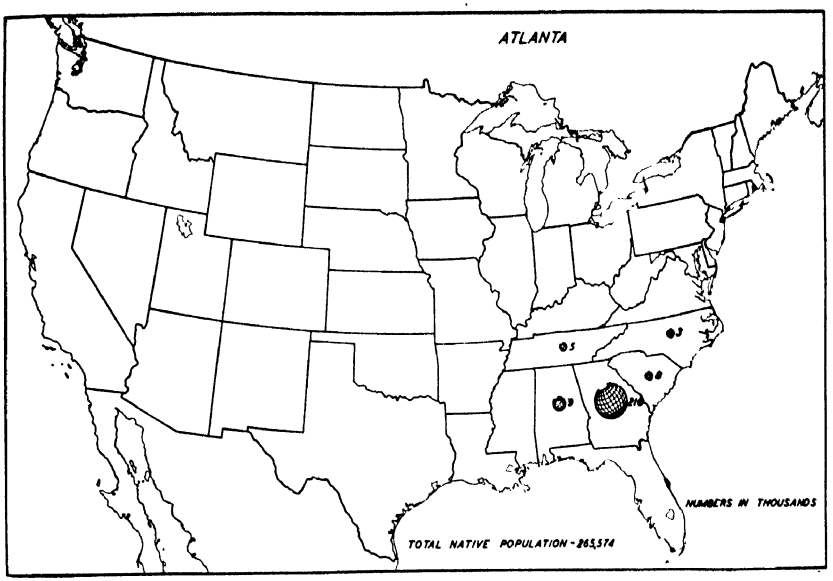


FIG. 138.—State of birth of the native population of Atlanta, 1930.

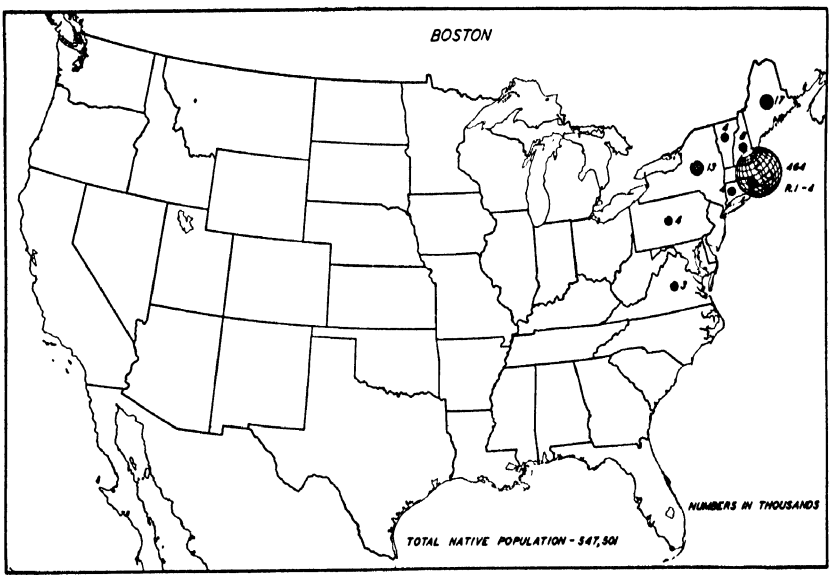


FIG. 139.—State of birth of the native population of Boston, 1930.

population in the Plains states, partly at least as a result of the drought which had become acute by 1934.

As suggested above, the state-of-birth data can be used to demonstrate that migrants from southern farms also left their native region to a much greater extent than those leaving the farms in other sections of the country. However, this is merely one of the points that comes out in an analysis of the sources of the migration which has sustained numbers and made for the growth of population in the nation's larger centers. In order to arrange the data on the score in convenient form for observation, the eight maps presented in Figs. 132 to 139 were prepared.

Particularly interesting are the differences in the areas from which the various cities have drawn their inhabitants. Most cosmopolitan of all is Los Angeles, which in 1930 included persons by the thousands from every state except Florida, South Carolina, North Carolina, Delaware, Vermont, New Hampshire, and Nevada. Illinois had contributed the greatest number, followed by New York, Ohio, Texas, and Iowa in the order named. Chicago, New York, and San Francisco are the other cities that have attracted migrants from all parts of the nation. Washington is also somewhat cosmopolitan. From the standpoint of the origin of their native populations, Boston and the southern cities, of which New Orleans and Atlanta are representative, are the most provincial of all.

Some interesting features connected with the migration of Negroes from the South (largely from the farms) to the cities of the North also are revealed by an analysis of the state-of-birth data for the Negro population of some of the nation's important cities. Six of these—New York, Philadelphia, Washington, Chicago, Atlanta, and New Orleans—were selected for purposes of analysis. The data showing the states of origin of their Negro populations as of 1930 are arranged for ready consultation in Figs. 140 to 145.

It appears that the location of the main lines of transportation had much to do with the places from which the northern cities attracted Negroes. New York and Philadelphia both drew heavily from the South Atlantic states, and neither received many migrants from other census divisions. Chicago got most of her Negroes from states along the Mississippi River, particularly from Mississippi. She also drew heavily from Georgia and Alabama. In the southern cities nearly all of the Negroes were born in the same state in which they were living. Atlanta Negroes were natives of Georgia, and New Orleans Negroes of Louisiana. Despite the proximity, the number of Mississippi Negroes who migrated to New Orleans was only a small fraction of those going to Chicago.

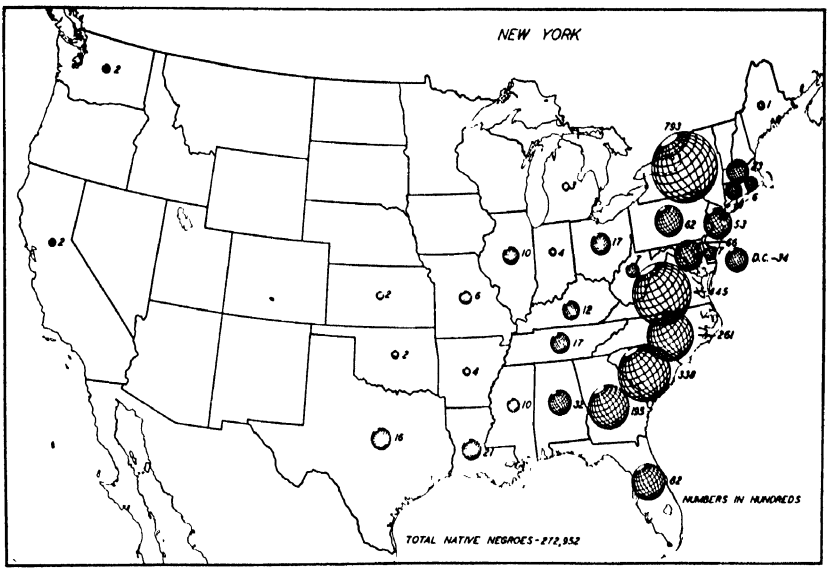


FIG. 140.—State of birth of the Negro population of New York City, 1930.

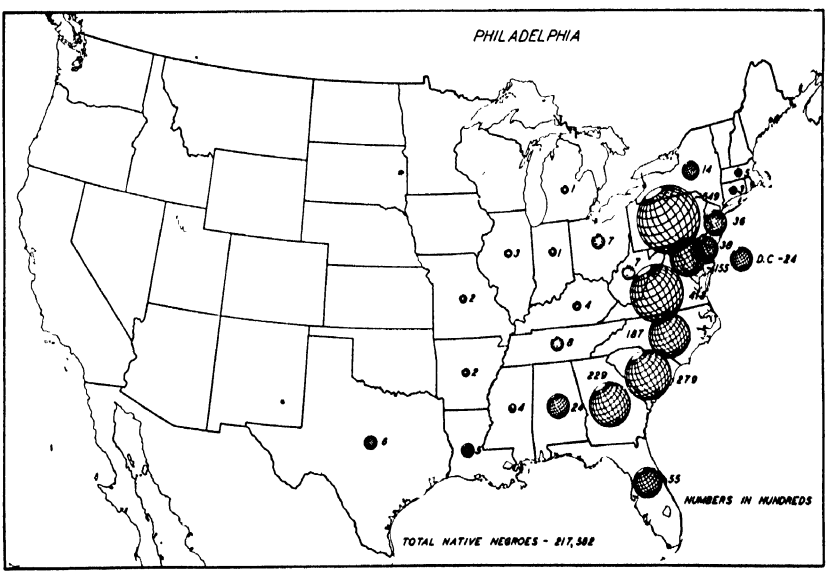


FIG. 141.—State of birth of the Negro population of Philadelphia, 1930.

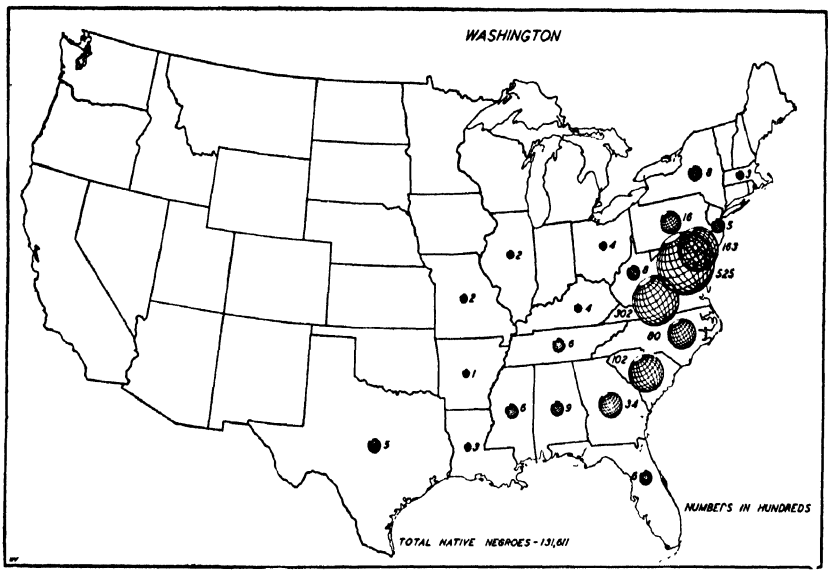


FIG. 142.—State of birth of the Negro population of Washington, D. C., 1930.

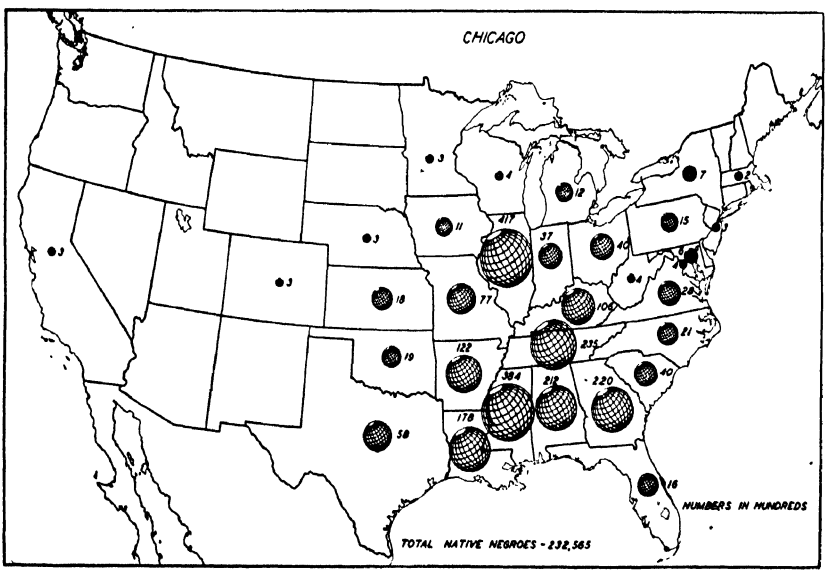


FIG. 143.—State of birth of the Negro population of Chicago, 1930.

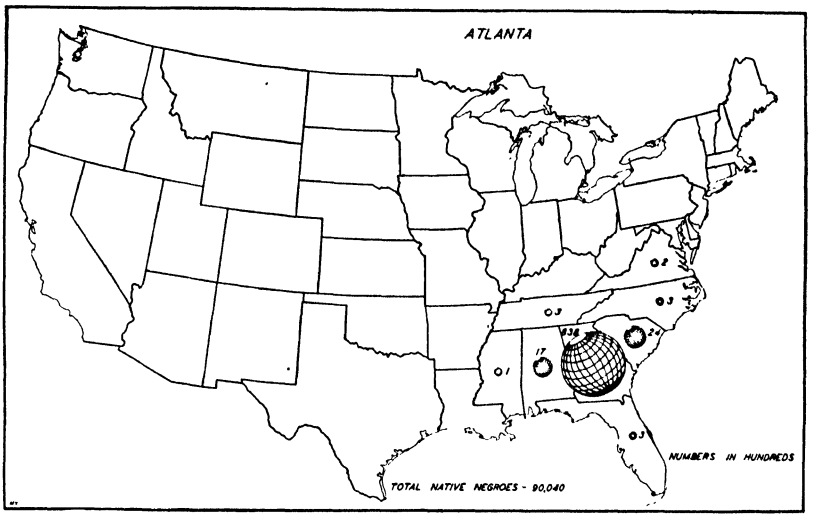


FIG. 144.—State of birth of the Negro population of Atlanta, 1930.

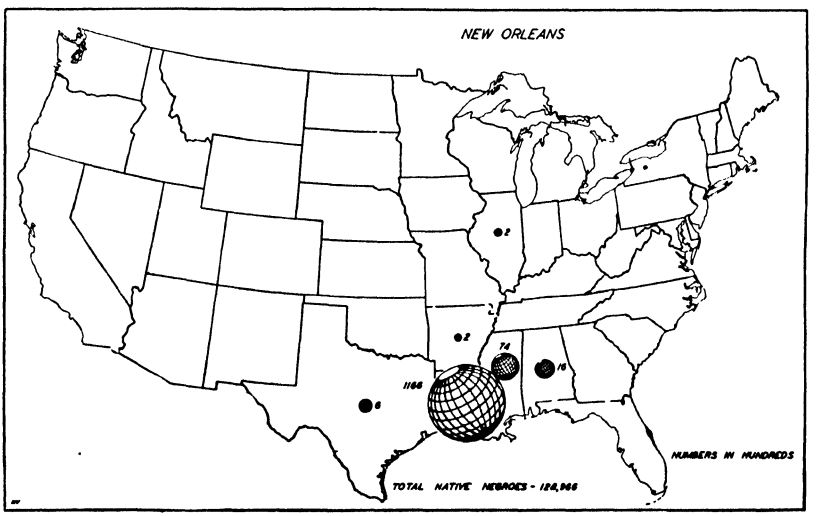
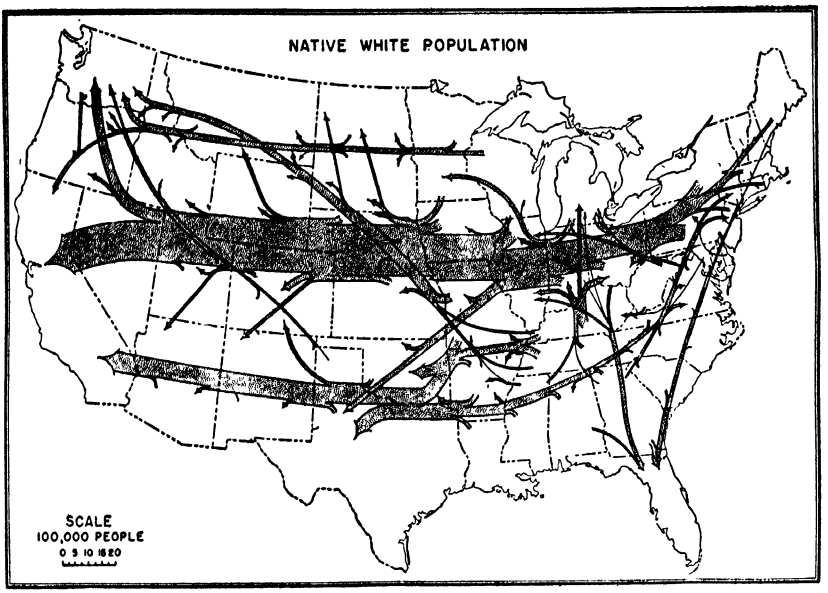


FIG. 145.—State of birth of the Negro population of New Orleans, 1930.

STATE-TO-STATE MIGRATION

Much can be learned about the net result of the interchange of population among the states by an analysis of the state-of-birth data in the reports of the various censuses from that of 1850 to the one for 1930. Of course, these materials give us no information other than the state of birth, on the move-



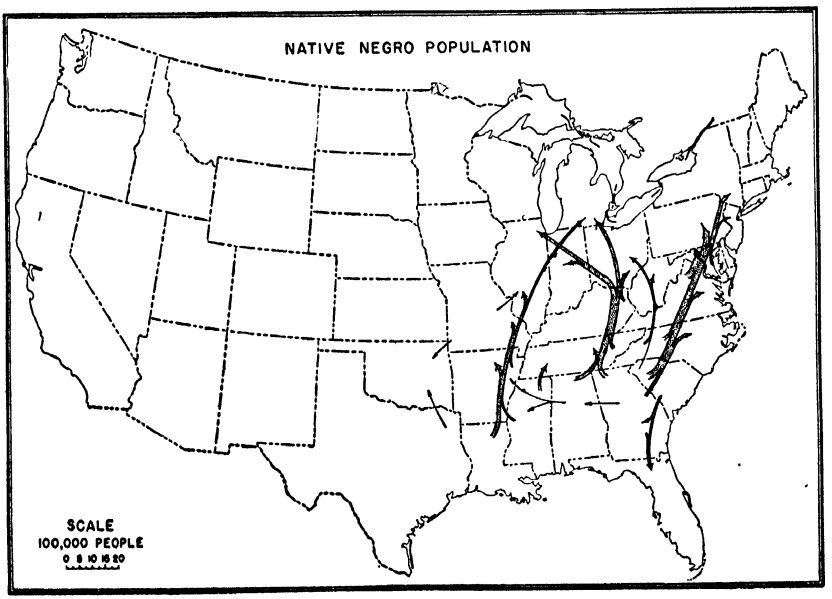


FIG. 146.—The net migration since birth of the native population of the United States, 1930. (*Reproduced from National Resources Committee, Problems of a Changing Population, Washington: Government Printing Office*, 1938, *p.* 84.)

ment of persons from one state to another. The thousands of people born in Illinois who spent much of their lives in Iowa and then established residence in California when well along in years are shown only as moving from Illinois to California. Iowa does not figure at all as far as the statistics for

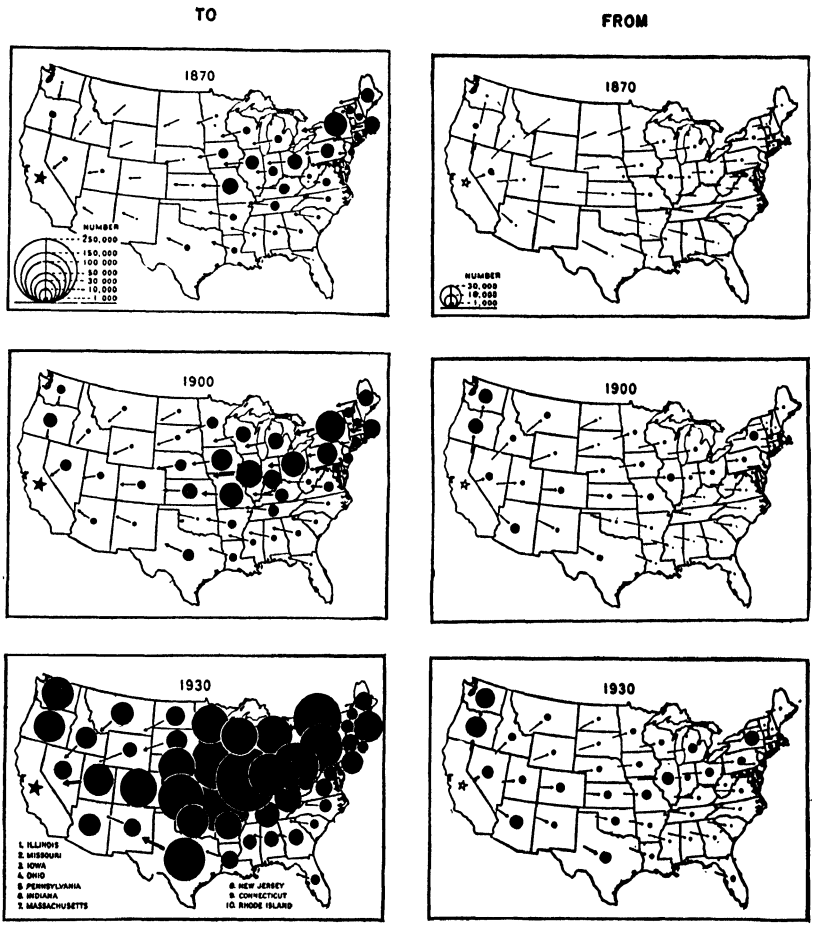


FIG. 147.—Native white migrants to California, by state of birth, and native white migrants from California, by state of residence, 1930. (*Reproduced from Galpin and Manny, Interstate Migrations, pp.* 104–105.)

them are concerned. The materials also throw all age classes together, so that the results are the cumulative effects of the migrations of several generations. Hence, as late as 1930 the changes of state of residence that took place in the settlement of the West during the last half of the nineteenth

century stand out more clearly than those which figured in the rapid growth of northern cities during the first quarter of the twentieth. Nevertheless, our understanding of the various migratory currents flowing from one part of our nation to another is enhanced by a study of these state-of-birth data.

The general direction taken by the main state-to-state migratory currents among the native population of the United States is charted in Fig. 146. For the native whites the main stream originated in the New England states and swelled to tremendous volume by additions from the corn belt. A second important current had its sources in the southern states. Both discharged the bulk of their loads in California. In 1930 the net migration since birth of the native white population from the rural South to the urban North was greatly overshadowed by the westward movement. Likewise, the net effect of the migration of elderly persons to the Gulf Coast area was not very prominent. Already present, however, was ample indication that the Negro population was flowing from the South to the North in considerable numbers. Very conspicuous is the fact that prior to 1930, few Negroes had moved from their native states to the West Coast.

As portrayed graphically by Charles J. Galpin and T. B. Manny,[3] the migration of persons to California is even more strikingly shown (see Fig. 147). On the other hand, prior to 1930 the movement of persons born in California to other states was practically nil. This may be expected to increase as the years go by, since the number of persons born in that state has been mounting rapidly.

The series of charts prepared for New York by Galpin and Manny is also very interesting (see Fig. 148). The tremendous importance of migrants from the Empire State in the settlement of the central and northwestern states stands out clearly. Since so many of the early inhabitants left the state, one hardly wonders that the immigrant and his descendants now bulk so large in New York's population. On the other hand, the growth of New York City into the world's greatest metropolitan center has made of it a mecca for migrants from all over the United States. Note that in 1930 the large proportion of persons born elsewhere and living in New York were residents of New York City. None of the other northeastern states rivals New York in attractive power for migrants from the distant parts of the nation.

In the march of population from the Atlantic to the Pacific, the states of the corn belt received migrants from the northeastern states and later sent their own sons and daughters to settle the new lands to the west. During

[3] *Interstate Migrations among the Native White Population as Indicated by Differences between State of Birth and State of Residence*, United States Department of Agriculture, Washington, 1934.

the twentieth century California has attracted hundreds of thousands of retired persons from this section of the country. These movements are clearly illustrated by the data for Illinois (see Fig. 149).

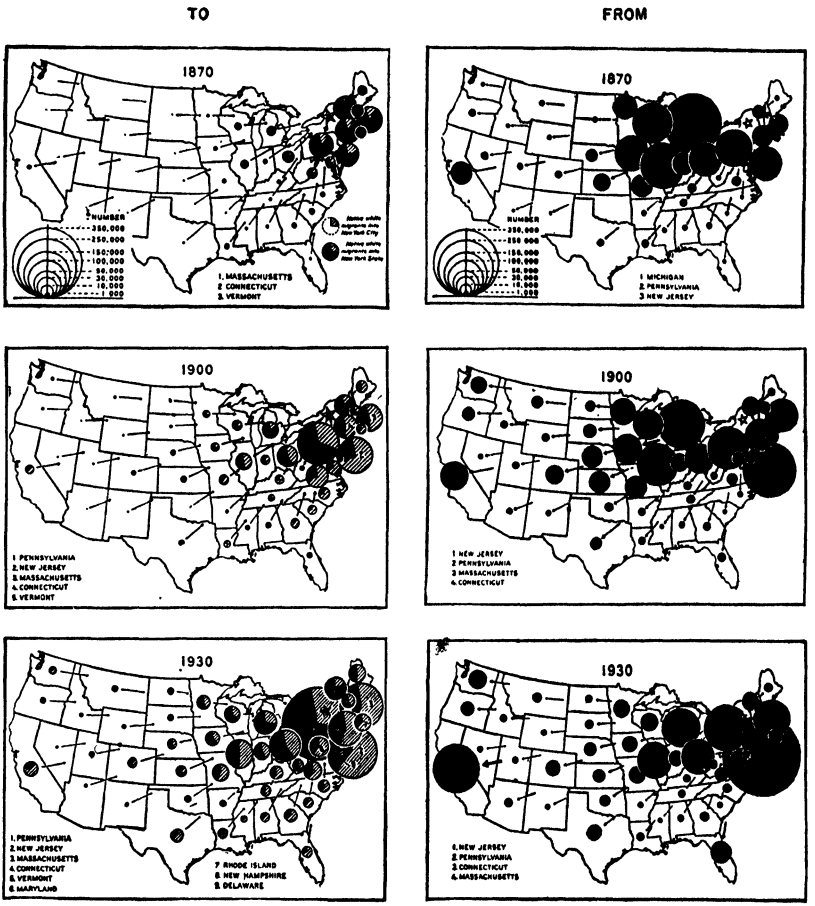


FIG. 148.—Native white migrants to New York, by state of birth, and native white migrants from New York, by state of residence, 1930. (*Reproduced from Galpin and Manny, Interstate Migrations, pp.* 20–21.)

Early in the twentieth century the Gulf Coast began drawing large numbers of migrants from the northern states. Some of these have settled in the southern parts of Louisiana, Mississippi, and Alabama, but most of them have gone to Florida. On the other hand, relatively few natives of Florida have migrated elsewhere (see Fig. 150).

During the First World War and immediately after, the flow of population from the South to the North replaced the westward movement as the most important current of state-to-state migration. Before the disappearance of the frontier, the surplus population produced by the high rate of

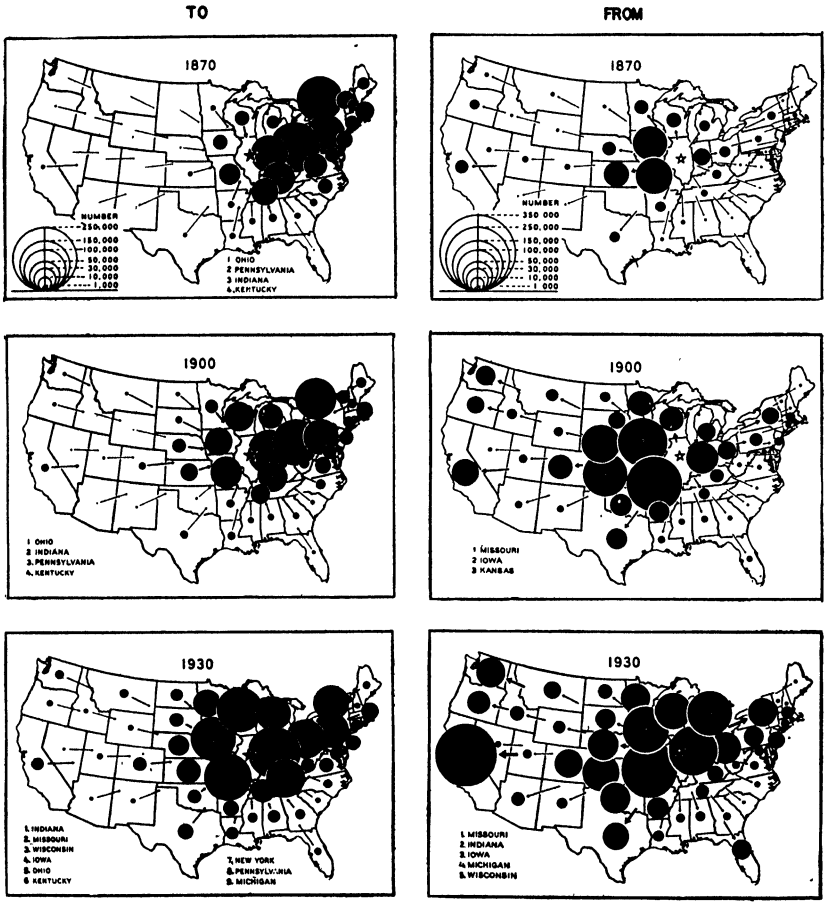


FIG. 149.—Native white migrants to Illinois, by state of birth, and native white migrants from Illinois, by state of residence, 1930. (*Reproduced from Galpin and Manny, Interstate Migrations, pp.* 30–31.)

natural increase in the South played an influential role in the settlement of the West. At about the time of the First World War, the shutting off of immigration and the need for industrial workers opened opportunities for jobs to hundreds of thousands of southerners, native whites and Negroes. Since then there has been a tremendous flow of people from the southern

states to northern states. There has also been not a little infiltration of the corn belt by farmers born in the upper South. As Kentucky is the state from which the exodus was first in getting under way on a large scale, the series of maps for it is presented in Fig. 151.

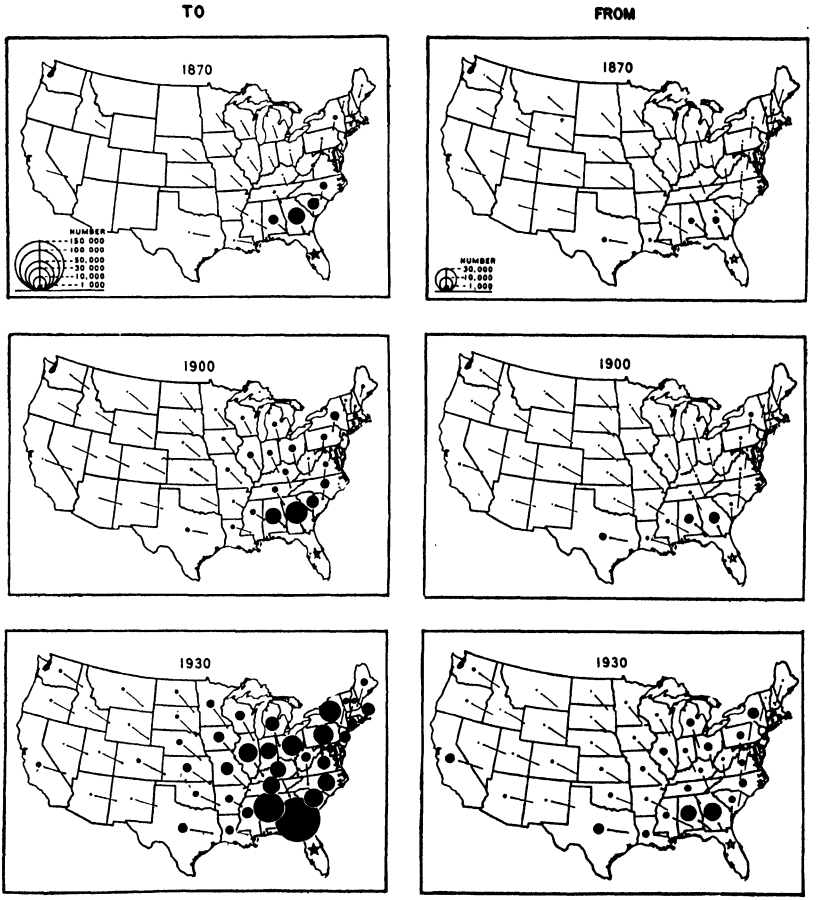


FIG. 150.—Native white migrants to Florida, by state of birth, and native white migrants from Florida, by state of residence. 1900. (*Reproduced from Galpin and Manny, Interstate Migrations, pp.* 66–67.)

These five examples from the list of 49 (Galpin and Manny charted the data for the District of Columbia along with those for the 48 states) bring out a few of the principal results that have been secured from a study of the state-of-birth data. No serious student of migration can afford to neglect this important source of data. The graphic form in which part of them

have been put up by Galpin and Manny greatly facilitates their use. However, the depression of the early 1930's slowed the tempo of this south-to-north movement of population, and then two new sets of factors came into operation that again made California and other parts of the West Coast

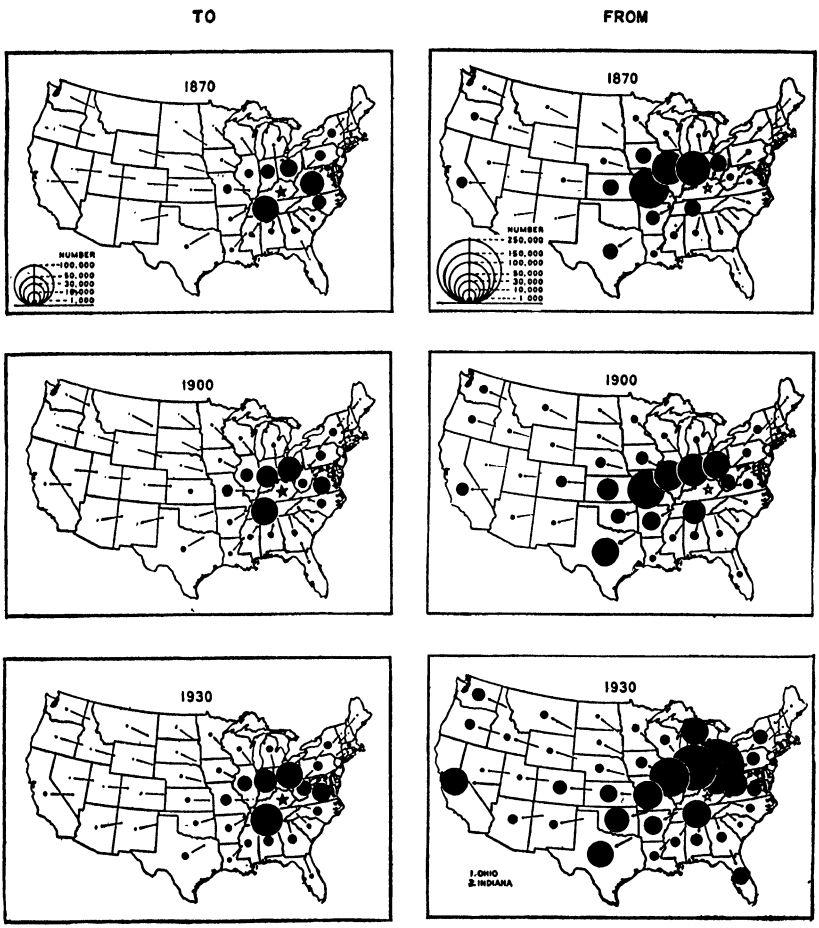


FIG. 151.—Native white migrants to Kentucky, by state of birth, and native white migrants from Kentucky, by state of residence, 1930. (*Reproduced from Galpin and Manny, Interstate Migrations, pp.* 68–69.)

meccas for hundreds of thousands of migrants. The first of these was the severe and prolonged droughts which made a dust bowl out of a large area in the Plains states during the early 1930's and the second was the combination of elements, particularly the necessity of subduing the Japanese in the

Pacific, that created hundreds of thousands of lucrative jobs on the West Coast during the Second World War. These will be treated in more detail in the pages that follow.

Although the data on migration assembled in the 1940 census are practically useless for the study of the rural-urban exchange of population, they do have considerable value for an analysis of the movement of persons from one state to another. Whereas it was quite impossible for the persons interviewed by the census enumerators to give information about the 1935 residence of the various members of the household that would fit into the same categories into which the information for 1940 was sorted, the reports on the change of residence from one state to another probably are fairly accurate. However, to derive the greatest value from the data, one must keep in mind the distinguishing features of the period covered, that from 1935 to 1940.

As indicated above, this period was quite different from the one that preceded it. It followed closely or even included part of the period of the great economic depression. For this reason the failure to expand or even to maintain the manufacturing plants of the Northeast meant far fewer demands for new workers from outside the region than has generally been the case. Furthermore, these 5 years came to an end just before the beginning of the unprecedented movement of persons from one state to another that took place during the Second World War. Finally, the period 1935 to 1939 included the years in which the effects of the great drought in the Plains states were felt strongly. Hence, the tremendous migration from and depopulation of the states from Oklahoma to North Dakota distort the over-all picture to a great degree. The migration occurring from 1935 to 1940 should be considered as a unique case, not as typical of the normal interchange of population among the various states of the Union.

In order that a comprehensive view of the changes may be secured, Fig. 152 was prepared. In it the attempt was made to show simultaneously the amount of migration from each state, the volume of the movement to the state, and the nature and extent of the net movement. In states such as California and Florida, the areas of the smaller circles bounded by the white lines are proportionate to the number of migrants from the state, and the areas of the larger circles proportionate to the number of migrants received from other states. Hence, for a given state the area between the circles represents the net gain. For states where the net movement was outward, the white segment within the circle denotes the loss of population, since the total area is proportionate to the amount of migration from the state, and the darkened position represents the extent to which the loss was compensated for by the reception of persons from other states.

Following this explanation, the extent and location of the gains and losses of population due to migration are readily apparent. Nineteen states and the District of Columbia gained by net migration. The big increase was registered in California. Those in Florida, Oregon, and Washington also were substantial. The states along the Atlantic seaboard from Virginia to New York, the District of Columbia, Connecticut, Rhode Island, and New Hampshire all received more migrants than they sent out during the 5 years. The same is true of Michigan, Indiana, Louisiana, and all the Rocky Mountain states except Montana and Utah.

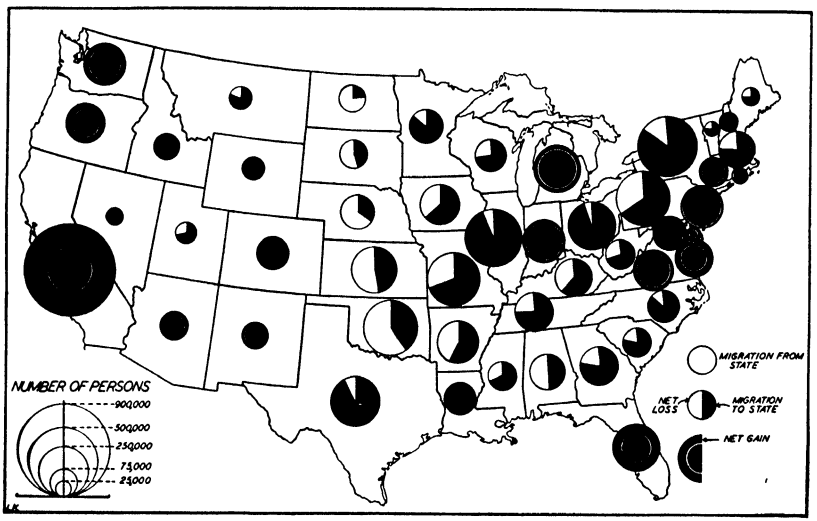


FIG. 152.—Migration to and from each state, 1935 to 1940.

The big decreases in population on account of migration came in the Plains states. Oklahoma lost by far the greatest number; and on a relative basis, North Dakota failed by the largest margin to attract enough migrants to compensate for the persons who left the state. Throughout the entire South, except in Florida, Louisiana, and Virginia, the net outward flow of population was substantial. The same was true in parts of the Middle West, particularly in the states of Iowa and Missouri. Furthermore, between 1935 and 1940 the heavily populated states of New York, Pennsylvania, and Massachusetts failed to attract as many migrants as they sent out. This demonstrates how unrepresentative is the period for which the data are available.

With respect to the factors responsible for the net exchanges, one must attribute the gains on the West Coast partially to a continuation of the movement westward that has characterized the entire span of our national

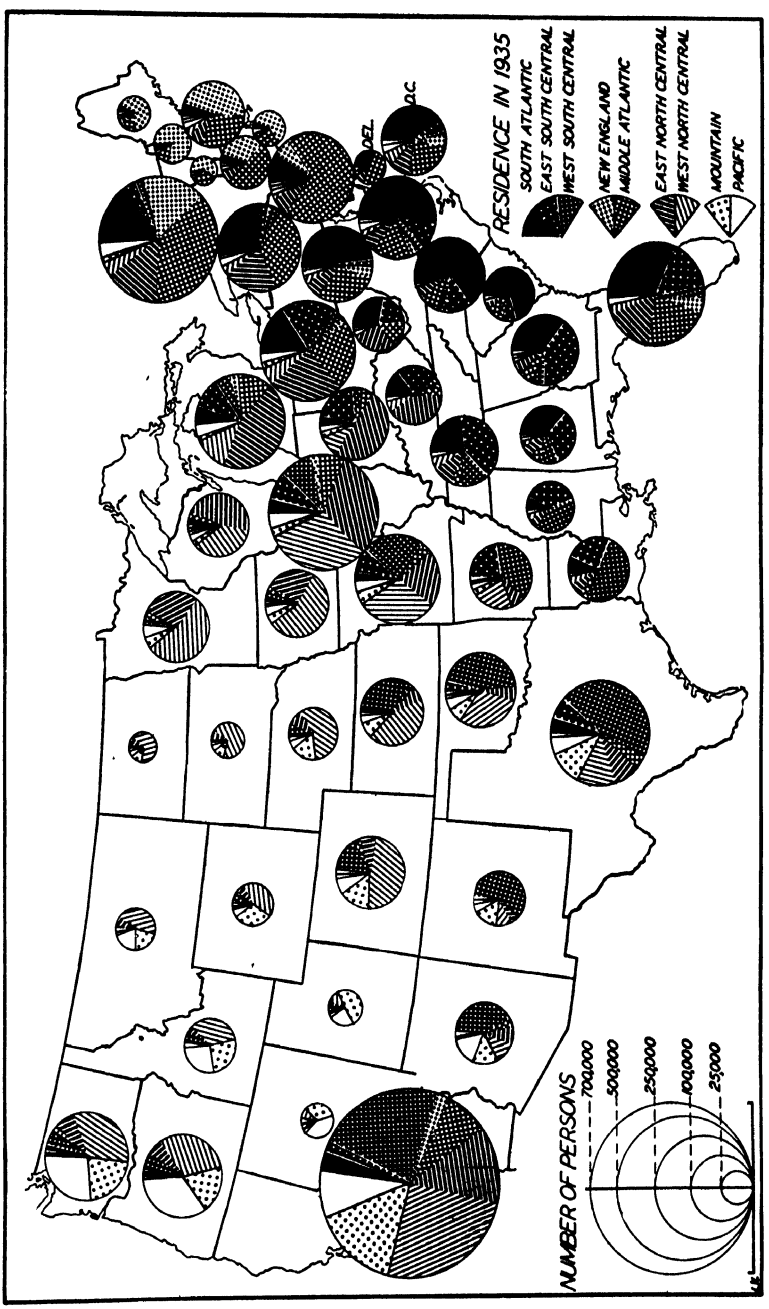


FIG. 153.—Migrants to each state between 1935 and 1940 classified according to the census division in which they resided in 1935.

history. No doubt the net migration to California, Oregon, and Washington would have been considerable even if the great drought had not turned much of the Plains area into a dust bowl. But that drought propelled hundreds of thousands of persons from their homes in the Plains states. In addition to swelling the tides of migration to the Pacific Coast, this factor undoubtedly was largely responsible for the gains throughout the Rocky Mountain region. Had American industry not been so depressed, probably the absolute and net migration from the southern states would have been significantly greater. The same factor no doubt is the explanation of why the migration balance was somewhat unfavorable in such states as New York, Massachusetts, Pennsylvania, Ohio, and Illinois. In fact, if we had comparable data for the period 1940 to 1945, the picture would be considerably changed.

The 1940 data may also be used to gain some understanding of the regional interchange of population. To facilitate the analysis of this aspect of the topic, Fig. 153 was prepared, making it possible to determine for any particular state the absolute and relative importance of migrants received from each of the census divisions. These, in turn, are arranged in a way that permits the data for an entire region to be considered as a unit.

An analysis of this map reveals striking regional contrasts with respect to both the areas from which migrants are received and those for which they leave. New England and the South are self-sufficient. Each of the New England states received relatively few migrants, and nearly all of those were either from another New England state or from the adjacent Middle Atlantic division. Similar was the situation in much of the South. From Virginia to Louisiana the bulk of the migrants received were from other parts of the southern region. However, Florida, Texas, and Oklahoma all secured sizable contingents and proportions of migrants from other regions. The states in the North Central divisions also got the bulk of their migrants from other states in the same region. But the interregional migration of population figured heavily in data for New York, the Rocky Mountain states, and the three states on the Pacific Coast.

The role of the South as a seedbed of national population stands out conspicuously on this map. No other section of the country is so consistently or so largely represented among the migrants to states in all parts of the nation. Note especially that the three southern divisions contributed more than a quarter of California's huge gain, almost one-fourth of the migrants to New York, about the same proportions of the newcomers to Michigan and Illinois, and even larger percentages of those moving into the states of Missouri, Indiana, Ohio, and Pennsylvania.

The racial make-up and sex composition of this interstate exchange of population that took place between 1935 and 1940 are depicted in Fig. 154. Since relatively long distances are involved in these state-to-state movements, it is not surprising that males preponderate rather generally. However, among migrants to Massachusetts, New York, New Jersey, the District of Columbia, New Hampshire, and Wisconsin, the members of the weaker sex were in the majority. Negroes made up almost as large a proportion of migrants to the northern states from Illinois to

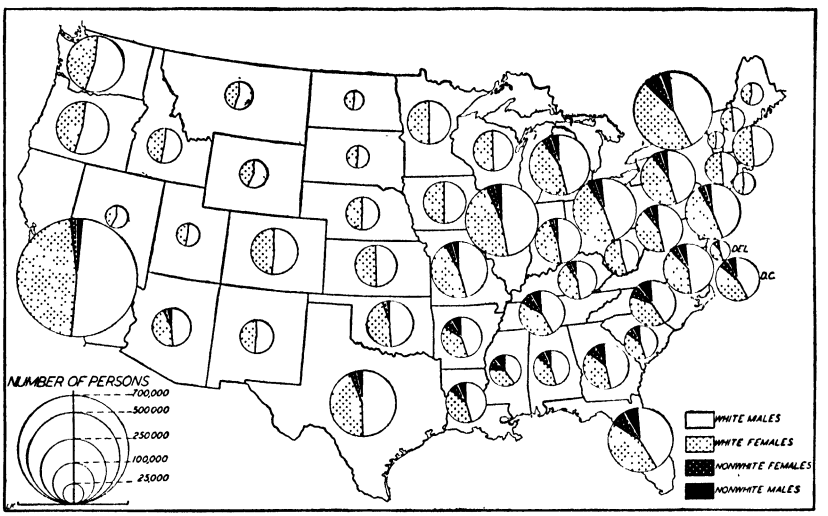


FIG. 154.—Migrants to each state between 1935 and 1940 classified according to race and sex.

New York as they did of the persons shifting from one southern state to another.

FARM-TO-FARM MIGRATION

The milling around of the farm population, especially of tenant families in some sections of the country, is the third important variety of internal migration. Fortunately, a considerable amount of reliable data on this important type of movement is available in the reports of the 1940 Census of Agriculture. The significant information on the shifting about from one farm or plantation to another is that gathered in response to the following entry on the farm schedule: "Year when you began to operate *this* farm." The answers as set down by the enumerators were then tabulated so as to show for each racial and tenure category the numbers of farm families who had been occupying their farms less than 5 years, 5 to 9 years,

10 to 14 years, and 15 years and over. Also computed for 1940 was the average year of occupancy, another way of indicating the mean number of years that the families had been on the farms which they were operating in 1940.

For the United States as a whole, the average period of farm occupancy in 1940 was about 12 years, or, as expressed by the census, the average year of occupancy was 1928. This date was secured by summing the years of occupancy and dividing by the total number of farm operators. Therefore, it is fair to say that on Apr. 1, 1940, American farm families had been operating their farms for an average of 12 years. This figure was much greater for owners than for tenants, the average year of occupancy being 1923 and 1934, or 17 and 6 years, respectively. It was also greater for whites than for nonwhites, for whom the corresponding averages were 1927 and 1931, 13 and 9 years. However, this differential is due solely to high proportions of tenancy among the nonwhites. When comparisons are made of corresponding tenure groups on a state-to-state basis, it does not appear that the nonwhites, mostly Negroes, are more migratory than the whites.[4]

By observing the data plotted on a county basis for the United States as a whole, as in Fig. 155, one can determine several other significant facts about the residential stability or instability of the farm population. The northeastern section of the country, especially the portion extending from western Pennsylvania to Maine, is the area in which there is the least milling around from farm to farm on the part of the rural families. Much of the southern Appalachian area and some of the other parts of northern Virginia appear on the map as an extension of that area. Other sections in which the shifting from one farm to another is at a minimum are the Lake states cutover area, southern Indiana and southern Illinois, central Kansas, northern New Mexico, the northern Plains in the western parts of the Dakotas and eastern Montana and Wyoming, and the most heavily populated portions of Utah, which lie in the Salt Lake and the Utah valleys. The most important factor that most of these areas have in common and the one undoubtedly responsible for the similarity under consideration is the high proportion of owner-operators among the agriculturists.

The South is the region in which moving from place to place occurs with greatest frequency on the part of the rural families. The sections in which the large plantation system dominates the rural scene, such as the Yazoo-Mississippi Delta and the crescent that extends from eastern North Carolina to southern Alabama, are characterized by excessively

[4] This point is discussed in more detail in the following chapter.

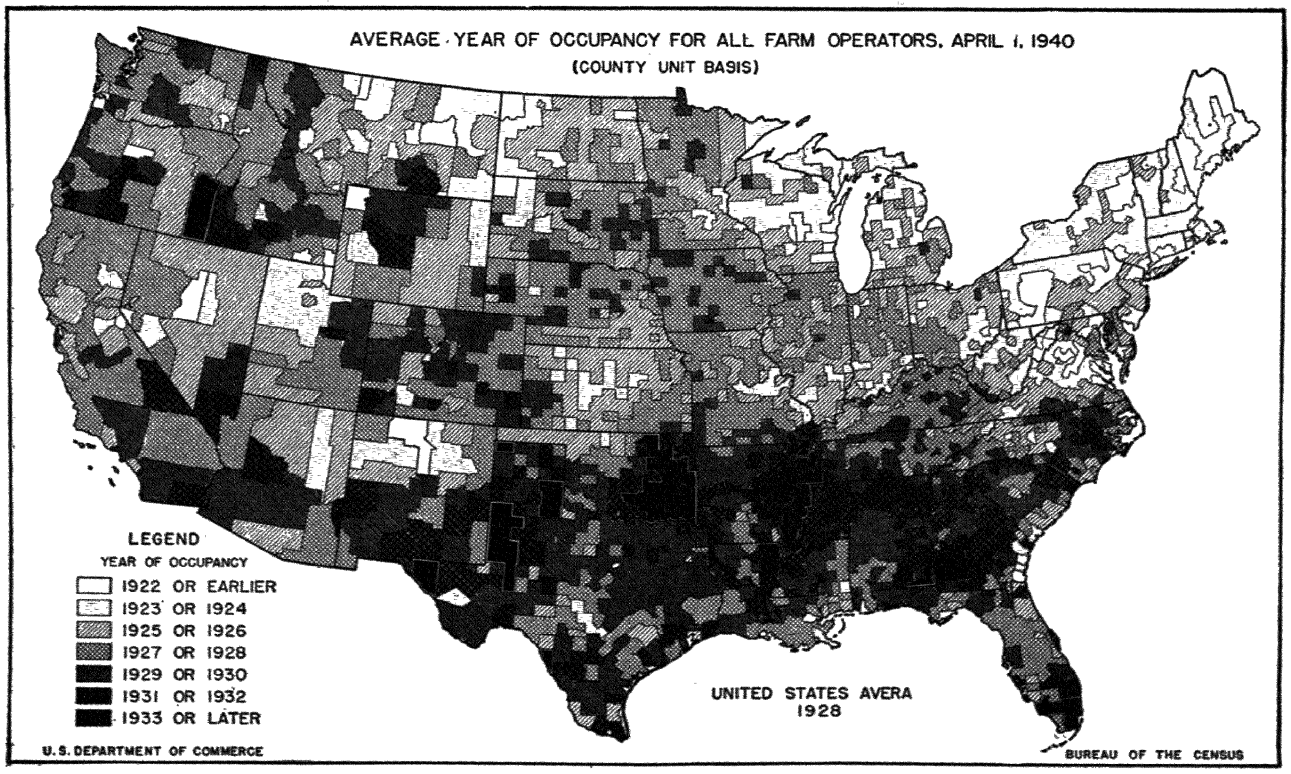


FIG. 155.—Variations in the residential stability of American farm operators, 1940. *(Reproduced from the Census of Agriculture: 1940.)*

unstable farm families. (Of course, the bulk of the families in these areas are incorrectly classed as farm operators, since they are neither owners nor renters but that particular type of farm laborer known as the *sharecropper*.) Southeastern Oklahoma is another densely populated area where the annual turnover of farm occupants is exceedingly high, but in this case the plantation system is not responsible. Parts of western Texas also are characterized by an exceedingly mobile farm population, as are various segments of the West. In all of these and most of the South as well, the lack of a system of owner-operated farms is the big factor making for

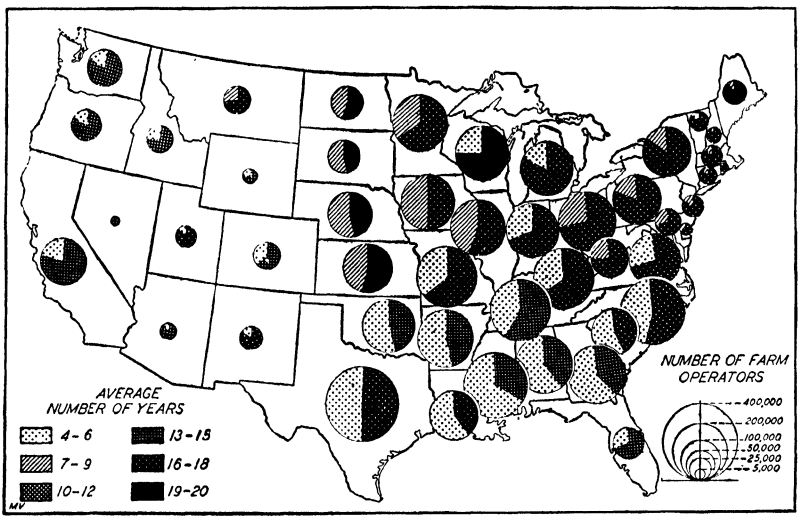


FIG. 156.—Average number of years that American farm operators had occupied their farms, by tenure, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent owners and tenants, respectively.)

instability. The situation in the corn belt is generally far above average from this standpoint, except in portions of Iowa, Kansas, and Nebraska, where the growth of tenancy has greatly undermined the stability of the people on the land. California and other western states would compare much more closely with the South if the bulk of the farm laborers in the region were grouped with the farm operators in the former as is the case in the latter.

The state data give more support to the proposition that the tenure under which the land is held is the important factor in determining whether the farm population is relatively stable or constantly shifting from one location to another (see Fig. 156). In all sections of the country owners have a high degree of residential stability. Tenants, on the other hand, will con-

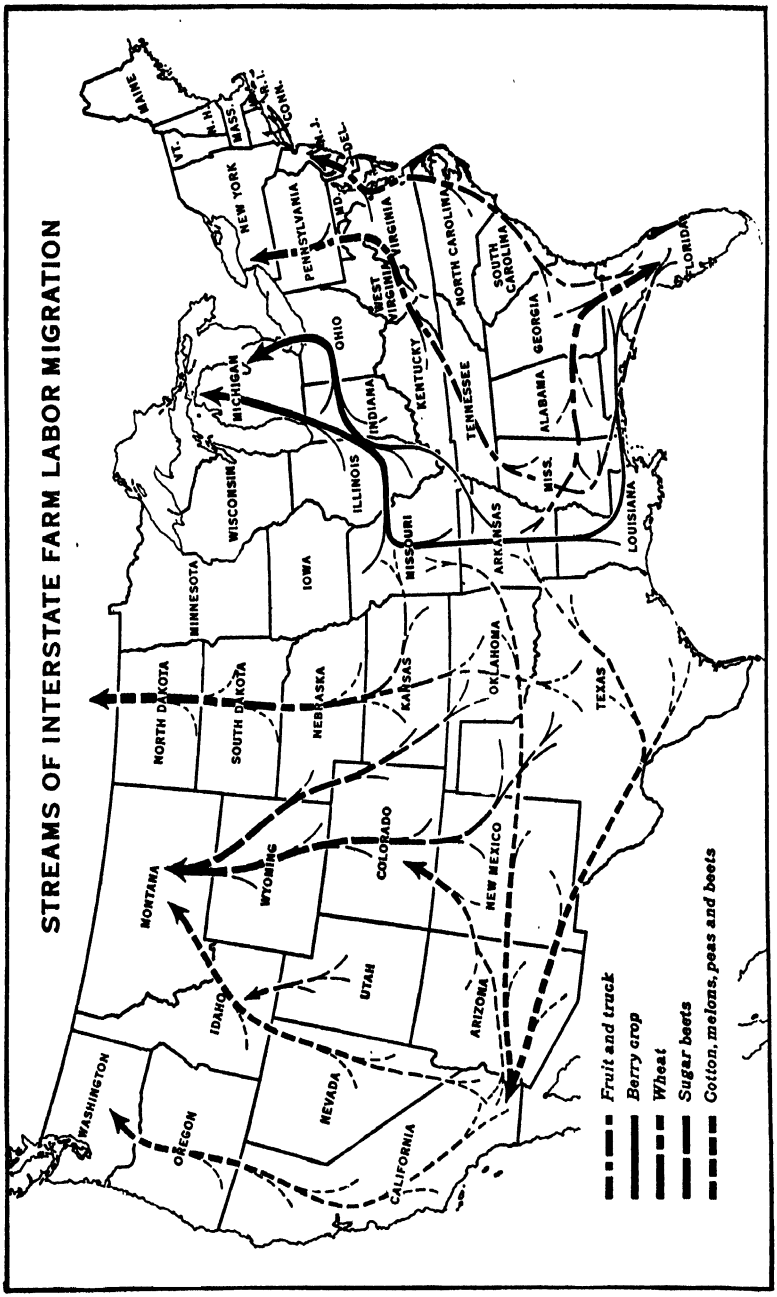


FIG. 157.—The main currents of migratory farm laborers in the United States. (*Illustration from the Bureau of Agricultural Economics, U. S. Department of Agriculture.*)

tinue milling around in local eddies until our system of leasing lands is greatly improved. The data for the southern states in this illustration are partially vitiated by the fact that the sharecroppers cannot be separated from the renters in the "tenant" category.

Migratory Agricultural Laborers.—One of the phases of farm-to-farm migration with which society as a whole should be most concerned is that of the migratory agricultural labor. Prior to the Second World War persons who lived by "following the crops," for whom migratory labor was a way of life, numbered between 200,000 and 350,000. The principal routes followed and the crops in which they worked, as identified by Paul S. Taylor,[5] are charted in Fig. 157. Now that the South is abandoning the sharecropping system, which has kept the cotton laborer on the place the year around during three-quarters of a century, this number may be expected to increase by leaps and bounds. Since migratory agricultural laborers are a class apart, poorly paid, always on the move, never accepted members of any community or its major institutions, an increase in their numbers is fraught with serious social consequences.

[5] "Migratory Farm Labor in the United States," *Monthly Labor Review*, 44 (March, 1937), 537–549.

Chapter 19
THE SELECTIVITY OF MIGRATION

How do persons who migrate compare with those who do not? Do those who leave the country for the city differ in any significant ways from those who remain in the rural districts? What particular characteristics, if any, are possessed by those who participate in the back-to-the-land movement? Those who move from one state to another? Those who lead a nomadic life following the crops? In a word, does migration select persons with any particular set of biological or social attributes or qualities?

These questions are of considerable moment, even though there is much more speculation than fact present in the generality of the customary answers. Consider, for example, rural-urban migration. Already evident from the data presented concerning fertility and mortality are the facts that the country is the seedbed of the nation whereas the city is a kind of colony whose population must be replenished every year. For this reason the well-known tendency for like to beget like presages severe consequences for the nation in which the migration from city to country constantly carries away "the cream of the crop," the "better lives." But in spite of the importance of the subject, it is still one of the phases of demography in which the glib phrase is most likely to be used as a substitute for the tested fact. To find in the sociological literature statements like the following is easy:

> No doubt rural decline from this cause has occurred sporadically for thousands of years, but it assumes acute forms in the United States because the double pull of city and frontier, propagated by schools and newspapers, has worked on our old rural population like a cream separator. In New England there are rural counties which have been losing their best for three or four generations, leaving the coarse, dull, and hidebound. The number of loafers in some slackwater villages of the Middle States indicates that the natural pacemakers of the locality have gone elsewhere to create prosperity. In parts of southern Michigan, Illinois, Wisconsin, and even as far west as Missouri, there are communities which remind one of fished-out ponds populated chiefly by bull-heads and suckers.[1]

[1] Ross, Edward Alsworth, *The Outlines of Sociology*, pp. 23–24, Century Company, New York, 1924.

To discover the factual evidence supporting or disproving such generalizations is much more difficult. For the whole subject we must depend upon the soundings made here and there by a few interested scholars. There are no comprehensive data on the subject, and the few special inquiries that have been made vary greatly in methods and reliability.

Before beginning the consideration of the various characteristics for which migration may or may not be selective, it is well to recall that the type of migration involved no doubt has much to do with the characteristics of the migrants. One could hardly expect the migrants who rushed into Oklahoma at the opening of the twentieth century to have the same characteristics as the trailer nomads who follow the crops. Nor is it likely that migrants leaving the farm for the city resemble in all respects those moving in the opposite direction. Certainly if they do, society is not benefiting by the exchange.

Again the characteristics of the migrants are almost certain to differ as the incentives to migration vary. For example, the highly remunerative jobs that attracted hundreds of thousands of Negroes from the cotton South to the West Coast during the late war probably called forth persons with characteristics considerably different from those who are likely soon to be propelled from the same sections by the mechanization of agricultural processes. Migrants who are drawn from the farms by the glitter of urban life are apt to be unlike those who were driven from their homes by the organized brutality of a Hitlerized Europe.

RACE

Matters pertaining to the physical or racial characteristics of migrants are very important and have aroused a great deal of interest. Well known are such alleged uniformities as the Ammon-Lapouge laws which hold that round-headed, or brachycephalic, types tend to remain in the country whereas rural-urban migration brings about the concentration of the long-headed types in the city and that emigrants from a given country are more dolichocephalic than those who remain in the country of birth.[2] Other speculation of a similar nature is rampant.

Livi's law is a much more adequate explanation of rural-urban differences in the cephalic index. It also gives us the key to an understanding of the variations in the stature, pigmentation, and other racial characteristics of city and country populations. This principle merely brings the thoroughly tested hypothesis that these physical traits are deter-

[2] See the statement of the principles and the discussion of them in Pitirim Sorokin and Carle C. Zimmerman, *Principles of Rural-urban Sociology*, p. 125, Henry Holt and Company, Inc., New York, 1929.

mined primarily by heredity to bear upon the well-known facts that a city's population is recruited from widely separated areas and is extremely heterogeneous in its composition whereas the population of a typical rural area consists mostly of persons who were born in the locality and is highly homogeneous. Therefore, in a region where the population is racially tall, a sample drawn from the hodgepodge city population will include representatives of short races who have assembled there from the four corners of the earth. A comparison of this sample with one drawn from the racially tall rural population from the area about the city will show the urban population to have a lower stature than that of people of the surrounding rural districts. But if the comparison is made in a region or country where the native population belongs to a short race, exactly the opposite results will be found and the heterogeneous city population will be taller than the homogeneous rural population.[3] Similar will be the results if the trait under consideration is pigmentation, the cephalic index, or any of the other fundamental characteristics on which racial classifications are based. However, in spite of the fact that Livi's law is a more adequate explanation of observed differences in the physical characteristics of rural and urban populations than is any theory of selective migration, the relationship of race to migration is still of considerable significance. It is especially important in the South, where most students of population accept as axiomatic the fact that an essential step in any analysis is the subdivision of the data according to race. It attains national importance in connection with the flight of the Negro from the land, the flood of Negro migration from the South to the cities of the North during the First World War and to those of the West Coast during the Second World War, and the intensive milling about from one plantation to another of the hundreds of thousands of Negro families who remain in the rural South.

For decades following his emancipation the Negro remained for the most part in the same districts where he had been a slave. But as education emancipated his mind and reliable information about alternatives came back to him from venturesome relatives or friends who had migrated to the cities of the North, Negroes by the hundreds of thousands began abandoning the farms. Elsewhere this volume has indicated that city people, both white and Negro, do not produce enough children to maintain the population and that this deficit is about as great for one race as for the other. Therefore, a demonstration of the fact that the Negro population is now urbanizing more rapidly than the white shows that the migration of Negroes from farms to cities is relatively greater than that of whites. This proposition is easily established. In 1910 only about one out of four

[3] *Cf. ibid.*, pp. 108–109.

(27.3 per cent to be exact) Negroes lived in urban centers, whereas almost one-half (48.2 per cent) of the white population were residents of centers of more than 2,500 inhabitants. By 1940, 48.7 per cent of the former were urban residents, compared with 57.8 per cent of the latter. In other words, the degree to which Negroes live in urban centers is rapidly approaching that of the whites. Since the 1940 census a tremendous impetus to this trend was given by the flocking of Negroes from the cotton South into the cities of California. The more rapid flow of Negroes than of whites from the farms is the factor responsible for the change. In other words, recent rural-urban migration has been selective racially of Negroes.

In view of the foregoing evidence, it is not surprising to observe that Negroes recently have been participating in state-to-state movements to a greater extent, relative to population, than have white people. In 1930, the last census for which we have state-of-birth data tabulated in relation to those on state-of-residence, 25.3 per cent of the native Negroes were living in a different state from the one in which they were born, whereas for native whites the corresponding percentage was only 23.4. Furthermore, in only 9 of the 48 states was the proportion of Negroes who were living in their state of birth lower than the corresponding percentage among native whites. These nine exceptions were all southern states that have been exporting Negroes to other sections of the country; *viz.*, Virginia, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, and Oklahoma. Of course, the migrations that involve the crossing of state lines are often at the same time a rural-urban movement. Nevertheless, they indicate that the present-day Negro is living amid social and cultural surroundings to which he is a relative stranger to a much greater extent than the native white person. A few decades ago quite the opposite was the case.

The stereotype of the Negro sharecropper family of the South constantly on the move from one plantation to another is widely diffused in this country. As was indicated in the preceding chapter, it has considerable basis in fact. Each year hundreds of thousands of American farm families shift from one location to another, mainly in the interval between the harvesting of one crop and the preparation of the land for another. Some of the moving about is necessary for the operation of the agricultural ladder and is highly beneficial. But a large share of all the moves takes place in areas where the existence of the plantation is irrefutable evidence that the agricultural ladder is not operating and where it is extremely doubtful that most of the changes are beneficial to anyone concerned. This pernicious milling about of the farm population is most acute in the South. In the popular mind it also is associated with the Negro race, since

not infrequently the Negro is endowed with some kind of migratory "instinct" by those who attempt to explain the frequency with which sharecroppers shift from one plantation to another.

Interestingly enough, the data show that the Negro agriculturist does move with great frequency but that the residence of the white farmer of comparable tenure status is even more unstable. In 1940 in the 13 southern states taken collectively, 22 per cent of white owner-operators and only 18 per cent of the Negro owner-operators had been less than 5 years on the farms they were then operating.[4] Similar differentials prevailed in each of the southern census divisions—the South Atlantic states, the East

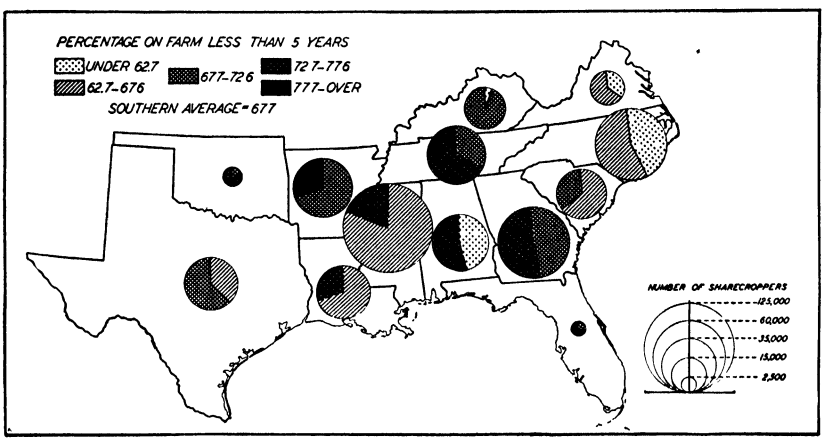


FIG. 158.—Proportions of sharecroppers who had occupied their locations less than 5 years, by race, 1940. (Starting at 12:00 on the circles and reading clockwise, the segments represent the Negro and the white sharecroppers, respectively.)

South Central states, and the West South Central states. On the other hand, only 41 per cent of the white owner-operators had been occupying their farms for 15 years or more, whereas the corresponding percentage for Negroes is 46.

Similar are the racial differentials among those who were classified as tenants other than sharecroppers. In the entire South 62 per cent of the whites and only 49 per cent of the Negroes had been occupying the farms that they were then on for less than 5 years. On the other hand, only 7 per cent of the whites, as compared with 14 per cent of the Negro tenants, had been on their farms for 15 years or more.

But, of course, it is the Negro sharecropper who is usually thought to be so excessively mobile. He does move far more frequently than would

[4] These data and those to follow were assembled from the *United States Census of Agriculture, 1940*, vol. III, Government Printing Office, Washington, 1942.

seem to be desirable: 64 per cent of all Negro sharecroppers had been less than 5 years in their 1940 locations. However, the corresponding percentage for members of the white race was 72. This differential also prevailed in each of the 13 southern states (see Fig. 158). Furthermore, in the southern region as a whole, 5 per cent of the Negro sharecroppers and

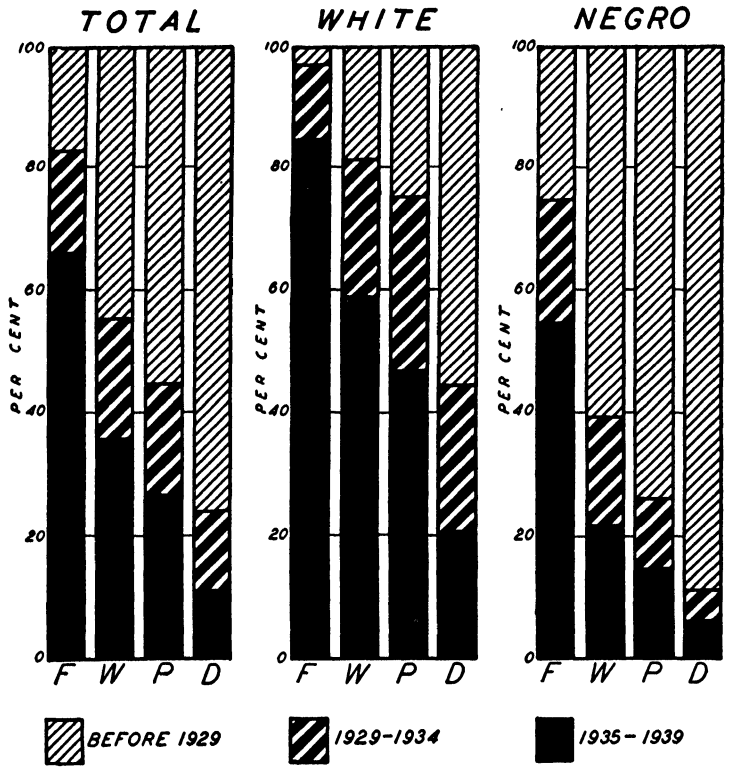


FIG. 159.—Heads of farm households in Ward 2 of Tensas Parish classified according to time of arrival on the farm, in the ward, in the parish, and in the Mississippi Delta area, by race. (*Reproduced from Hitt, Recent Migration Into and Within the Upper Mississippi Delta, p.* 25.)

only 3 per cent of the whites had been on the places that they were occupying for 15 years or more. Thus, the evidence shows that Negro farm owners, tenants, and even those of that large category of farm laborers called sharecroppers are actually less migratory than whites of similar tenure status.

The results obtained by Hitt in his careful and complete study of the migration of the rural population of a single minor civil division in the

plantation section of Louisiana are fully in accord with these conclusions.[5] Hitt's study is probably the most detailed and adequate analysis ever made of the migration to and circulation of population within a small and precisely delineated rural area. The area studied is Ward 2 of Tensas Parish, and the number of households visited totaled 660. Of these 250 were those of white people and 410 those of Negroes. From every important standpoint—length of time on the farm, duration of stay in the sample ward, years of residence in the parish, and the total amount of time spent in the Delta—it was found that the white households were more migratory than the Negroes (see Fig. 159). On the large plantations the white families had remained an average (median) of only 1.2 years as compared with 3.3 years for the Negroes, and on the family-size farms the whites had averaged only 1.5 years as compared with 5.5 years for the Negroes.

AGE

Voluntary migration is largely a phenomenon of youth. The bulk of the persons who abandon the farms for the cities and much the larger proportion of those who leave one country to find a new home in another are less than 25 years of age. They leave the rural community to make their way in the city, or they seek the larger opportunities of a foreign country just at the time when their playmates and associates are marrying and establishing homes of their own. Of course, these statements need some qualifications. Populations torn from their homes by war or driven away by famine include persons of all ages. Also, in all probability, a considerable share of the migrants from city to country are middle-aged or beyond, individuals born in the country who have spent their most productive years in the city and who return to the land in search of peace and quiet in which to spend their declining years.

That immigrants and migrants from farm to city are young, most of them in late adolescence or early adulthood, is generally agreed by those who have carefully studied the data. Hornell Hart, Sorokin and Zimmerman, and Thomas, all of whom made exhaustive studies of the available materials, arrived at this conclusion. Hart found that three-fourths of the immigrants to the United States came to this country before reaching 30 years of age, more than one-fourth of all being less than 20 years old and one-half between 20 and 30. The same authority discovered that migrants

[5] *Cf.* HITT, HOMER L., *Recent Migration into and within the Upper Mississippi Delta of Louisiana*, Louisiana Agricultural Experiment Station Bulletin No. 364, Baton Rouge, 1943.

from the farms to the city were even younger than the immigrants, more than half of them being between the ages of 10 and 20.[6] The other studies summarized by Sorokin and Zimmerman[7] and Thomas[8] are all in general agreement.

The methodology employed in most of the studies of the age selectivity of migration is indirect. However, the age distributions of a given racial, territorial, or residential group at two consecutive census dates give us a basis for estimating the amount of net migration to or from the particular group and furnish a means of estimating the age distribution of the migration residual left by the movement of persons to and from the group under consideration. Thus for a given city, one may take the number of persons aged 20 to 24 in 1930, decrease it by the number of persons 20 to 24 dying in 1930 and the number aged 21 to 25 dying in 1931, etc., for each year of the decade; the total left in 1940 should represent the number of persons 30 to 34 enumerated in the census of 1940. If ages are reported correctly and the death reports are accurate and complete, any deviations between the expected and the observed numbers may be attributed to migration. The difference is the net balance remaining after those of this age class who have departed are subtracted from the number of the same class who arrived at the city in question. Handling the various age classes in a comparable manner and combining the results give the age distribution of the residual left through net migration and furnish a basis for inferences about the ages of the migrants. Since death data leave much to be desired, most students use a variation of this method which utilizes the specific death rates by age for the population under consideration instead of the reports of the deaths as they occur.

In the absence of direct data the materials secured in these indirect ways form one of the chief bases for judgments concerning the ages of the migrants in the United States. Used in this country by Hornell Hart, P. G. Beck, C. Warren Thornthwaite, O. E. Baker, Harold F. Dorn, Frank Lorimer, C. E. Lively, and Conrad Taeuber, they have contributed greatly to our understanding of the migratory process. But even if the data were all accurate, such estimates would show the ages of only the residual or uncompensated portion of the migration current. Furthermore, these indirect methods are limited in their application to the study of rural-to-urban and state-to-state migration. The lack of adequate life tables greatly

[6] *Cf.* HART, HORNELL, N., *Selective Migration*, University of Iowa Studies No. 53, p. 32, 1921.

[7] *Op cit.*, pp. 540–544.

[8] THOMAS, DOROTHY SWAINE, *Research Memorandum on Migration Differentials*, pp. 11–54, Social Science Research Council, New York, 1938.

limits their use even for these two types of migration and makes the study of the exchange among counties entirely out of the question.

A considerable number of special inquiries, most of them by rural sociologists, have indicated something concerning the age distribution of migrants—for those starting the first stages of rural-urban migration and those beginning a period of circulation within the farming communities, as well as those joining the wandering hordes of the migratory agricultural workers. Of these, the one by C. Horace Hamilton is of particular significance because of the technique developed for measuring the rate at which persons left the parental roof.[9] With materials of the type collected in most surveys Hamilton demonstrated a relatively simple way of showing the annual rate of departures of youths from their homes and also these departure rates according to the age of the migrants. The fact that the maximum rate for males was attained at the age of 23 and for females at 20 strongly supports all the other evidence of age at migration.

SEX

Migration is also highly selective for sex, but again the nature of the selection depends upon the type of migration involved. If it is one involving long distances, such as immigration, the migration of Negroes from southern farms to northern cities, or the movement from Northern Brazil to Rio de Janeiro, males greatly outnumber females. On the other hand, if the distance spanned is short, as is the case in most rural-urban migration, females are far more numerous than males in the migratory current. These conclusions are in agreement with the detailed information already presented in Chap. 4. They also are consistent with the findings of a long series of studies, many of which have been summarized by Sorokin and Zimmerman[10] and by Thomas.[11]

The sex ratio (number of males per 100 females) is probably the most useful index yet devised for studying sex selectivity in migration. In evaluating the import of this statement, one should remember that (1) the sex ratio at birth can be determined accurately from the registration statistics, (2) specific death rates by sex are available, and they show at all ages a higher incidence of mortality among males than females, and (3) the data are available for the various race and nativity groups so the influences of immigration can be largely eliminated. Therefore, it is

[9] "The Annual Rate of Departure of Rural Youths from Their Homes," *Rural Sociology*, 1 (1936) 164–179.

[10] *Op cit.*, pp. 546–548.

[11] *Op cit.*, pp. 55–69. *Cf.* SMITH, T. LYNN, *The Sociology of Rural Life*, rev. ed., p. 187, Harper & Brothers, New York, 1947.

possible to determine quickly in a rough way and rather precisely by more painstaking methods the fact of sex selectivity in the various types of migration. For example, it is easily demonstrated that migration of native whites to cities is selective of females. The sex ratio at birth among native whites in the United States is slightly more than 106. In 1900, 1910, 1920, 1930, and 1940, life expectation of native whites at all ages was greater for females than for males. Except for errors in data, by definition the number of native whites cannot be affected by immigration. Yet in 1930 the sex ratios among native whites were 101.3 in the United States as a whole, 96.0 in urban areas, and 111.6 in rural-farm portions of the nation, and in 1940 the corresponding ratios were 100.1, 94.5, and 112.2. The predominance of females among migrants from the farms to the cities is the only available hypothesis that fits all of these facts.

In addition to the low sex ratios prevailing among peoples who are losing heavily by emigration and the high sex ratios among the foreign-born populations of such countries as Canada, Australia, the United States, Brazil, and Argentina, there is a great deal more evidence that long-distance migration is highly selective of males. One of the more convenient sets of data available to students in the United States is that for the Negro population. Elsewhere in this volume, it has been shown that males greatly predominate among Negroes in northern cities, that the sex ratios of Negroes in southern cities are extremely low, and that the migration of Negroes from the South has even greatly depressed the sex ratios in the rural parts of the region. These facts are strictly in accord with the principle that long-distance migration selects persons of the male sex.

PHYSICAL FITNESS

Most of the popular interest in the selectivity of migration centers upon the question of whether the "best" or the "worst" elements in the population are carried away. We need not linger over the excessive zoological interpretations of history inherent in popular thinking on the subject. Dr. E. A. Ross, in the quotation given above, has accepted and stated concisely the prevailing assumptions concerning the selectivity generally thought to be at work. The crux of the question of selection is the determination of whether or not there is any tendency for migration to take from the community of birth persons who differ from the general population in physical and mental qualities.

With respect to physical fitness, Thomas, on the basis of studies by Hill in England, Dorn in Ohio, and Hutchinson in Sweden, concluded that it is valid to infer that migrants from farms to cities are the "better lives." The implications of such a conclusion are so great that one may well ask,

Are the data sufficient to warrant it? Consider the evidence for the proposition. Dorn himself was unwilling to accept the results of his study as proof of selectivity in migration.[12] Thomas recognizes that differences in hospital care and health standards as between rural and urban areas, not the migration of the more healthy from the rural areas, may explain many rural-urban differentials. Here we wish to suggest that the Swedish differentials reported by Hutchinson probably were due to such variations in hospitalization and health standards. If this is so, the burden of proof for selectivity of rural-urban migration with respect to physical fitness rests almost wholly upon the study of Hill. Thomas has indicated that Hill's major approach was "indirect," through the death rates, and that his were "quite inadequate data."[13] In view of these facts, it may be well to suspend judgment until the evidence is more satisfactory.

What are the immediate prospects for significant contributions on this subject in the United States? Unfortunately, there is little reason to hope that even Hill's indirect approach can be utilized in this country in the near future. It will probably be some time before mortality data are sufficiently accurate to enable the computation of precise age-specific death rates and sufficiently dependable life tables. Only recently have deaths been allocated according to residence; there is still in all probability underregistration of deaths in rural areas;[14] age inaccuracies and misstatements, particularly among females, introduce considerable errors;[15] and migration itself has contributed to a very low expectation of life in such "healthy" areas as Arizona and New Mexico, whereas it doubtlessly has increased the average length of life reported in other states.

INTELLIGENCE

The whole subject of intelligence differentials in migration is an extremely controversial one. Only through the perfection of tests not unduly sensitive to environmental differences can we expect the danger of bias to be eliminated. Not only is there the probability of bias in the conventional tests, but most of the hypotheses are advanced by migrants;

[12] THOMAS, *op. cit.*, p. 102.

[13] *Ibid.*, p. 93. One also wonders if the British life tables and age-specific death rates are sufficiently accurate for such precise comparisons. Our own probably are not.

[14] *Cf.* WILLCOX, WALTER F., *Introduction to the Vital Statistics of the United States, 1900 to 1930*, pp. 16–19, Government Printing Office, Washington, 1933.

[15] Note the illogical gyrations of the curves showing the expectation of life by age for females in James W. Glover, *United States Life Tables, 1890, 1901, 1910, and 1901–1910*, Government Printing Office, Washington, 1921. T. Lynn Smith and Homer L. Hitt, "The Misstatement of Women's Ages and the Vital Indexes," *Metron*, 13 (1939), have demonstrated that these are due to a consistent understatement of women's ages.

very few if any by the sedentees. This, of itself, is a strong reason for questioning the validity of the hypotheses.

In a comprehensive treatment of the subject, Sorokin and Zimmerman restated the hypothesis of Leon E. Truesdell that migration to the cities draws off the extremes while the country retains the means. By this they meant that the cities attract disproportionately large shares of the most capable and of the least intelligent whereas the country retains high percentages of those of medium ability. The net result of the process, according to these authors, is in favor of neither the country nor the city.[16]

From the data available it seems to be fairly well established that (1) migrants to towns and cities receive more formal educational training than the sedentees. Whether or not this is true of the migrants entering other streams is not known. (2) Differentials in the scores on intelligence tests are definitely in favor of the migrants to towns and cities, and (3) persons who attain eminence (such as being listed in *Who's Who in America*) come more largely from the number migrating from farms than from the group remaining in the local rural communities. This evidence has generally been taken as a demonstration that migration is selective for intelligence.

But there seem to be some rather fundamental objections in the way of ready acceptance of this proposition. In the first place, much schooling is undoubtedly secured after a person has migrated or while he is in the process of changing from one residence to another. Only more careful investigation can determine the extent to which migration is a consequence rather than an antecedent or a concomitant of education. Moreover, we should not forget that the school usually represents the most urban influence in the rural community. To an amazing degree it fails to prepare students for life in the rural neighborhood, where from experience we know it to be inevitable that the majority of them will spend their lives.[17] The present division of labor among rural institutions allocates the training in urban lore to the schools and forces the oncoming generation to rely upon the family for instruction in many of the basic elements of rural living.

The possibility is very strong that the children most interested in the curriculum pursued in school are also the ones most dissatisfied with and ill adjusted to life in the rural community. Before asserting that superior educational attainments of the migrants are evidence of dysgenic selection, one should take extreme care to determine if the children who early become dissatisfied with farm life and indisposed to become agriculturalists do not

[16] *Op. cit.*, pp. 571, 578.

[17] SMITH, MARION B., *A Sociological Analysis of Rural Education in Louisiana*, Louisiana State University Press, Baton Rouge, 1938, furnishes abundant proof of this statement as far as the state of Louisiana is concerned.

specialize in formal education whereas their brothers and sisters who plan to remain on the farm spend correspondingly more time and effort in acquiring, through the family apprentice system, the aptitudes, skills, and techniques needed for life in the country.

The attainment of eminence can be dismissed with a few words. Practically all criteria of eminence are overwhelmingly weighted in favor of those who attain eminence at urban callings and ignore the accomplishments of persons in the rural areas.

The question of scores on intelligence tests deserves careful consideration. Even before the appearance of the excellent study by Gist and Clark,[18] there was little basis for doubting that the same rural children who later migrate to towns and cities excel their brothers and sisters who will remain in the local communities in intelligence-test scores. Therefore, the entire question at stake is as follows: Do these tests measure intelligence, *i.e.*, the combination of mental factors that one uses in achieving an objective and one's ability to adjust adequately to new situations?

The use of conventional tests for comparing rural and urban intelligence has been criticized on the ground that the tests are biased in favor of urban classes. The most pertinent criticisms are three:[19] (1) Most of the mental luggage of rural people is secured from direct experience, whereas the city person gets the bulk of his information from indirect or secondhand sources. For this reason, since the tests are based largely upon indirect experience, they are biased against rural persons. (2) A disproportionately large number of the questions included in the tests are drawn from the experience-world of urban people. Especially significant in this connection are the experiments of Myra E. Shimberg. She worked with two tests. One was the conventional type used for clinical purposes at the Judge Baker Foundation in Boston and found to be adequate as a test of "practical common-sense information . . . "; the second was constructed using the same methods of standardization as the first, but it was weighted in favor of rural experiences to the same degree that the conventional tests favored the urban elements. Both tests were given to 10,000 children, of whom about half were rural and half urban. On the conventional tests the rural children were retarded a full year as compared with the urban children; on the second test the situation was exactly reversed.[20] (3) The tests are given through the manipulation of pencils and paper and through reading,

[18] GIST, NOEL P., AND CARROLL D. CLARK, "Intelligence as a Selective Factor in Rural-urban Migrations," *American Journal of Sociology*, 44 (1938), 36–58.

[19] SOROKIN AND ZIMMERMAN, *op. cit.*, p. 237.

[20] SHIMBERG, MYRA E., *An Investigation into the Validity of Norms with Special Reference to Urban and Rural Groups*, Archives of Psychology, No. 104, 1929.

writing, etc.—tools and skills with which the urban person had daily practice and not with implements and activities that are equally specific to the rhythm of everyday life in the rural area.

If these allegations of bias in the tests make them invalid for use in comparisons of the intelligence of rural and urban populations, they are equally faulty for use in determining the relative abilities of the migrant and sedentee types within the farm community. This is because the process of differentiation begins very early.

For suggestive purposes, the following propositions are advanced as criteria that should be met before any differences in the scores on the tests will be satisfactory evidence of selectivity in migration. (1) The test should be weighted with indirect experience ("book learning") and direct experience in equal proportions. (2) The test should give as much opportunity for the observations and experience gained by the child who uses his leisure time in the fields and woods swimming, hunting, fishing, etc., to make for a high score as they afford opportunity for a good score on the part of the child who secures his recreation at the motion pictures and in other forms of commercialized activities. Finally, (3) the test should be administered by such skills as reading, writing, etc., which are not among the customary run of farm activities, to no greater degree than they are conducted by means of techniques that form part of the daily round of farm life.

Part V

The Growth of Population

After one has a basic understanding of the number and distribution of the inhabitants, the composition of population, the vital processes, and migration, he is ready for the analysis of the growth of population. This subject, along with several closely related items, is treated in the single chapter that constitutes Part V.

Chapter 20

THE GROWTH OF POPULATION

FOLLOWING the discussions of fertility, mortality, and migration, we are now in a position to consider the growth of population—the aspect of demography that has occupied most of the attention of the majority of writers. Often overlooked is the basic fact that whatever may be the past, present, and possible future trends of population, the numbers of persons can be directly influenced only by the three factors mentioned above. If the price of wheat, the climate, the standard of living, or any other variable whatsoever has any influence at all upon the increase or decrease of population, it does so only because it affects the rate of reproduction, the death rate, or the net migration to or from the area under consideration. Many demographic analyses would be greatly simplified if this elementary fact were always kept in mind. Furthermore, the analysis of population growth through an accounting for the influences of fertility, mortality, and migration is, in our present state of knowledge, superior to the approach that would explain variations in the numbers of people in terms of the workings of some inexorable mathematical law. Most of the so-called mathematical "laws" of population growth appear to be merely additional examples of jumping to a conclusion that something actually occurred in a certain way merely because it might have happened in that manner, of reasoning out a possible connection between two phenomena and then gradually coming to the point of asserting that they actually are related.

The study of population growth falls naturally into two parts: the analysis of what has already happened and the attempt to forecast the future. In our present state of knowledge the second of these is not likely to be very accurate unless the demographer concerns himself solely with the immediate future.

THE GROWTH OF WORLD POPULATION

The number of inhabitants in most countries of the world prior to 1850 cannot be determined with any degree of exactitude. Only evolution and diffusion of modern census practices have made possible accurate counts of the population, and for this reason most estimates of the growth of population in the centuries preceding the nineteenth must be considered as very

rough indeed. As accurate as any, probably, are the calculations made by the experts of the French Ministère du travail et de la prévoyance social. This authority gives 750 million as the population of the world in 1761 and 1,150 million as the figure for 1861. The estimated increase in the popula-

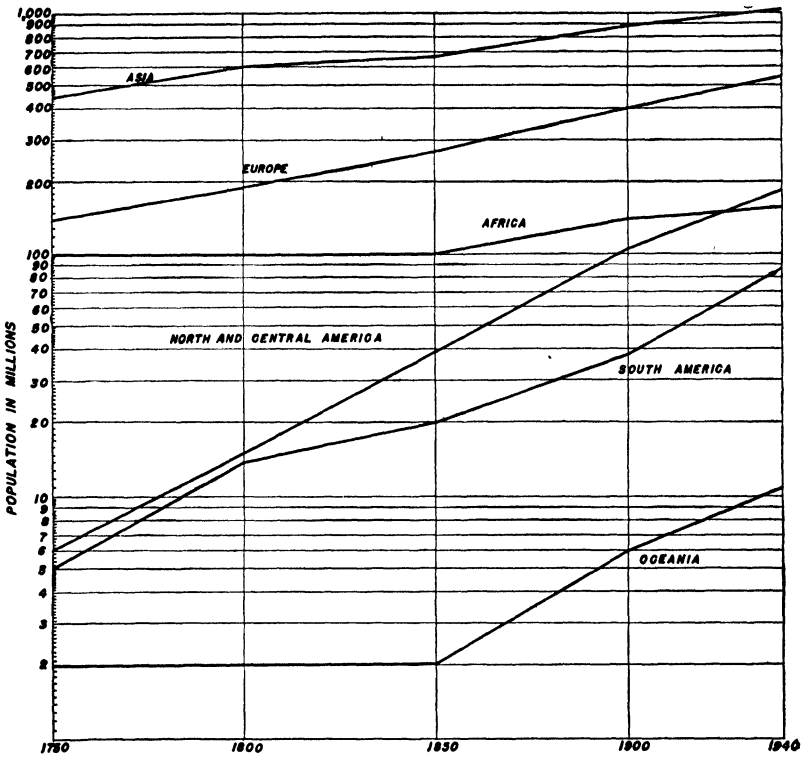


FIG. 160.—The growth of world population by continents, 1750 to 1940.

tions of the various continents during this 100-year period are as follows: Europe from 130 to 280 million; Africa from 80 to 100 million; America from 20 to 70 million; and Asia (including Oceania) from 520 to 700 million.[1]

In order to get the general trends set forth as accurately as the data permit, Fig. 160 was prepared. Plotting the population or the dependent variable on a logarithmic scale has two advantages: (1) It helps keep the diagram within reasonable dimensions; and (2) since a variable that increases at a uniform rate gives a straight line when plotted on semilogarithmic

[1] *Statistique internationale du mouvement de la population*, Vol. II, p. x, Imprimerie Nationale, Paris, 1913.

paper, it enables one to tell at a glance whether the rate of increase is holding its own or falling off and just as readily to compare the rates of population increase on the various continents. The reader is again warned, however, against placing any great reliance upon the data for the first century covered by this chart.

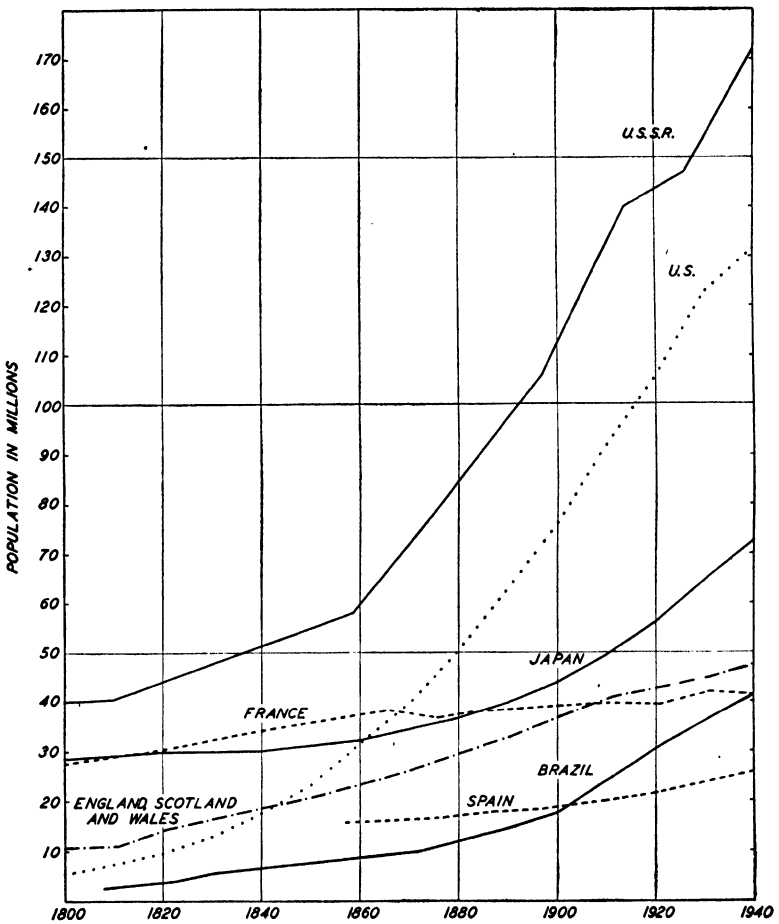


FIG. 161.—The growth of population in selected countries, 1800 to 1940.

No elaborate discussion of the trends portrayed in Fig. 160 is necessary. The phenomenal increase of population of the North American continent is the greatest element in world population growth in modern times. The population of South America also is rapidly becoming more important in the world picture. During the present century its rate of growth is unmatched

by that of any other continent. Europe maintains its steady and fairly rapid increase of population. The "teeming millions" of Asia continue to increase, and the number of additional beings that they add to the human race each year is tremendous even though the rate of increase on that huge continent is low. Africa is the great world region in which the growth of population has lagged to the greatest extent.

POPULATION GROWTH IN SELECTED COUNTRIES

Changes in national boundaries are so frequent and so extensive that it is difficult to get satisfactory series showing the growth of population in separate countries even for those which early adopted the practice of taking a census. Nevertheless, for a few selected countries the available materials have been assembled and charted in Fig. 161. Since primary interest is attached to the actual size of the population of a given country and its relative position in comparison with the number of inhabitants in another specific nation, the natural scale was used in the preparation of this illustration. However, as was pointed out above, if one is mainly interested in the rates of increase, it is better to employ the logarithmic scale to show changes in the number of inhabitants.

The population of western Europe grew slowly in the last half of the nineteenth century and the opening of the twentieth. That of England and Wales increased considerably more than did those of France and Spain. In sharp contrast are the tremendous population gains in Russia and the United States. After Western ideas reached Japan, especially European attitudes toward infanticide, the population of that country mounted rapidly. The number of inhabitants in Brazil has much more than doubled in the present century, bringing that nation to rank with the leading powers in terms of population.

GROWTH OF POPULATION IN THE UNITED STATES

The First Census of the United States in 1790 enumerated only 3,929,214 inhabitants in the original 13 states of the Union. For the next half century the increase was well over 30 per cent each decade, so that by 1850 the new nation with a total population of 23,191,876 ranked among the important countries of the world. The rate of increase fell off sharply during the second half of the nineteenth century (Fig. 162), but it was high enough to bring the number of persons in the nation up to almost 76,000,000 by 1900. With a population of this size, even a more moderate rate of growth was sufficient to sent the total up to 131,669,265 at the time of the latest census, Apr. 1, 1940. Since then the abrupt rise in the birth rate has brought about a sharp gain in the rate of increase. The Bureau of the Census estimated

the population of the continental United States as of Jan. 1, 1946, to be 140,386,509. As is evident from the data presented in the preceding section, this growth of population from less than 4,000,000 to more than 140,000,000 in a little over 150 years is one of the marvels of recent history.

Growth and Redistribution, 1930 to 1940.—The 10 years 1930 to 1940 marked an all-time low in the rate of population increase in the United States. Whereas in the opening decade of the twentieth century the per-

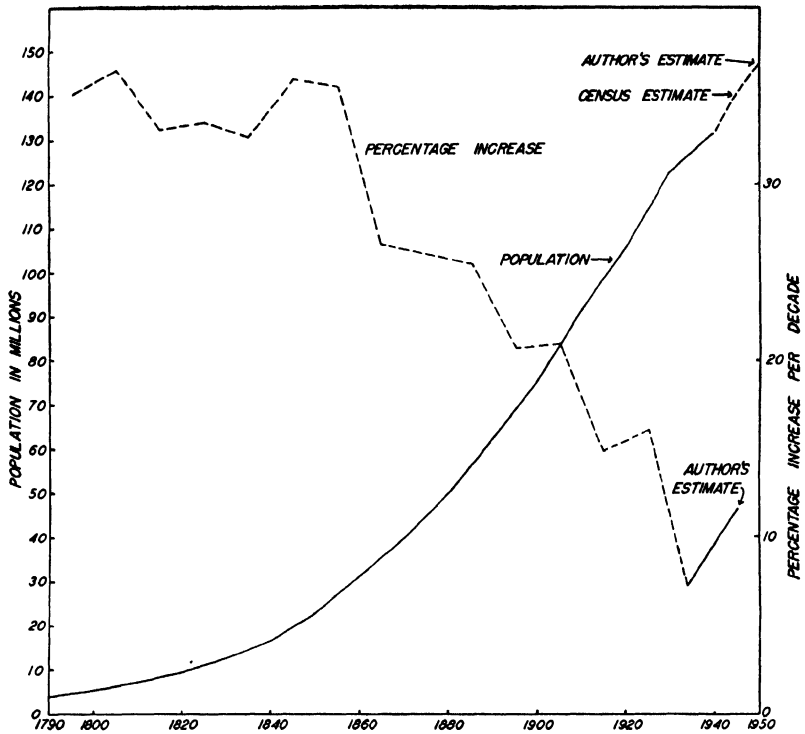


FIG. 162.—The growth of population in the United States, 1790 to 1950.

centage increase was 21.0, between 1930 and 1940 the total gain registered was only 7.2 per cent. The low level to which the birth rate had fallen and the virtual cessation of immigration were responsible, the former being much more important than the latter. Had the death rate not continued to fall, the percentage increase would have been even less. It should be indicated, however, that in comparison with population changes elsewhere in the world, a gain of 7.2 per cent during a decade is fairly rapid.

The growth or decrease of population in any country over a period of time represents the net effect of countless local variations in the birth rate

and the death rate. These, along with the currents of internal migration, bring about simultaneously great changes in the distribution of the population and, consequently, of the rates of increase in various regions, states, counties, and communities. Fully as important as the analysis of the total change is a comparison of the trends in the various parts of the nation. In order to secure a comprehensive view of these, Fig. 163 was prepared and Fig. 164 reproduced from one of the publications of the Sixteenth Census.

State and regional differences in the direction and extent of population changes brought about a great redistribution of the nation's population during the 1930's. Six states actually lost population between 1930

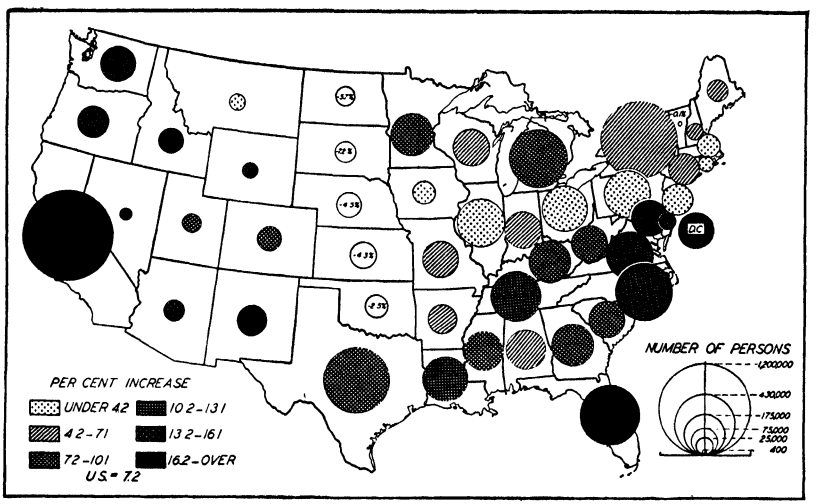


FIG. 163.—The increase or decrease of population in the United States by states, 1930 to 1940.

and 1940. They are the five Plains states (North and South Dakota, Nebraska, Kansas, and Oklahoma), from which hundreds of thousands of persons were forced to flee by the great drought, and the state of Vermont. Figure 164, which gives the changes on a county basis, shows that the depopulation of the Plains area was general and that losses of population were not confined to the five states listed but extended over the eastern parts of Montana, Wyoming, and Colorado; affected northeastern New Mexico; cut deep into Texas; and also were widespread in southeastern Iowa and northern Missouri.

California had the largest increase of any of the states in the number of inhabitants during the decade, a total of 1,230,136, followed by New York with a gain of 891,076 inhabitants. The 10 other leaders in the order of the

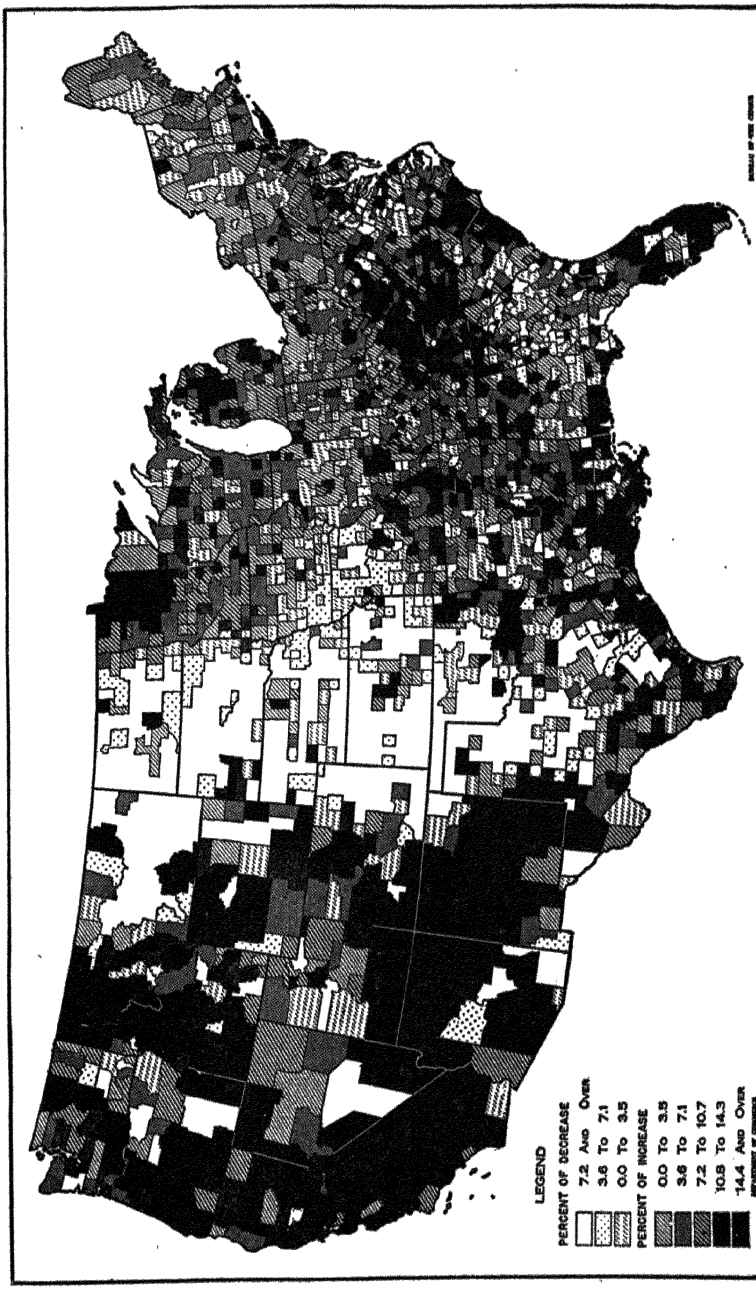


FIG. 164.—Increase or decrease of population in the United States by counties, 1930 to 1940. (*Reproduced from the Sixteenth Census of the United States: 1940.*)

numerical changes are as follows: Texas, Florida, Michigan, North Carolina, Tennessee, Pennsylvania, Illinois, Louisiana, Ohio, and Virginia (see Fig. 163). The most rapid rate of increase for the decade was in the nation's capital, Washington, D. C., where the gain was 36.2 per cent. Among the states Florida was the leader, with 29.2 per cent, followed by New Mexico, California, Nevada, Idaho, Arizona, Oregon, North Carolina, and Louisiana, in the order named. In addition to the states that actually experienced partial depopulation, the number of inhabitants was practically stationary in Massachusetts, Iowa, Pennsylvania, and New Jersey.

This analysis indicates that among the nation's regions and states a fundamental redistribution or rearrangement of the population took place between 1930 and 1940. Each decade differential rates of natural increase and the direction and volume of the currents of internal migration are at work bringing about such changes. Within the regions, states, and counties, comparable changes are always under way—thousands of small developments which collectively make up the large national mosaic. Intensive study is necessary to isolate, measure, and chart the course of all these small local movements, but it must be done if we are to understand the growth and redistribution of population thoroughly.

Considerable effort has been expended on the study of such changes in Louisiana. Since the happenings in this one state are, no doubt, analogous to those going on elsewhere, the tendencies observed merit description.[2] Most obvious is, of course, the rapid increase in the number and size of the urban centers. Since the urban net reproduction rate is far below replacement levels in the state, all of this gain is due to migration, most of it from the near-by rural areas.

As has been indicated in other chapters, analysis also shows that the birth rate in the rural areas varies directly with the distance from urban nuclei and that the death rate is at least as low in the rural districts as it is in the cities. Hence, migration is a primary factor in the second fundamental trend observed, *viz.*, the tendency between 1930 and 1940 for the population of the open country to congregate in the districts immediately surrounding an urban nucleus. Even the smallest towns seem to have exerted a magnetic attraction upon the families within their radii of influence.

An earlier south-wide inventory[3] of the changes during the depth of the great depression, or the years 1930 to 1935, indicated the following significant tendencies in the rearrangement of the farm population: (1)

[2] For details see HITT, HOMER L., AND T. LYNN SMITH, "Population Redistribution in Louisiana," *Social Forces*, 20 (May, 1942) 437–444.

[3] SMITH, T. LYNN, "Recent Changes in the Farm Population of the Southern States," *Social Forces*, 15 (March, 1937), 391–401.

The farm population of the 13 southern states increased by 3.1 per cent; (2) in counties lying within the radii of 25 miles of cities of 100,000 or more inhabitants, the gain amounted to 19.0 per cent; (3) in the counties that the National Resources Committee classified as too poor for agricultural uses, the percentage increase was 10.6 per cent; (4) in 1930 the counties included within the radii of 25 miles about the larger urban centers and in the counties recommended for retirement from agricultural uses contained only 18.3 per cent of the farm population of the region, but the two groups together accounted for two-thirds of the increase in the farm

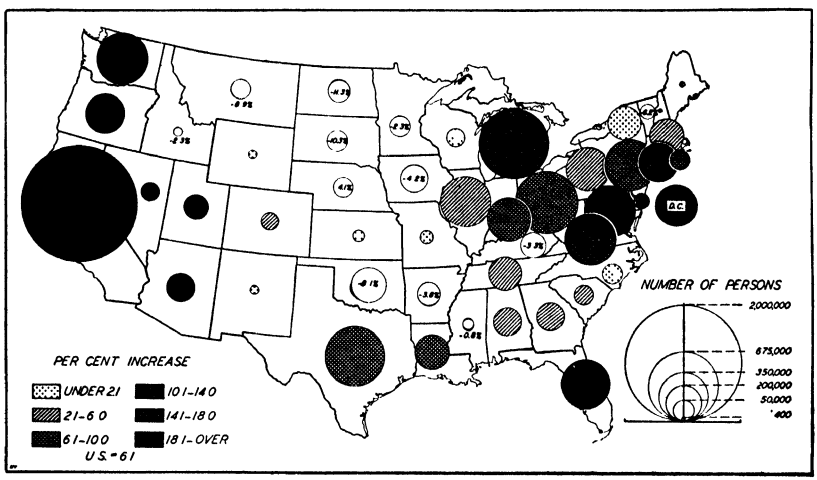


FIG. 165.—The increase or decrease of population in the United States by states, 1940 to 1945.

population during the 5-year period; and (5) in counties selected to represent the best agricultural sections of the South, a decrease of 2.8 per cent in the farm population took place.

Growth and Redistribution, 1940 to 1945.—The growth of population between 1940 and 1945 was far more rapid and the redistribution much more striking than the changes taking place during the whole of the preceding decade. Thus, the total population of the United States increased by 7,950,000 in the 5 years Apr. 1, 1940, to July 1, 1945—almost as great as the gain for the 10 years 1930 to 1940, which was only 8,894,000. Even more spectacular, however, was the redistribution that went on during these war years. This has been mapped in Fig. 165. In its preparation the estimated civilian population of each state on July 1, 1945, was increased by the figure representing its net loss to the armed forces as of the same

date. It is hardly possible to get more accurate data for the period under consideration.

The general pattern of change from 1940 to 1945 was not greatly different from that going on during the preceding decade, but the resulting redistribution was exceedingly rapid. California alone gained almost 2 million inhabitants, an increase of over 28 per cent, in the 5 years. The rate of growth was almost as rapid in Washington, Oregon, and Arizona and even greater (35 per cent) in Nevada. The influx into the District of Columbia was even faster, the percentage increase there being 38 and the number of persons involved more than ¼ million. Near-by areas in Maryland and Virginia shared in the capital's gain, the former showing an increase of 380,000 (21 per cent) and the latter one of 377,000 (14 per cent). Florida with 345,000 (18 per cent) more inhabitants in 1945 than in 1940 also ranked with the leaders. Large numbers were involved in the growth of population in Michigan, Ohio, and Texas, although the rates were smaller than in the states already mentioned. On the other hand, the percentage gain was high in Utah, but the numerical increase was not very large. Of the six states (North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, and Vermont) that lost population between 1930 and 1940, all except Kansas continued losing until 1945. In addition, Minnesota, Iowa, Arkansas, Kentucky, Mississippi, Montana, and Idaho also had fewer inhabitants at the close of the Second World War than at the time of the 1940 census. The losses were greatest, relative to population, in the Dakotas and Oklahoma.

The increases and decreases in state populations only reflect in a general way the method in which the thousands of county changes balanced with one another. The redistribution of population within the states was fully as important as the pyramiding of inhabitants in some of them and the serious depopulation of others. As was pointed out in our analysis of rural-urban migration, the population on farms had fallen to 25,190,000 by 1945, the smallest number for any year in the twentieth century. In other words, between 1940 and 1945 all of the nation's increase in population (7,952,156) and over 5 million more persons from the farms, or a total of about 13 million additional people, had crowded into our towns and cities. This meant that in the 5-year period the great bulk of the counties in the United States underwent a severe depopulation whereas in a few, particularly those in which war industries were located, the number of inhabitants grew by leaps and bounds.

Data derived from the issue of ration books in November, 1943, along with the census counts, enable us to determine the direction and volume of the changes to that date. They were used in the construction of Fig. 166,

in which each volumetric sphere representing each county that gained inhabitants between Apr. 1, 1940, and Nov. 1, 1943, is proportionate in size to the increase in population. Counties for which no spheres are plotted, the great majority of all, are those which suffered a loss of inhabitants. The gains are all the more spectacular, since the 1943 data are for the civilian population only.

Observation of this map enables one to determine not merely that certain states gained population but also the industrial centers and areas which

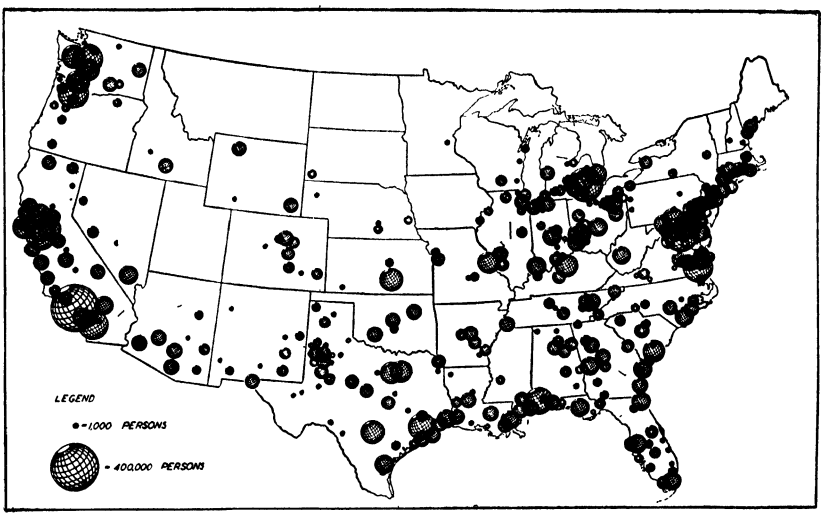


FIG. 166.—Estimated increase of the civilian population as of Nov. 1, 1943, over the total population on Apr. 1, 1940, by counties. (Counties for which no increase is indicated were either stationary or lost population.)

mushroomed under the impetus of war conditions. It would appear that the Los Angeles metropolitan area underwent the greatest congestion during the period, followed closely by those of Washington, San Francisco, Detroit, Norfolk, Baltimore, Seattle, Portland, Mobile, and Houston. Almost all southern cities, especially those along the Gulf Coast, experienced unprecedented booms while the conflict was on. In sharp contrast were most of the centers of New England, the Middle Atlantic states, and the great Northwest, which suffered losses of population. The decrease of the New York metropolitan area alone totaled almost a million, and the losses in and about Boston and Pittsburgh also were very great.

ESTIMATES OF POPULATION GROWTH

For a great variety of purposes, many of them extremely practical, methods for estimating the probable growth of a population are in consider-

able demand. To supply these needs several procedures have been developed for calculating the increase or decrease of population for each of the years included between two enumerations and for the years that immediately follow the taking of a census. The two best known are the arithmetic and the geometric methods of interpolation and extrapolation.

Interpolation.—The arithmetic method is based on the assumption that the annual increment remains constant or that the population increases or decreases by a given number during each of the years in the period between two censuses. This is the simplest procedure of all, it being necessary merely to determine the total amount of change, divide it into as many equal parts as there are years in the period, and attribute one of the parts to each of the years. Thus, when this method is applied, for the United States whose population increased from 105,710,620 in 1920 to 122,775,046 in 1930, the annual gain during the decade would be 1,706,443. The weakness of this method lies in the fact that it allows for an increase equally great on the part of the 105,710,620 persons present at the beginning of the first year of the decade as that attributed to approximately 121,000,000 persons included in the population at the beginning of the tenth year of the decade. The longer the interval between enumerations the more serious becomes this defect of the arithmetic method of interpolation. However, if the rate of population increase is falling off, the arithmetic method frequently is to be recommended.

The geometric method of estimating the annual growth of population is based upon the assumption that the rate of growth is constant. Generally it is to be preferred over the arithmetic for purposes of interpolation and extrapolation. However, if the rate of growth is falling off rapidly, it should not be relied upon. If one assumes that the annual rate of population increase is constant, it can be calculated by the formula $\log (1 + r) = \log P_1 - \log P_0/N$, in which P_1 equals the population at the end of the period, P_0 equals the population at the beginning of the period, N equals the number of years included, and r equals the annual rate of increase.[4] Applying this formula to the data for the United States for 1930 and 1940 gives these results:

$$\log (1 + r) = \frac{\log 131{,}669{,}275 - \log 122{,}775{,}046}{10}$$

$$= \frac{8.11948 - 8.08911}{10}$$

$$= 0.003037$$

$$(1 + r) = 1.007017$$

$$r = 0.007017 \text{ or } 0.7017 \text{ per cent}$$

[4] *Cf.* CHADDOCK, ROBERT EMMET, *Principles and Methods of Statistics*, pp. 126–127, Houghton Mifflin Company, Boston, 1925.

If the rate of population increase is not extremely rapid and the intercensal period a short one, it makes no great difference whether the arithmetic or the geometric method of interpolation is employed. This is evident from the calculations of the population of the United States for each of the years between 1930 and 1940, which are given in Table 38.

As indicated above, the annual increments are all equal (in this case 889,423 persons) when the arithmetic method is used. The geometric method, on the other hand, gives an increase of only 861,512 the first year compared with one of 917,472 for the last year of the decade. If the populations are to be employed in the calculations of indexes such as the birth rate or the death rate, it is well to bear in mind that in interpolations the arithmetic method gives a slightly larger population than the geometric method for every one of the intercensal years.

Extrapolation.—If fairly adequate birth, death, and migration statistics are not to be had, the arithmetic and the geometric methods can be used in forecasting the population for a short period following a census. However, they should be used with great caution and never employed in preference to estimates of future population based on adequate records of births, deaths, and net migration. For illustrative purposes the estimates presented in Table 39 were prepared.

In extrapolation the annual increments by the geometric method are larger than those given by the arithmetic method. Plotted to scale, the curve of estimates by the former will mount much more rapidly than that by the latter. Again caution in the use of either for purposes of extrapolation is urged.

The rapidity with which population forecasts of these types may get out of line with reality is brought out by a comparison of the estimates given in Table 39 with those made by accounting for natural increase and net immigration. For Apr. 1, 1946, the arithmetic method would give 137,005,813 as the population of the United States, and the geometric method would bring it up to only 137,310,975. But an official estimate of the Bureau of the Census[5] placed the nation's population on Jan. 1, 1946, at 140,386,509, or more than 3,000,000 above the larger of the two. Our data on births, deaths, and immigration and our knowledge of the deficiencies in our information about all three relieve us of the necessity of blind dependence upon the results of these mathematical formulae. They would give accurate results for the present decade only if the three basic factors—fertility, mortality, and immigration rates—all were exactly the same in relative importance and magnitude (as they were in the preceding one). As we have seen, mortality and net immigration changed very little, but the

[5] Bureau of the Census, *Population—Special Reports*, Series P-46, No. 6, July 10, 1946.

number of births increased tremendously. For this reason, the rate of population increase since 1940 is greatly in excess of that prevailing during the 1930's.

TABLE 38.—ESTIMATES OF THE POPULATION OF THE UNITED STATES FOR EACH YEAR, 1930 TO 1940, ACCORDING TO THE ARITHMETIC AND GEOMETRIC METHODS

Year	Number of inhabitants on Apr. 1	
	Arithmetic method	Geometric method (Annual rate = 0.007017)
1930	122,775,046	122,775,046
1931	123,664,469	123,636,558
1932	124,553,892	124,504,116
1933	125,443,315	125,377,761
1934	126,332,738	126,257,537
1935	127,222,161	127,143,486
1936	128,111,584	128,035,652
1937	129,001,007	128,934,078
1938	129,890,430	129,838,808
1939	130,779,853	130,749,887
1940	131,669,276	131,667,359

TABLE 39.—ESTIMATES OF THE POPULATION OF THE UNITED STATES, 1940 TO 1947, ACCORDING TO THE ARITHMETIC AND THE GEOMETRIC METHODS

Year	Number of inhabitants on Apr. 1	
	Arithmetic method	Geometric method (Annual rate = 0.007023)
1940	131,669,275	131,669,275
1941	132,558,698	132,593,198
1942	133,448,121	133,523,604
1943	134,337,544	134,460,539
1944	135,226,967	135,404,049
1945	136,116,390	136,354,178
1946	137,005,813	137,310,975
1947	137,895,236	138,274,486

Forecasts Based on Births, Deaths, and Migration.—In a publication dated Sept. 15, 1946,[6] the Bureau of the Census gave forecasts of the population of the United States until the year 2000. It is interesting to note that this

[6] *Population—Special Reports*, Series P-46, No. 7.

official agency calculates that the population of our country will attain a maximum of 164,585,000 in 1990 and then begin to decline. Of more immediate interest is the estimate of 145,460,000 for the population as of July 1, 1950. The author believes that this is much too small and that the population of this country will be about 147,000,000 by the time our next census is taken on Apr. 1, 1950. The reasons for this belief are as follows. As indicated above, the estimate of the Bureau of the Census gives 140,386,509 as the population of the United States on Jan. 1, 1946, and according to the forecast under consideration it totaled 140,840,000 on July 1, 1946. Allowing for underregistration, the number of births during 1946 must have been at least 3,300,000 and possibly a little higher. The total for 1947 is almost certain to be equally high. Thereafter the birth rate will surely decline abruptly, but before 1950 the number of births is not likely to drop below 2,750,000 annually. An estimate of 12,000,000 births for the period July 1, 1946, to June 30, 1950, probably is not too high. The number of deaths may rise somewhat (with so many more babies in the population it can hardly fail to do so); but barring another catastrophe such as the influenza epidemic of 1918, it is not likely to average more than 1,500,000 per year in the immediate future. Therefore, an allowance of 6,000,000 deaths during the 4-year period seems sufficient. Immigration is unlikely to be much of a factor, but an allowance of 300,000 spread over the 4 years should not be thought of as excessively high. Transportation is becoming more readily available; the pressures forcing persons from the countries with the large quotas are great; and there is no little effort being put forth to ease the present legal restrictions. Furthermore, the flocking of persons from our island possession Puerto Rico to the mainland alone may be sufficient to equal the 300,000 allowance. Combining these figures would give a net gain of 6,300,000 population for the continental United States in the period. Added to the estimated population for July 1, 1946, this would give a total of 147,190,000 for July 1, 1950. Therefore, the official estimates seem low, and the author believes that there will be at least 147,000,000 persons in the continental United States at the time of the 1950 census.

The preceding paragraphs have demonstrated that for the United States as a whole our records of births, deaths, and immigration are sufficiently complete so that one can use a knowledge of these three primary factors for the purpose of estimating the growth of population. Furthermore, it was shown that for the period 1940 to 1946, estimates based upon a knowledge of these three factors gave results more in line with reality than those derived from assumptions that population increases arithmetically or geometrically. Unfortunately, it is not yet possible to employ a similar

methodology for making reliable estimates of the population changes in a given region, state, city, or any other part of the national territory. This is because we have no reliable current statistics about internal migration—a factor of tremendous importance in determining the population of each city, county, state, and region. However, since internal migration is so responsive to fluctuations in the business cycle, the development of new industries, the exhaustion of natural resources, the incidence of great disasters such as drought, and so forth, the arithmetic and geometric methods are even less satisfactory for estimating the population of a part of the nation than for forecasting the number of inhabitants in the country as a whole. Therefore, the demographer has found it necessary to seek out other techniques.

The Use of the Death Rate in Making Estimates of Population.—One device that is fairly reliable for current estimates of population in the years succeeding a census makes use of the death rate. It assumes correctly that changes in the death rate are not capricious, that for any large population the annual fluctuations are small and the trend fairly gradual and constant. Hence, if one assumes there was no change or allows for a slight change in the death rate, for any year in which the number of deaths in a city or a state is known, the population is easily estimated from the formula for the death rate. One needs merely to solve for the one unknown, the population, in the formula

$$\text{Death rate} = \frac{\text{number of deaths}}{\text{population}} \times 1{,}000$$

Forecasting the Number of Aged Persons.—For some purposes it is absolutely essential to have estimates of the number of persons in a particular age class some years after the latest census and quite a while in advance of the next one. The basic need of the Social Security Board and the Departments of Public Welfare in the various states for current information on the numbers of persons aged 65 years and over is a case in point. In 1938, at a time when accusations were abundant on the radio and in the press that some states (Oklahoma in particular) had more persons receiving old-age assistance than there were people of 65 and over in the state, the author challenged the accuracy of the actuarial computations upon which the estimates of population 65 and over and hence the accusations were based.[7] As far as could be told the Social Security Board was estimating the number

[7] See the address by T. Lynn Smith before the Louisiana Welfare Convention, "Some Louisiana Population Problems," *Public Welfare in Louisiana* (May–June, 1938), 15–20; and T. Lynn Smith, "The Demographic Basis of Old Age Assistance in the South," *Social Forces*, 17 (1939), 356–361.

of persons aged 65 and over in 1938 from a simple projection of the curve showing the increase of persons in these ages between 1920 and 1930. Since the small number of babies born during the Civil War were in the age group 60 to 70 when the Fifteenth Census was taken, this meant that the number and proportion of persons aged 65 to 70 were abnormally low in 1930. It also meant that as soon as the bumper crop of babies which followed the Civil War reached these social-security ages, the number of old-age-assistance clients could be expected to rise precipitously. This, of course, was happening in the years 1936, 1937, and 1938 when the accusations of padding the old-age-assistance rolls were being bandied about so freely.

In order to get a more accurate estimation of the number of elderly persons in the population in 1938, 2 years prior to the census of 1940, the following procedure was used. It was assumed that the persons aged 55 and over in 1920 were in the same ratio to those 65 and over in 1930 as persons aged 55 and over in 1930 would be to those aged 65 and over in 1940. There being only one unknown, the solution was simple. Then the estimate for 1938 was derived by interpolation. Since the expectation of life in the older ages is changing very slowly if at all and because there is practically no immigration or emigration of elderly persons, the assumption on which the calculation is based is a very fair one. Application of this formula separately to the native white of native parentage, the native white of foreign or mixed parentage, the foreign-born white, and the Negro populations—and combining results to get the total—indicated that persons aged 65 and over should number approximately 8,737,000 in 1940. The suggestion was also made that any increased popularity of the ages 65 and over occasioned by the new opportunity of receiving old-age benefits could be expected to increase that figure. The 1940 census actually counted 9,019,314; so the method used turned out to be a conservative one. A later study indicated that in reality there was a marked increase in the popularity of the ages 65 and over. This was especially great on the part of women, Negroes, and the urban and rural-nonfarm population. Of course, migration can affect the numbers in any specific residential category; so too much importance should not be attached to the third one of these. But it is interesting to note that the number of Negro females reported as aged 65 and over in 1940 was 7.2 per cent—greater than the number classified as 55 or more years old in 1930.[8]

The author takes pride in the possession of a letter (written unofficially) from the Senior Actuarial Mathematician of the Social Security Board which

[8] SMITH, T. LYNN, "The Recent Increase of Persons in the Social Security Ages," *American Sociological Review*, 10 (1945), 414–418.

states that his "comparatively crude process" had given "the best of many estimates of aged population in 1940 that I have seen in the course of my studies."

The same method used to estimate the population 65 years of age and over for 1950 gives 11,755,000. The estimate for any given state or region should not fail to make allowance for the increased tendency of aged persons to transfer their residences to the sections along the Gulf Coast and to California.

OPTIMUM POPULATION

This topic is dismissed with a few paragraphs, because the author believes the concept to be of dubious validity and slight utility. There are several reasons for such a belief. In the first place, any given optimum is absolutely dependent upon the presuppositions with which one starts. For a people who think literally that the Almighty has commanded mankind to "multiply and replenish the earth," the greatest possible number of human beings is the optimum. Today, however, it is more likely to have purely economic connotations and be thought of in relation to natural resources. When the number of persons is at the exact point where the ratio of population to production gives the greatest per capita amount of goods and services, most writers on the subject would say the optimum population has been attained.[9] Various other sets of circumstances might give rise to other widely different definitions. Not to be overlooked is the possibility of using maximum military strength as a criterion.

The second reason for thinking the concept of optimum population of doubtful value is that men's goals—and hence their assumption underlying the optimum population—change very quickly. Even while a Hitler was tooling a war plant; drilling men by the millions; trying, testing and strengthening the net of espionage that his predecessors had woven; and stocking strategic materials for an all-out attempt at world conquest, most of the advocates of the economic optimum were wailing that the United States was greatly overpopulated. These prophets of despair preached that our economy had already matured, that millions of our people could never hope for anything better than a job at government-made work, or, in brief, that we had far more people than were needed. In a few short years all of this changed. The necessity of fighting a global war and the

[9] On the diagrams of the economic theorist, optimum population falls at the point where the curve of marginal returns cuts the curve of average returns. This proposition is diagramed in all its baldness in Georges Létinier, "Progrés technique, destructions de guerre, et optimum de population," *Population*, No. 1, pp. 40–42, Figs. 1, 2, 3, 1946.

goals that it established made our numbers far too few to do all the things envisioned as desirable.

This leads to the third reason for questioning the utility of the optimum population concept. Careful analysis will show that the thinking underlying the idea of an economic optimum assumes that we are dealing with an equation in which economic resources are the independent variable, or the cause, and the number of people are the dependent variable, or effect. Now we live in a society where each population entity, each child born, has an average duration of some 65 years. To our human reservoir of 140 million people, each new year adds about 2½ million new units, draws off about 1½ million. But the net change in any one year is far less than 1 per cent, and anything greater would be phenomenal. Hence, most of the identical human beings who helped make up our population in 1912 or 1913, when we were admitting more than 1 million immigrants per year, also formed part of our national total in 1924 when we established the quota system, during the 1930's when the exponents of overpopulation had their great inning, and were still living during the Second World War when workers of every type were at a great premium. Between 1912 and 1947, the swings of the economic pendulum were terrific—so great that any economic optimum population must have changed by tens of millions from one decade to another. But all the while the processes of population change moved in the slow manner that is inevitable in a huge reservoir with very limited inlets and outlets. If there is such a thing as an economic optimum, it will not be attained by a formula that takes population as the dependent variable but by the type of action that would consider the number of people to be the moving force. Even then one should not expect to be able to get a close correlation between a factor such as the price level, an index of industrial production, or any other measure of economic activities and one that moves slowly and gradually like the size of the population.

Part VI

Conclusion

Chapter 21
CONCLUSION

THIS volume calls for no elaborate conclusion. Little would be gained by summarizing in another chapter the generalizations that have been given in various parts of the book. It is best for them to remain in close association with the facts and relationships on which they are based. Nor would it be wise to describe once more all of the various methods and techniques that have been employed. Each of them is best understood in the specific setting in which it has been used. However, a few comments of a more general nature do seem to be appropriate.

Once more the plea for the more extensive application of the logical methods of science in the study of biosocial phenomena should be entered. By careful tabulation and analysis of demographic materials, a large number of significant topics can be elevated from the levels of speculation and fruitless arguments to those of verified knowledge and constructive application. In this, as in many other aspects of human behavior and policy, it will be a happy day when the town halls that make up the crucible in which public opinion is molded come to rely more upon the proved facts presented by competent, trained observers than upon the glib phrases turned by persons who have devoted their lives to mastering the art of debating.

A word about population theory also is in order. It is no longer a misnomer to speak of population theory in the scientific sense of the term. As is evidenced in every one of the chapters of which this book is composed, the careful work of population students has yielded results. Generalizations that are based upon observations and that are in agreement with all of the known facts, verified hypotheses, and established relationships between one variable and another are rapidly accumulating. These are the elements which form the warp and woof of the theory in any scientific discipline. Simultaneously, it is becoming increasingly difficult for the armchair philosopher to peddle his population theory in informed circles. His chains of propositions, which obey no rule other than that of internal consistency, make a poor showing alongside those which are secured through the application of scientific methods in the study of population phenomena. Thus, every section of this book has dealt with one or another phase of population theory; for only the generalizations that agree with every one of

the known facts, tested relationships, and the verified hypotheses in the field—all taken collectively—deserve the designation.

The matter of population policy is also entitled to brief comment. Nearly all momentous questions of national policy have their population aspects, and a few of them are almost exclusively demographic in nature. Fuller and more intelligent use of population fact and theory can contribute much to the improvement of our system of public education. The time is past when the plans for medical, hospital, and other health services can be developed and put into operation in almost complete disregard of basic information about the population. In turn more adequate health and educational facilities and services and a better distribution of them are the chief hopes for improving the quality of the population.

Immigration policy is another population question of the highest importance. Americans have long thought of their country as a haven for the oppressed from other lands. This point of view has been even more enthusiastically embraced in other parts of the world. Nevertheless, immediately following the First World War a strict quota system was established. At present, with millions of Europeans uprooted, impoverished, and made homeless by the Second World War, strenuous efforts are under way to have this revised or "liberalized." Whatever is done, immigration questions are certain to occupy a considerable amount of the attention of Congress, the executive departments of the government, and the general public in the years that lie ahead. Not likely to be generally recognized is the fact that few countries ever can solve their problems of overpopulation merely by emigration. This is obvious in the case of China and India, and it is probably almost as true for the countries of southern and eastern Europe. The admittance of thousands of Japanese immigrants into the Philippines, Hawii, Brazil, and Peru apparently did little to solve the population problems of Japan. Has it merely scattered them to other parts of the world?

Even with our quota restrictions, few countries allow anything like the amount of immigration that is permitted by the United States. As this is written Puerto Ricans are flocking to the mainland by the thousands. If employment levels and wages remain favorable in this country, we may expect a similar tendency to develop in several of the independent Latin-American countries. What changes of policy, if any, should this bring about?

No national policy with respect to the fundamental matter of the birth rate is likely to be developed in the immediate future. We are not agreed upon the rate at which our population should reproduce. Nor are we sure that we could control all the factors necessary to achieve it if we were

agreed. Birth control is still a highly controversial issue. Hardly any practical efforts have been made to reduce the financial handicaps under which parents of children labor in comparison with single persons and childless couples. Indeed, there is little evidence as yet that the matter is receiving serious consideration in circles responsible for the implementation of policy.

Population facts and relationships will not come to play their proper role in the formulation and execution of national policies merely if students of population tell one another that they should or bemoan the fact that they do not. Rather the demographer must ever be on hand with his data and a will to be of service wherever he is needed. If he is a teacher or a research worker in one of our colleges or universities, he must seek to get over to the leaders of tomorrow an appreciation for modern approaches and empirical findings. Eventually he can look forward to the time when the college graduates will be better informed, when they will not go out confident that they have the best available demographic information because they have heard an economic theorist refer to the Malthusian doctrine that population tends to grow geometrically whereas the food supply increases only arithmetically. Of more immediate importance, he may expect the officials in charge of his state's health program, public schools, regulation of life-insurance companies, agricultural services, welfare program, and so forth, to seek his advice and assistance. Now and then he may expect to be called as an expert witness by a congressional committee and by groups pushing this or that piece of legislation to bolster their case by extensive use of the materials that he has assembled and digested. During the last two decades those population students who have had the best grasp of the available materials have not suffered from a lack of demand for their services. However, there is still room for much improvement in the utilization of demographic data at the higher policy levels. Competency and a spirit of cooperation on the part of the men professionally employed in the field are the best guarantees that improvement will be attained.

RECOMMENDED READINGS AND QUESTIONS

CHAPTER 1

RECOMMENDED READINGS

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QUESTIONS

1. What is involved in the concept of *optimum population?*
2. Describe briefly the distribution of population in the world.
3. Indicate briefly exactly what is involved in the following concepts: population, census, density of population, minor civil division, census tract, and township.
4. Why are the League of Nations' estimates of world population for 1938 as complete as we are likely to have for some years to come?
5. Discuss the nature of the relationship between density of population and level of living.
6. Indicate how the reliability of the data on the number of inhabitants varies from one part of the world to another.

CHAPTER 2

RECOMMENDED READINGS

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QUESTIONS

1. Should the rural-nonfarm population be placed in the rural or in the urban category? Why?
2. How did the absolute and the relative importance of the farm population change between 1900 and 1940?
3. On a demographic basis what part of the United States should be classed as the "farm belt"? Why?
4. To what extent is the rural-nonfarm population the same as the village population?
5. Is the United States Census justified in placing the residential classification first in the preparation of its tabulations? Why or why not?
6. Is the numerical criterion a good one for use in separating rural and urban populations? Explain.
7. How do the concepts of rural and urban populations used in the censuses of Canada, Peru, Scotland, and Brazil differ from those employed in the United States Census?
8. Suggest ways in which the residential classification used by the United States Census might be improved.
9. What parts of the United States are most rural? Most urban?
10. What population facts help explain the acute housing shortage with which the United States was confronted at the close of the Second World War?

CHAPTER 3

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———: *The Sociology of Rural Life*, rev. ed., pp. 65–72, Harper & Brothers, New York, 1947.

THOMPSON, WARREN S., and P. K. WHELPTON: *Population Trends in the United States*, Chap. III, McGraw-Hill Book Company, Inc., New York, 1933.

QUESTIONS

1. Of what significance is the racial classification of the population? Would the census do better to omit it?
2. What is the relative importance of each of the race and nativity groups in the population of the United States?
3. To what extent do the "foreign" elements concentrate in urban districts?
4. How does the relative importance of the native white population vary throughout the United States?
5. Describe recent trends in the redistribution of the Negro population.
6. Give the most distinguishing feature of the distribution of each of the principal nationality groups in the United States.
7. Compare the make-up of the population of the United States in 1790 with that prevailing in 1850 and that of 1940.
8. How do the various foreign stocks compare with respect to assimilability?

CHAPTER 4

RECOMMENDED READINGS

CLARK, CARROLL D., and ROY L. ROBERTS: *People of Kansas*, pp. 91–111, The Kansas State Planning Board, Topeka, 1933.

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NOTESTEIN, FRANK W., *et al.*: *The Future Population of Europe and the Soviet Union*, Chaps. III and IV, League of Nations, Geneva, 1944.

ROSS, EDWARD ALSWORTH, *The Outlines of Sociology*, pp. 8–11, Century Company, New York, 1924.

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THOMAS, DOROTHY SWAINE, *Social and Economic Aspects of Swedish Population Movements, 1750–1933*, Chap. II, The Macmillan Company, New York, 1941.

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WHIPPLE, GEORGE CHANDLER, *Vital Statistics*, 2d ed., pp. 176–195, John Wiley & Sons, Inc., New York, 1923.

QUESTIONS

1. Of what significance are the data about the ages of the population?
2. How may the reliability of age data be determined?
3. What are the principal factors responsible for variations in the age and sex profile? Indicate the way in which each affects the age-sex pyramid.
4. Why are index numbers of age superior to the age pyramid for certain purposes?
5. What are the principal characteristics of the age distributions of urban, rural-nonfarm, village, and rural-farm populations?
6. How are the effects of a serious 5-year war reflected in the age pyramid of the population 20 years after its close? Illustrate with freehand diagrams.

CHAPTER 5

RECOMMENDED READINGS

CLARK, CARROLL D., and ROY L. ROBERTS: *People of Kansas*, pp. 111–116, The Kansas State Planning Board, Topeka, 1936.

LANDIS, PAUL H.: *Population Problems*, Chap. XIV, American Book Company, New York, 1943.

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———: *The Sociology of Rural Life*, rev. ed., pp. 77–83, Harper & Brothers, New York, 1947.

THOMPSON, WARREN S., and P. K. WHELPTON: *Population Trends in the United States*, Chap. V, McGraw-Hill Book Company, Inc., New York, 1933.

VANCE, RUPERT, *All These People, The Nation's Human Resources in the South*, Chap. 4, The University of North Carolina Press, Chapel Hill, 1945.

QUESTIONS

1. Why is the sex ratio in Canada lower than it would be if the Dominion had a lower expectation of life?

2. Why is the sex ratio in Italy lower than that in Australia? Than that in India?
3. Why is it impossible to use the curve of sex ratios by age in the study of selective migration?
4. How does the sex ratio vary according to residence?
5. Why must large proportions of city women cross racial and cultural lines if they are to marry?
6. Explain why Negroes have a very low sex ratio.
7. Why is the sex ratio in the South lower than that in the West? In the North?
8. Other things remaining equal, what will be the effect upon the sex ratio of (*a*) a fall in the birth rate, (*b*) an increase in the expectation of life, (*c*) heavy immigration, and (*d*) strong emigration?
9. Identify the factors responsible for the fall in the sex ratio in the United States from 106.0 in 1910 to 101.1 in 1940. State briefly how each of them worked.
10. How does the sex ratio at birth among Negroes compare with that among whites? How may this difference be explained?

CHAPTER 6

RECOMMENDED READINGS

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OGBURN, WILLIAM FIELDING: "Marital Separations," *American Journal of Sociology*, 49 (1944), 316–323.

SMITH, T. LYNN: *The Population of Louisiana: Its Composition and Changes*, Chap. VI, Louisiana Agricultural Experiment Station Bulletin No. 293, Baton Rouge, 1937.

———: *The Sociology of Rural Life*, rev. ed., pp. 83–86, Harper & Brothers, New York, 1947.

THOMPSON, WARREN S., and P. K. WHELPTON: *Population Trends in the United States*, Chap. VI, McGraw-Hill Book Company, Inc., New York, 1933.

QUESTIONS

1. How does the maldistribution of the sexes in the United States hinder marriage and affect mate selection?
2. Compare the marital status of men with that of women.
3. The census of 1940 reported 3.1 per cent of married men and 3.2 per cent of married women to be living apart from their spouses. Are these figures reasonable? Explain.

4. How does the marital status of the native born compare with that of the foreign born?
5. Why does the high expectation of life in the United States result in large proportions of widowers and widows?
6. How does the popularity of the married condition in the United States compare with that in other parts of the world?
7. Describe in detail the relationship between age and marital status.
8. How does the marital status of white people in the United States compare with that of Negroes?
9. Compare the marital status of the rural-farm, rural-nonfarm, and urban populations.
10. What are the trends in marital status?
11. In 1940 the percentages of married persons in the population 15 years of age and over in the United States were as follows: urban males, 61.8; urban females, 58.1; rural-farm males, 58.3; and rural-farm females, 66.3. Does this mean that city men are more likely and the city women less likely to marry than men and women on the farm? Explain. What bearing, if any, do the data given in Figs. 45 and 54 have on this question?

CHAPTER 7

RECOMMENDED READINGS

ABEL, JAMES F., and NORMAN J. BOND: *Illiteracy in the Several Countries of the World*, United States Bureau of Education Bulletin No. 4, Government Printing Office, Washington, 1929.

SMITH, T. LYNN: *The Population of Louisiana: Its Composition and Changes*, Chap. VII, Louisiana Agricultural Experiment Station Bulletin No. 293, 1937.

———: *The Sociology of Rural Life*, rev. ed., pp. 86–89, Harper & Brothers, New York, 1947.

SULLIVAN, HELEN: "Literacy and Illiteracy," *Encyclopedia of the Social Sciences*, Vol. IX, pp. 511–523, The Macmillan Company, New York, 1933.

TALBOT, WINTHROP: *Adult Illiteracy*, United States Bureau of Education Bulletin No. 35, Government Printing Office, Washington, 1916.

VANCE, RUPERT: *All These People, The Nation's Human Resources in the South*, Chap. 25, The University of North Carolina Press, Chapel Hill, 1945.

QUESTIONS

1. How does the educational status of rural and urban populations compare in the various regions of the United States? What factors help account for these differentials?
2. Evaluate the percentage of illiteracy as an index of educational status.
3. Discuss the variations in educational status throughout the world, and indicate the relative standing of the population of the United States.

4. How does the educational status of men compare with that of women? Would our nation be better or worse off if the situation were reversed?
5. Should the United States continue giving the children of immigrants better educational facilities than those offered the offspring of native parents? If not, what is necessary in order to correct the inequality?
6. How does the educational status of the American Negroes compare with that of white people in the United States? With that of other peoples throughout the world?
7. Analyze the reasons for the high educational status of the urban white population in Mississippi and other southern states.

Chapter 8

RECOMMENDED READINGS

Chen, Ta: *Population in Modern China*, Chap. V, The University of Chicago Press, Chicago, 1946.

Landis, Paul H.: *Population Problems*, Chap. XVIII, American Book Company, New York, 1943.

Lorimer, Frank: *The Population of the Soviet Union: History and Prospects*, Chap. VIII, League of Nations, Geneva, 1946.

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Thompson, Warren S.: *Population Problems*, 3d ed., pp. 104–106, McGraw-Hill Book Company, Inc., New York, 1942.

Vance, Rupert, *All These People, The Nation's Human Resources in the South*, Chap. 11, The University of North Carolina Press, Chapel Hill, 1945.

Woytinsky, W. S.: *Labor in the United States, Basic Statistics for Social Security*, Chaps. I–IV, Social Science Research Council, Washington, 1938.

QUESTIONS

1. Of what significance is occupational status in the study of demography?
2. Trace the evolution of occupational statistics in the United States.
3. What is to be said for and against the classifications of occupations employed in the United States Census and that of England and Wales?
4. How satisfactory is the occupational category designated as "clerical, sales, and kindred workers"? That which carries the title "professional and semi-professional workers"?
5. How do the principal industries vary in importance from one region to another in the United States?
6. How has the relative importance of the various industrial or occupational groups changed since 1870?

CHAPTER 9

RECOMMENDED READINGS

SMITH, T. LYNN: *The Sociology of Rural Life*, rev. ed., pp. 87–100, Harper & Brothers, New York, 1947.

United States Bureau of the Census: *Religious Bodies, 1926*, Vol. I, pp. 3–80, Government Printing Office, Washington, 1930.

———: *Religious Bodies, 1936*, Vol. I, pp. 3–85, Government Printing Office, Washington, 1941.

QUESTIONS

1. What are the sources of data about the religious composition of the population of the United States? How satisfactory are they?
2. What is the significance of the decline in reported church membership from 46 per cent of the population in 1926 to 44 per cent in 1936?
3. In what sections of the United States lies the strength of each of the principal religious denominations?
4. How accurately is the relative importance of the various denominations indicated by the number of members belonging to each?
5. Apply Livi's law in an explanation of why the proportions of the membership residing in urban areas vary so widely among the different denominations or faiths.
6. What are the outstanding age and sex differences among the members of the principal religious denominations?
7. How do you account for the fact that the Church of Jesus Christ of Latter-day Saints (Mormons) has a higher proportion of male members than any of the other large denominations?

CHAPTER 10

RECOMMENDED READINGS

KUCZYNSKI, ROBERT R.: *The Balance of Births and Deaths*, Vol. I, Chaps. I, II, and III, The Macmillan Company, New York, 1928.

———: *Birth Registration and Birth Statistics in Canada*, Brookings Institution, Washington, 1930.

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LINDER, FORREST E., and ROBERT D. GROVE: *Vital Statistics Rates in the United States, 1900–1940*, pp. 54–56, Government Printing Office, Washington, 1943.

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THOMPSON, WARREN S.: *Population Problems*, 3d ed., Chap. X, McGraw-Hill Book Company, Inc., New York, 1942.

QUESTIONS

1. As yardsticks for measuring the fertility of populations, what are the virtues and the disadvantages of the birth rate, the fertility ratio, and the net reproduction rate?
2. Suppose that you are attempting to compare the fertility of the various race and nativity groups in the rural United States for the years 1935 to 1939, inclusive. If you used the fertility ratio as an index, what difficulties, if any, would you encounter in comparing Negroes, native whites, native whites of foreign or mixed parentage, and foreign-born whites?
3. What data about the birth rate in your home county are available in the official statistics?
4. Describe the process of standardizing the birth rate.
5. What prevents the white race from being engulfed in "a rising tide of color"?
6. Trace the development of data on the fertility of the population in the United States.
7. Give a brief account of Dr. J. S. Billings' struggle to demonstrate that the birth rate in the United States was falling.
8. Why should births be reported according to residence of the mother as well as by place of occurrence?

CHAPTER 11

RECOMMENDED READINGS

BEEGLE, J. ALLAN, and T. LYNN SMITH: *Differential Fertility in Louisiana*, Louisiana Agricultural Experiment Station Bulletin No. 403, Baton Rouge, 1946.

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SPENGLER, JOSEPH J.: *France Faces Depopulation*, Chap. IV, Duke University Press, Raleigh, N. C., 1938.

QUESTIONS

1. Discuss the validity and the implications of the following statement: "Every refinement introduced into the presentation of data on the net reproduction rate in the United States tends to emphasize the importance of the rural-urban differential in fertility and to minimize racial and regional differences in the rate of reproduction."
2. How does the rate of reproduction of the white population compare with that of the Negro?
3. Describe the relationship between social status and the birth rate.
4. Of all the existing differentials in fertility which is the most important? Why?
5. Is there any basis for thinking that the descendants of the South's white population may become the dominant stock in the nation? Explain.
6. What is the relationship between size of community and rate of reproduction?
7. Of what significance is the study of differential fertility in Louisiana?

CHAPTER 12

RECOMMENDED READINGS

CARR-SAUNDERS, A. M.: *The Population Problem, A Study in Human Evolution*, Chaps. VII–XI, Oxford, Clarendon Press, New York, 1922.

CLARK, CARROLL D., and ROY L. ROBERTS: *People of Kansas*, pp. 117–127, The Kansas State Planning Board, Topeka, 1936.

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WILLCOX, WALTER F.: *Introduction to the Vital Statistics of the United States*, pp. 55–81, Government Printing Office, Washington, 1933.

QUESTIONS

1. Give as many details as you can about the origin and diffusion of the falling birth rate in the Western world.
2. Why did the birth rates of whites decline more rapidly than those of nonwhites between 1910 and 1940 in the cities of the United States?
3. In what parts of the United States will the greatest decreases in fertility be registered for the period 1940 to 1950? Explain.
4. What factors are responsible for the rise in the birth rate in the United States following 1935?
5. What are the causes of the long-continued fall in the birth rate?

CHAPTER 13

RECOMMENDED READINGS

DUBLIN, LOUIS I., and ALFRED J. LOTKA: *Length of Life: A Study of the Life Table*, Chaps. 1, 2, and 14, The Ronald Press Company, New York, 1936.

GREVILLE, THOMAS N. E.: *United States Life Tables and Actuarial Tables, 1939–1941*, Government Printing Office, Washington, 1946.

KUCZYNSKI, ROBERT R.: *The Measurement of Population Growth*, Chap. V, Oxford University Press, New York, 1936.

LINDER, FORREST E., and ROBERT D. GROVE: *Vital Statistics Rates in the United States, 1900–1940*, Chaps. III and IV, Government Printing Office, Washington, 1943.

WHIPPLE, GEORGE CHANDLER: *Vital Statistics*, 2d ed., New York: pp. 237–246, and Chaps. VIII and IX, John Wiley & Sons, Inc., New York, 1923.

QUESTIONS

1. Assume that you need to compare mortality in Alabama and Ohio. Precisely what indexes would you use and what comparisons would you make?
2. How has the increase in the proportion of registered births among all births in the United States affected the trend in the infant mortality rate?
3. What steps are involved in the construction of a life table?
4. Trace the development of mortality statistics in the United States.
5. Describe the system now in use in the United States for the registration of deaths.
6. Of what value is the *International List of Causes of Death?*
7. Why is the infant mortality rate such an important index?

CHAPTER 14

RECOMMENDED READINGS

DUBLIN, LOUIS I., and ALFRED J. LOTKA: *Length of Life: A Study of the Life Table*, Chap. 10, The Ronald Press Company, New York, 1936.

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SMITH, T. LYNN: *Brazil: People and Institutions*, Chap. IX, Louisiana State University Press, Baton Rouge, 1946.

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WILLCOX, WALTER F.: *Introduction to the Vital Statistics of the United States*, pp. 35–54, Government Printing Office, Washington, 1933.

QUESTIONS

1. Suppose that the general agent for a life-insurance company seeks your advice. His company is contemplating a campaign to sell insurance to Negroes. By law he is prohibited from charging one person a higher rate than another merely because that person is of a colored race. What facts can you supply that will justify (*a*) charging Negroes higher premiums than whites or (*b*) setting the same rates for persons of both races?
2. How would you explain the fact that in India the expectation of life among females is less than among males whereas elsewhere in the world the advantage is in favor of the weaker sex?
3. How does the mortality rate vary with age?
4. How do mortality rates in urban centers compare with those in rural areas?
5. Describe the nature of the relationship between mortality and marital status.
6. What effects, if any, has occupation upon the mortality rate?
7. What are the seasonal variations in the mortality rate? How have these changed in the last 50 years?
8. Give in the order of their importance the principal causes of death in the United States.
9. Explain why infant mortality varies so greatly from one country to another. How important is climate in accounting for the differences?

CHAPTER 15

RECOMMENDED READINGS

CLARK, CARROLL D., and ROY L. ROBERTS: *People of Kansas*, pp. 127–135. The Kansas State Planning Board, Topeka, 1936.

DUBLIN, LOUIS I., and ALFRED J. LOTKA: *Length of Life: A Study of the Life Table*, Chap. 3, The Ronald Press Company, New York, 1936.

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LANDIS, PAUL H.: *Population Problems* Chap. XI, American Book Company, New York, 1943.

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THOMPSON, WARREN, S., and P. K. WHELPTON: *Population Trends in the United States*, Chap. VII, McGraw-Hill Book Company, Inc., New York, 1933.

WILLCOX, WALTER F.: *Introduction to the Vital Statistics of the United States*, pp. 20–25, Government Printing Office, Washington, 1933.

QUESTIONS

1. In the long-continued increase in the expectation of life in the United States what has been the effect of (*a*) the decreasing infant mortality rate, (*b*) the prolongation of life at age 70, and (*c*) the urbanization of the nation?
2. How does the increase in life expectation that took place in France since 1875 compare with the gains in Italy, Germany, New Zealand, and Sweden?
3. Set forth in detail the changes that have taken place in life expectation in the United States during the twentieth century.
4. How do the trends in the life expectation of the urban population of the United States compare with those of the rural?
5. Which causes of death are becoming of greater relative importance, and which are being brought under greater control?
6. Can we expect to reduce greatly the degenerative causes of death?

CHAPTER 16

RECOMMENDED READINGS

DUNCAN, OTIS DURANT: *The Theory and Consequences of Mobility of Farm Population*, Oklahoma Agricultural Experiment Station Circular No. 88, Stillwater, 1940.

LANDIS, PAUL H.: *Population Problems*, Chap. XXIII, American Book Company, New York, 1943.

LIVELY, C. E.: "Spatial Mobility of the Rural Population with Respect to Local Areas," *The American Journal of Sociology*, 43 (1937), 89–102.

WEBER, ADNA FERRIN: *The Growth of Cities in the Nineteenth Century*, Chap. IV, Columbia University Press, New York, 1899.

QUESTIONS

1. In a national study of population redistribution the following formula was used in determining the migration to or from any given county between 1920 and 1930: population in 1930 minus natural increase 1920 to 1929, inclusive, minus population in 1920 equals migration. Discuss the validity of this index.
2. Assume that in the decade 1930 to 1940 all of the factors affecting the distribution were as actually was the case except that absolutely no internal migration took

place. How would the distribution of population in 1940 have differed from that revealed by the Sixteenth Census?

CHAPTER 17

RECOMMENDED READINGS

FAIRCHILD, HENRY PRATT: *Immigration, A World Movement and Its American Significance*, rev. ed., The Macmillan Company, New York, 1928.

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ROSS, EDWARD ALSWORTH: *The Old World in the New*, Century Company, New York, 1913.

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———: and P. K. WHELPTON: *Population Trends in the United States*, Chap. IX, McGraw-Hill Book Company, Inc., New York, 1933.

QUESTIONS

1. Why is the period 1926 to 1936 particularly significant for the study of immigration and emigration?
2. Which areas of the world are the great suppliers of emigrants, and which countries are the most important receivers of immigrants?
3. Is emigration alone a satisfactory solution for a national problem of overpopulation? Explain.
4. Why is immigration a subject of particular interest to Americans?
5. Into what five periods is the history of immigration to the United States divided? What are the principal characteristics of each period?
6. What are the principal provisions of the Immigration Act of 1924?
7. Trace the variations in the volume of immigration to the United States from 1820 to the present, commenting upon the causes of each of the major peaks and depressions.
8. How has the composition of the immigrant tide changed in the course of the national history of the United States?

CHAPTER 18

RECOMMENDED READINGS

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CLARK, CARROLL D., and ROY L. ROBERTS: *People of Kansas*, Chap. VI, The Kansas State Planning Board, Topeka, 1936.

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THORNTHWAITE, C. WARREN: *Internal Migration in the United States*, pp. 1–52, University of Pennsylvania Press, Philadelphia, 1934.

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———: *Research Memorandum on Population Redistribution within the United States*, Chap. V, Social Science Research Council, New York, 1938.

WHELPTON, P. K.: *Needed Population Research*, Chap. V, The Science Press Printing Company, Lancaster, Pa., 1938. .

QUESTIONS

1. In what sense was there a "back-to-the-land movement" in 1932? In 1942?
2. To what extent is the modern city a center that must be repopulated each year?
3. How does the South compare with other regions in the volume of migration from farms? In the number of migrants who return to the farms?
4. How satisfactory are the state-of-birth and state-of-residence data for the study of internal migration?
5. Describe the principal regional interchanges of population now going on.
6. Of what value is farm-to-farm migration to society in general?
7. How does the residential stability of the farm population vary throughout the United States? What factor is mainly responsible for the differences?
8. What are the social characteristics of the migratory farm laborer?

CHAPTER 19

RECOMMENDED READINGS

GIST, NOEL P., and CARROLL D. CLARK: "Intelligence as a Selective Factor in Rural-urban Migrations," *The American Journal of Sociology*, 44 (1938), 36–58.

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LIVELY, C. E., and CONRAD TAEUBER: *Rural Migration in the United States*, Chap. VI, Works Progress Administration, Research Monograph XIX, Government Printing Office, Washington, 1939.

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THOMAS, DOROTHY SWAINE: *Research Memorandum on Migration Differentials*, Social Science Research Council, New York, 1938.

QUESTIONS

1. Are Negroes more migratory than white people? Explain.
2. Are the Ammon-Lapouge laws a more adequate explanation of rural-urban differences in stature than Livi's law? Explain.
3. Apply Livi's law in an explanation of why Catholics are of greater relative importance in New York City than in upstate New York but of less relative importance in the urban centers of south Louisiana than in the rural districts of the area.
4. In what ways is rural-urban migration selective?
5. What is the relationship of age to migration? How do you account for this?
6. Are the standard intelligence tests reliable bases for use in the study of the selectivity of migration? Why?
7. How do you account for the fact that males greatly outnumber females among the migrants who left southern farms for California cities during the period 1940 to 1945?

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QUESTIONS

1. What are the primary factors in population growth? How does such a factor as the price of wheat or the standard of living exert an influence upon the increase of population?
2. Why is it extremely difficult or impossible to trace the growth of population in each major country from the time its national history began?
3. Describe the growth of population in the United States since 1790, and comment upon its significance.
4. Give the basic facts about the growth and redistribution of population in the United States between 1930 and 1940.
5. Describe the changes between 1940 and 1945 in the number and distribution of inhabitants in the United States.

6. List the methods that may be employed for estimating the growth of population, and state under what circumstances each of them should be used.
7. Give your own criticism, favorable or unfavorable, of the concept *optimum population.*

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QUESTIONS

1. What population facts do you have that might be used to justify a program of federal support for rural public schools?
2. Set forth the major points in what would be a good population policy for the United States.

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