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### ILLITERACY IN THE UNITED STATES: OCTOBER, 1947

Illiteracy in the United States had declined to a new low by October, 1947, at which time only 2.7 percent of the population 14 years old and over were unable to read and write, according to estimates issued today by J. C. Capt, Director, Bureau of the Census, Department of Commerce. Comparison of the current rate with a 1930<sup>1</sup> rate of 4.7 percent, and a 1920 rate (for persons 15 years old and over) of 6.5 percent, shows that there has been marked progress in the reduction of illiteracy. The greater enforcement of compulsory school attendance laws, the extension of educational opportunities, the dying off of the relatively numerous aged illiterates, and the special training given illiterates in the armed services during World War II, were all factors in the continuing reduction of illiteracy. However, 1947 illiteracy rates of 11 percent among nonwhites and of 5 percent in rural-farm areas indicate where considerable further progress may yet be made.

All of the 1947 estimates in this report were based on supplementary questions included in the Census Bureau's monthly cross-section survey of population. Since the estimates are based on a sample, they are subject to sampling variability. The smaller figures, as well as small differences between figures, should be used with particular care, as explained in the section on reliability of estimates.

#### AGE AND SEX

Of the 106 million persons in the United States who were 14 years old and over in October,

<sup>1</sup> Comparable data for 1940 are not available since the question on illiteracy was not asked in the 1940 census. Estimates of illiteracy for that date are presented for the first time in this report. See the section on "Methods of estimating illiteracy in 1940" below.

1947, about 2.8 million, or 2.7 percent, were unable to read and write, either in English or in any other language, and were therefore classed as illiterate. (See table 4.) The proportion of illiterates was lower in each successively younger age group, ranging from about 7 in every 100 persons aged 65 years and over down to 1 in every 100 persons 14 to 24 years old. This pattern of less illiteracy at successively lower ages reflects our progress in sending an ever larger proportion of our children to school, as well as the practical nonexistence in the younger age groups of persons of foreign birth, among whom (as indicated by previous data) the ability to read and write was relatively less prevalent than among the native population.

Females had a lower illiteracy rate than males for all ages 14 years and over combined, as well as in each age group between 14 and 54 years. This relationship probably reflects the fact that relatively more females than males are enrolled in school throughout the younger ages when literacy is acquired, more males failing to enroll or dropping out of school in the lower grades.

#### COMPARISONS WITH PREVIOUS DATES

As compared with the 1947 illiteracy rate of 2.7 percent for persons 14 years old and over, in 1930, the last date for which the Census Bureau collected information on illiteracy, the illiteracy rate for the comparable age group was 4.7 percent. (See table 1 below.) Even more striking than the decline in rates, however, is the fact that illiterates decreased in number between 1930 and 1947 by about 1.3 million, in spite of the fact that during the period the total population 14 years old and over increased

by 17.4 million persons. It should be understood, however, that a large part of the decrease in the number of illiterates was due to the aging and dying off of the older population (which was relatively more illiterate, as indicated above), as well as to the extension of educational opportunities.

In addition to the usual reasons tending to diminish illiteracy which affected the situation between 1920 and World War II, the decrease in the more recent period involved new factors. Although in the earlier period of Selective

Service illiterates were not accepted for induction, later they were accepted; and the armed services found it essential to institute a mass educational program in order to teach the fundamentals of reading and writing to illiterate draftees. As a result many persons became literate who, under normal circumstances, might have gone through life without learning to read and write.

In 1930 and 1920, as well as in 1947, illiteracy rates were lower in each successively younger age group.

Table 1.--ILLITERACY IN THE POPULATION 10 YEARS OLD AND OVER, BY AGE, COLOR, AND NATIVITY, FOR THE UNITED STATES: 1930 AND 1920

Age, color, and nativity	1930 <sup>1</sup>			1920		
	Total number	Illiterate		Total number	Illiterate	
		Number	Percent		Number	Percent
Total, 10 years and over <sup>2</sup> ....	98,629,025	4,277,173	4.3	82,590,616	4,916,424	6.0
10 to 14 years.....	12,004,877	140,440	1.2	10,641,137	246,360	2.3
15 years and over.....	86,624,148	4,136,733	4.8	71,949,479	4,670,064	6.5
15 to 24 years.....	22,422,493	516,302	2.3	18,707,577	676,169	3.6
25 to 34 years.....	18,954,029	618,266	3.3	17,157,684	961,200	5.6
35 to 44 years.....	17,198,840	887,955	5.2	14,120,838	988,961	7.0
45 to 54 years.....	13,018,083	864,433	6.6	10,498,493	857,776	8.2
55 to 64 years.....	8,396,898	606,811	7.2	6,531,672	594,573	9.1
65 years and over.....	6,633,805	642,965	9.7	4,933,215	591,385	12.0
White.....	88,904,306	2,679,422	3.0	74,236,086	2,998,986	4.0
Native.....	75,107,999	1,191,618	1.6	60,758,464	1,239,303	2.0
Foreign-born.....	13,796,307	1,487,804	10.8	13,477,622	1,759,683	13.1
Nonwhite.....	9,724,719	1,597,751	16.4	8,354,530	1,917,438	23.0

<sup>1</sup> Figures have been revised to include Mexicans as white who were classified with "other races" in 1930.

<sup>2</sup> Excludes unknown age.

<sup>3</sup> The 1930 illiteracy rates for the age groups comparable with those for 1947 have been recalculated on the basis of unpublished data as follows: 14 years old and over--4.7 percent; 14 to 24 years old--2.2 percent.

As noted above, the rate of illiteracy for the population of each age group may be considered an approximate measure of the lack of educational advantages during the childhood and youth of that age group. Illiteracy rates in each specific age group will continue to decline as the younger people who have been exposed to more and more educational opportunities grow older. For example, instead of the 1947 illiteracy rate of 5.2 percent for persons 55 to 64 years old, in 1957 the rate for that age group will be roughly that for persons 45 to 54 years old in 1947--namely, 3.0 percent.

#### URBAN AND RURAL RESIDENCE

Illiteracy varied greatly among urban and rural areas, the rural-farm rate of 5.3 percent being twice that for either urban or rural-nonfarm areas. (See table 4.) These differ-

ences reflect, in the main, differences in the convenience of school facilities. Many students in rural-farm areas tend to lose the incentive to attend school regularly because of the greater distances they must travel to reach the nearest school. Males and females had approximately equal rates of illiteracy in urban areas, whereas in both rural-farm and rural-nonfarm areas the male illiteracy rate was about 1½ times that for females.

#### YEARS OF SCHOOL COMPLETED

In October, 1947, the question on illiteracy was asked for the first time in connection with the highest grade of school completed. It was assumed, however, that practically all of the illiterates would be among those who had completed less than 5 years of school and that all persons completing 5 years of school or more were literate.

The results of the survey indicate that this assumption is substantially correct. (See table 4.) Among those persons 14 years old and over who had completed no years of school, 80 percent were illiterate. The illiteracy rate was considerably lower in each group with higher educational attainment until among those completing 4 years, about 5 percent were illiterate.

Within each category of educational attainment, the illiteracy rate was generally higher in the younger age groups and lower for the older population. The data suggest that relatively more persons in the older ages learned to read and write without the benefit of formal schooling than in the younger ages.

"Functional illiteracy."--Persons completing fewer than 5 years of elementary school have sometimes been called "functional illiterates," for example, by the armed forces in World War II in their attempts to weed out those persons who were not able to comprehend simple written instructions. Data from the October, 1947, survey indicate that the conventional definition of illiteracy, i.e., inability to read and write, is a much less rigorous criterion. There were 8.2 million persons in the United States 14 years old and over who had completed less than 5 years of school, whereas there were only 2.8 million who were unable to read and write. Even among those in the lowest educational attainment group, namely, those having completed no years of school, 20 percent were literate according to the Census definition. At the other extreme of the "functional illiteracy" range, i.e., among those completing only 4 years of school, 95 percent were able to read and write. It is obvious, of course, that in a society with a highly complex technology the mere ability to read and write--perhaps with difficulty--is in itself an index of only limited usefulness. Therefore, in the 1940 census the population was described for the first time on the basis of years of school completed and thus could be ranged in a variety of quantitative categories. The classification of "functional illiterates" as those completing less than 5 years of school was merely a grouping to serve a particular purpose.

#### COLOR

The illiteracy rate for whites 14 years old and over was 1.8 percent, whereas for nonwhites it was 11.0 percent, or 6 times as high. (See table 5.) This ratio held approximately for each of the specific age groups as well. However, although 32 percent of the nonwhites 65

years old and over were illiterate, only 4 percent of the nonwhites 14 to 24 years old were illiterate. It seems reasonable to assume that further reduction of illiteracy among nonwhites will continue, but the progress will be obviously less dramatic than that recorded above, resembling instead the progress made recently by the white population.

In the white population the illiteracy rates for males and females were approximately equal. Among nonwhites, however, the male illiteracy rate was 1.7 times that for females. These data show that most of the differences between the illiteracy rates of males and females in the total population is due to the difference in the nonwhite group.

#### METHODS OF ESTIMATING ILLITERACY FOR 1940

In each census from 1870 through 1930 the Census Bureau collected data on the literacy of the population 10 years old and over. Any person who was not able to read and write, either in English or in some other language, was classified as illiterate. In 1940, however, in order to obtain a more comprehensive picture of the educational level of the population, a question on the highest grade of school completed was substituted for the one on illiteracy.

Method 1.--It is impossible to define illiteracy for an individual in terms of the number of years of school completed since, as is demonstrated by the data from the October, 1947, survey, the completion of no particular grade of school corresponds to the attainment of a state of literacy. The grade in which literacy is attained depends both on the individual and on the school system, and some highly literate individuals never had any formal schooling.

Although for a single individual literacy may not be related to a specific grade of school, for the population as a whole the general relationship between grade of school completed and illiteracy, as established by the 1947 data, may be used in the preparation of estimates of illiteracy for 1940.

On the basis of the 1947 data, it is possible to estimate what the 1940 illiteracy rate would have been if the 1947 illiteracy-education relationship had prevailed in 1940 also. This method consists merely in the application of the 1947 illiteracy rate for each separate age-sex group completing a given grade of school to the same age-sex-grade-completed group in the 1940 popu-

lation. This method assumes that the same proportion of a given age-sex-grade-completed group was illiterate both in 1940 and 1947; for example, if 88 percent of the males 35 to 44 years old who had completed no years of school were illiterate in 1947, it is assumed that the same held true in 1940. Thus, changes in the illiteracy rate between 1940 and 1947 for the total population 14 years old and over would be caused only by changes in the distribution of the population by age, sex, and educational attainment.

The following table presents the illiteracy estimates for 1940 derived by the above method:

Table 2.--ESTIMATES OF ILLITERACY IN 1940, BY AGE, FOR THE UNITED STATES: METHOD 1

Age	Total number	Illiterate	
		Number	Per cent
Total, 14 years and over.....	101,102,924	4,218,000	4.2
14 to 24 years.....	26,327,088	552,000	2.1
25 to 34 years.....	21,339,026	506,000	2.4
35 to 44 years.....	18,333,220	734,000	4.0
45 to 54 years.....	15,512,071	895,000	5.8
55 to 64 years.....	10,572,205	741,000	7.0
65 years and over.....	9,019,314	791,000	8.8

The above estimates of 1940 illiteracy, however, are somewhat inconsistent with previous data. An examination of the census data from 1900 to 1930 on illiteracy of the population by age reveals that each group of a given age in 1900, when followed through successive censuses (i.e., each "cohort"), contained a proportion of illiterates that was slowly declining. These declines are probably due to instruction in adult life and to higher survival rates among the literate than among the illiterate. However, each of the 1940 estimates prepared by Method 1 for a specific age group represented an increase in illiteracy over 1930 for each cohort.

Method 2.--In an attempt to obtain estimates for 1940 which would be consistent with previous figures, a second method was used. Estimates of rates of illiteracy in 1940 were prepared by projecting the trend for each cohort. In the preparation of the estimates of the number of illiterates for the total population in 1940,

estimates were made of the rates of illiteracy for native whites, foreign-born whites, Negroes, and persons of other races, separately.

In the case of the native white<sup>3</sup> and the Negro populations, the 1940 rates for most of the age groups were estimated by fitting a curve to the rates for the same cohort (younger age groups) at earlier dates. For the 1940 age groups under 35 years, however, sufficient data for extrapolation of trends on a cohort basis were not available. Since within each fixed age group the rate of illiteracy showed a decline from 1900 to 1930, the trend for the age group was extrapolated to obtain illiteracy rates for 1940 for these younger ages.

For the two remaining groups, foreign-born whites and persons of "other races," slight modifications of the method described above were necessary, however, to take account of the variations in illiteracy rates resulting mainly from the heavy waves of immigration that occurred between 1900 and 1930.

The estimated 1940 illiteracy rates for the total population were obtained by combining the estimates for the four groups. The following table presents the illiteracy estimates for 1940 derived by the second method.

Table 3.--ESTIMATES OF ILLITERACY IN 1940, BY AGE, COLOR, AND NATIVITY, FOR THE UNITED STATES: METHOD 2

Age, color, and nativity	Total number	Illiterate	
		Number	Per cent
Total, 10 years and over.....	110,443,129	3,249,000	2.9
10 to 14 years.....	11,745,935	117,000	1.0
15 years and over.....	98,697,194	3,132,000	3.2
15 to 24 years.....	23,921,358	273,000	1.1
25 to 34 years.....	21,339,026	465,000	2.2
35 to 44 years.....	18,333,220	504,000	2.7
45 to 54 years.....	15,512,071	652,000	4.2
55 to 64 years.....	10,572,205	557,000	5.3
65 years and over.....	9,019,314	680,000	7.5
White.....	99,656,414	2,008,000	2.0
Native.....	88,267,181	983,000	1.1
Foreign-born.....	11,389,233	1,025,000	9.0
Nonwhite.....	10,786,715	1,241,000	11.5

<sup>3</sup> In 1930 Mexicans were classified with "other races" whereas prior to that time and in 1940 they were classified as white. It was therefore necessary to adjust the 1930 illiteracy rates to make them comparable with the other data. The adjustment was made by reclassifying the Mexicans as white and recomputing the illiteracy rates.

\* A cohort is defined as a group of persons born in a given period who are taken as a unit as they pass through successively older ages in life. For example, persons who were 15 to 24 years of age in 1900, 25 to 34 in 1910, 35 to 44 in 1920, 45 to 54 in 1930, and 55 to 64 in 1940, all belong to the cohort of births between 1875 and 1885.

Conclusions.--The fact that the estimates of illiteracy for 1940 prepared by Method 1, based on a projection backward of the 1947 relationships, are consistently higher than those prepared by Method 2, based on a projection forward of the 1930 and earlier data, requires some attempt at explanation.

A possible basis for the difference may lie in the fact that whereas in 1930 and previously a single question on illiteracy was asked, in the 1947 survey the equivalent of two questions on the same general subject was asked, with the question on illiteracy following the one calling for a detailed recollection of highest grade completed. Thus the 1947 enumerative situation may have been more rigorous and elicited more careful answers, and it is possible that there may not be strict comparability between the 1930 and 1947 data. Were the 1947 data on a basis strictly comparable with 1930, it is probable that even more progress in the reduction of illiteracy would be indicated.

As well as the above factor, it is also possible that during the depression years of the thirties the illiteracy of each cohort was reduced relatively little instead of continuing the trend observed through 1930, but in the forties more rapid progress against illiteracy was resumed. (This latter factor alone could not, of course, explain the increase in the illiteracy rate for each cohort between 1930 and 1940 yielded by Method 1.)

DEFINITIONS OF TERMS AND EXPLANATIONS

Population.--The figures for 1947 shown in this report are for the civilian population excluding members of the armed forces and the relatively small number of persons in institutions. Figures shown for 1940, 1930, and 1920 relate to the total population, including those in institutions and all members of the armed forces enumerated in continental United States.

Urban and rural residence.--In this report, the urban and rural areas of 1947 are those that were classified as urban or rural on the basis of the results of the 1940 census. All incorporated places having 2,500 inhabitants or more in 1940 were classified as urban, together with certain additional areas declared urban under special rules. All other areas were classified as rural.

The classification of the rural population into farm and nonfarm is based on residence at

the time of the enumeration. Thus, the October, 1947, rural-farm population is the population living on farms in October, 1947, in areas that were classified as rural in 1940.

Age.--The age classification is based on the age of the person at his last birthday.

Color.--Persons of Mexican birth or ancestry who were not definitely Indian or of other non-white race are classified as white. The group designated "nonwhite" consists of Negroes, Indians, Chinese, Japanese, and other nonwhite races.

Illiteracy.--All persons who reported that they were unable to read and write, either in English or in any other language, are classified as illiterate. Thus, illiterates include persons able to read but not to write. The ability merely to sign one's own name is not considered ability to write. Persons who knew how to read and write at one time but who were unable to do so at the time of the survey because of mental or physical impairment, such as blindness, are classified as literate.

In October, 1947, the question on literacy was asked only of those persons 14 years old and over who had completed less than 5 years of school, all persons who had completed 5 or more years of school being classified as literate. In the 1930 and 1920 censuses, the question was asked of all persons 10 years old and over.

Highest grade of school completed.--The data for years of school completed are based on the replies to the enumerator's inquiry as to the last full grade that each person had completed in the regular school system--public, private, or parochial school, college or university.

Source and reliability of the estimates.--The estimates presented in this report are based on data obtained in connection with the Census Bureau's monthly population sample survey, the sample consisting of about 25,000 households located in 68 areas in 42 States and the District of Columbia.

The estimating procedure used in this survey involved, as a final step, the inflation of weighted sample results to independent estimates of the civilian noninstitutional population of the United States by age, sex, and veteran status. These independent estimates were based on statistics from the 1940 Census of Population; statistics of births, deaths, immigration, and

emigration; and statistics on the strength of the armed forces.

The figures shown for 1930 and 1920 are based on a complete enumeration of the population and were published in Volume II of the 1930 Census Reports on Population. (The 1930 statistics by race and nativity have been slightly revised as noted in table 1 of this report.)

Since the October, 1947, estimates, except those independent estimates mentioned just above, are based on sample data, they are subject to sampling variability which may be relatively large in cases where the estimates are small. For example, the total number of illiterates in October, 1947, was estimated at 2,838,000. The chances are about 19 out of 20 that a complete

census would have yielded a figure between 2,117,000 and 3,559,000.

The reliability of an estimated percentage depends upon both the size of the percentage and the size of the total on which it is based. Small estimated percentages and estimated percentages having a small base are subject to relatively large sampling variability. For example, an estimated 3.0 percent of all males 14 years old and over were illiterate in October, 1947. The chances are about 19 out of 20 that a complete census would have yielded a figure between 2.3 and 3.7 percent.

In addition to sampling variation, the estimates are subject to errors of response and to nonreporting, but the possible effect of such biases is not included in the above measures of reliability.

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