

DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
WASHINGTON

UNITED STATES ABRIDGED LIFE TABLES

1919-1920

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Populations for which life tables were computed:

WHITE POPULATIONS IN—

Aggregate of twenty-seven states and the District of Columbia.

The original registration states.

The separate states of—

California.	Kentucky.	Missouri.	Oregon.	Utah.
Connecticut.	Maryland.	New Jersey.	Pennsylvania.	Virginia.
Illinois.	Massachusetts.	New York.	South Carolina.	Washington.
Indiana.	Michigan.	North Carolina.	Tennessee.	Wisconsin.
Kansas.	Minnesota.	Ohio.		

Aggregate of fourteen cities.

The separate cities of—

Baltimore.	Chicago.	Los Angeles.	Philadelphia.	San Francisco.
Boston.	Cleveland.	New Orleans.	Pittsburgh.	Washington, D. C.
Buffalo.	Detroit.	New York.	St. Louis.	

NEGRO POPULATIONS IN—

States with less than 4 per cent Negro population.

States with more than 5 per cent Negro population.

Twelve large cities.

Original registration states.

HAWAIIAN POPULATIONS—

All races combined.

Japanese race.

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LETTER OF TRANSMITTAL.

DEPARTMENT OF COMMERCE,
BUREAU OF THE CENSUS,
Washington, D. C., June 30, 1922.

SIR:

I transmit herewith United States Abridged Life Tables, 1919-1920. These life tables, 92 in all, are based on the 1920 enumerated population and on the births and deaths which occurred during the calendar years 1919 and 1920 in 27 registration states, the District of Columbia, and the Territory of Hawaii, and relate to about 74 per cent of the total population of the United States and this Territory.

The preparation of these life tables was approved by the Census Advisory Committee, in order that 1919-1920 life tables might be quickly available as a supplement to the United States Life Tables, 1890, 1901, 1910, and 1901-1910, recently prepared in the Bureau of the Census by James W. Glover, professor of mathematics and insurance in the University of Michigan.

These abridged life tables were prepared under the direction of Dr. William H. Davis, chief statistician for vital statistics. The construction of these life tables was under the immediate supervision of Miss Elbertie Foudray, expert special agent of the Bureau of the Census, who selected the methods used, or devised them when necessary, and submitted methods and text for approval to Prof. James W. Glover, to whom acknowledgment is made. Acknowledgment is also made to Mr. Robert Henderson, actuary of the Equitable Life Assurance Society of the United States, who read the text and made the suggestions mentioned on pages 31, 32, and 34.

Respectfully,

W. M. STEUART,
Director of the Census.

HON. HERBERT HOOVER,
Secretary of Commerce.

UNITED STATES ABRIDGED LIFE TABLES: 1919-1920.

INTRODUCTION.

GENERAL STATEMENTS.

1. This third official publication on life tables issued by the Bureau of the Census is called *abridged* life tables because of the abridged process of constructing them and because they show life table values, such as rates of mortality and expectations of life, only at every fifth year of age instead of at each year of age.

Four life table functions are shown: Rate of mortality per thousand, number of survivors to each age out of 100,000 born alive, number of deaths in each age interval out of 100,000 born alive, and complete expectation of life in years. Annual rates of mortality are given for the following ages in years: 0, 1, 2, 7, 12, 17, 22, and so on at 5-year intervals up to 92. These rates of mortality are for the midyear of the quinquennial age groups 5-9, 10-14, 15-19, and so on, and represent roughly the average rate for that age group. From these rates the number of survivors out of 100,000 born alive was determined at the exact ages 1, 2, 7, 12, 17, and so on, at each fifth year of age up to age 92. From the survivors the expectation of life in years was derived for these same ages. Then the number of deaths out of 100,000 born alive was determined for age intervals 0-1, 1-2, 2-7, 7-12, and so on for each quinquennial age group up to age 92-97.

Altogether the life tables relate to 74 per cent of the population of the United States, exclusive of outlying possessions, except Hawaii, as enumerated in the census of 1920. The 1910 life tables relate to about 28 per cent of the total population of the United States, of which not more than 2 per cent are Negroes. Under these circumstances, therefore, life tables for total populations and for white populations do not differ much. But in the various states and cities and other groups of population for which 1919-1920 life tables are constructed the per cent of colored population varies from 0.6 in Wisconsin to 51.4 in South Carolina. No true comparisons could be made between aggregate populations because of this varying per cent of colored population. Accordingly all the abridged life tables, except those for Hawaii, are for white or Negro populations and not for the aggregate. All the tables are also shown by sex.

To render comparison easy the values of each life table function are grouped in tables by sex. Thus all the expectations of life at every fifth year of age for white males in 23 states, 14 cities, and in 3 other large

groups, and also for 4 groups of Negro males, and for the aggregate males and the Japanese males in Hawaii, are shown in one table.

The order or rank of each value of a function at any age or in any age interval is shown by small figures in a narrow column to the right. Thus in Table 3, page 12, in the column for the age 22 years, the figure 1 in the narrow column to the right of 3.93 shows that the lowest rate of mortality at this age was among Wisconsin white males. Also the 28 in the narrow column to the right of 5.17 in the same age column shows that rates of mortality among 27 male populations were lower than that among New Jersey white males at this age.

Abridged life tables for 1919-1920 were constructed for whites and for Negroes separately in the original registration states, which is the largest area upon which United States life tables have been based heretofore. To show the change in the ten-year period, the life table values for the period 1909-1911 are in italics just below the corresponding ones for 1919-1920. The 1919-1920 rates of mortality show that there was marked improvement among white males for each age given, except 17, 27, and 92, and among white females for each age given except 17, 22, 27, and 32. See Tables 3 and 4, pages 12 to 15. The values for Negroes at the bottom of these tables show similar fluctuations at the same ages, and also some at ages 52 to 62, 72, and 82. This lack of improvement in adult years was due to the influenza epidemics of 1919 and 1920. Values taken from the life tables for the Japanese Empire for the period 1908-1913¹ are in italics just below those for the Japanese in Hawaii in 1919-1920. From these values it appears that infant mortality is much lower among the Japanese in Hawaii than in the Japanese Empire. Possibly the desire for American citizenship influences the number of births registered among Japanese in the United States territory and this may be the cause for the differences in infant mortality rates among Japanese in Japan and in the United States. But after age 27 and up to old age mortality rates among Japanese appear to be more favorable in the Empire than in Hawaii. The number of Japanese over 50 years of age in Hawaii is too small to afford reliable life table values.

As the life table functions are shown for each sex separately, Table 11 permits a comparison of the rates of

¹ *Résumé Statistique de L'Empire du Japon*, Table 14, p. 17.

mortality of the two sexes in each area and age group. This table shows the excess of the rate of mortality among males over that among females in each age group in each area. Differences in bold-faced type indicate that the rate of mortality among females is greater than that among males in that age group and area. Thus, at age 27 it will be noted that the rate of mortality among white females exceeds that among white males by 0.89 in the state of Illinois; by 1.62 in Indiana; by 2.25 in Kentucky; by 2.04 in Michigan. It will also be seen that greater mortality among females than among males is more frequent in 1919-20 than in 1909-1911.

OUTLINE OF CONTENTS.

2. This report on life tables is divided into three parts, abridged life tables, description of the process used in computing them, and the original statistics on which these life tables are based.

In Part I each of the Tables 3 to 10 shows for one sex all the values for one life table function. Table 11 shows the excess of rates of mortality among males over those among females in the same area and age group. Bold-faced figures in any age group indicate that the rate of mortality among females is greater than that among males. Figures in italics in these tables are used for the values taken from the 1909-1911 life tables for whites and Negroes in the original registration states and for the values taken from the life tables for the Japanese Empire for the period 1908-1913¹ which are given in these tables for the sake of comparison.

Part II includes a full explanation of the method used to compute these 1919-1920 abridged life tables and photographs of the actual computation by this method of an abridged life table for males in the state of New York, 1909-1911. The computation of a life table by the extended method for males in the state of New York, 1909-1911, is shown in Part VII of the United States Life Tables, 1890, 1901, 1910, and 1901-1910, and these computations by the abridged method show not only the differences between the two processes of computation but also the differences between the results obtained by the two methods when applied to the same original data. The photographs are accompanied by a detailed description of the computations shown in them.

In Part III are the three tables of original statistics on which these abridged life tables are based. The first one, Table 16, gives the statistics used which were not compiled in the Bureau of the Census, but were either copied from state reports on vital statistics, or were compiled especially for these life tables through the courtesy of the individual state departments. Discussion of the statistics shown in this table is given at the beginning of Part III, section 44. Table 17 shows the statistics used in obtaining rates of mortality up to 2 years of age. Table 18 shows the

statistics used in obtaining the rates of mortality from age 7 to last age in table.

POPULATIONS ON WHICH LIFE TABLES ARE BASED.

3. By means of these abridged life tables it was desired to obtain life table values for all parts of the United States for which reliable death statistics could be obtained, in order to study the varying mortality conditions in the different sections of the country. Accordingly not so much attention was given to the size of the population on which life tables are based as to the reliability of the death statistics available for the calendar years 1919 and 1920, and as to whether any birth statistics were available which could be used to estimate practically the same per cent of the actual number of births in each of these areas from 1916 to 1920. The largest population on which an abridged life table is based is that for aggregate white males, 37,026,026. The smallest populations are those for Hawaii, the Japanese female population in Hawaii being only 46,630. Consequently these last tables are far from smooth, but it is believed that they are reliable up to about 50 years of age. The size of the population and the number of deaths on which each life table is based are shown in Table 18, pages 62 to 71.

Fourteen tables are based on the sum of the populations in a number of states or cities. Six are for whites and eight are for Negroes. The populations on which the life tables for whites are based total 77.09 per cent of the white population of the United States exclusive of outlying possessions, while those on which the life tables for Negroes are based total 46.13 per cent of the Negro population. Four of these tables are for white males and females and for Negro males and females in the original registration states, which include the New England states, New Jersey, New York, Indiana, Michigan, and the District of Columbia. Two life tables for aggregate white males and females include the populations of the original registration states, and California, Illinois, Kansas, Kentucky, Maryland, Minnesota, Missouri, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Tennessee, Utah, Virginia, Washington, and Wisconsin. Two life tables are for whites in fourteen large cities: Baltimore, Boston, Buffalo, Chicago, Cleveland, Detroit, Los Angeles, New Orleans, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco, and Washington, D. C. Life tables for Negroes in states with less than 4 per cent Negro population² are based on the Negro population in sixteen states: California, Connecticut, Illinois, Indiana, Kansas, Massachusetts, Michigan, Minnesota, New Jersey, New York, Ohio, Oregon, Pennsylvania, Utah, Washington, and Wisconsin. Life tables for Negroes in states with more than 5 per cent Negro population² are based on the Negro population in seven states: Kentucky, Mary-

¹ *Résumé Statistique de L'Empire du Japon*, Table 14, p. 17.

² No states for which life tables were computed had between 4 and 5 per cent Negro population.

land, Missouri, North Carolina, South Carolina, Tennessee, and Virginia. Two more life tables for Negroes are based on the Negro population in twelve cities: Baltimore, Boston, Buffalo, Chicago, Cleveland, Detroit, New Orleans, New York, Philadelphia, Pittsburgh, St. Louis, and Washington, D. C.

MORTALITY OF CHILDREN UNDER 3 YEARS OF AGE.

4. A study of the birth statistics available for these life tables showed that the number of births registered ranged from about 75 per cent to practically 100 per cent of the actual number of births. Consequently, unless corrected, it was impossible to use these birth statistics as a basis for comparing mortality under 3 years of age. The method used to obtain the computed number of births for the United States Life Tables, 1890, 1901, 1910, and 1901-1910 could not be used for the 1919-20 tables, since the deaths during the calendar years 1921 to 1923 were, of course, not available at the time the abridged life tables were prepared. Accordingly a method or plan had to be devised whereby the number of births could be determined from the statistics available at the time of the computations of the tables. Census returns for children under 1 year of age are recognized throughout the civilized world as practically always incomplete. Mr. George King says:

The number of infants alive under one year of age should closely agree with the calculated number derived from the births and deaths, there having been no time for emigration to tell, whereas the number of children alive in each of the succeeding four years of age should progressively be a little less—the difference being an increasing one—than the number calculated from the births and deaths. It is, however, seen that the census returns do not comply with these conditions, and the conclusion seems to be inevitable that a large number of infants under two years of age escaped enumeration at both the censuses of 1901 and 1911, more especially so in 1911, although why that should be it is difficult to understand. Is there any other explanation? This is a matter that is well worthy of investigation before the next census comes to be taken.¹

It was assumed that the ratio of the actual number of children under 1 year of age to the number obtained from census returns was uniform throughout the United States. To determine approximately the value of this ratio an investigation was made of the children born in Washington, D. C., during the calendar year 1919. The census returns for the District and its death records were searched for the children born there in 1919, and a form letter was sent to the parents of those children whose names did not appear either in the census schedules of January 1, 1920, or on the death records for the District for 1919. Between 500 and 600 answers to these inquiries were received and they were used as a basis for estimating the status on January 1, 1920, of the children whose names were missing from the schedules and about whom it was impossible to obtain definite information. Separate records were kept for white and Negro children, and the per cent of children whose names were missing from the census

schedules, but who were actually living in the District on January 1, 1920, was found to be much greater among Negroes than among whites.

It was then assumed that the per cent of infants whose names were missing from the census schedules for the District was constant throughout the United States, and the per cent determined was used to obtain a close approximation to the actual number of children under 1 year of age in each community on January 1, 1920. Different constants were determined for white and Negro children. The constant per cent of infants whose names were missing was taken as 9 for whites and 25 for Negroes. When a close approximation to the number of children under 1 year of age in a community on January 1, 1920, was obtained, the number of births among whites or among Negroes, which occurred in the community during the calendar year 1919 was computed by the method described in section 109, page 340, of the United States Life Tables, 1890, 1901, 1910, and 1901-1910. Next it was necessary to determine the number of births in 1920 and in 1916, 1917, and 1918, as explained in section 8, page 32. Under present birth registration it may be assumed that the ratio between the number of births registered in 1919 and the actual number of births in that year should be very nearly equivalent to similar ratios for the years immediately preceding and following 1919. Accordingly the ratio between the computed number of births, based on corrected census returns for children under 1 year of age, and the number of births registered in 1919 in each area was determined and then this ratio was applied to the number of registered births by sex in each year from 1916 to 1920, inclusive, to determine a close approximation to the actual number of births in that community in each of those years.

Owing to the fluctuations in the birth and death rates since 1916 the populations by single years of age under 3 on January 1, 1919, and January 1, 1921, could not be estimated accurately by the usual methods. The 1920 Birth Statistics for the Birth Registration Area of the United States, page 8, shows the following birth rates from 1916 through 1920 in this area for each year. In 1920 the birth registration area included nearly 60 per cent of the population in the United States.

TABLE I.—BIRTH RATES IN BIRTH REGISTRATION AREA, 1916 TO 1920.

YEAR.	Total.	White.	Colored.
1920.....	23.7	23.5	27.0
1919.....	22.3	22.1	25.2
1918.....	24.6	24.6	24.5
1917.....	24.7	24.7	24.4
1916.....	25.0	25.1	20.4

From this table it will be seen that the number of white children at each age under 3 years on January 1, 1919, was probably greater than on January 1, 1920, and the number of children between 1 and 3 years of age

¹ Supplement to the Seventy-fifth Annual Report of the Registrar-General, 1912. England and Wales. Part I. Life Tables. Section 42, page 13.

on January 1, 1920, was probably greater than on January 1, 1921. The number of children at each year of age under 3 years according to the census returns of April 15, 1910, was less than the number at the corresponding age according to the census returns of January 1, 1920. Any form of interpolation between census returns would show a gradual increase in the number of children under 3 instead of the actual fluctuation that occurred, and therefore no interpolation between census returns could be used. The method adopted for determining the populations under 3 on January 1, 1919, and January 1, 1921, is a modification of the method used for determining the number of births for the United States Life Tables of 1890, 1901, 1910, and 1901-1910, section 109, page 340.

METHOD USED IN CONSTRUCTING ABRIDGED LIFE TABLES.

5. In deciding the method to be used for the construction of abridged life tables for the United States various methods were studied closely, and the one set forth by Mr. George King on pages 26 to 33 of the Supplement to the Seventy-fifth Annual Report of the Registrar-General of Births, Deaths and Marriages in England and Wales, Part I, Life Tables, was adopted with some modifications.

The process was shortened and methods for joining life table values at ages under 3 years with those at ages 12 years and over were devised so that expectations of life at birth and at other young ages could be obtained. The method used is explained fully in sections 9 to 13 of Part II, pages 33 to 35.

TABLE 2.

LIFE TABLE FUNCTIONS FOR
BY THE EXTENDED AND BY THE ABRIDGED METHODS

EXACT AGE IN YEARS.	1000 q_x ANNUAL RATE OF MORTALITY PER THOUSAND AT AGE x .							
	By abridged method applied to 4-8 group.	In column 2 less corresponding rate in column 4.	By extended method applied to 4-8 group.	In column 6 less corresponding rate in column 4.	By abridged method applied to 5-9 group.	In column 6 less corresponding rate in column 8.	By extended method applied to 5-9 group.	In column 8 less corresponding rate in column 4.
1	2	3	4	5	6	7	8	9
0.....	127.49	+ .36	127.13	+ .36	127.49			
1.....	34.25	+ .61	33.64	+ .61	34.25			
2.....			15.56	+ .05	16.21			
6.....	4.53	+ .08	4.45					
7.....			3.70	+ .05	3.75			
11.....	2.30	.00	2.30					
12.....			2.32	- .04	2.28			
16.....	3.37	.00	3.37					
17.....			3.77	+ .11	3.88	- .05	3.93	+ .16
21.....	5.34	- .08	5.42					
22.....			5.63	- .16	5.47	- .04	5.51	- .12
26.....	6.27	+ .04	6.23					
27.....			6.48	+ .04	6.52	+ .04	6.48	.00
31.....	7.98	+ .03	7.95					
32.....			8.47	- .01	8.46	+ .03	8.43	- .04
36.....	10.67	- .05	10.72					
37.....			11.18	.00	11.18	- .07	11.25	+ .07
41.....	12.98	+ .01	12.97					
42.....			13.49	- .15	13.34	+ .06	13.28	- .21
46.....	15.98	- .01	15.99					
47.....			16.70	+ .04	16.74	- .04	16.78	+ .08
51.....	19.90	+ .08	19.82					
52.....			20.90	- .01	20.89	+ .07	20.82	- .08
56.....	27.26	- .12	27.38					
57.....			29.35	- .35	29.00	- .13	29.13	- .22
61.....	38.08	- .01	38.09					
62.....			40.54	+ .02	40.56	+ .03	40.53	- .01
66.....	51.61	+ .16	51.45					
67.....			54.87	- .19	54.68	+ .15	54.53	- .34
71.....	72.05	- .02	72.07					
72.....			77.26	- .61	76.65	.00	76.65	- .61
76.....	103.11	- .44	103.55					
77.....			111.00	+ .88	111.88	- .84	112.72	+1.72
81.....	148.20	- .96	149.16					
82.....			160.89	-3.09	157.80	- .04	157.84	-3.05
86.....	211.79	+1.36	210.43					
87.....			221.70	+3.50	225.20			
91.....	263.46	+ .24	263.22					
92.....			274.62	+3.83	278.45			

AGE GROUP OF ORIGINAL STATISTICS.

6. At the time it was decided to begin the computation of the abridged life tables population statistics were not available by each single year of age, but only by single years under 5 and the quinquennial age group 5-9, 10-14, and so on up to age 100 years and over. Although it was desired to use the group 4-8, 9-13, and so on up to end of life, to wait for a compilation of populations in the quinquennial age group 4-8, 9-13, and so on, would have delayed the computation of these tables too long.

To show the variations produced in life table functions by applying the abridged process to the original statistics in different age groups, the abridged process was applied to the original statistics for the 1909-1911 New York male life table in the age group 4-8,

9-13, and so on as well as in the age group 5-9, 10-14, and so on. The results are shown in Table 2.

To obtain the probability of living from ages 1 to 6 years for column 10 from rates of mortality at these ages, equation (iia), page 35, with the coefficient of $\Delta^3 u_0$ changed from +1.0 to +1.2, was used. The coefficient +1.2 was derived in the same way as the coefficient +1.0. See section 12, page 34. Where the original statistics for both the extended and the abridged methods are based on the same age group, there is very close agreement. So any difference between several life tables for New York, males, 1909-1911, seems to be almost entirely due to the variation in the age groups of the original statistics from which they were derived.

MALES IN THE STATE OF NEW YORK: 1909-1911.

TABLE 2.

WITH ORIGINAL STATISTICS IN GROUPS 4-8 AND 5-9.

l_x NUMBER OF SURVIVORS AT AGE x OUT OF 100,000 BORN ALIVE					e_x COMPLETE EXPECTATION OF LIFE IN YEARS AT AGE x .					EXACT AGE IN YEARS.
Based on rates in column 2 by abridged method.	In column 10 less corresponding number in column 12.	Based on rates in column 4 by extended method.	In column 14 less corresponding number in column 12.	Based on rates in column 6 by abridged method.	Based on l_x in column 10 by abridged method.	In column 15 less corresponding e_x in column 17.	Based on l_x in column 12 by extended method.	In column 19 less corresponding e_x in column 17.	Based on l_x in column 14 by abridged method.	
10	11	12	13	14	15	16	17	18	19	20
100,000	0	100,000	0	100,000	47.87	-.02	47.89	-.08	47.81	0
87,251	-36	87,287	-36	87,251	53.79	-.03	53.82	-.10	53.72	1
		84,350	-87	84,263			54.68	-.07	54.61	2
81,135	-151	81,286	-295	80,629	52.69	.00	52.69			6
		80,924					51.92	+.05	51.97	7
79,812	-152	79,964	-270	79,610	48.53	+.01	48.52			11
		79,780					47.63	+.05	47.68	12
78,796	-154	78,950	-279	78,405	44.12	+.01	44.11			16
		78,684					43.26	+.05	43.31	17
77,170	-134	77,304	-244	76,641	40.00	+.01	39.99			21
		76,885					39.21	+.04	39.25	22
74,988	-119	75,107	-223	74,416	36.09	.00	36.09			26
		74,639					35.31	+.03	35.34	27
72,444	-132	72,576	-233	71,766	32.26	.00	32.26			31
		71,999					31.51	+.04	31.55	32
69,232	-119	69,351	-199	68,408	28.64	.00	28.64			36
		68,607					27.94	+.04	27.98	37
65,314	-106	65,420	-176	64,396	25.21	+.01	25.20			41
		64,572					24.53	+.03	24.56	42
60,833	-104	60,938	-140	59,824	21.87	.00	21.87			46
		59,964					21.22	+.02	21.24	47
55,731	-73	55,804	-126	54,572	18.64	-.01	18.65			51
		54,698					18.01	+.03	18.04	52
49,720	-102	49,822	-88	48,370	15.58	+.01	15.57			56
		48,458					15.00	+.02	15.02	57
42,400	-67	42,467	-34	40,815	12.83	.00	12.83			61
		40,849					12.31	+.02	12.33	62
34,015	-38	34,053	-13	32,288	10.37	.00	10.37			66
		32,301					9.90	+.01	9.91	67
25,085	-33	25,118	+60	23,367	8.17	+.01	8.16			71
		23,307					7.76	-.02	7.74	72
16,220	-19	16,239	+38	14,595	6.28	+.01	6.27			76
		14,557					5.94	-.02	5.92	77
8,565	-10	8,575	+21	7,317	4.74	+.01	4.73			81
		7,296					4.47	-.04	4.43	82
3,299	-4	3,303	+66	2,674	3.04	-.01	3.65			86
		2,608					3.48	-.31	3.17	87
878	-4	882	-74	576	2.84	-.07	2.91			91
		650					2.78	-.75	2.03	92

PART I.—UNITED STATES ABRIDGED

TABLE 3.—Males. 1000 q_x .

ANNUAL RATE OF MORTALITY

No. of life table.	AREA AND COLOR.	EXACT AGE IN YEARS.																	
		0		1		2		7		12		17		22		27		32	
		1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.
WHITE.																			
1	Aggregate ¹	84.33	22	17.59	18	8.45	17	3.01	15	2.20	*14	3.93	22	4.94	20	5.79	19	6.86	19
3	Original registration states ²	92.43	28	18.80	23	9.06	23	3.32	25	2.25	*21	3.92	21	4.97	21	5.86	20	6.87	20
	Original registration states, 1909-1911.....	125.26	....	28.21	....	12.75	....	3.40	....	2.29	....	3.65	....	5.39	....	5.82	....	7.51	....
STATES.																			
5	California.....	72.77	9	14.89	10	7.52	9	3.13	17	2.77	35	4.80	38	5.87	37	7.22	38	8.39	36
7	Connecticut.....	94.60	30	16.53	14	9.01	22	3.26	*20	2.22	19	3.88	*19	5.03	23	6.01	23	6.84	18
9	Illinois.....	84.14	21	19.68	26	9.35	28	3.12	16	2.20	*14	4.05	26	4.63	11	5.49	12	6.58	10
11	Indiana.....	81.23	19	16.38	13	8.41	16	2.95	13	2.13	10	4.26	29	4.74	13	5.26	6	5.95	3
13	Kansas.....	67.81	4	13.00	6	6.87	6	2.57	6	2.09	*7	3.71	13	4.22	2	4.92	2	5.81	1
15	Kentucky.....	69.28	6	17.61	19	8.30	13	2.83	10	2.20	*14	4.35	31	5.50	34	5.65	17	6.18	4
17	Maryland.....	95.99	33	17.69	20	9.10	24	2.93	12	2.21	*17	3.33	2	5.00	22	6.18	28	7.50	33
19	Massachusetts.....	98.62	36	19.22	25	9.16	25	3.28	22	2.05	*5	3.37	3	4.24	3	5.64	16	6.31	6
21	Michigan.....	93.45	29	17.74	21	8.96	20	3.59	30	2.46	31	4.32	30	4.71	12	5.43	*9	6.51	9
23	Minnesota.....	68.80	5	11.01	2	5.65	*1	2.55	5	2.12	9	3.61	8	4.52	*6	5.25	5	6.62	11
25	Missouri.....	74.43	12	18.15	22	8.38	15	3.24	19	2.18	12	4.10	28	5.23	29	5.51	13	6.46	8
27	New Jersey.....	88.13	23	19.72	27	8.88	19	3.31	24	2.14	11	3.58	7	5.17	28	5.99	22	7.08	22
29	New York.....	92.26	27	20.37	31	9.46	29	3.40	26	2.30	25	3.95	24	5.38	31	6.27	31	7.39	29
31	North Carolina.....	72.71	8	19.98	28	7.81	10	1.97	1	1.78	1	3.49	5	4.81	16	6.07	24	6.76	16
33	Ohio.....	80.52	18	15.72	11	7.93	11	2.98	14	2.09	*7	3.94	23	4.52	*6	5.29	7	6.71	14
35	Oregon.....	62.64	1	10.46	1	5.65	*1	2.62	8	2.53	32	4.71	37	4.56	9	6.28	32	6.78	17
37	Pennsylvania.....	96.94	34	20.18	29	8.98	21	3.15	18	2.21	*17	3.70	12	5.14	27	6.10	*25	7.31	27
39	South Carolina.....	74.85	13	20.30	30	9.33	27	2.16	2	1.90	3	3.69	11	5.88	38	5.66	18	7.15	24
41	Tennessee.....	63.35	3	16.68	15	8.37	14	2.40	4	1.87	2	3.83	*16	4.90	18	5.45	11	6.23	5
43	Utah.....	73.88	10	12.07	5	6.75	5	2.74	9	2.79	36	4.40	32	5.04	24	7.21	37	9.00	38
45	Virginia.....	78.02	15	15.96	12	8.81	18	2.22	3	2.00	4	3.77	14	5.37	30	5.54	14	6.91	21
47	Washington.....	63.11	2	11.16	3	6.03	3	2.87	11	2.40	*28	4.61	34	5.77	35	6.58	33	6.73	15
49	Wisconsin.....	78.51	17	11.18	4	6.28	4	2.68	7	2.05	*5	3.62	9	3.93	1	4.75	1	5.84	2
CITIES.																			
51	Aggregate ³	95.24	*31	22.05	34	10.77	34	3.94	37	2.38	27	3.88	*19	5.11	25	5.96	21	7.40	30
53	Baltimore.....	103.42	37	21.85	35	11.71	39	3.43	28	2.19	13	2.95	1	4.75	14	6.10	*25	7.43	32
55	Boston.....	108.69	40	23.18	38	9.90	30	4.29	*38	2.40	*28	3.38	4	4.76	15	6.15	27	7.90	34
57	Buffalo.....	116.88	42	21.63	33	13.03	43	5.00	42	3.03	38	3.98	25	4.92	19	6.25	30	7.33	28
59	Chicago.....	98.44	35	23.99	*40	11.29	36	3.81	34	2.28	24	3.79	15	4.59	10	5.22	3	6.64	12
61	Cleveland.....	92.19	26	19.05	24	10.13	32	3.79	33	2.33	26	3.86	18	4.25	4	5.43	*9	7.25	25
63	Detroit.....	108.11	38	22.49	36	12.05	40	4.79	40	2.55	33	4.64	36	4.52	*6	5.23	4	6.37	7
65	Los Angeles.....	77.45	14	17.56	17	8.17	12	3.84	35	3.20	40	4.86	39	5.79	36	7.14	*35	8.43	37
67	New Orleans.....	74.08	11	14.81	9	9.21	26	3.29	23	3.47	43	4.87	40	5.48	32	7.42	39	11.26	42
69	New York, N. Y.....	89.45	25	23.07	37	10.55	33	3.65	*31	2.24	20	3.83	*16	5.49	33	6.21	29	7.41	31
71	Philadelphia.....	95.24	*31	21.27	32	10.92	35	3.65	*31	2.25	*21	3.53	6	4.83	17	5.62	15	7.11	23
73	Pittsburgh.....	120.79	43	27.45	43	12.70	42	4.89	41	2.61	34	4.54	33	7.09	40	7.59	40	9.93	41
75	St. Louis.....	82.57	20	17.17	16	10.07	31	5.61	45	2.25	*21	3.63	10	4.48	5	5.39	8	6.68	13
77	San Francisco.....	69.70	7	13.14	7	7.48	8	3.55	29	3.06	39	4.63	35	6.12	39	7.06	34	9.58	39
79	Washington, D. C.....	78.33	16	13.31	8	7.30	7	4.29	*38	2.41	30	4.09	27	5.13	26	7.14	*35	7.28	26
NEGROES.																			
81	States with less than 4 per cent Negroes ⁴	141.69	44	45.89	44	20.14	45	5.58	44	4.79	44	11.63	45	13.14	46	11.79	45	13.30	44
83	States with more than 5 per cent Negroes ⁵	109.19	41	26.21	42	11.70	38	3.41	27	3.28	42	8.28	43	12.24	44	12.47	46	14.32	46
85	Large cities ⁶	154.40	46	49.83	46	23.47	46	5.72	46	5.59	46	11.71	46	11.99	43	11.34	42	14.19	45
87	Original registration states ²	144.95	45	46.91	45	18.25	44	5.44	43	4.92	45	10.88	44	13.04	45	11.73	44	13.13	43
	Original registration states, 1909-1911.....	219.55	....	66.82	....	32.14	....	6.22	....	5.68	....	9.75	....	12.47	....	12.82	....	16.22	....
HAWAII.																			
89	Hawaii (all races combined).....	108.20	39	23.81	39	12.16	41	3.93	36	3.23	41	7.00	42	9.52	42	11.43	43	9.65	40
91	Japanese in Hawaii.....	89.10	24	23.99	*40	11.69	37	3.26	*20	2.96	37	6.39	41	8.34	41	8.85	41	8.03	35
	Japanese in Japan, 1908-1913.....	160.60	....	44.10	....	23.67	....	4.49	....	3.12	....	6.82	....	9.11	....	8.07	....	7.74	....

* Two or more rankings the same.

¹ Statistics for the aggregate tables are a compilation of those for the New England states, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.² The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.³ The 14 cities included in aggregate white in cities are those shown in the table.

LIFE TABLES: 1919-1920.

PER THOUSAND, 1919-1920.

1000 q_x . Males. TABLE 3.

EXACT AGE IN YEARS.																										No. of life table.
37		42		47		52		57		62		67		72		77		82		87		92				
1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.			
7.58	16	8.65	17	10.37	15	13.83	16	20.25	16	28.35	17	43.10	14	65.41	18	96.40	17	145.98	21	203.96	26	270.74	28	1		
7.70	19	9.05	19	11.05	20	14.85	19	21.88	20	30.45	20	46.15	21	69.26	23	102.13	23	150.84	27	211.97	35	282.91	29	8		
9.23	....	11.04	....	13.83	....	17.21	....	25.08	....	35.41	....	60.23	....	72.30	....	108.04	....	158.33	....	216.45	....	282.56	....			
9.63	37	10.66	33	11.91	25	15.96	26	22.33	21	30.78	21	44.16	15	62.05	14	91.42	10	139.91	14	204.85	29	248.60	13	5		
8.11	23	9.62	23	11.02	19	15.51	22	24.17	26	30.12	19	45.75	20	67.30	19	105.34	28	135.73	7	207.77	31	222.37	6	7		
7.39	15	8.45	15	10.89	18	14.25	17	20.56	17	28.53	18	44.21	17	64.56	16	93.35	14	141.75	17	204.19	27	269.31	25	9		
6.79	8	7.44	7	8.45	6	11.11	5	16.79	7	23.71	6	39.45	9	61.24	13	94.81	16	143.58	19	217.41	38	294.21	35	11		
5.68	1	6.30	1	6.75	1	9.44	1	14.40	1	20.66	1	32.95	1	56.04	3	86.00	6	132.69	5	190.19	13	308.31	40	13		
6.54	4	7.02	4	8.55	7	10.40	2	16.18	5	23.47	5	35.27	2	60.16	12	83.61	4	139.02	11	175.80	4	302.97	38	15		
8.12	24	9.08	20	11.51	23	15.59	25	22.61	22	31.39	23	47.36	24	73.72	28	101.99	22	147.95	22	199.43	20	272.82	26	17		
7.25	13	8.56	16	10.73	17	14.73	18	21.36	18	30.97	22	48.57	27	72.75	26	103.20	25	152.03	30	211.55	34	267.28	23	19		
6.85	9	7.71	11	9.04	11	11.92	9	18.44	12	26.39	*14	40.70	11	64.98	17	97.05	18	150.11	25	216.80	37	286.94	32	21		
6.63	5	7.09	5	8.75	10	11.61	7	17.40	9	25.18	9	36.64	5	58.54	8	82.87	3	139.89	13	172.30	3	253.23	15	23		
7.14	12	7.69	10	9.31	12	12.10	10	18.57	13	25.20	10	37.96	7	56.08	4	82.70	1	134.50	6	189.91	12	267.71	24	25		
7.64	18	9.38	21	12.13	27	15.52	23	23.50	25	31.77	25	48.29	26	73.99	29	106.14	31	152.37	32	216.65	36	321.75	42	27		
8.41	26	10.04	27	12.69	28	17.11	29	24.83	28	34.35	31	50.09	30	73.08	27	105.93	30	156.03	37	206.86	30	291.17	34	29		
6.47	3	7.64	8	8.27	5	11.65	8	15.97	2	23.20	2	38.17	8	58.70	9	91.24	9	141.17	16	194.81	17	283.96	31	31		
7.28	14	8.19	*13	9.56	13	12.61	13	18.24	11	26.76	16	42.30	13	63.49	15	98.37	19	152.10	31	202.56	23	319.62	41	33		
7.83	22	6.96	3	8.71	8	12.24	11	17.74	10	25.55	11	41.45	12	60.12	11	92.66	13	142.61	18	202.75	24	242.92	10	35		
8.43	28	9.80	25	11.78	24	15.44	21	22.94	23	31.55	24	47.18	23	72.23	24	104.52	26	154.83	36	219.79	39	298.15	36	37		
7.61	17	8.19	*13	9.76	14	13.18	15	19.59	15	26.23	12	44.18	16	72.61	25	92.58	12	131.92	4	203.46	25	244.19	11	39		
6.75	7	8.15	12	7.96	3	10.57	3	16.17	4	23.21	3	35.55	4	58.71	10	83.92	5	130.01	2	177.71	6	231.47	8	41		
9.52	35	10.13	29	11.29	22	12.89	14	19.41	14	26.39	*14	46.74	22	57.01	6	92.56	11	139.32	12	185.16	8	256.60	17	43		
6.70	6	7.31	6	8.04	4	11.13	6	17.10	8	24.39	7	39.67	10	68.49	20	100.05	20	156.77	38	222.57	41	277.58	27	45		
6.98	10	7.68	9	8.72	9	12.25	12	16.56	6	26.36	13	37.74	6	58.43	7	94.30	15	124.74	1	201.61	22	230.19	7	47		
5.84	2	6.48	2	7.70	2	10.87	4	16.04	3	23.29	4	35.33	3	56.88	5	88.34	7	137.51	9	192.62	14	283.07	30	49		
8.71	31	10.60	32	14.05	34	18.71	35	27.91	38	38.18	36	56.15	35	79.29	35	109.02	35	151.79	29	200.51	21	267.00	22	51		
8.38	25	11.09	37	14.46	35	18.52	34	26.74	32	36.79	34	56.56	37	82.00	39	108.53	33	153.54	34	188.70	10	218.72	5	53		
8.60	30	10.98	36	15.10	38	19.64	36	27.57	35	39.08	38	56.81	38	84.04	41	113.51	41	159.84	40	219.83	40	192.02	1	55		
8.91	33	12.42	39	12.84	29	18.36	33	27.98	39	37.96	35	56.45	36	77.61	32	113.15	40	167.69	42	227.28	42	450.71	45	57		
7.81	21	9.65	24	13.54	33	17.49	32	25.65	30	35.70	33	52.05	31	74.30	30	101.24	21	140.56	15	182.09	7	265.17	21	59		
9.23	34	10.83	35	13.43	32	17.18	30	25.52	29	35.39	32	55.65	34	77.70	33	112.77	39	158.04	39	189.22	11	350.66	44	61		
6.99	11	8.83	18	10.62	16	14.91	20	21.56	19	32.57	27	49.04	28	77.32	31	107.50	32	150.26	26	204.26	28	249.56	14	63		
9.53	36	10.10	28	12.13	26	16.13	27	23.37	24	31.99	26	47.52	25	55.64	2	82.76	2	130.64	3	194.07	16	248.06	12	65		
12.44	41	13.36	41	21.19	45	25.64	43	42.76	45	55.31	45	75.71	45	102.84	46	120.88	43	172.29	44	304.81	45	302.45	37	67		
8.83	32	10.57	31	14.88	36	20.16	37	29.65	40	39.70	39	58.79	40	82.38	40	111.20	38	154.52	35	192.86	15	262.05	20	69		
8.42	27	10.75	34	12.94	30	17.29	31	27.56	34	38.33	37	54.06	33	80.25	36	108.72	34	149.09	24	186.34	9	259.32	19	71		
11.89	40	14.00	42	17.12	42	21.21	39	31.93	41	40.55	41	58.13	39	89.35	44	125.50	45	148.53	23	266.47	44	255.05	16	73		
8.49	29	9.60	22	13.05	31	16.74	28	27.68	36	39.95	40	60.93	41	80.79	38	118.62	42	160.44	41	210.57	32	329.81	43	75		
10.74	38	12.22	38	15.61	39	22.43	41	33.31	42	44.30	42	62.03	43	78.28	34	125.09	44	171.11	43	232.18	43	259.14	18	77		
7.75	20	9.91	26	11.20	21	15.54	24	24.71	27	33.25	29	53.01	32	87.13	42	110.48	37	152.41	33	210.90	33	302.98	39	79		
16.07	45	18.59	45	21.02	44	28.01	45	35.30	43	45.89	43	61.95	42	80.50	37	105.51	29	144.30	20	176.91	5	214.24	3	81		
14.43	43	15.71	43	16.67	41	22.85	42	27.75	37	33.36	30	45.58	19	68.87	21	89.01	8	138.06	10	166.15	2	236.57	9	83		
17.64	46	19.32	46	23.95	46	34.92	46	43.26	46	56.79	46	76.50	46	96.18	45	110.30	36	136.94	8	161.45	1	210.79	2	85		
15.25	44	18.01	44	20.94	43	27.35	44	36.40	44	48.71	44	65.70	44	88.89	43	103.06	24	151.27	28	198.34	19	216.98	4	87		
18.38	....	22.47	....	26.49	....	34.16	....	44.17	....	55.76	....	70.93	....	93.94	....	124.82	....	146.08	....	196.74	....	261.86	....			
12.85	42	12.53	40	16.48	40	21.32	40	27.34	33	33.02	28	49.50	29	69.02	22	105.15	27	179.03	45	196.70	18	287.42	33	89		
11.25	39	10.56	30	14.99	37	20.24	38	26.25	31	25.13	8	44.40	18	49.81	1	116.67	....	169.00	....	244.81	....	354.63	....	91		
8.54	....	10.51	....	13.67	....	18.61	....	26.38	....	38.05	....	55.44	....	80.98	....	116.67	....	169.00	....	244.81	....	354.63	....			

* The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.

* The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

* The 12 cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

TABLE 4. Females. 1000 q_x .

ANNUAL RATE OF MORTALITY

No. of life table.	AREA AND COLOR.	EXACT AGE IN YEARS.																	
		0		1		2		7		12		17		22		27		32	
		1000 q_x	Rank	1000 q_x	Rank	1000 q_x	Rank	1000 q_x	Rank	1000 q_x	Rank	1000 q_x	Rank	1000 q_x	Rank	1000 q_x	Rank	1000 q_x	Rank
WHITE.																			
2	Aggregate ¹	67.32	22	15.82	16	7.74	17	2.60	16	1.89	16	3.45	*18	5.42	18	6.53	21	6.97	18
4	Original registration states ²	73.61	25	16.93	21	8.19	23	2.81	24	1.94	*20	3.47	20	5.37	17	6.61	*24	6.89	17
	Original registration states, 1909-1911.....	102.26	....	25.83	....	11.45	....	3.09	....	2.02	....	3.25	....	4.70	....	5.54	....	6.45	....
STATES.																			
6	California.....	59.67	11	13.54	9	7.14	8	2.78	*22	2.04	24	3.84	33	5.78	27	6.61	*24	7.12	23
8	Connecticut.....	73.79	27	17.70	28	8.20	24	2.62	18	1.67	4	2.82	2	5.06	5	6.21	9	6.69	11
10	Illinois.....	66.05	21	17.25	25	8.83	31	2.61	17	1.91	*18	3.45	*18	6.13	7	6.38	*14	6.49	*5
12	Indiana.....	64.88	18	14.80	13	7.41	12	2.45	13	2.10	29	4.15	38	6.34	36	6.88	31	7.50	31
14	Kansas.....	53.98	6	12.47	8	6.19	6	2.10	5	1.94	*20	3.00	3	4.47	2	5.71	2	6.66	10
16	Kentucky.....	56.47	7	16.94	*22	8.03	20	2.67	19	2.13	30	4.36	39	7.04	39	7.90	38	8.25	37
18	Maryland.....	79.26	36	17.80	30	8.12	22	2.43	12	1.88	15	3.32	12	6.03	32	6.78	29	7.40	29
20	Massachusetts.....	78.26	34	17.55	27	7.96	19	2.78	*22	1.74	8	3.06	*4	4.79	4	5.99	4	6.64	9
22	Michigan.....	74.58	28	16.27	*13	8.39	26	3.19	31	2.21	*32	4.01	37	6.11	34	7.47	36	7.37	27
24	Minnesota.....	53.15	4	9.75	3	4.73	2	2.26	9	1.79	10	3.13	*6	5.08	6	6.33	13	6.74	*12
26	Missouri.....	56.75	8	15.87	17	7.92	18	2.85	25	2.02	23	3.49	21	5.66	*24	6.46	*16	7.01	*20
28	New Jersey.....	70.84	23	16.94	*22	7.70	16	2.76	21	1.85	*12	3.33	13	5.15	*8	6.81	30	6.51	7
30	New York.....	73.78	26	17.99	31	8.75	30	2.88	26	1.98	22	3.43	*16	5.28	14	6.60	23	6.74	*12
32	North Carolina.....	60.29	13	17.43	26	7.16	9	1.83	*1	1.47	2	3.50	22	5.61	23	7.03	32	8.12	35
34	Ohio.....	65.42	20	14.48	12	7.34	11	2.49	*14	1.73	7	3.43	*16	5.34	16	6.18	8	7.01	*20
36	Oregon.....	45.30	1	7.86	1	5.73	4	2.03	3	2.09	28	3.64	27	5.70	28	6.38	*14	6.54	8
38	Pennsylvania.....	78.33	35	17.74	29	8.40	27	2.71	20	1.91	*18	3.31	11	5.49	21	6.54	22	7.26	26
40	South Carolina.....	60.71	14	18.50	32	8.05	21	2.04	4	1.44	1	3.15	*8	5.44	19	6.48	18	8.23	36
42	Tennessee.....	53.68	5	15.16	14	7.17	10	2.33	10	1.77	9	3.85	34	6.07	33	7.44	35	7.78	34
44	Utah.....	57.81	9	10.14	5	6.55	7	1.83	*1	2.46	38	3.73	30	5.73	26	7.19	33	9.12	39
46	Virginia.....	60.05	12	15.18	15	8.44	28	2.20	7	1.58	3	3.06	*4	5.29	15	6.14	7	6.85	15
48	Washington.....	49.90	2	9.31	2	4.70	1	2.49	*14	2.16	31	3.82	32	5.16	*10	6.10	6	6.06	3
50	Wisconsin.....	59.59	10	10.00	4	5.55	3	2.25	8	1.72	6	2.80	1	4.64	3	5.78	3	5.98	2
CITIES.																			
52	Aggregate ³	75.84	31	19.63	34	9.45	33	3.28	32	2.07	27	3.59	25	5.48	20	6.68	27	6.98	19
54	Baltimore.....	83.60	37	22.44	39	10.53	40	2.41	11	2.05	*25	3.34	14	6.15	35	6.52	20	6.86	16
56	Boston.....	86.69	38	19.62	33	8.21	25	3.94	38	2.30	36	3.16	10	5.99	31	7.41	34	7.65	33
58	Buffalo.....	94.13	41	19.97	35	10.81	42	4.53	43	2.58	39	3.72	29	5.86	30	6.49	19	7.38	28
60	Chicago.....	76.92	32	21.37	38	9.74	36	3.00	*27	1.90	17	3.56	24	5.15	*8	6.29	*10	6.43	4
62	Cleveland.....	74.76	*29	16.88	20	7.61	*14	3.42	34	1.70	5	3.70	28	5.16	*10	6.29	*10	7.13	24
64	Detroit.....	86.76	39	21.00	37	10.34	39	4.13	40	2.28	34	4.55	40	6.42	37	7.63	37	7.62	32
66	Los Angeles.....	65.40	19	14.38	11	7.61	*14	3.31	33	2.37	37	3.92	35	5.66	*24	6.30	12	7.07	22
68	New Orleans.....	62.64	17	13.91	10	8.51	29	2.11	6	1.85	*12	3.77	31	6.93	38	9.94	40	8.57	38
70	New York, N. Y.....	71.60	24	20.59	36	9.64	35	3.03	29	2.05	*25	3.52	23	5.21	13	6.65	26	6.76	14
72	Philadelphia.....	74.76	*29	17.21	24	9.52	34	3.15	30	1.85	*12	3.61	26	5.84	29	6.73	28	7.21	25
74	Pittsburgh.....	97.33	43	24.42	43	10.79	41	3.89	37	2.92	40	3.97	36	7.38	40	8.62	39	9.53	40
76	St. Louis.....	62.26	16	16.37	*18	9.12	32	4.52	42	2.29	35	3.37	15	5.16	*10	6.07	5	6.49	*5
78	San Francisco.....	52.81	3	11.76	7	7.53	13	3.84	36	2.21	*32	3.15	*8	5.50	22	6.46	*16	7.55	30
80	Washington, D. C.....	61.83	15	10.98	6	5.85	5	3.00	*27	1.82	11	3.13	*6	3.14	1	4.21	1	4.79	1
NEGROES.																			
82	States with less than 4 per cent Negroes ⁴	114.80	44	43.54	44	16.63	45	5.22	44	5.20	46	10.79	45	11.79	45	11.50	42	12.63	42
84	States with more than 5 per cent Negroes ⁴	89.08	40	22.91	40	10.95	43	3.76	35	3.90	43	10.06	43	13.65	46	14.92	45	16.50	46
86	Large cities ⁵	126.44	46	45.58	46	18.98	46	5.72	45	5.14	45	11.79	46	11.78	44	12.28	43	13.24	43
88	Original registration states ²	120.35	45	44.01	45	16.15	44	5.73	46	4.86	44	10.76	44	10.72	41	11.40	41	12.53	41
	Original registration states, 1909-1911.....	155.07	....	58.84	....	24.50	....	5.84	....	6.41	....	10.62	....	10.66	....	10.26	....	13.12	....
HAWAII.																			
90	Hawaii (all races combined).....	96.95	42	24.30	42	9.79	37	4.06	39	3.36	42	9.96	42	11.10	43	15.15	46	15.22	45
92	Japanese in Hawaii.....	77.11	33	23.41	41	10.24	38	4.34	41	3.14	41	8.84	41	10.78	42	13.47	44	13.69	44
	Japanese in Japan, 1908-1913.....	145.04	....	43.70	....	23.86	....	4.86	....	4.75	....	9.45	....	10.78	....	10.01	....	9.89	....

* Two or more rankings the same.

¹ Statistics for the aggregate tables are a compilation of those for the New England states, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.² The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.³ The 14 cities included in aggregate white in cities are those shown in the table.

UNITED STATES ABRIDGED LIFE TABLES.

15

PER THOUSAND, 1919-1920.

1000 q_x . Females. TABLE 4.

EXACT AGE IN YEARS.																							
37		42		47		52		57		62		67		72		77		82		87		92	
1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.	1000 q_x	Rank.
7.02	21	7.55	15	9.30	20	12.40	20	17.85	20	25.26	18	39.37	19	60.09	18	90.10	18	135.79	22	191.03	28	271.33	24
6.91	17	7.81	22	9.96	27	13.36	24	19.26	23	27.54	26	43.05	25	64.02	26	94.60	27	139.37	27	196.00	33	273.19	27
7.50	....	8.60	....	10.94	....	14.15	....	21.03	....	29.97	....	44.19	....	66.53	....	96.09	....	149.10	....	202.11	....	282.82	....
7.01	20	7.53	14	9.23	*15	11.96	15	16.00	10	23.45	13	34.48	7	53.01	8	83.67	12	127.07	9	173.13	10	266.19	19
6.85	15	7.71	19	9.25	*17	13.47	27	19.58	*25	29.06	31	43.02	24	62.86	23	86.21	15	132.60	16	190.95	27	250.84	12
6.68	9	7.28	10	9.04	14	12.44	21	17.76	19	23.96	15	39.36	18	58.76	15	85.34	14	131.26	15	191.45	29	270.53	23
7.14	25	7.49	13	9.23	*15	11.32	11	15.47	7	22.80	10	36.34	13	56.96	13	93.05	23	137.98	25	199.09	37	276.88	29
6.38	4	6.59	3	7.22	1	9.64	1	14.20	2	19.53	2	30.35	1	50.11	1	74.04	1	129.99	11	169.72	8	267.19	20
7.55	32	7.37	11	8.89	12	10.57	3	16.47	15	22.77	9	34.43	*5	56.28	12	84.74	13	130.47	13	190.16	25	251.18	13
7.18	26	7.70	21	9.84	*24	12.83	22	19.66	*27	26.04	20	38.97	17	69.61	33	101.34	36	140.12	29	205.56	42	287.06	32
6.79	*13	7.67	18	9.84	*24	13.49	28	18.35	21	27.45	24	42.76	23	63.23	24	91.43	21	140.90	32	190.44	26	268.50	21
7.41	31	7.87	23	9.85	26	12.33	19	17.17	18	25.04	17	38.96	16	59.57	16	93.83	25	142.22	35	202.65	41	298.83	36
6.78	12	6.86	4	8.42	7	10.75	4	16.22	12	20.76	3	32.76	3	50.36	2	80.02	4	115.76	3	183.84	18	240.94	7
6.95	18	7.08	7	8.28	5	10.79	6	15.25	5	21.20	5	35.20	9	52.09	7	81.82	8	121.43	6	173.36	11	243.57	8
6.58	7	7.60	17	9.09	*22	13.63	29	19.83	30	29.31	32	46.23	29	65.14	29	101.81	38	139.00	26	191.61	30	289.77	34
6.73	10	8.11	26	10.66	29	14.40	32	21.42	33	29.64	33	46.70	31	69.40	32	98.63	33	140.30	31	199.05	36	269.94	22
9.07	37	8.34	29	8.98	13	11.25	10	15.33	6	21.50	6	35.67	*10	61.46	21	91.08	19	139.73	28	165.70	7	254.32	14
6.74	11	7.04	6	8.68	*9	11.24	9	16.25	13	23.87	14	36.96	14	58.42	14	89.31	17	135.99	23	194.76	32	285.34	31
7.06	22	7.14	9	8.68	*9	10.99	8	15.64	9	22.87	11	34.24	4	51.55	4	82.73	11	133.27	19	181.98	17	276.70	43
7.28	28	7.95	25	9.69	*22	13.40	25	19.73	20	27.95	27	42.22	22	64.00	25	95.64	28	143.76	37	197.31	34	290.88	35
8.84	36	7.76	20	8.73	11	12.18	17	17.08	17	26.00	19	39.73	20	59.99	17	86.75	16	135.49	21	188.37	22	264.01	17
8.15	34	8.63	34	9.25	*17	10.95	7	15.60	8	21.13	4	35.68	12	53.71	9	82.23	10	132.95	17	176.21	12	210.53	4
9.33	38	8.50	31	7.74	3	11.33	12	14.84	3	19.29	1	35.67	*10	55.01	10	80.11	*5	145.49	38	170.46	9	339.60	41
7.91	33	7.02	5	8.31	6	11.92	14	16.16	11	24.01	16	37.08	15	60.73	19	93.12	24	141.29	33	200.20	38	271.68	25
6.55	5	7.11	8	8.45	8	10.77	5	16.37	14	21.87	8	34.43	*5	51.71	6	80.70	7	127.56	10	181.28	15	273.09	26
5.93	2	6.18	1	7.46	2	10.21	2	15.03	4	21.69	7	31.93	2	51.57	5	82.19	9	130.30	12	189.51	24	257.26	16
7.11	23	8.52	32	11.30	34	14.98	36	22.40	37	30.76	35	48.57	36	70.44	35	98.34	32	140.14	30	186.30	20	275.10	28
6.79	*13	9.09	37	11.25	33	13.86	30	23.18	38	27.14	22	43.80	26	72.86	38	103.30	41	131.21	14	210.72	43	287.86	33
8.68	35	9.51	39	12.51	38	16.32	39	21.97	36	32.76	37	51.08	39	70.26	34	94.53	26	153.89	42	187.28	21	246.54	10
6.57	6	8.16	27	11.44	35	13.44	26	20.47	31	30.72	34	48.51	35	81.34	45	103.82	42	154.79	43	221.70	44	247.12	11
6.65	8	8.17	28	10.26	28	14.63	34	21.74	35	28.79	29	46.51	30	66.87	30	91.36	20	133.26	18	185.23	19	265.99	18
7.19	27	7.94	24	10.72	30	14.76	35	20.48	32	27.18	23	44.90	27	64.93	28	100.38	44	142.82	36	181.69	16	335.08	39
7.33	30	8.87	36	11.73	36	13.35	23	19.58	*25	28.94	30	45.41	28	66.88	31	99.27	34	147.91	39	188.44	23	314.62	38
6.98	19	7.41	12	9.47	21	12.07	16	16.71	16	23.11	12	35.00	8	50.51	3	80.11	*5	121.64	7	149.72	4	235.75	6
9.95	39	10.71	40	12.81	40	18.00	42	24.35	40	35.20	41	51.65	40	73.20	39	97.72	31	158.69	45	194.36	31	393.87	44
6.87	16	8.60	33	11.75	37	15.75	38	24.41	41	32.92	38	53.86	41	77.04	41	103.10	40	136.26	24	177.80	13	255.70	15
7.12	24	8.48	30	11.19	31	15.12	37	23.41	39	32.17	36	47.16	32	71.69	37	100.28	35	142.06	34	178.44	14	284.89	30
10.74	40	10.84	41	13.03	41	17.51	40	25.17	42	35.25	42	54.64	42	74.57	40	106.82	45	152.13	40	227.77	45	369.14	42
7.28	*28	7.56	16	11.21	32	14.46	33	19.40	24	27.00	21	48.06	34	64.07	27	101.43	37	133.76	20	197.98	35	229.39	5
6.26	3	8.76	35	12.52	39	14.26	31	21.53	34	34.22	39	47.48	33	70.80	36	102.69	39	152.52	41	202.63	40	336.75	40
4.99	1	6.55	2	7.96	4	11.83	13	18.90	22	28.16	28	40.70	21	55.93	11	78.23	2	157.32	44	201.37	39	300.72	37
14.10	42	16.83	43	20.70	44	28.09	44	40.53	44	46.20	44	58.81	43	78.99	43	92.33	22	127.00	8	153.09	6	246.08	9
16.17	46	18.58	45	20.90	45	26.28	43	33.09	43	38.19	43	49.80	37	62.69	42	79.50	3	113.83	2	150.45	5	175.45	2
15.25	44	19.03	46	24.52	46	35.08	46	47.65	46	53.33	46	66.46	45	77.69	42	97.51	30	120.27	4	126.83	1	151.55	1
14.31	43	17.15	44	20.27	43	28.66	45	41.47	45	50.21	45	59.97	44	80.19	44	95.88	29	120.71	5	146.70	3	188.85	3
15.07	....	19.03	....	23.13	....	27.82	....	40.80	....	49.98	....	66.54	....	75.74	....	98.44	....	136.81	....	169.98	....	176.82	....
15.42	45	12.67	42	14.37	42	17.84	41	19.66	*27	34.44	40	50.22	38	60.95	20	105.00	43	101.29	1	137.10	2	411.45	45
11.33	41	9.29	38	11.23	19	12.32	19	7.00	1	27.53	25	43.34	....	60.88	....	98.26	....	145.79	....	216.91	....	322.73	....
10.46	....	10.63	....	11.29	....	14.66	....	19.90	....	28.60	....	43.34	....	60.88	....	98.26	....	145.79	....	216.91	....	322.73	....

*The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.

*The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

*The 12 cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

TABLE 5. Males. l_x .

NUMBER OF SURVIVORS OUT OF

No. of life table.	AREA AND COLOR.	EXACT AGE IN YEARS.																
		0	1		2		7		12		17		22		27		32	
		l_x	l_x	Rank	l_x	Rank	l_x	Rank	l_x	Rank	l_x	Rank	l_x	Rank	l_x	Rank	l_x	Rank
WHITE.																		
1	Aggregate ¹	100,000	91,567	22	89,957	21	87,515	20	86,490	20	85,280	19	83,434	19	81,255	17	78,757	15
3	Original registration states ²	100,000	90,757	28	89,050	25	86,411	24	85,321	25	84,121	25	82,299	25	80,129	26	77,650	24
	Original registration states, 1909-1911.....	100,000	87,674	....	85,201	....	82,251	....	81,140	....	80,068	....	78,516	....	76,189	....	73,801	....
STATES.																		
5	California.....	100,000	92,723	9	91,342	9	89,033	9	87,856	11	86,320	13	84,076	14	81,419	16	78,337	17
7	Connecticut.....	100,000	90,541	30	89,044	27	86,433	23	85,358	23	84,172	24	82,351	24	80,136	25	77,631	25
9	Illinois.....	100,000	91,586	21	89,784	22	87,156	21	86,130	21	84,896	21	83,077	20	81,040	18	78,665	16
11	Indiana.....	100,000	91,877	19	90,372	19	87,907	19	86,944	17	85,676	16	83,758	16	81,711	14	79,479	12
13	Kansas.....	100,000	93,219	4	92,007	5	89,957	4	89,024	4	87,829	5	86,108	3	84,195	2	81,985	1
15	Kentucky.....	100,000	93,072	6	91,433	8	89,029	10	88,054	9	86,747	9	84,648	10	82,311	10	79,931	8
17	Maryland.....	100,000	90,401	33	88,802	31	86,398	25	85,347	24	84,260	23	82,592	23	80,353	22	77,685	22
19	Massachusetts.....	100,000	90,138	36	88,405	35	85,778	33	84,726	32	83,675	29	82,133	26	80,178	23	77,832	21
21	Michigan.....	100,000	90,655	29	89,046	26	86,311	26	85,142	26	83,811	27	81,932	30	79,915	29	77,593	27
23	Minnesota.....	100,000	93,121	5	92,095	4	90,246	3	89,290	3	88,107	2	86,357	1	84,308	1	81,881	2
25	Missouri.....	100,000	92,557	12	90,877	13	88,284	15	87,216	15	85,975	14	84,009	15	81,787	13	79,414	13
27	New Jersey.....	100,000	91,187	23	89,389	23	86,765	22	85,670	22	84,559	22	82,783	21	80,526	21	77,968	20
29	New York.....	100,000	90,774	27	88,925	29	86,206	28	85,082	27	83,871	26	81,979	27	79,650	31	77,011	32
31	North Carolina.....	100,000	92,730	8	90,876	14	88,947	11	88,218	8	87,163	6	85,417	7	83,160	7	80,528	6
33	Ohio.....	100,000	91,948	18	90,503	18	88,102	16	87,116	16	85,915	15	84,120	13	82,123	11	79,743	10
35	Oregon.....	100,000	93,736	1	92,756	1	90,885	1	89,882	1	88,362	1	86,317	2	84,085	3	81,384	5
37	Pennsylvania.....	100,000	90,307	34	88,484	33	85,960	30	84,900	28	83,756	28	81,971	29	79,729	30	77,142	29
39	South Carolina.....	100,000	92,515	13	90,637	16	88,422	14	87,617	13	86,519	11	84,529	11	82,097	12	79,571	11
41	Tennessee.....	100,000	93,665	3	92,102	3	89,845	5	89,015	5	87,868	4	85,989	4	83,803	4	81,415	4
43	Utah.....	100,000	92,012	10	91,494	7	89,534	6	88,405	6	86,906	8	84,910	8	82,451	8	79,207	14
45	Virginia.....	100,000	92,198	15	90,727	15	88,576	13	87,743	12	86,591	10	84,670	9	82,389	9	79,905	9
47	Washington.....	100,000	93,689	2	92,644	2	90,559	2	89,514	2	88,082	3	85,846	5	83,247	6	80,511	7
49	Wisconsin.....	100,000	92,149	17	91,118	11	89,163	8	88,248	7	87,088	7	85,459	6	83,670	5	81,510	3
CITIES.																		
51	Aggregate ³	100,000	90,476	*31	88,481	34	85,355	35	84,109	35	82,909	35	81,103	35	78,920	35	76,382	36
53	Baltimore.....	100,000	89,659	37	87,099	37	84,744	37	83,589	37	82,601	36	81,106	34	78,977	34	76,387	35
55	Boston.....	100,000	89,131	40	87,064	39	83,981	38	82,643	38	81,550	38	79,967	38	77,869	37	75,227	37
57	Buffalo.....	100,000	88,312	42	86,402	42	82,706	42	81,120	42	79,793	42	78,077	40	75,975	40	73,476	39
59	Chicago.....	100,000	90,156	35	87,994	36	84,853	36	83,671	36	82,510	37	80,813	36	78,885	36	76,637	34
61	Cleveland.....	100,000	90,781	26	89,052	24	86,055	29	84,857	29	83,646	30	81,973	28	80,079	27	77,657	23
63	Detroit.....	100,000	89,189	38	87,183	38	83,496	41	82,133	41	80,787	39	78,928	39	77,070	38	74,902	38
65	Los Angeles.....	100,000	92,255	14	90,636	17	88,010	18	86,577	19	84,945	20	82,741	22	80,162	24	77,137	30
67	New Orleans.....	100,000	92,592	11	91,221	10	88,794	12	87,388	14	85,648	17	83,491	18	80,965	20	77,391	28
69	New York, N. Y.....	100,000	91,055	25	88,955	28	85,949	31	84,783	31	83,622	31	81,746	32	79,405	33	76,796	33
71	Philadelphia.....	100,000	90,476	*31	88,552	32	85,536	34	84,357	34	83,245	33	81,566	33	79,493	32	77,061	31
73	Pittsburgh.....	100,000	87,921	43	85,508	43	81,783	43	80,364	43	79,091	43	76,894	42	74,129	41	71,045	41
75	St. Louis.....	100,000	91,743	20	90,168	20	80,218	27	84,646	33	83,537	32	81,884	31	79,928	28	77,610	26
77	San Francisco.....	100,000	93,030	7	91,808	6	89,377	7	87,099	10	86,423	12	84,179	12	81,498	15	78,267	18
79	Washington, D. C.....	100,000	92,168	16	90,940	12	88,027	17	86,676	18	85,397	18	83,496	17	81,035	19	78,137	19
NEGROES.																		
81	States with less than 4 per cent Negroes ⁴	100,000	85,832	44	81,893	44	77,093	45	75,513	44	72,745	45	68,290	45	64,095	45	60,271	45
83	States with more than 5 per cent Negroes ⁵	100,000	89,081	41	86,746	41	83,695	40	82,572	39	80,481	41	76,514	43	71,880	43	67,255	43
85	Large cities ⁶	100,000	84,560	46	80,346	46	75,364	46	73,617	46	70,711	46	66,537	46	62,758	46	58,988	46
87	Original registration states ²	100,000	85,505	45	81,494	45	77,109	44	75,465	45	72,789	44	68,514	44	64,323	44	60,509	44
	Original registration states, 1909-1911.....	100,000	78,065	....	72,849	....	67,510	....	65,701	....	63,405	....	59,940	....	56,321	....	52,427	....
HAWAII.																		
89	Hawaii (all races combined).....	100,000	89,180	39	87,057	40	83,771	39	82,497	40	80,614	40	77,409	41	73,446	42	69,612	42
91	Japanese in Hawaii.....	100,000	91,090	24	88,905	30	85,924	32	84,798	30	83,013	34	80,033	37	76,631	39	73,462	40

* Two or more rankings the same.

¹ Statistics for the aggregate tables are a compilation of those for the New England states, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.² The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.³ The 14 cities included in aggregate white in cities are those shown in the table.

UNITED STATES ABRIDGED LIFE TABLES.

17

100,000 MALES BORN ALIVE, 1919-1920.

 l_x . Males. TABLE 5.

EXACT AGE IN YEARS.																									No. of life table.
37		42		47		52		57		62		67		72		77		82		87		92			
l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.		
75,982	15	73,003	15	69,690	15	65,751	15	60,590	15	53,892	15	45,406	15	34,879	15	23,401	15	12,685	16	5,051	12	1,348	5	1	
74,899	22	71,879	21	68,441	20	64,311	19	58,886	19	51,896	19	43,170	19	32,583	18	21,311	20	11,242	21	4,224	19	924	13	3	
70,858	....	67,422	....	63,440	....	58,827	....	53,158	....	45,916	....	37,241	....	27,590	....	17,622	....	8,062	....	3,317	....	829	....		
74,918	21	71,231	25	67,384	25	63,012	26	57,444	25	50,503	24	42,097	22	32,458	19	22,270	19	12,501	18	4,998	13	1,160	7	5	
74,832	23	71,629	22	68,096	23	63,936	22	58,111	23	50,870	22	42,403	20	32,215	21	20,971	21	11,320	20	4,822	14	965	12	7	
75,986	14	73,088	14	69,742	14	65,631	16	60,364	16	53,631	16	45,039	16	34,515	17	23,379	16	13,017	15	5,072	11	1,028	10	9	
77,010	10	74,337	10	71,497	10	68,225	10	63,837	10	57,955	9	49,917	8	39,145	8	26,707	10	14,686	9	5,759	8	1,290	6	11	
79,647	1	77,323	1	74,882	1	72,063	1	68,088	1	62,618	1	55,201	1	44,658	1	31,559	1	18,374	1	7,587	1	1,616	1	13	
77,435	8	74,882	8	72,089	7	68,863	7	64,068	5	58,798	6	51,153	4	40,676	4	28,563	5	16,841	5	5,899	7	496	30	15	
74,715	25	71,618	23	68,134	22	63,833	23	58,228	22	51,104	20	42,307	21	31,472	22	20,269	23	10,789	23	4,105	20	880	16	17	
75,275	18	72,411	16	69,098	17	65,002	17	59,614	17	52,588	18	43,454	18	32,275	20	20,820	22	10,960	22	3,987	22	711	20	19	
75,045	20	72,399	17	69,493	16	66,092	14	61,491	14	55,215	14	47,059	13	36,467	13	24,475	13	13,240	13	4,774	15	771	17	21	
79,191	2	76,555	3	73,668	3	70,153	3	65,466	4	59,090	4	50,953	5	40,493	5	28,657	4	16,865	4	5,944	6	562	29	23	
76,772	12	74,003	12	71,001	11	67,443	11	62,683	11	56,381	11	48,454	11	38,559	*10	27,502	7	16,207	6	6,375	5	1,093	9	25	
75,173	19	72,125	18	68,444	19	64,015	21	58,304	21	50,987	21	42,078	23	31,215	24	19,906	25	10,304	25	3,921	23	903	15	27	
74,061	30	70,789	29	66,986	28	62,347	28	56,359	29	48,819	28	39,782	28	29,412	27	18,849	27	9,710	28	3,502	27	700	21	29	
77,895	6	75,245	6	72,357	6	68,994	6	64,551	6	58,816	5	50,855	6	40,253	6	27,971	6	15,471	8	5,571	9	919	14	31	
77,008	11	74,121	11	70,971	12	67,286	12	62,502	12	56,137	12	47,594	12	36,826	12	24,841	12	13,045	14	4,226	18	564	28	33	
78,473	5	75,591	5	72,804	5	69,246	5	64,444	7	58,120	7	49,528	9	38,679	9	26,764	9	14,397	10	4,389	17	421	33	35	
74,199	28	70,940	27	67,293	26	63,024	25	57,481	24	50,372	25	41,686	24	31,157	25	20,077	24	10,451	24	3,731	25	651	24	37	
76,681	13	73,737	13	70,582	13	66,808	13	61,752	13	55,313	13	46,879	14	35,230	14	23,203	17	13,401	12	5,253	10	649	25	39	
78,839	4	75,989	4	72,988	4	69,843	4	65,542	3	59,635	3	51,875	3	41,351	3	29,100	3	17,279	2	6,986	3	1,126	8	41	
75,609	16	72,000	20	68,280	21	64,373	18	59,602	18	53,427	17	44,840	17	34,660	16	24,383	14	12,606	17	3,201	30	221	36	43	
77,203	9	74,575	9	71,819	9	68,621	8	64,161	8	58,103	8	49,988	7	38,559	*10	25,418	11	13,507	11	4,434	16	465	31	45	
77,806	7	75,033	7	72,086	8	68,552	9	63,977	9	57,770	10	49,489	10	39,304	7	26,981	8	15,520	7	6,990	2	1,425	3	47	
79,151	3	76,786	2	74,185	2	70,976	2	66,557	2	60,573	2	52,680	2	42,246	2	29,649	2	16,920	3	6,811	4	1,497	2	49	
73,410	35	70,031	35	65,973	34	60,959	33	54,493	34	46,395	34	36,880	35	26,360	35	16,412	32	8,431	33	3,205	29	742	19	51	
73,470	34	70,093	34	65,860	35	60,790	35	54,511	33	46,739	33	37,303	34	26,444	33	16,338	33	8,445	32	3,009	32	461	32	53	
72,209	38	68,872	37	64,661	37	59,421	37	53,022	36	45,116	36	35,736	37	25,228	37	15,310	39	7,657	37	2,637	34	402	34	55	
70,633	39	67,050	39	62,962	39	58,474	38	52,309	38	44,547	38	35,400	38	25,401	36	15,886	36	7,525	38	1,920	40	139	40	57	
73,958	31	70,890	28	67,033	27	62,169	29	56,048	31	48,294	30	39,018	29	28,553	29	18,373	28	9,951	26	4,060	21	991	11	59	
74,581	26	70,981	26	66,896	29	62,123	32	56,076	30	48,406	29	38,850	30	27,929	30	17,472	30	8,308	34	2,120	39	149	39	61	
72,467	37	69,727	36	66,495	32	62,554	27	57,327	26	50,363	26	41,394	25	30,404	26	19,096	26	9,935	27	3,718	26	696	22	63	
73,765	33	70,250	33	66,548	31	62,168	30	56,527	28	49,429	27	40,673	27	31,425	23	22,774	18	12,320	19	2,542	35	53	43	65	
72,913	36	68,454	38	63,036	38	56,229	40	47,743	40	37,404	42	27,030	43	17,174	43	9,643	43	4,629	44	1,355	*43	113	41	67	
73,790	32	70,384	31	66,211	33	60,838	34	53,943	35	45,543	35	35,835	36	25,128	38	15,469	38	7,854	36	2,899	33	600	27	69	
74,176	29	70,785	30	66,791	30	62,133	31	55,835	32	47,540	32	37,961	32	27,262	31	16,911	31	8,776	30	3,348	28	678	23	71	
67,318	41	63,155	41	58,508	41	53,307	41	46,891	41	39,220	41	30,882	41	21,493	42	12,396	41	6,142	40	2,272	36	202	37	73	
74,777	24	71,521	24	67,714	24	63,034	24	56,752	27	48,188	31	37,667	33	26,462	32	16,269	34	7,193	39	1,355	*43	40	44	75	
74,400	27	70,313	32	65,740	36	60,021	36	52,445	37	43,337	39	33,321	39	23,517	40	14,524	40	5,722	41	642	45	4	45	77	
75,293	17	72,117	19	68,464	18	64,251	20	58,361	20	50,715	23	41,323	26	29,275	28	17,662	29	9,181	29	3,125	31	295	35	79	
56,064	45	51,433	45	46,638	45	41,384	45	35,395	45	28,983	45	22,190	44	15,519	44	9,700	42	5,095	42	2,164	38	754	18	81	
62,554	43	58,028	43	53,560	43	48,666	43	42,917	43	36,912	43	30,485	42	23,021	41	15,519	37	8,736	31	3,916	24	1,411	4	83	
54,522	46	49,722	46	44,762	46	38,797	46	31,940	46	24,946	46	17,879	46	11,491	46	6,727	45	3,538	45	1,609	41	609	26	85	
56,413	44	51,957	44	47,197	44	41,957	44	35,893	44	29,112	44	21,931	45	14,841	45	9,085	44	4,909	43	1,568	42	98	42	87	
48,135	....	43,436	....	38,802	....	33,188	....	27,383	....	21,346	....	15,538	....	10,261	....	5,851	....	2,917	....	1,161	....	380	....		
65,908	42	61,831	42	57,651	42	52,558	42	46,619	42	40,201	40	32,937	40	21,625	39	16,120	35	7,996	35	2,207	37	199	38	89	
70,105	40	66,358	40	62,441	40	57,303	39	51,034	39	44,906	37	38,816	31	26,428	34	.....	.....	.....	.....	.....	.....	.....	.....	91	

*The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.

*The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

*The 12 cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

TABLE 6. Females. l_x .

NUMBER OF SURVIVORS OUT OF

No. of life table.	AREA AND COLOR.	EXACT AGE IN YEARS.																	
		0		1		2		7		12		17		22		27		32	
		<i>l_x</i>	<i>l_x</i>	Rank.	<i>l_x</i>	Rank.	<i>l_x</i>	Rank.	<i>l_x</i>	Rank.	<i>l_x</i>	Rank.	<i>l_x</i>	Rank.	<i>l_x</i>	Rank.	<i>l_x</i>	Rank.	
2	Aggregate ¹	100,000	93,268	22	91,792	21	89,589	20	88,651	19	87,589	19	85,741	18	83,231	16	80,461	17	
4	Original registration states ²	100,000	92,639	25	91,070	24	88,703	24	87,739	24	86,673	24	84,849	24	82,364	25	79,615	24	
	Original registration states, 1909-1911.....	100,000	89,774	....	87,455	....	84,651	....	83,640	....	82,629	....	81,048	....	79,020	....	76,727	....	
STATES.																			
6	California.....	100,000	94,033	11	92,760	11	90,514	10	89,532	11	88,352	14	86,313	14	83,683	15	80,857	15	
8	Connecticut.....	100,000	92,621	27	90,982	26	88,690	25	87,795	23	86,919	23	85,315	22	82,957	18	80,320	18	
10	Illinois.....	100,000	93,395	21	91,784	22	89,405	21	88,486	20	87,414	20	85,621	20	83,213	17	80,557	16	
12	Indiana.....	100,000	93,512	18	92,128	18	90,023	17	89,114	17	87,864	18	85,653	19	82,856	19	79,913	22	
14	Kansas.....	100,000	94,603	6	93,423	5	91,706	5	90,838	4	89,799	4	88,201	4	86,023	2	83,408	3	
16	Kentucky.....	100,000	94,353	7	92,754	12	90,418	13	89,455	14	88,168	16	85,776	17	82,617	23	79,324	27	
18	Maryland.....	100,000	92,074	36	90,435	34	88,286	28	87,395	27	86,383	26	84,487	28	81,812	31	78,962	30	
20	Massachusetts.....	100,000	92,174	34	90,557	32	88,225	31	87,303	29	86,366	28	84,757	25	82,530	24	79,965	20	
22	Michigan.....	100,000	92,542	28	91,027	25	88,467	27	87,376	28	86,156	31	84,079	33	81,284	35	78,290	35	
24	Minnesota.....	100,000	94,685	4	93,762	3	92,111	3	91,248	3	90,234	2	88,482	2	86,016	3	83,240	5	
26	Missouri.....	100,000	94,326	8	92,829	9	90,453	11	89,430	15	88,323	15	86,402	13	83,821	13	81,045	13	
28	New Jersey.....	100,000	92,916	23	91,342	23	89,047	22	88,106	22	87,084	22	85,336	21	82,849	20	80,090	19	
30	New York.....	100,000	92,622	26	90,955	28	88,493	26	87,501	25	86,434	25	84,644	26	82,185	27	79,464	25	
32	North Carolina.....	100,000	93,971	13	92,333	15	90,445	12	89,814	8	88,839	8	86,916	10	84,248	9	81,141	11	
34	Ohio.....	100,000	93,458	20	92,105	20	89,938	18	89,087	18	88,067	17	86,220	15	83,782	14	81,070	12	
36	Oregon.....	100,000	95,470	1	94,720	1	93,075	1	92,196	1	90,993	1	88,948	1	86,267	1	83,524	2	
38	Pennsylvania.....	100,000	92,167	35	90,532	33	88,203	32	87,254	31	86,233	30	84,440	29	81,950	29	79,173	29	
40	South Carolina.....	100,000	93,929	14	92,191	17	90,093	16	89,401	16	88,507	11	86,708	11	84,189	10	81,204	9	
42	Tennessee.....	100,000	94,632	5	93,197	7	91,090	7	90,277	7	89,159	7	87,055	8	84,181	11	81,024	14	
44	Utah.....	100,000	94,219	9	93,264	6	91,737	4	90,808	5	89,493	6	87,488	6	84,760	7	81,419	8	
46	Virginia.....	100,000	93,965	12	92,568	13	90,370	14	89,501	10	88,673	9	86,923	9	84,478	8	81,803	7	
48	Washington.....	100,000	95,010	2	94,126	2	92,403	2	91,437	2	90,185	3	88,225	3	85,784	4	83,198	6	
50	Wisconsin.....	100,000	94,041	10	93,100	8	91,351	6	90,499	6	89,572	5	88,000	5	85,752	5	83,248	4	
CITIES.																			
52	Aggregate ³	100,000	92,416	31	90,602	31	87,855	34	86,769	34	85,665	34	83,814	35	81,320	34	78,577	34	
54	Baltimore.....	100,000	91,641	37	89,584	37	87,171	36	86,247	36	85,202	36	83,302	36	80,671	36	78,015	36	
56	Boston.....	100,000	91,331	38	89,539	38	86,771	37	85,451	37	84,403	37	82,617	37	79,901	37	76,940	37	
58	Buffalo.....	100,000	90,587	41	88,778	41	85,410	41	83,959	41	82,701	40	80,878	39	78,416	39	75,746	38	
60	Chicago.....	100,000	92,308	32	90,336	35	87,647	35	86,677	35	85,620	35	83,830	34	81,485	33	78,918	31	
62	Cleveland.....	100,000	92,524	*29	90,962	27	88,274	*29	87,280	30	86,260	29	84,405	30	82,053	28	79,354	26	
64	Detroit.....	100,000	91,324	39	89,406	39	86,120	39	84,885	39	83,601	38	81,391	38	78,590	38	75,617	39	
66	Los Angeles.....	100,000	93,460	19	92,116	19	89,634	19	88,456	21	87,187	21	85,178	23	82,672	22	79,963	21	
68	New Orleans.....	100,000	93,736	17	92,432	14	90,296	15	89,489	13	88,385	13	86,202	16	82,677	21	78,840	32	
70	New York, N. Y.....	100,000	92,840	24	90,928	30	88,274	*29	87,241	32	86,142	32	84,349	31	81,910	30	79,185	28	
72	Philadelphia.....	100,000	92,524	*29	90,932	29	88,164	33	87,162	33	86,115	33	84,178	32	81,574	32	78,775	33	
74	Pittsburgh.....	100,000	90,267	43	88,063	43	85,117	42	83,699	43	82,383	41	80,211	40	77,062	40	73,663	40	
76	St. Louis.....	100,000	93,775	16	92,240	16	88,933	23	87,491	26	86,376	27	84,622	27	82,286	26	79,750	23	
78	San Francisco.....	100,000	94,719	3	93,605	4	90,833	8	89,506	12	88,424	12	86,631	12	84,091	12	81,194	10	
80	Washington, D. C.....	100,000	93,817	15	92,787	10	90,610	9	89,626	9	88,602	10	87,220	7	85,685	6	83,786	1	
NEGROES.																			
82	States with less than 4 per cent Negroes ⁴ ..	100,000	88,520	44	84,666	44	80,515	44	78,779	44	75,907	44	71,670	44	67,586	44	63,664	44	
84	States with more than 5 per cent Negroes ⁵ ..	100,000	91,092	40	89,005	40	85,835	40	84,559	40	81,958	42	77,279	42	71,932	43	66,488	43	
86	Large cities ⁶	100,000	87,356	46	83,375	46	78,656	46	76,961	46	74,014	46	69,668	46	65,607	46	61,576	46	
88	Original registration states ²	100,000	87,965	45	84,094	45	79,702	45	77,992	45	75,230	45	71,201	45	67,389	45	63,504	45	
	Original registration states, 1909-1911.....	100,000	81,488	....	76,697	....	71,652	....	69,745	....	66,873	....	63,581	....	60,209	....	56,851	....	
HAWAII.																			
90	Hawaii (all races combined).....	100,000	90,305	42	88,110	42	84,833	43	83,701	42	81,248	43	77,064	43	72,270	42	66,898	42	
92	Japanese in Hawaii.....	100,000	92,290	33	90,129	36	86,606	38	85,368	38	83,132	39	79,164	41	74,554	41	69,564	41	

* Two or more rankings the same.

¹ Statistics for the aggregate tables are a compilation of those for the New England states, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.² The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.³ The 14 cities included in aggregate white in cities are those shown in the table.

UNITED STATES ABRIDGED LIFE TABLES.

19

100,000 FEMALES BORN ALIVE, 1919-1920.

 l_x . Females. TABLE 6.

EXACT AGE IN YEARS.																							
37		42		47		52		57		62		67		72		77		82		87		92	
l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.	l_x	Rank.
77,689	17	74,947	13	71,944	12	68,283	12	63,504	17	57,266	19	49,081	18	38,575	18	26,677	19	15,111	19	6,451	12	1,861	6
76,917	24	74,194	24	71,070	23	67,188	24	62,132	23	55,540	24	46,902	24	36,131	24	24,425	23	13,521	23	5,628	20	1,575	10
74,117	....	71,249	....	67,938	....	63,942	....	58,790	....	51,999	....	43,453	....	33,186	....	22,210	....	12,001	....	4,762	....	1,267	....
78,038	11	75,289	12	72,279	11	68,657	11	64,182	10	58,400	12	50,821	13	41,198	8	29,577	10	17,347	10	7,394	6	1,953	5
77,649	18	74,919	14	71,902	13	68,117	15	62,934	20	56,004	21	47,051	23	36,293	23	25,098	21	14,630	20	6,007	18	1,297	20
77,954	12	75,318	11	72,401	10	68,762	10	63,933	12	57,841	15	49,771	17	39,189	17	27,510	17	16,115	14	6,706	10	1,454	14
76,990	23	74,263	22	71,298	21	67,814	20	63,593	15	58,064	14	50,459	14	40,360	15	28,140	14	15,169	18	5,033	30	704	40
80,701	4	78,141	3	75,536	3	72,551	3	68,527	1	63,193	1	56,172	1	46,341	1	34,340	1	21,231	1	8,063	5	915	36
76,206	30	73,433	30	70,575	26	67,324	22	63,141	19	57,437	17	50,139	15	40,349	16	28,571	12	16,797	11	7,024	8	1,500	11
76,116	31	73,367	31	70,296	30	66,567	28	61,588	25	55,114	25	47,272	22	36,475	22	23,779	25	12,874	26	5,285	26	1,274	22
77,325	20	74,635	17	71,542	17	67,626	21	62,634	22	56,164	20	47,458	21	36,636	21	25,033	22	14,083	21	5,441	23	1,011	32
75,450	34	72,656	34	69,591	34	65,937	31	61,434	28	55,545	23	47,674	20	37,595	20	25,915	20	14,059	22	4,935	32	812	38
80,462	6	77,784	6	74,952	6	71,569	5	67,087	6	61,334	3	54,029	3	44,263	3	32,220	3	19,807	2	9,403	1	2,482	3
78,248	10	75,564	10	72,785	9	69,516	8	65,300	7	59,860	7	52,372	6	42,410	6	30,615	6	18,399	5	8,602	2	2,821	1
77,525	19	74,884	15	71,820	15	67,920	17	62,692	21	55,752	22	46,481	25	35,403	26	23,440	26	12,650	28	5,369	25	1,491	13
76,841	25	74,123	25	70,834	25	66,693	26	61,206	29	54,122	29	45,080	29	33,918	30	22,313	30	12,185	29	4,988	31	1,275	21
77,721	15	74,363	20	71,265	22	67,858	19	63,649	14	58,304	13	51,009	12	40,434	14	27,770	16	15,711	15	6,045	17	999	33
78,301	9	75,681	8	72,847	8	69,427	9	65,016	9	59,078	9	51,112	11	40,635	11	28,303	13	16,130	13	6,647	11	1,602	8
80,744	3	77,938	5	74,996	5	71,509	6	67,099	5	61,191	5	53,360	5	43,425	5	31,464	5	18,264	6	6,964	9	1,250	24
76,336	29	73,523	29	70,442	29	66,655	27	61,567	26	54,889	27	46,383	26	35,843	25	24,191	24	13,264	24	5,196	28	1,176	26
77,777	14	74,567	18	71,645	16	68,149	14	63,536	16	57,346	18	48,981	19	38,437	19	26,807	18	15,532	16	6,149	15	1,100	30
77,865	13	74,676	16	71,436	19	68,013	16	63,816	13	58,450	11	51,115	10	41,174	9	29,611	9	17,465	8	7,119	7	1,499	12
77,697	16	74,248	23	71,318	20	68,166	13	63,947	11	58,963	10	51,882	7	41,631	7	30,048	7	17,672	7	5,830	19	469	43
78,845	7	75,914	7	73,162	7	69,704	7	65,142	8	59,202	8	51,206	9	40,508	13	27,771	15	15,453	17	6,113	16	1,337	19
80,638	5	77,958	4	75,051	4	71,660	4	67,161	4	61,241	4	53,566	4	43,520	4	31,579	4	18,796	4	8,479	3	2,564	2
80,797	2	78,411	2	75,860	2	72,720	2	68,465	2	62,687	2	55,159	2	45,215	2	32,711	2	19,347	3	8,187	4	1,984	4
75,870	33	73,042	33	69,623	33	65,351	34	59,749	33	52,557	33	43,447	33	32,411	34	21,267	34	11,645	32	4,737	34	1,153	28
75,415	35	72,583	35	69,046	35	65,002	35	59,498	35	52,568	32	44,494	31	33,546	31	21,501	33	11,848	31	5,104	29	975	35
73,897	37	70,655	37	66,992	38	62,455	39	56,945	38	49,974	39	40,795	38	30,176	38	20,073	36	10,698	36	4,287	37	1,342	18
73,122	38	70,584	38	67,311	37	63,341	36	58,456	36	51,733	36	42,862	36	31,199	36	19,518	37	10,410	38	3,266	41	203	45
76,401	28	73,697	28	70,479	28	66,415	29	60,844	31	53,849	31	44,978	30	34,005	29	22,929	29	13,106	25	5,432	24	1,173	27
76,555	26	73,772	26	70,541	27	66,336	30	60,903	30	54,305	28	45,737	28	35,030	27	22,965	28	12,044	30	5,251	27	1,442	15
72,847	39	70,044	39	66,607	39	62,630	38	57,916	37	51,579	37	43,150	34	32,801	33	21,764	31	11,579	33	4,826	33	1,345	17
77,185	21	74,498	19	71,513	18	67,869	18	63,321	18	57,537	16	50,048	16	40,703	10	29,814	8	17,415	9	6,180	14	817	37
75,342	36	71,567	36	67,589	36	62,760	37	56,640	39	49,069	40	39,726	39	29,160	39	19,077	39	10,255	39	3,159	42	239	44
76,552	27	73,746	27	70,215	31	65,725	32	59,703	34	51,983	35	42,223	37	30,505	37	19,343	38	10,469	37	4,544	35	1,406	16
76,003	32	73,177	32	69,781	32	65,515	33	59,751	32	52,205	34	43,116	35	32,244	35	20,970	35	11,378	34	4,523	36	976	34
70,038	40	66,356	40	62,615	40	58,175	40	52,492	41	45,373	41	36,491	41	26,484	40	16,849	40	8,731	41	3,270	40	640	42
77,072	22	74,309	21	71,061	24	66,744	25	61,491	27	55,078	26	46,060	27	34,937	28	23,218	27	12,732	27	5,538	21	1,272	23
78,400	8	75,673	9	71,857	14	67,280	23	61,837	24	54,101	30	44,320	32	33,211	32	21,593	32	11,361	35	4,139	38	768	39
81,781	1	79,530	1	76,777	1	73,280	1	68,138	3	60,844	6	51,461	8	40,580	12	29,442	11	16,472	12	6,341	13	1,668	7
59,585	44	55,221	44	50,378	44	44,773	44	37,829	44	30,400	44	23,441	44	16,582	43	10,710	43	6,123	43	2,968	43	1,109	29
61,232	43	56,193	43	50,954	43	45,388	43	39,174	43	32,793	43	26,389	43	19,914	42	13,963	42	8,669	42	4,100	39	1,077	31
57,405	46	52,790	46	47,486	46	41,102	46	33,459	46	25,904	46	19,176	46	13,292	45	8,517	45	4,831	45	2,509	45	1,237	25
59,431	45	54,996	45	50,176	45	44,611	45	37,568	45	29,829	45	22,641	45	15,934	44	10,148	44	5,878	44	2,709	44	648	41
53,049	....	48,772	....	43,973	....	38,789	....	32,887	....	26,281	....	19,616	....	13,663	....	8,825	....	4,855	....	2,118	....	825	....
61,899	42	57,610	42	53,933	42	49,816	42	45,466	42	40,055	42	32,502	42	24,712	41	16,341	41	9,448	40	5,501	22	1,578	9
65,211	41	61,884	41	59,124	41	56,025	41	53,416	40	50,800	38	36,616	40	....	....	....	....	....	....	....	....	....	....

⁴ The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.

⁵ The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

⁶ The 12 cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

TABLE 7. Males. d_x .

NUMBER OF DEATHS OUT OF

No. of life table.	AREA AND COLOR.	AGE INTERVAL IN YEARS.																	
		0-1		1-2		2-7		7-12		12-17		17-22		22-27		27-32		32-37	
		d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.
WHITE.																			
1	Aggregate ¹	8,433	22	1,610	19	2,442	17	1,025	12	1,210	22	1,846	21	2,179	18	2,498	19	2,775	18
3	Original registration states ²	9,243	28	1,707	23	2,639	26	1,090	20	1,200	*19	1,822	20	2,170	17	2,479	17	2,751	17
	Original registration states, 1909-1911.....	12,326	....	2,475	....	2,950	....	1,111	....	1,072	....	1,752	....	2,127	....	2,388	....	2,945	....
STATES.																			
5	California.....	7,277	9	1,381	10	2,309	11	1,177	29	1,536	37	2,244	*39	2,657	38	3,082	36	3,419	37
7	Connecticut.....	9,459	30	1,497	13	2,611	21	1,075	19	1,186	17	1,821	19	2,215	21	2,505	21	2,799	20
9	Illinois.....	8,414	21	1,802	27	2,628	25	1,026	13	1,234	25	1,819	18	2,037	10	2,375	10	2,679	*11
11	Indiana.....	8,123	19	1,505	14	2,465	18	963	8	1,268	27	1,918	28	2,047	11	2,232	4	2,469	4
13	Kansas.....	6,781	4	1,212	6	2,050	6	933	6	1,195	18	1,721	11	1,913	4	2,210	3	2,338	1
15	Kentucky.....	6,928	6	1,639	21	2,404	*13	975	9	1,307	30	2,099	34	2,337	30	2,380	*11	2,496	5
17	Maryland.....	9,599	33	1,599	17	2,404	*13	1,051	15	1,087	4	1,668	6	2,239	24	2,668	31	2,970	30
19	Massachusetts.....	9,862	36	1,733	25	2,627	24	1,052	16	1,051	2	1,542	2	1,955	6	2,346	8	2,557	7
21	Michigan.....	9,345	29	1,609	18	2,735	28	1,169	28	1,331	32	1,879	*24	2,017	9	2,322	7	2,548	6
23	Minnesota.....	6,879	5	1,026	2	1,849	1	956	7	1,183	16	1,750	13	2,049	12	2,427	15	2,690	13
25	Missouri.....	7,443	12	1,680	22	2,593	20	1,068	18	1,241	26	1,966	30	2,222	22	2,373	9	2,642	10
27	New Jersey.....	8,813	23	1,798	26	2,624	22	1,095	21	1,111	8	1,776	14	2,257	*26	2,558	24	2,795	19
29	New York.....	9,226	27	1,849	29	2,719	27	1,124	23	1,211	*23	1,892	26	2,329	29	2,639	29	2,950	29
31	North Carolina.....	7,270	8	1,854	30	1,929	3	729	1	1,055	3	1,746	12	2,257	*26	2,632	28	2,633	9
33	Ohio.....	8,052	18	1,445	11	2,401	12	986	10	1,201	21	1,795	16	1,997	8	2,380	*11	2,735	16
35	Oregon.....	6,264	1	980	1	1,871	2	1,003	11	1,520	36	2,045	33	2,232	23	2,701	32	2,911	26
37	Pennsylvania.....	9,693	34	1,823	28	2,524	19	1,060	17	1,144	10	1,785	15	2,242	25	2,587	25	2,943	28
39	South Carolina.....	7,485	13	1,878	31	2,215	9	805	2	1,098	6	1,990	31	2,432	32	2,526	22	2,890	25
41	Tennessee.....	6,335	3	1,563	15	2,257	10	830	3	1,147	11	1,879	*24	2,186	20	2,388	13	2,576	8
43	Utah.....	7,388	10	1,118	5	1,960	5	1,129	25	1,499	35	1,996	32	2,450	33	3,244	40	3,598	38
45	Virginia.....	7,802	15	1,471	12	2,151	8	833	4	1,152	12	1,921	29	2,281	28	2,484	18	2,702	14
47	Washington.....	6,311	2	1,045	4	2,085	7	1,045	14	1,432	34	2,236	38	2,599	37	2,736	33	2,705	15
49	Wisconsin.....	7,851	17	1,031	3	1,955	4	915	5	1,160	13	1,629	4	1,789	1	2,160	1	2,359	2
CITIES.																			
51	Aggregate ³	9,524	*31	1,995	35	3,126	37	1,246	33	1,200	*19	1,806	17	2,183	19	2,538	23	2,972	31
53	Baltimore.....	10,341	37	1,960	34	2,955	30	1,155	26	988	1	1,495	1	2,129	16	2,590	26	2,917	27
55	Boston.....	10,869	40	2,067	37	3,083	36	1,338	35	1,093	5	1,583	3	2,098	14	2,642	30	3,018	33
57	Buffalo.....	11,688	42	1,910	32	3,696	41	1,586	44	1,327	31	1,716	10	2,102	15	2,499	20	2,843	22
59	Chicago.....	9,844	35	2,162	40	3,141	38	1,182	31	1,161	*14	1,697	9	1,928	5	2,248	5	2,679	*11
61	Cleveland.....	9,219	26	1,729	24	2,997	32	1,198	32	1,211	*23	1,673	7	1,894	3	2,422	14	3,076	34
63	Detroit.....	10,811	38	2,006	36	3,687	40	1,363	37	1,346	33	1,859	22	1,858	2	2,168	2	2,435	3
65	Los Angeles.....	7,745	14	1,619	20	2,626	23	1,433	41	1,632	39	2,204	37	2,579	36	3,025	35	3,372	36
67	New Orleans.....	7,408	11	1,371	9	2,427	15	1,406	39	1,740	40	2,157	35	2,526	35	3,574	41	4,478	45
69	New York, N. Y.....	8,945	25	2,100	38	3,006	33	1,166	27	1,161	*14	1,876	23	2,341	31	2,609	27	3,006	32
71	Philadelphia.....	9,524	*31	1,924	33	3,016	34	1,179	30	1,112	9	1,679	8	2,073	13	2,432	16	2,885	24
73	Pittsburgh.....	12,079	43	2,413	43	3,725	42	1,419	40	1,273	28	2,197	36	2,765	40	3,084	37	3,727	40
75	St. Louis.....	8,257	20	1,575	16	3,950	43	1,572	42	1,109	7	1,653	5	1,956	7	2,318	6	2,833	21
77	San Francisco.....	6,970	7	1,222	7	2,431	16	1,378	38	1,576	38	2,244	*39	2,681	39	3,231	39	3,867	41
79	Washington, D. C.....	7,832	16	1,228	8	2,913	29	1,351	36	1,279	29	1,901	27	2,461	34	2,898	34	2,844	23
NEGROES.																			
81	States with less than 4 per cent Negroes ⁴	14,168	44	3,939	44	4,800	45	1,580	43	2,768	45	4,455	46	4,195	45	3,824	44	4,207	43
83	States with more than 5 per cent Negroes ⁵	10,919	41	2,335	42	3,051	35	1,123	22	2,091	43	3,967	43	4,634	46	4,625	46	4,701	46
85	Large cities ⁶	15,440	46	4,214	46	4,982	46	1,747	46	2,906	46	4,174	44	3,779	42	3,770	42	4,466	44
87	Original registration states ²	14,495	45	4,011	45	4,385	44	1,644	45	2,676	44	4,275	45	4,191	44	3,814	43	4,096	42
	Original registration states, 1909-1911.....	21,985	....	5,216	....	5,339	....	1,809	....	2,296	....	3,465	....	3,619	....	3,894	....	4,292	....
HAWAII.																			
89	Hawaii (all races combined).....	10,820	39	2,123	39	3,286	39	1,274	34	1,883	42	3,205	42	3,963	43	3,834	45	3,704	39
91	Japanese in Hawaii.....	8,910	24	2,185	41	2,981	31	1,126	24	1,785	41	2,980	41	3,402	41	3,169	38	3,357	35

* Two or more rankings the same.

¹ Statistics for the aggregate tables are a compilation of those for the New England states, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.² The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.³ The 14 cities included in aggregate white in cities are those shown in the table.

100,000 MALES BORN ALIVE, 1919-1920.

 d_x . Males. TABLE 7.

AGE INTERVAL IN YEARS.																									No. of life table.
37-42		42-47		47-52		52-57		57-62		62-67		67-72		72-77		77-82		82-87		87-92		92-97			
d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.		
2,979	18	3,313	*16	3,939	16	5,161	16	6,698	20	8,486	22	10,527	25	11,478	31	10,716	31	7,634	28	3,703	29	1,154	40	1	
3,020	19	3,438	19	4,130	20	5,425	20	6,990	25	8,726	28	10,587	28	11,272	27	10,069	28	7,018	26	3,300	27	838	32	2	
5,436	....	5,982	....	4,618	....	5,669	....	7,242	....	8,675	....	9,651	....	9,968	....	8,660	....	5,645	....	2,488	....	700	....	3	
3,687	37	3,847	29	4,372	25	5,568	22	6,941	23	8,406	19	9,639	8	10,188	16	9,769	25	7,503	27	3,838	30	1,042	37	4	
3,203	24	3,533	21	4,160	21	5,825	27	7,241	31	8,467	21	10,188	15	11,244	26	9,651	24	6,498	22	3,857	31	943	35	5	
2,898	16	3,346	18	4,111	19	5,267	18	6,733	21	8,592	*25	10,524	*23	11,136	24	10,362	29	7,945	29	4,044	35	961	36	6	
2,673	8	2,840	6	3,272	6	4,388	4	5,882	4	8,038	13	10,772	34	12,438	42	12,021	41	8,927	34	4,469	36	1,176	41	11	
2,324	1	2,441	1	2,819	1	3,975	1	5,470	1	7,417	7	10,543	27	13,099	44	13,185	45	10,787	43	5,971	45	1,515	45	13	
2,553	3	2,793	5	3,226	5	4,195	2	5,870	3	7,645	8	10,477	20	12,113	38	11,722	35	10,942	45	5,403	42	494	17	15	
3,097	22	3,484	20	4,301	24	5,605	23	7,124	30	8,797	30	10,835	35	11,203	25	9,480	21	6,684	23	3,225	25	804	30	17	
2,864	13	3,313	*16	4,096	18	5,388	19	7,026	27	9,134	34	11,179	41	11,455	30	9,860	27	6,973	25	3,276	26	677	28	19	
2,646	6	2,906	9	3,401	8	4,601	9	6,276	12	8,156	16	10,592	29	11,992	36	11,235	32	8,466	31	4,003	34	743	29	21	
2,636	5	2,887	7	3,515	9	4,687	10	6,376	16	8,137	15	10,460	18	11,836	33	11,792	37	10,921	44	5,382	41	559	20	23	
2,769	10	3,002	12	3,558	*11	4,760	11	6,302	13	7,927	11	9,895	11	11,057	22	11,295	33	9,832	38	5,282	39	1,053	38	25	
3,048	20	3,681	24	4,429	27	5,711	25	7,317	32	8,909	31	10,863	38	11,309	29	9,602	22	6,383	21	3,018	21	823	31	27	
3,272	27	3,803	27	4,639	29	5,988	30	7,540	33	9,037	33	10,370	16	10,563	21	9,139	18	6,208	19	2,802	18	646	25	29	
2,650	7	2,888	8	3,363	7	4,443	6	5,735	2	7,961	12	10,602	30	12,282	40	12,500	43	9,900	39	4,652	38	879	33	31	
2,887	15	3,150	13	3,685	13	4,784	13	6,365	15	8,543	23	10,768	33	11,985	35	11,796	38	8,819	33	3,662	28	547	18	33	
2,882	14	2,787	4	3,558	*11	4,802	14	6,324	14	8,592	*25	10,849	36	11,915	34	12,367	42	10,008	40	3,968	32	416	13	35	
3,259	26	3,647	22	4,269	23	5,543	21	7,109	29	8,686	27	10,529	26	11,080	23	9,626	23	6,720	24	3,080	24	620	22	37	
2,944	17	3,155	14	3,774	14	5,056	15	6,439	19	8,434	20	11,649	44	12,027	37	9,802	26	8,148	30	4,604	37	644	24	39	
2,850	12	3,001	11	3,145	2	4,301	3	5,907	5	7,760	9	10,524	*23	12,251	39	11,821	39	10,293	42	5,860	44	1,100	39	41	
3,609	36	3,720	26	3,907	15	4,771	12	6,175	10	8,587	24	10,180	13	10,277	18	11,777	36	9,405	36	2,980	20	219	10	43	
2,628	4	2,756	3	3,198	3	4,460	7	6,058	8	8,115	14	11,429	43	13,141	45	11,911	40	9,073	35	3,969	33	461	15	45	
2,773	11	2,947	10	3,534	10	4,575	8	6,207	11	8,281	17	10,185	14	12,323	41	11,461	34	8,530	32	5,565	43	1,394	44	47	
2,365	2	2,601	2	3,209	4	4,419	5	5,984	6	7,893	10	10,434	17	12,597	43	12,729	44	10,109	41	5,314	40	1,378	43	49	
3,379	30	4,058	33	5,014	35	6,466	42	8,098	41	9,515	40	10,520	22	9,948	13	7,981	10	5,226	10	2,463	13	666	27	51	
3,377	29	4,233	39	5,070	36	6,279	37	7,772	39	9,436	39	10,859	37	10,106	14	7,893	9	5,436	12	2,548	16	448	14	53	
3,337	28	4,211	38	5,240	*40	6,399	40	7,906	40	9,380	37	10,508	21	9,918	12	7,653	8	5,020	8	2,235	11	390	12	55	
3,583	34	4,088	35	4,488	28	6,165	35	7,762	38	9,147	35	9,999	12	9,515	10	8,361	13	5,605	13	1,781	7	138	6	57	
3,068	21	3,857	30	4,864	33	6,121	34	7,754	37	9,276	36	10,465	19	10,180	15	8,422	14	5,891	16	3,069	23	894	34	59	
3,600	35	4,085	34	4,773	32	6,047	32	7,670	35	9,556	41	10,921	39	10,457	20	9,164	20	6,188	18	1,971	8	148	7	61	
2,740	9	3,232	15	3,941	17	5,227	17	6,964	24	8,969	32	10,990	40	11,308	28	9,161	19	6,217	20	3,022	22	664	26	63	
3,515	33	3,702	25	4,380	26	5,641	24	7,098	28	8,756	29	9,248	6	8,651	7	10,454	30	9,778	37	2,489	14	53	3	65	
4,459	43	5,418	46	6,807	46	8,486	46	10,339	46	10,374	45	9,856	10	7,531	5	5,014	4	3,274	3	1,242	3	112	5	67	
3,406	32	4,173	36	5,373	43	6,895	44	8,400	43	9,708	43	10,617	31	9,749	11	7,615	7	4,955	7	2,299	12	555	19	69	
3,391	31	3,994	32	4,658	30	6,298	39	8,295	42	9,579	42	10,699	32	10,351	19	8,135	12	5,428	11	2,670	17	639	23	71	
4,163	41	4,647	42	5,201	39	6,416	41	7,671	36	8,338	18	9,389	7	9,097	9	6,254	5	3,870	5	2,070	10	202	9	73	
3,256	25	3,807	28	4,680	31	6,282	38	8,564	44	10,521	46	11,205	42	10,193	17	9,076	17	5,838	15	1,315	4	40	2	75	
4,087	40	4,573	41	5,719	44	7,576	45	9,108	45	10,016	44	9,804	9	8,993	8	8,802	16	5,080	9	638	1	4	1	77	
3,176	23	3,653	23	4,213	22	5,890	28	7,646	34	9,392	38	12,048	45	11,613	32	8,481	15	6,056	17	2,830	19	294	11	79	
4,631	45	4,795	44	5,254	42	5,989	31	6,412	17	6,793	3	6,671	2	5,819	3	4,605	3	2,931	2	1,410	5	562	21	81	
4,526	44	4,468	40	4,894	34	5,749	26	6,005	7	6,427	2	7,464	4	7,502	4	6,783	6	4,820	6	2,505	15	1,196	42	83	
4,800	46	4,960	45	5,965	45	6,857	43	6,994	26	7,067	4	6,388	1	4,764	1	3,189	1	1,929	1	1,000	2	468	16	85	
4,456	42	4,760	43	5,240	*40	6,064	33	6,781	22	7,181	5	7,090	3	5,756	2	4,176	2	3,341	4	1,470	6	98	4	87	
4,649	....	4,884	....	5,414	....	5,805	....	6,087	....	5,808	....	5,277	....	4,410	....	2,934	....	1,756	....	781	....	270	....	....	
4,077	39	4,180	37	5,093	37	5,939	29	6,418	18	7,264	6	8,312	5	8,505	6	8,124	11	5,789	14	2,008	9	196	8	89	
3,747	38	3,917	31	5,138	38	6,269	36	6,128	9	6,090	1	12,388	46	....	....	....	....	....	....	....	....	....	....	91	

*The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.

†The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

‡The 12 cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

TABLE 8. Females. d_x .

NUMBER OF DEATHS OUT OF

No. of life table.	AREA AND COLOR.	AGE INTERVAL IN YEARS.																	
		0-1		1-2		2-7		7-12		12-17		17-22		22-27		27-32		32-37	
		d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.
WHITE.																			
2	Aggregate ¹	6,732	22	1,476	16	2,223	16	918	14	1,062	19	1,848	21	2,510	22	2,770	22	2,772	*19
4	Original registration states ²	7,361	25	1,569	21	2,367	23	964	22	1,066	20	1,824	18	2,485	17	2,749	20	2,698	14
	<i>Original registration states, 1909-1911</i>	10,286	....	2,319	....	2,804	....	1,011	....	1,011	....	1,587	....	2,022	....	2,293	....	2,610	....
STATES.																			
6	California.....	5,967	11	1,273	9	2,246	17	982	25	1,180	30	2,039	32	2,630	27	2,826	27	2,819	27
8	Connecticut.....	7,379	27	1,639	*29	2,292	18	895	12	876	1	1,604	4	2,358	8	2,637	8	2,671	12
10	Illinois.....	6,605	21	1,611	25	2,379	25	919	15	1,072	22	1,793	*13	2,408	9	2,656	*9	2,603	7
12	Indiana.....	6,488	18	1,384	13	2,105	9	909	13	1,250	34	2,211	39	2,797	35	2,943	30	2,923	31
14	Kansas.....	5,397	6	1,180	8	1,717	4	868	9	1,039	14	1,598	3	2,178	2	2,615	7	2,707	*15
16	Kentucky.....	5,647	7	1,599	24	2,336	22	963	21	1,287	38	2,392	40	3,159	39	3,293	37	3,118	34
18	Maryland.....	7,926	36	1,639	*29	2,149	12	891	11	1,012	7	1,896	24	2,675	30	2,850	28	2,846	30
20	Massachusetts.....	7,826	34	1,617	26	2,332	21	922	16	937	5	1,609	5	2,227	3	2,565	4	2,640	11
22	Michigan.....	7,458	28	1,515	18	2,560	29	1,091	33	1,220	33	2,077	34	2,795	34	2,994	34	2,840	29
24	Minnesota.....	5,315	4	923	3	1,651	3	863	8	1,014	8	1,752	8	2,466	16	2,776	*23	2,778	*21
26	Missouri.....	5,674	8	1,497	17	2,376	24	1,023	30	1,107	27	1,921	26	2,581	25	2,776	*23	2,797	25
28	New Jersey.....	7,084	23	1,574	22	2,295	19	941	19	1,022	11	1,748	6	2,487	18	2,759	21	2,565	5
30	New York.....	7,378	26	1,667	31	2,462	27	992	27	1,067	21	1,790	*11	2,459	14	2,721	16	2,623	8
32	North Carolina.....	6,029	13	1,638	28	1,888	7	631	1	975	6	1,923	27	2,668	29	3,107	35	3,420	36
34	Ohio.....	6,542	20	1,353	12	2,167	13	851	6	1,020	9	1,847	20	2,438	10	2,712	15	2,769	17
36	Oregon.....	4,530	1	750	1	1,645	2	879	10	1,203	32	2,045	33	2,681	31	2,743	*18	2,780	23
38	Pennsylvania.....	7,833	35	1,635	27	2,329	20	949	20	1,021	10	1,793	*13	2,490	19	2,777	25	2,837	28
40	South Carolina.....	6,071	14	1,738	32	2,098	8	692	2	894	2	1,799	17	2,519	23	2,985	33	3,427	37
42	Tennessee.....	5,368	5	1,435	15	2,107	10	813	5	1,118	29	2,104	35	2,874	37	3,157	36	3,159	35
44	Utah.....	5,781	9	955	5	1,527	1	929	18	1,315	39	2,005	30	2,728	33	3,341	38	3,722	40
46	Virginia.....	6,005	12	1,427	14	2,198	15	779	3	918	3	1,750	7	2,445	13	2,675	12	2,958	32
48	Washington.....	4,990	2	884	2	1,723	5	966	23	1,252	35	1,960	29	2,441	12	2,586	6	2,560	4
50	Wisconsin.....	5,959	10	941	4	1,749	6	852	7	927	4	1,572	2	2,248	4	2,504	2	2,451	2
CITIES.																			
52	Aggregate ³	7,584	31	1,814	35	2,747	33	1,086	32	1,104	*25	1,851	22	2,494	20	2,743	*18	2,707	*15
54	Baltimore.....	8,359	37	2,057	39	2,413	26	924	17	1,045	15	1,909	25	2,631	28	2,656	*9	2,600	6
56	Boston.....	8,669	38	1,792	33	2,768	*34	1,320	39	1,048	17	1,786	10	2,716	32	2,961	31	3,043	33
58	Buffalo.....	9,413	41	1,809	34	3,368	42	1,451	43	1,198	31	1,883	23	2,462	15	2,670	11	2,624	9
60	Chicago.....	7,692	32	1,972	38	2,689	32	970	24	1,057	18	1,790	*11	2,345	6	2,567	5	2,517	3
62	Cleveland.....	7,476	*29	1,562	20	2,688	31	994	28	1,030	13	1,845	19	2,352	7	2,699	13	2,799	26
64	Detroit.....	8,676	39	1,918	37	3,286	40	1,235	36	1,284	37	2,210	38	2,801	36	2,973	32	2,770	18
66	Los Angeles.....	6,540	19	1,344	11	2,482	28	1,178	35	1,269	36	2,009	31	2,506	21	2,709	14	2,778	*21
68	New Orleans.....	6,264	17	1,304	10	2,136	11	807	4	1,104	*25	2,183	37	3,525	40	3,837	40	3,498	38
70	New York, N. Y.....	7,160	24	1,912	36	2,654	30	1,033	31	1,099	24	1,793	*13	2,439	11	2,725	17	2,633	10
72	Philadelphia.....	7,476	*29	1,592	23	2,768	*34	1,002	29	1,047	16	1,937	28	2,604	26	2,799	26	2,772	*19
74	Pittsburgh.....	9,733	43	2,204	43	2,946	37	1,418	41	1,316	40	2,172	36	3,149	38	3,399	39	3,625	39
76	St. Louis.....	6,225	16	1,535	19	3,307	41	1,442	42	1,115	28	1,754	9	2,336	5	2,536	3	2,678	13
78	San Francisco.....	5,281	3	1,114	7	2,772	36	1,327	40	1,082	23	1,793	*13	2,540	24	2,897	29	2,794	24
80	Washington, D. C.....	6,183	15	1,030	6	2,177	14	984	26	1,024	12	1,382	1	1,535	1	1,899	1	2,005	1
NEGROES.																			
82	States with less than 4 per cent Negroes ⁴	11,480	44	3,854	44	4,151	44	1,736	46	2,872	45	4,237	44	4,084	43	3,922	42	4,079	42
84	States with more than 5 per cent Negroes ⁵	8,908	40	2,087	40	3,170	38	1,276	38	2,601	43	4,679	46	5,347	46	5,444	46	5,256	46
86	Large cities ⁶	12,644	46	3,981	46	4,719	46	1,695	44	2,947	46	4,346	45	4,061	42	4,031	43	4,171	43
88	Original registration states ²	12,035	45	3,871	45	4,392	45	1,710	45	2,762	44	4,029	42	3,812	41	3,885	41	4,073	41
	<i>Original registration states, 1909-1911</i>	18,507	....	4,796	....	5,045	....	1,907	....	2,872	....	3,492	....	3,172	....	3,358	....	3,802	....
HAWAII.																			
90	Hawaii (all races combined).....	9,695	42	2,195	42	3,277	39	1,132	34	2,453	42	4,184	43	4,794	45	5,372	45	4,999	45
92	Japanese in Hawaii.....	7,710	33	2,161	41	3,523	43	1,238	37	2,236	41	3,968	41	4,610	44	4,990	44	4,353	44

* Two or more rankings the same.

¹ Statistics for the aggregate tables are a compilation of those for the New England states, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.² The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.³ The 14 cities included in aggregate white in cities are those shown in the table.

UNITED STATES ABRIDGED LIFE TABLES.

23

100,000 FEMALES BORN ALIVE; 1919-1920.

 d_x . Females. TABLE 8.

AGE INTERVAL IN YEARS.																								No. of life table.
37-42		42-47		47-52		52-57		57-62		62-67		67-72		72-77		77-82		82-87		87-92		92-97		
d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	d_x	Rank.	
2,742	19	3,003	17	3,661	21	4,779	21	6,238	21	8,185	25	10,506	22	11,898	32	11,566	28	8,660	26	4,590	27	1,588	40	2
2,723	15	3,124	26	3,882	25	5,056	26	6,592	27	8,638	30	10,771	32	11,706	28	10,904	21	7,893	22	4,053	20	1,337	32	4
2,868	....	3,511	....	3,996	....	5,152	....	6,791	....	8,546	....	10,867	....	10,976	....	10,209	....	7,839	....	3,495	....	1,079	....	
2,749	*20	3,010	18	3,622	17	4,475	13	5,782	12	7,579	15	9,623	7	11,621	22	12,230	35	9,953	35	5,441	37	1,693	41	6
2,730	18	3,017	19	3,785	23	5,183	29	6,930	*31	8,953	35	10,758	31	11,195	15	10,468	18	8,623	24	4,710	29	1,199	27	8
2,636	6	2,917	11	3,639	18	4,829	22	6,092	19	8,070	23	10,582	27	11,679	25	11,395	27	9,409	30	5,252	34	1,356	33	10
2,727	*16	2,965	15	3,484	13	4,221	8	5,529	8	7,605	16	10,099	18	12,220	40	12,971	42	10,136	37	4,329	25	681	6	12
2,560	4	2,605	2	2,985	1	4,024	2	5,334	3	7,021	4	9,831	10	12,001	36	13,109	43	13,168	45	7,148	45	907	11	14
2,773	23	2,858	9	3,251	5	4,183	3	5,704	9	7,298	8	9,790	9	11,778	30	11,774	29	9,773	33	5,524	38	1,409	36	16
2,749	*20	3,071	22	3,729	22	4,979	24	6,474	26	7,842	19	10,797	33	12,696	44	10,905	22	7,589	20	4,011	18	1,166	25	18
2,690	12	3,093	24	3,916	27	4,992	25	6,470	25	8,706	31	10,822	34	11,603	19	10,950	25	8,642	25	4,430	26	961	14	20
2,794	25	3,065	21	3,654	20	4,503	16	5,889	14	7,871	20	10,079	17	11,680	26	11,856	30	9,124	27	4,123	21	774	8	22
2,678	8	2,832	7	3,383	7	4,482	14	5,753	10	7,305	9	9,766	8	12,043	37	12,413	39	10,404	40	6,921	44	2,311	45	24
2,684	10	2,779	6	3,269	6	4,216	6	5,440	7	7,488	11	9,962	14	11,795	31	12,216	34	9,797	34	5,781	41	2,274	44	26
2,641	7	3,064	20	3,900	26	5,228	30	6,940	33	9,271	41	11,078	40	11,903	35	10,790	20	7,281	19	3,878	16	1,321	31	28
2,718	14	3,289	32	4,141	33	5,487	34	7,084	36	9,042	37	11,162	43	11,605	20	10,128	15	7,197	17	3,713	14	1,124	23	30
3,358	38	3,098	25	3,407	9	4,209	5	5,345	4	7,295	7	10,575	26	12,664	43	12,059	31	9,666	32	5,046	32	969	*15	32
2,620	5	2,834	8	3,420	10	4,411	12	5,938	17	7,966	21	10,477	21	12,332	41	12,173	33	9,483	31	5,045	31	1,440	37	34
2,806	*27	2,942	14	3,487	14	4,410	11	5,908	15	7,831	18	9,935	11	11,961	34	13,200	44	11,300	43	5,705	40	1,193	26	36
2,813	29	3,081	23	3,787	24	5,088	27	6,678	29	8,506	28	10,540	23	11,652	24	10,927	24	8,068	23	4,020	19	1,065	20	38
3,210	35	2,922	12	3,496	15	4,613	19	6,190	20	8,365	26	10,544	24	11,630	23	11,275	26	9,383	29	5,049	33	1,057	19	40
3,189	34	3,240	29	3,423	11	4,197	4	5,366	5	7,335	10	9,941	12	11,563	17	12,146	32	10,346	39	5,620	39	1,394	35	42
3,449	39	2,930	13	3,152	4	4,219	7	4,984	2	7,081	5	10,251	19	11,583	18	12,376	37	11,842	44	5,361	35	467	3	44
2,931	33	2,752	3	3,458	12	4,562	18	5,940	18	7,996	22	10,698	29	12,737	45	12,318	36	9,340	28	4,776	30	1,231	29	46
2,680	9	2,907	10	3,391	8	4,499	15	5,920	16	7,675	17	10,046	16	11,941	33	12,783	40	10,317	38	5,915	42	2,233	43	48
2,386	2	2,551	1	3,140	3	4,255	9	5,778	11	7,528	13	9,944	13	12,504	42	13,364	45	11,160	41	6,203	43	1,789	42	50
2,828	31	3,419	34	4,272	36	5,602	38	7,192	38	9,110	39	11,036	39	11,144	13	9,622	12	6,908	13	3,584	13	1,035	18	52
2,832	32	3,537	37	4,044	30	5,504	35	6,930	*31	8,074	24	10,948	37	12,045	38	9,653	13	6,744	9	4,129	22	954	13	54
3,242	36	3,663	38	4,537	40	5,510	36	6,971	34	9,179	40	10,619	28	10,103	8	9,375	10	6,411	8	2,945	6	1,100	22	56
2,538	3	3,273	31	3,970	28	4,885	23	6,723	30	8,871	*32	11,663	44	11,681	27	9,108	9	7,144	15	3,063	8	203	1	58
2,704	13	3,218	27	4,064	31	5,571	37	6,995	35	8,871	*32	10,973	38	11,076	11	9,823	14	7,674	21	4,259	23	1,099	21	60
2,783	24	3,231	28	4,205	34	5,433	32	6,598	28	8,568	29	10,707	30	12,065	39	10,921	23	6,793	11	3,809	15	1,378	34	62
2,803	26	3,437	35	3,977	29	4,714	20	6,337	22	8,429	27	10,349	20	11,037	10	10,185	16	6,753	10	3,481	11	1,262	30	64
2,687	11	2,985	16	3,644	19	4,548	17	5,784	13	7,489	12	9,345	6	10,889	9	12,399	38	11,235	42	5,363	36	798	9	66
3,775	41	3,978	42	4,829	42	6,120	42	7,571	43	9,343	42	10,566	25	10,083	7	8,822	7	7,096	14	2,920	5	238	2	68
2,806	*27	3,531	36	4,490	39	6,022	41	7,720	44	9,760	44	11,718	45	11,162	14	8,874	8	5,925	7	3,138	9	1,151	24	70
2,826	30	3,396	33	4,266	35	5,764	40	7,546	41	9,089	38	10,872	35	11,274	16	9,592	11	6,855	12	3,547	12	910	12	72
3,682	40	3,741	40	4,440	38	5,683	39	7,119	37	8,882	34	10,007	15	9,635	6	8,118	6	5,461	6	2,630	4	609	4	74
2,763	22	3,248	30	4,317	37	5,253	31	6,413	24	9,018	36	11,123	42	11,719	29	10,486	19	7,194	16	4,266	24	1,222	28	76
2,727	*16	3,816	41	4,577	41	5,443	33	7,736	45	9,781	45	11,109	41	11,618	21	10,232	17	7,222	18	3,371	10	725	7	78
2,251	1	2,753	4	3,497	16	5,142	28	7,294	39	9,383	43	10,881	36	11,138	12	12,970	41	10,131	36	4,673	28	1,508	38	80
4,364	43	4,843	44	5,605	45	6,944	44	7,429	40	6,959	3	6,859	4	5,872	3	4,587	3	3,155	2	1,859	2	969	*15	82
5,039	46	5,239	45	5,566	44	6,214	43	6,381	23	6,404	1	6,475	2	5,951	4	5,294	4	4,569	5	3,023	7	986	17	84
4,615	45	5,304	46	6,384	46	7,643	46	7,555	42	6,728	2	5,884	1	4,775	1	3,686	1	2,322	1	1,272	1	800	10	86
4,435	44	4,820	43	5,565	43	7,043	45	7,739	46	7,188	6	6,707	3	5,786	2	4,270	2	3,169	3	2,061	3	615	5	88
4,877	....	4,789	....	5,184	....	5,902	....	6,606	....	6,666	....	5,953	....	4,838	....	3,970	....	2,737	....	1,293	....	548	....	
4,289	42	3,677	39	4,117	32	4,350	10	5,411	6	7,553	14	7,790	5	8,371	5	6,893	5	3,947	4	3,923	17	1,560	39	90
3,327	37	2,760	5	3,099	2	2,609	1	2,616	1	14,184	46	27,371	46	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	92

*The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.

*The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

*The 12 cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

TABLE 9. Males. e_x .

COMPLETE EXPECTATION OF

No. of life table.	AREA AND COLOR.	EXACT AGE IN YEARS.																	
		0		1		2		7		12		17		22		27		32	
		e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.
1	WHITE.																		
3	Aggregate ¹	55.33	15	59.38	15	59.43	15	56.03	16	51.67	16	47.36	15	43.35	16	39.45	16	35.62	15
	Original registration states ²	54.05	20	58.51	19	58.62	18	55.34	18	51.02	18	46.71	19	42.69	19	38.77	18	34.93	18
	Original registration states, 1909-1911.....	50.23	....	56.26	....	56.88	....	53.85	....	49.56	....	45.18	....	41.13	....	37.21	....	33.33	....
	STATES.																		
5	California.....	54.51	18	57.75	24	57.61	25	54.05	*26	49.74	*26	45.58	26	41.73	26	38.01	25	34.40	23
7	Connecticut.....	53.88	21	58.45	20	58.43	21	55.13	19	50.79	20	46.47	20	42.44	20	38.54	20	34.70	21
9	Illinois.....	55.17	16	59.19	16	59.37	16	56.09	15	51.74	14	47.45	14	43.43	14	39.46	15	35.57	16
11	Indiana.....	56.91	10	60.90	7	60.90	7	57.55	7	53.17	7	48.91	6	44.97	6	41.04	5	37.12	7
13	Kansas.....	59.82	1	63.14	1	62.96	1	59.85	1	54.94	1	50.66	1	46.62	1	42.62	1	38.70	1
15	Kentucky.....	57.71	8	60.97	6	61.06	6	57.65	6	53.26	5	49.02	5	45.17	4	41.38	4	37.54	3
17	Maryland.....	53.76	24	58.42	21	58.46	20	55.03	21	50.68	21	46.30	21	42.18	22	38.28	22	34.51	22
19	Massachusetts.....	54.07	19	58.93	17	59.07	17	55.81	17	51.48	17	47.09	17	42.93	17	38.91	17	35.01	17
21	Michigan.....	55.12	17	59.76	13	59.83	13	56.65	11	52.40	10	48.19	10	44.24	11	40.29	11	36.42	12
23	Minnesota.....	58.57	4	61.86	3	61.55	4	57.76	5	53.36	4	49.04	4	44.98	5	41.01	6	37.15	6
25	Missouri.....	56.80	11	60.32	11	60.43	9	57.14	*8	52.81	8	48.54	8	44.61	8	40.76	8	36.90	9
27	New Jersey.....	53.86	22	58.02	22	58.18	22	54.87	22	50.55	22	46.17	23	42.11	23	38.22	23	34.39	24
29	New York.....	52.82	27	57.13	27	57.31	27	54.05	*26	49.74	*26	45.42	27	41.40	28	37.54	29	33.74	29
31	North Carolina.....	57.76	7	61.25	5	61.49	5	57.78	4	53.24	6	48.85	7	44.79	7	40.94	7	37.19	5
33	Ohio.....	56.23	12	60.11	12	60.06	12	56.64	12	52.26	12	47.95	13	43.92	13	39.93	13	36.04	13
35	Oregon.....	57.90	5	60.73	9	60.37	11	56.57	13	52.17	13	48.02	12	44.10	12	40.20	12	36.45	11
37	Pennsylvania.....	53.27	26	57.93	23	58.12	23	54.76	23	50.42	23	46.07	24	42.02	24	38.12	24	34.32	25
39	South Carolina.....	56.04	13	59.54	14	59.76	14	56.20	14	51.70	15	47.32	16	43.37	15	39.58	14	35.76	14
41	Tennessee.....	58.61	3	61.54	4	61.58	3	58.07	3	53.59	3	49.26	3	45.28	3	41.39	3	37.53	4
43	Utah.....	55.39	14	58.77	18	58.48	19	54.71	24	50.38	24	46.20	22	42.23	21	38.41	21	34.88	19
45	Virginia.....	56.97	9	60.75	8	60.72	8	57.15	*8	52.67	9	48.33	9	44.37	9	40.53	10	36.71	10
47	Washington.....	57.84	6	60.70	10	60.38	10	56.72	10	52.36	11	48.17	11	44.35	10	40.66	9	36.95	8
49	Wisconsin.....	58.81	2	62.77	2	62.48	2	58.80	2	54.39	2	50.08	2	45.98	2	41.91	2	37.95	2
	CITIES.																		
51	Aggregate ³	51.65	34	56.03	33	56.28	33	53.27	34	49.02	34	44.60	34	40.63	34	36.68	33	32.82	*33
53	Baltimore.....	51.55	36	56.44	32	56.69	32	53.59	32	49.30	33	44.86	33	40.64	33	36.67	34	32.82	*33
55	Boston.....	50.56	37	55.67	35	55.98	*34	52.95	35	48.77	35	44.39	36	40.22	36	36.23	36	32.41	36
57	Buffalo.....	49.62	*38	55.12	37	55.33	37	52.71	37	48.69	36	44.46	35	40.38	35	36.43	35	32.58	35
59	Chicago.....	52.36	29	57.02	28	57.41	26	54.46	25	50.20	25	45.87	25	41.78	25	37.74	27	33.77	28
61	Cleveland.....	52.47	28	56.75	30	56.84	31	53.74	30	49.47	31	45.15	31	41.02	31	36.93	31	33.00	31
63	Detroit.....	52.06	32	57.31	25	57.62	24	55.07	20	50.95	19	46.75	18	42.79	18	38.76	19	34.81	20
65	Los Angeles.....	53.53	25	56.98	29	56.99	29	53.63	31	49.48	30	45.38	29	41.52	27	37.77	26	34.15	26
67	New Orleans.....	49.62	*38	52.55	41	52.33	42	48.70	42	44.44	42	40.30	42	36.27	43	32.32	43	28.69	43
69	New York, N. Y.....	51.61	35	55.63	36	55.93	36	52.81	36	48.51	37	44.14	37	40.10	37	36.20	37	32.35	37
71	Philadelphia.....	52.22	31	56.66	31	56.88	30	53.81	29	49.53	29	45.16	30	41.04	30	37.04	30	33.13	30
73	Pittsburgh.....	47.18	42	52.59	40	53.06	40	50.38	40	46.23	39	41.93	40	38.06	41	34.38	41	30.76	42
75	St. Louis.....	52.34	30	56.01	34	55.98	*34	53.44	33	49.39	32	45.02	32	40.87	32	36.81	32	32.83	32
77	San Francisco.....	51.76	33	54.60	38	54.32	38	50.74	38	46.49	38	42.29	38	38.35	39	34.53	40	30.85	41
79	Washington, D. C.....	53.77	23	57.30	26	57.07	28	53.88	28	49.69	28	45.39	28	41.37	29	37.55	28	33.85	27
	NEGROES.																		
81	States with less than 4 per cent Negroes ⁴	40.46	44	46.05	45	47.24	45	45.06	*44	40.95	45	37.41	44	34.68	44	31.79	44	28.65	44
83	States with more than 5 per cent Negroes ⁵	46.39	43	51.01	43	51.37	43	48.17	43	43.79	43	39.86	43	36.79	42	34.00	42	31.17	40
85	Large cities ⁶	38.45	46	44.38	46	45.69	46	43.57	46	39.55	46	36.07	46	33.17	46	30.02	46	26.77	46
87	Original registration states ²	40.45	45	46.23	44	47.48	44	45.06	*44	40.99	44	37.40	45	34.57	45	31.66	45	28.50	45
	Original registration states, 1909-1911.....	34.05	....	42.53	....	44.55	....	42.94	....	39.05	....	35.37	....	32.26	....	29.18	....	26.16	....
	HAWAII.																		
89	Hawaii (all races combined).....	47.79	41	52.53	42	52.80	41	49.79	41	45.52	41	41.52	41	38.13	40	35.05	38	31.85	38
91	Japanese in Hawaii.....	49.53	40	53.32	39	53.62	39	50.41	39	46.05	40	41.98	39	38.45	38	35.04	30	31.44	39
	Japanese in Japan, 1908-1913.....	44.25	....	51.61	....	52.97	....	51.22	....	47.12	....	43.10	....	39.79	....	36.47	....	32.88	....

* Two or more rankings the same.

¹ Statistics for the aggregate tables are a compilation of those for the New England states, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.² The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.³ The 14 cities included in aggregate white in cities are those shown in the table.

UNITED STATES ABRIDGED LIFE TABLES.

25

LIFE IN YEARS, 1919-1920.

 e_x . Males TABLE 9.

EXACT AGE IN YEARS.																							No. of life table.		
37		42		47		52		57		62		67		72		77		82		87		92			
e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x		Rank.	
31.83	15	28.02	15	24.23	16	20.53	16	17.06	14	13.85	13	10.96	14	8.49	13	6.43	11	4.82	5	3.59	4	2.55	4	1	
31.12	18	27.32	*18	23.56	19	19.91	19	16.51	21	13.38	22	10.56	22	8.17	22	6.17	20	4.53	18	3.21	11	2.10	9	2	
29.61	....	25.99	....	22.46	....	19.02	....	15.77	....	12.85	....	10.25	....	7.95	....	6.04	....	4.66	....	3.49	....	2.70	....	....	
30.86	22	27.32	*18	23.74	18	20.21	18	16.92	18	13.89	12	11.15	10	8.70	9	6.54	8	4.74	9	3.33	6	2.20	*6	5	
30.91	20	27.18	21	23.45	20	19.81	21	16.53	20	13.52	21	10.71	*19	8.29	18	6.39	17	4.79	7	3.13	14	1.78	20	7	
31.74	16	27.90	16	24.11	17	20.46	17	17.02	16	13.83	15	10.97	*12	8.54	12	6.42	*12	4.59	13	3.11	*16	1.87	17	9	
33.23	7	29.33	7	25.40	7	21.49	9	17.79	9	14.33	9	11.21	9	8.58	11	6.41	*14	4.66	11	3.26	9	2.09	10	11	
34.76	1	30.73	1	26.65	1	22.59	1	18.75	1	15.16	1	11.85	1	9.03	2	6.72	3	4.77	8	3.19	12	1.90	16	13	
33.67	*3	29.73	4	25.79	4	21.87	4	18.12	4	14.67	5	11.47	7	8.76	8	6.40	16	4.14	32	2.38	35	0.33	*41	15	
30.78	23	27.00	*23	23.25	23	19.64	23	16.28	*23	13.19	23	10.40	23	8.10	24	6.21	19	4.55	17	3.19	*18	2.04	11	17	
31.11	19	27.24	20	23.42	21	19.74	22	16.28	*23	13.11	25	10.32	26	8.02	26	6.07	25	4.36	24	2.95	21	1.77	21	19	
32.57	12	28.67	12	24.76	12	20.90	12	17.27	12	13.93	11	10.90	16	8.31	17	6.16	21	4.32	26	2.84	26	1.60	25	21	
33.33	6	29.39	6	25.44	6	21.58	6	17.94	7	14.59	6	11.51	6	8.82	7	6.42	*12	4.17	*30	2.44	33	0.60	38	23	
33.08	9	29.22	9	25.35	9	21.55	*7	17.99	5	14.71	4	11.69	2	9.04	1	6.65	6	4.57	*15	2.94	22	1.67	23	25	
30.57	26	26.76	26	23.06	26	19.47	26	16.12	26	13.07	26	10.29	27	7.98	27	6.11	22	4.57	*15	3.28	8	2.11	8	27	
29.98	28	26.25	27	22.59	27	19.08	28	15.83	28	12.88	30	10.22	28	7.94	29	6.00	*27	4.38	23	3.07	*18	1.92	15	29	
33.37	5	29.45	5	25.53	5	21.64	5	17.95	6	14.45	8	11.30	8	8.60	10	6.26	18	4.33	25	2.86	25	1.66	24	31	
32.23	13	28.39	13	24.54	13	20.74	13	17.13	13	13.77	16	10.77	18	8.18	21	5.91	*33	4.03	34	2.62	30	1.31	29	33	
32.71	11	28.86	11	24.87	11	21.02	11	17.39	10	13.99	10	10.97	*12	8.33	16	5.91	*33	3.87	37	2.37	36	0.66	37	35	
30.58	25	26.87	25	23.18	25	19.58	24	16.21	25	13.14	24	10.34	25	7.97	28	6.00	*27	4.31	27	2.91	23	1.74	22	37	
32.01	14	28.19	14	24.34	14	20.56	15	17.03	15	13.71	18	10.71	*19	8.40	*14	6.48	10	4.45	22	2.66	29	1.11	32	39	
33.67	*3	29.84	3	25.97	2	22.02	2	18.29	2	14.84	2	11.67	3	8.99	3	6.71	4	4.61	12	2.89	24	1.54	26	41	
31.42	17	27.87	17	24.25	15	20.57	14	17.01	17	13.67	19	10.79	17	8.21	20	5.61	39	3.53	40	2.09	42	....	....	43	
32.90	10	28.98	10	24.99	10	21.03	10	17.31	11	13.84	14	10.66	21	8.06	25	5.93	*30	4.01	35	2.46	32	0.82	35	45	
33.15	8	29.28	8	25.38	8	21.55	*7	17.91	8	14.55	7	11.55	5	8.87	5	6.77	2	4.98	4	3.17	13	1.80	19	47	
34.01	2	29.98	2	25.94	3	22.00	3	18.28	3	14.83	3	11.66	4	8.90	4	6.60	7	4.72	10	3.24	10	2.02	12	49	
29.04	32	25.32	33	21.72	35	18.29	35	15.16	35	12.35	33	9.88	33	7.82	31	6.08	*23	4.58	14	3.30	7	2.20	*6	51	
29.03	33	25.30	34	21.76	34	18.36	34	15.18	34	12.27	34	9.73	34	7.69	35	5.93	*30	4.26	28	2.78	27	1.50	*27	53	
28.66	36	24.93	38	21.38	38	18.04	37	14.90	37	12.06	38	9.56	39	7.50	39	5.77	36	4.17	*30	2.76	28	1.50	*27	55	
28.79	35	25.19	36	21.66	36	18.12	36	14.95	36	12.11	36	9.53	38	7.36	41	5.29	43	3.50	*41	2.11	40	....	....	57	
29.90	29	26.08	29	22.43	29	18.98	29	15.77	30	12.89	*27	10.35	24	8.22	19	6.41	*14	4.80	6	3.41	5	2.22	5	59	
29.25	31	25.61	30	22.01	31	18.51	32	15.22	32	12.22	35	9.60	*36	7.37	40	5.30	42	3.50	*41	2.10	41	....	....	61	
30.90	21	27.01	22	23.20	24	19.49	25	16.03	27	12.89	*27	10.12	30	7.86	30	6.06	26	4.44	*20	3.01	20	1.81	18	63	
30.60	24	27.00	*23	23.36	22	19.83	20	16.55	19	13.55	20	10.92	15	8.40	*14	5.63	38	3.26	43	1.81	43	0.92	34	65	
25.30	45	21.78	45	18.43	45	15.35	45	12.62	46	10.40	46	8.44	45	6.88	44	5.40	41	3.73	38	2.27	*38	0.33	*41	67	
28.56	37	24.82	39	21.22	39	17.86	38	14.81	38	12.07	37	9.65	35	7.67	36	5.96	29	4.44	*20	3.12	15	1.94	*13	69	
29.32	30	25.60	31	21.98	32	18.43	33	15.21	33	12.42	31	9.91	32	7.81	32	6.08	*23	4.52	19	3.11	*16	1.94	*13	71	
27.32	*41	23.96	41	20.66	40	17.42	40	14.45	40	11.78	40	9.27	41	7.22	42	5.74	37	4.22	29	2.51	31	1.19	30	73	
28.98	34	25.18	37	21.45	37	17.85	39	14.54	39	11.66	41	9.20	42	7.04	43	4.92	44	3.08	44	1.75	44	1.05	33	75	
27.32	*41	23.76	42	20.23	42	16.91	43	13.98	43	11.38	43	9.05	44	6.79	45	4.46	45	2.60	45	0.94	45	0.75	36	77	
30.03	27	26.24	28	22.50	28	18.51	30	15.44	31	12.38	32	9.60	*36	7.51	38	5.84	35	4.05	33	2.42	34	0.59	39	79	
25.61	43	22.69	43	19.76	43	16.95	42	14.38	41	12.01	39	9.92	31	8.12	23	6.53	9	5.28	3	4.34	2	3.41	1	81	
28.32	39	25.33	32	22.24	30	19.22	27	16.45	22	13.72	17	11.07	11	8.84	6	6.92	1	5.41	2	4.21	3	2.77	3	83	
23.76	46	20.81	46	17.83	46	15.18	46	12.89	45	10.81	44	9.10	43	7.80	33	6.66	5	5.56	1	4.51	1	3.28	2	85	
25.39	44	22.35	44	19.35	44	16.45	44	13.79	44	11.42	42	9.33	40	7.62	37	5.92	32	3.93	36	2.31	37	1.15	31	87	
23.26		20.48		17.75		15.23		12.93		10.88		9.02		7.39		6.15		5.06		4.26		3.75			
28.49	38	25.21	35	21.85	33	18.72	31	15.78	29	12.89	*27	10.17	29	7.75	34	5.52	40	3.66	39	2.27	*38	0.54	40	89	
27.83	40	24.26	40	20.62	41	17.23	41	14.04	42	10.62	45	6.86	46	3.80	46	2.15	46	1.02	46	....	....	....	....	91	
29.07		25.53		21.71		18.26		15.06		12.16		9.61		7.44		5.63		4.14		2.96		2.03			

*The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.

*The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

*The 12 cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

TABLE 10. Females. e_x .

COMPLETE EXPECTATION OF

No. of life table.	AREA AND COLOR.	EXACT AGE IN YEARS.																	
		0		1		2		7		12		17		22		27		32	
		e_x	Rank.	e_x	Rank.	e_x	Rank.	e_x	Rank.	e_x	Rank.	e_x	Rank.	e_x	Rank.	e_x	Rank.	e_x	Rank.
2	WHITE.																		
4	Aggregate ¹	57.52	19	60.63	16	60.60	15	57.05	14	52.62	13	48.22	13	44.21	*14	40.46	16	36.77	17
	Original registration states ²	56.41	24	59.86	22	59.88	22	56.42	22	52.02	22	47.62	22	43.59	*22	39.83	23	36.12	23
	Original registration states, 1909-1911.....	53.62	....	58.69	....	59.24	....	56.14	....	51.79	....	47.39	....	43.26	....	39.31	....	35.40	....
6	STATES.																		
8	California.....	58.44	11	61.12	11	60.95	10	57.41	11	53.01	10	48.69	9	44.77	9	41.10	8	37.45	8
10	Connecticut.....	56.84	20	60.33	19	60.41	*18	56.91	17	52.47	16	47.97	18	43.82	20	40.00	21	36.23	*21
12	Illinois.....	57.76	14	60.81	12	60.87	11	57.43	10	53.00	11	48.62	11	44.58	11	40.80	11	37.06	13
14	Indiana.....	57.55	18	60.51	17	60.41	*18	56.78	*19	52.33	*18	48.04	17	44.21	*14	40.62	15	37.02	14
	Kansas.....	61.02	1	63.48	2	63.27	1	59.42	1	54.96	1	50.57	1	46.44	1	42.55	1	38.80	1
16	Kentucky.....	57.63	17	60.05	21	60.08	21	56.57	21	52.16	21	47.88	20	44.14	16	40.73	13	37.32	10
18	Maryland.....	55.99	27	59.77	24	59.84	24	56.25	25	51.80	25	47.37	27	43.38	26	39.71	24	36.05	24
20	Massachusetts.....	56.56	*21	60.32	20	60.39	20	56.93	16	52.51	15	48.05	16	43.91	19	40.03	19	36.23	*21
22	Michigan.....	56.01	26	59.48	26	59.46	26	56.12	26	51.79	*26	47.49	24	43.59	*22	40.01	20	36.44	19
24	Minnesota.....	60.59	3	62.97	3	62.58	3	58.67	4	54.20	4	49.78	4	45.71	4	41.95	3	38.26	3
26	Missouri.....	59.04	7	61.56	7	61.55	7	58.11	6	53.75	6	49.39	6	45.43	6	41.75	5	38.09	5
28	New Jersey.....	56.56	*21	59.83	23	59.86	23	56.34	23	51.92	23	47.50	23	43.42	24	39.65	25	35.92	26
30	New York.....	55.76	30	59.16	28	59.24	*28	55.83	30	51.44	30	47.04	30	42.98	30	39.19	30	35.44	30
32	North Carolina.....	58.03	13	60.72	14	60.79	13	57.01	15	52.40	17	47.94	19	43.94	18	40.25	18	36.70	18
34	Ohio.....	58.34	12	61.39	8	61.28	8	57.71	8	53.24	8	48.82	8	44.81	8	41.04	9	37.33	9
36	Oregon.....	60.45	*4	62.30	6	61.79	6	57.84	7	53.37	7	49.04	7	45.10	7	41.43	7	37.71	6
38	Pennsylvania.....	55.96	28	59.68	25	59.75	25	56.27	24	51.86	24	47.44	25	43.39	25	39.63	26	35.93	25
40	South Carolina.....	57.70	15	60.40	18	60.53	17	56.89	18	52.31	20	47.81	21	43.75	21	39.98	22	36.36	20
42	Tennessee.....	58.48	10	60.77	13	60.70	14	57.06	13	52.55	14	48.18	14	44.28	13	40.70	14	37.19	12
44	Utah.....	58.61	8	61.18	10	60.80	12	56.77	*19	52.33	*18	48.06	15	44.10	17	40.43	17	36.99	*15
46	Virginia.....	58.52	9	61.22	9	61.16	9	57.60	9	53.08	9	48.60	12	44.52	12	40.74	12	36.99	*15
48	Washington.....	60.45	*4	62.60	5	62.19	5	58.30	5	53.89	5	49.61	5	45.65	5	41.88	4	38.10	4
50	Wisconsin.....	60.73	2	63.55	1	63.19	2	59.35	2	54.89	2	50.43	2	46.28	2	42.43	2	38.63	2
52	CITIES.																		
54	Aggregate ³	54.87	33	58.34	33	58.49	32	55.26	32	50.92	32	46.54	32	42.51	32	38.74	33	35.00	33
56	Baltimore.....	54.70	35	58.64	31	58.98	30	55.55	31	51.12	31	46.72	31	42.72	31	39.03	31	35.28	32
58	Boston.....	53.31	38	57.33	38	57.47	38	54.23	38	50.03	38	45.62	38	41.55	38	37.87	38	34.23	38
60	Buffalo.....	53.01	39	57.47	*36	57.63	37	54.82	*36	50.72	34	46.42	33	42.44	34	38.69	34	34.97	34
62	Chicago.....	55.49	31	59.08	29	59.35	27	56.11	27	51.71	28	47.32	28	43.27	28	39.45	28	35.65	28
	Cleveland.....	55.77	29	59.23	27	59.24	*28	55.98	28	51.59	29	47.18	29	43.15	29	39.31	29	35.56	29
64	Detroit.....	53.44	37	57.47	*36	57.70	36	54.82	*36	50.58	36	46.32	35	42.50	33	38.93	32	35.36	31
66	Los Angeles.....	57.68	16	60.69	15	60.56	16	57.18	12	52.91	12	48.64	10	44.73	10	41.01	10	37.31	11
68	New Orleans.....	54.22	36	56.81	39	56.60	39	52.89	39	48.35	39	43.92	39	39.96	39	36.56	39	33.21	39
70	New York, N. Y.....	54.83	34	58.02	35	58.23	35	54.91	35	50.54	37	46.15	37	42.07	37	38.25	37	34.48	37
72	Philadelphia.....	54.92	32	58.32	34	58.33	33	55.09	33	50.70	35	46.29	36	42.29	36	38.56	35	34.84	35
74	Pittsburgh.....	50.51	40	54.90	40	55.27	40	52.10	40	47.95	40	43.67	40	39.78	40	36.30	40	32.86	40
76	St. Louis.....	56.14	25	58.83	30	58.80	31	55.91	29	51.79	*26	47.43	26	43.36	27	39.51	27	35.69	27
78	San Francisco.....	56.50	23	58.63	32	58.32	34	55.03	34	50.81	33	46.40	34	42.31	35	38.51	36	34.79	36
80	Washington, D. C.....	59.81	6	62.72	4	62.41	4	58.86	3	54.48	3	50.08	3	45.83	3	41.60	6	37.49	7
82	NEGROES.																		
84	States with less than 4 per cent Negroes ⁴	42.77	44	47.25	44	48.38	44	45.76	44	41.72	*43	38.20	43	35.30	43	32.28	43	29.12	44
86	States with more than 5 per cent Negroes ⁵	45.46	43	48.85	43	48.99	43	45.72	45	41.37	45	37.60	45	34.72	45	32.11	44	29.54	43
88	Large cities ⁶	40.58	46	45.38	46	46.52	46	44.19	46	40.11	46	36.60	46	33.72	46	30.66	46	27.50	46
	Original registration states ²	42.35	45	47.08	45	48.22	45	45.77	43	41.72	*43	38.15	44	35.17	44	32.02	45	28.82	45
	Original registration states, 1909-1911.....	37.67	....	45.15	....	46.96	....	45.15	....	41.29	....	37.95	....	34.90	....	31.61	....	28.35	....
90	HAWAII.																		
92	Hawaii (all races combined).....	47.27	42	51.29	41	51.56	41	48.47	41	44.09	41	40.34	41	37.39	41	34.70	41	32.29	41
	Japanese in Hawaii.....	47.66	41	50.60	42	50.80	42	47.79	42	43.45	42	39.54	42	36.39	42	33.48	42	30.71	42
	Japanese in Japan, 1908-1915.....	44.73	....	51.24	....	52.55	....	50.85	....	46.90	....	43.88	....	40.66	....	37.62	....	34.41	....

* Two or more rankings the same.

¹ Statistics for the aggregate tables are a compilation of those for the New England states, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.² The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.³ The 14 cities included in aggregate white in cities are those shown in the table.

UNITED STATES ABRIDGED LIFE TABLES.

27

LIFE IN YEARS, 1919-1920.

e_x. Females. TABLE 10.

EXACT AGE IN YEARS.																								No. of life table.
37		42		47		52		57		62		67		72		77		82		87		92		
e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	e _x	Rank.	
32.99	18	29.11	19	25.21	18	21.43	17	17.84	17	14.50	*15	11.49	15	8.92	16	6.77	12	5.08	10	3.76	7	2.62	7	2
32.29	24	28.39	24	24.52	24	20.79	22	17.27	23	14.01	22	11.11	24	8.66	22	6.61	*19	4.98	14	3.70	9	2.63	6	4
31.56	....	27.73	....	23.96	....	20.29	....	16.84	....	13.70	....	10.89	....	8.46	....	6.41	....	4.78	....	3.61	....	2.67	....	
33.71	8	29.85	10	25.99	10	22.22	9	18.59	8	15.17	6	12.05	6	9.26	7	6.90	8	5.02	12	3.59	*11	2.49	9	6
32.39	21	28.48	21	24.56	22	20.78	*23	17.28	22	14.09	21	11.28	21	8.87	19	6.72	16	4.77	27	3.22	*25	1.99	26	8
33.22	16	29.29	16	25.37	16	21.57	16	18.00	15	14.63	14	11.57	*13	9.01	14	6.76	*13	4.81	*22	3.22	*25	1.94	*28	10
33.33	14	29.46	15	25.58	14	21.76	14	18.04	14	14.50	*15	11.29	20	8.47	*29	6.04	43	4.10	42	2.67	40	1.39	40	12
35.02	1	31.08	1	27.07	1	23.07	1	19.28	1	15.68	2	12.31	*2	9.37	5	6.76	*13	4.38	*38	2.50	42	0.97	43	14
33.74	7	29.92	*8	26.03	9	22.17	10	18.46	*10	15.03	10	11.84	10	9.09	9	6.79	*11	4.82	21	3.22	*25	2.01	25	16
32.31	23	28.42	23	24.55	23	20.78	*23	17.25	24	13.98	24	10.86	*28	8.31	38	6.41	*34	4.80	*24	3.37	22	2.13	*19	18
32.38	22	28.46	22	24.58	21	20.85	21	17.30	21	14.00	23	11.09	25	8.61	26	6.44	*31	4.54	34	3.02	34	1.82	34	20
32.72	20	28.88	20	25.04	20	21.28	19	17.65	*19	14.25	20	11.17	23	8.47	*29	6.15	40	4.27	40	2.85	39	1.67	38	22
34.50	3	30.60	3	26.66	2	22.79	2	19.14	2	15.69	1	12.46	1	9.64	1	7.29	5	5.31	*5	3.55	15	2.12	21	24
34.36	4	30.49	4	26.56	4	22.69	*3	18.98	3	15.47	3	12.31	*2	9.59	2	7.31	4	5.53	4	4.12	3	2.99	2	26
32.03	26	28.07	26	24.16	26	20.40	28	16.88	*29	13.65	*31	10.86	*28	8.46	31	6.51	25	5.00	13	3.64	10	2.40	10	28
31.57	31	27.63	31	23.79	32	20.11	32	16.68	33	13.52	34	10.71	33	8.40	35	6.48	*26	4.85	19	3.50	16	2.37	11	30
33.20	17	29.59	13	25.76	12	21.93	12	18.21	12	14.64	13	11.35	18	8.64	25	6.43	33	4.48	36	2.89	38	1.60	39	32
33.56	*11	29.64	12	25.69	13	21.83	13	18.13	13	14.69	12	11.57	*13	8.89	*17	6.66	17	4.84	20	3.40	*20	2.23	14	34
33.92	6	30.05	7	26.13	8	22.27	8	18.57	9	15.11	8	11.94	7	9.08	10	6.57	22	4.51	35	2.99	*35	1.80	35	36
32.17	25	28.31	25	24.43	25	20.67	25	17.17	25	13.94	25	11.02	26	8.51	27	6.40	*36	4.66	*31	3.28	24	2.13	*19	38
32.85	19	29.15	18	25.24	17	21.40	18	17.77	18	14.40	19	11.42	17	8.84	20	6.59	21	4.59	33	2.99	*35	1.73	*36	40
33.59	10	29.92	*8	26.16	7	22.35	6	18.65	6	15.12	7	11.92	*8	9.17	8	6.76	*13	4.74	28	3.18	31	1.93	30	42
33.64	9	30.09	6	26.22	6	22.32	7	18.62	7	14.97	11	11.65	11	8.89	*17	6.33	39	4.01	43	2.33	43	0.23	44	44
33.28	15	29.47	14	25.48	15	21.62	15	17.95	16	14.49	17	11.34	19	8.65	*23	6.46	*28	4.67	30	3.22	*25	2.02	24	46
34.23	5	30.32	5	26.39	5	22.52	5	18.85	5	15.43	5	12.26	4	9.50	3	7.12	7	5.28	7	3.83	6	2.54	8	48
34.73	2	30.71	2	26.65	3	22.69	*3	18.94	4	15.44	4	12.19	5	9.30	6	6.89	9	4.93	*16	3.41	*18	2.21	16	50
31.16	33	27.27	33	23.48	33	19.84	34	16.46	34	13.36	35	10.62	*34	8.37	36	6.46	*28	4.80	*24	3.41	*18	2.24	13	52
31.41	32	27.53	32	23.81	31	20.13	31	16.75	32	13.62	33	10.62	*34	8.25	40	6.48	*26	4.81	*22	3.08	32	1.73	*36	54
30.54	38	26.82	37	23.15	38	19.64	38	16.29	36	13.20	37	10.59	36	8.44	*32	6.44	*31	4.96	15	3.93	5	2.87	4	56
31.13	34	27.16	34	23.36	35	19.66	*36	16.08	39	12.83	40	9.95	45	7.71	45	5.86	45	3.89	44	2.30	44	1.15	42	58
31.74	29	27.81	29	23.96	30	20.27	30	16.88	*29	13.74	*26	10.94	27	8.65	*23	6.63	18	4.78	26	3.21	29	1.92	31	60
31.77	28	27.88	28	24.03	29	20.39	29	16.98	27	13.73	28	10.82	31	8.34	37	6.40	*36	5.03	11	3.57	13	2.14	18	62
31.61	30	27.77	30	24.07	28	20.44	27	16.89	28	13.65	*31	10.81	32	8.41	34	6.41	*34	4.92	18	3.59	*11	2.22	15	64
33.56	*11	29.68	11	25.82	11	22.06	11	18.46	*10	15.06	9	11.92	*8	9.07	11	6.45	30	4.25	41	2.66	41	1.27	41	66
29.64	40	26.07	40	22.45	40	18.98	40	15.75	41	12.79	41	10.19	*42	7.97	43	5.88	44	3.85	45	2.26	45	0.07	45	68
30.58	37	26.65	39	22.86	39	19.24	39	15.92	40	12.89	39	10.28	41	8.26	39	6.61	*19	5.19	8	3.96	4	2.89	3	70
31.02	35	27.12	35	23.31	36	19.66	*36	16.30	35	13.29	36	10.54	37	8.24	41	6.34	38	4.66	*31	3.20	30	1.94	*28	72
29.43	41	25.92	41	22.32	41	18.83	41	15.59	42	12.62	42	10.07	44	7.93	44	6.05	42	4.46	37	3.06	33	1.87	32	74
31.84	27	27.93	27	24.09	27	20.48	26	17.01	26	13.69	*29	10.86	*28	8.50	28	6.54	23	4.93	*16	3.31	23	1.98	27	76
30.94	36	26.97	36	23.26	37	19.67	35	16.17	37	13.11	38	10.43	38	8.07	42	6.08	41	4.38	*38	2.99	*35	1.85	33	78
33.35	13	29.22	17	25.17	19	21.25	20	17.65	*19	14.45	18	11.62	12	9.06	12	6.52	24	4.70	29	3.48	17	2.26	12	80
25.94	44	22.79	44	19.74	44	16.88	43	14.52	43	12.45	43	10.41	40	8.70	21	7.13	6	5.70	3	4.28	2	2.65	5	82
26.86	43	24.04	42	21.26	42	18.55	42	16.09	38	13.74	*26	11.46	16	9.38	4	7.33	3	5.31	*5	3.56	14	2.20	17	84
24.31	46	21.22	46	18.30	46	15.74	46	13.76	45	12.05	45	10.42	39	8.95	15	7.62	1	6.63	1	5.65	1	4.14	1	86
25.62	45	22.49	45	19.40	45	16.50	44	14.11	44	12.12	44	10.19	*42	8.44	*32	6.88	10	5.15	9	3.40	*20	2.06	22	88
25.18	....	22.10	....	19.30	....	16.55	....	14.05	....	11.96	....	10.17	....	8.55	....	6.91	....	5.59	....	4.86	....	4.14	....	
29.69	39	26.72	38	23.38	34	20.10	33	16.78	31	13.69	*29	11.27	22	9.03	13	7.39	2	6.06	2	3.72	8	2.04	23	90
27.60	42	23.95	43	19.95	43	15.92	45	11.57	46	7.00	46	3.60	46	1.98	46	0.88	46	....	....	....	....	....	....	92
31.07	....	27.63	....	24.03	....	20.41	....	16.96	....	13.73	....	10.82	....	8.35	....	6.32	....	4.62	....	3.27	....	2.22	....	

* The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.

* The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

* The 12 cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

TABLE 11. EXCESS OF ANNUAL RATE OF MORTALITY AMONG MALES OVER THAT

[Bold-faced type indicates that the rate among females is in

No. of line.	AREA AND COLOR.	EXACT AGE IN YEARS.								
		0	1	2	7	12	17	22	27	32
WHITE.										
1	Aggregate ¹	17.01	1.77	0.71	0.41	0.31	0.48	0.48	0.74	0.11
2	Original registration states ²	18.82	1.87	0.87	0.51	0.31	0.45	0.40	0.75	0.02
3	Original registration states, 1909-1911.....	21.00	2.38	1.30	0.31	0.27	0.30	0.69	0.28	0.88
STATES.										
4	California.....	13.10	1.35	0.38	0.35	0.73	0.96	0.09	0.61	1.27
5	Connecticut.....	20.81	1.17	0.81	0.64	0.55	1.06	0.03	0.20	0.15
6	Illinois.....	18.09	2.43	0.52	0.51	0.29	0.60	0.50	0.89	0.09
7	Indiana.....	16.35	1.58	1.00	0.50	0.03	0.11	1.60	1.62	1.64
8	Kansas.....	13.83	0.53	0.68	0.47	0.15	0.71	0.25	0.79	0.85
9	Kentucky.....	12.81	0.67	0.27	0.16	0.07	0.01	1.54	2.25	2.07
10	Maryland.....	16.73	0.11	0.98	0.50	0.33	0.01	1.03	0.60	0.10
11	Massachusetts.....	20.36	1.67	1.20	0.50	0.31	0.31	0.55	0.35	0.33
12	Michigan.....	18.87	1.37	0.57	0.40	0.25	0.31	1.40	2.04	0.86
13	Minnesota.....	15.65	1.26	0.92	0.29	0.33	0.48	0.56	1.08	0.12
14	Missouri.....	17.68	2.28	0.46	0.39	0.16	0.61	0.43	0.95	0.55
15	New Jersey.....	17.29	2.78	1.18	0.55	0.29	0.25	0.02	0.82	0.57
16	New York.....	18.48	2.38	0.71	0.52	0.32	0.52	0.10	0.33	0.65
17	North Carolina.....	12.42	2.55	0.65	0.14	0.31	0.01	0.80	0.96	1.36
18	Ohio.....	15.10	1.24	0.59	0.49	0.36	0.51	0.82	0.89	0.30
19	Oregon.....	17.34	2.60	0.08	0.59	0.44	1.07	1.23	0.10	0.24
20	Pennsylvania.....	18.61	2.44	0.58	0.44	0.30	0.39	0.35	0.44	0.05
21	South Carolina.....	14.14	1.80	1.28	0.12	0.46	0.54	0.44	0.82	1.08
22	Tennessee.....	9.67	1.52	1.20	0.07	0.10	0.02	1.17	1.99	1.55
23	Utah.....	16.07	1.93	0.20	0.91	0.33	0.67	0.69	0.02	0.12
24	Virginia.....	17.97	0.78	0.37	0.02	0.42	0.71	0.08	0.60	0.06
25	Washington.....	13.21	1.85	1.33	0.38	0.24	0.79	0.61	0.48	0.67
26	Wisconsin.....	18.92	1.18	0.73	0.33	0.33	0.82	0.71	1.03	0.14
CITIES.										
27	Aggregate ³	19.40	2.42	1.32	0.66	0.31	0.29	0.37	0.72	0.42
28	Baltimore.....	19.82	0.59	1.18	1.02	0.14	0.39	1.40	0.42	0.57
29	Boston.....	22.00	3.56	1.69	0.35	0.10	0.22	1.23	1.26	0.25
30	Buffalo.....	22.75	1.66	2.22	0.47	0.45	0.26	0.94	0.24	0.05
31	Chicago.....	21.52	2.62	1.55	0.81	0.38	0.23	0.56	1.07	0.21
32	Cleveland.....	17.43	2.17	2.52	0.37	0.63	0.16	0.91	0.86	0.12
33	Detroit.....	21.35	1.49	1.71	0.66	0.27	0.09	1.90	2.40	1.25
34	Los Angeles.....	12.65	3.18	0.56	0.53	0.83	0.94	0.13	0.84	1.36
35	New Orleans.....	11.44	0.90	0.70	1.18	1.62	1.10	1.45	2.52	2.69
36	New York, N. Y.....	17.85	2.48	0.91	0.62	0.19	0.31	0.28	0.44	0.65
37	Philadelphia.....	20.48	4.06	1.40	0.50	0.40	0.08	1.01	1.11	0.10
38	Pittsburgh.....	23.46	3.03	1.91	1.00	0.31	0.57	0.29	1.03	0.40
39	St. Louis.....	20.31	0.80	0.95	1.09	0.04	0.26	0.68	0.68	0.19
40	San Francisco.....	16.89	1.38	0.05	0.29	0.85	1.48	0.62	0.60	2.03
41	Washington, D. C.....	16.50	2.33	1.45	1.29	0.59	0.96	1.99	2.93	2.49
NEGROES.										
42	States having less than 4 per cent Negroes ⁴	23.89	2.35	3.51	0.36	0.41	0.84	1.35	0.29	0.67
43	States having more than 5 per cent Negroes ⁵	20.11	3.30	0.75	0.35	0.62	1.78	1.41	2.45	2.18
44	Large cities ⁶	27.96	4.25	4.49	0.00	0.45	0.08	0.21	0.94	0.95
45	Original registration states ²	24.60	2.90	2.10	0.29	0.06	0.12	2.32	0.33	0.60
46	Original registration states, 1909-1911.....	34.28	7.98	7.64	0.38	0.83	0.87	1.91	2.66	5.10
HAWAII.										
47	Hawaii (all races combined).....	11.25	0.49	2.37	0.13	0.13	2.96	1.58	3.72	5.57
48	Japanese in Hawaii.....	11.99	0.58	1.45	1.08	0.18	2.45	2.44	4.62	5.66
49	Japanese in Japan, 1908-1913.....	15.46	0.40	0.29	0.37	1.63	2.63	1.67	1.94	2.15

¹ Statistics for the aggregate tables are a compilation of those for the New England states, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.

² The original registration states include the New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.

³ The 14 cities included in aggregate white in cities are those shown in the table.

UNITED STATES ABRIDGED LIFE TABLES.

29

AMONG FEMALES IN THE SAME AREA AND AGE GROUP DURING 1919-1920. TABLE 11.

excess of that among males in the same area and age group.]

EXACT AGE IN YEARS.												No. of line.
37	42	47	52	57	62	67	72	77	82	87	92	
0.56	1.10	1.07	1.43	2.40	3.09	3.73	5.32	6.30	10.19	12.93	8.41	1
0.79	1.24	1.09	1.49	2.62	2.91	3.10	5.24	7.53	11.47	15.97	9.72	2
1.73	2.44	2.89	3.06	4.05	5.44	6.04	5.97	11.95	9.23	13.34	0.26	3
2.62	3.13	2.68	4.00	6.33	7.33	9.68	9.04	7.75	12.84	31.72	17.59	4
1.26	1.91	1.77	2.04	4.59	1.06	2.73	4.44	19.13	3.13	16.82	28.47	5
0.71	1.17	1.85	1.81	2.80	4.57	4.85	5.80	8.01	10.49	12.74	1.22	6
0.35	0.65	0.78	0.21	1.32	0.91	3.11	4.28	1.76	5.60	18.32	17.33	7
0.70	0.29	0.47	0.20	0.20	1.13	2.60	5.93	11.96	2.70	20.47	41.12	8
1.01	0.35	0.34	0.17	0.29	0.70	0.84	3.88	1.13	8.55	14.36	51.79	9
0.94	1.29	1.67	2.76	2.95	5.35	8.39	4.11	0.65	7.83	6.13	14.24	10
0.46	0.89	0.89	1.24	3.01	3.52	5.81	9.52	11.77	11.13	21.11	1.22	11
0.56	0.18	0.81	0.41	1.27	1.35	1.74	5.41	3.22	7.89	14.15	11.89	12
0.15	0.23	0.33	0.86	1.18	4.42	3.88	8.18	2.85	24.13	11.54	12.29	13
0.19	0.61	1.03	1.31	3.32	4.00	2.76	3.99	0.88	13.07	16.55	24.14	14
1.06	1.78	2.46	1.89	3.67	2.46	2.06	8.85	4.33	13.37	25.04	31.98	15
1.68	1.93	2.03	2.71	3.41	4.71	3.39	3.68	7.30	15.73	7.81	21.23	16
2.60	0.70	0.71	0.40	0.64	1.70	2.50	2.76	0.16	1.44	29.11	29.64	17
0.54	1.15	0.88	1.37	1.99	2.89	5.34	5.07	9.06	16.11	7.80	34.28	18
0.77	0.18	0.03	1.25	2.10	2.68	7.21	8.57	9.93	9.34	20.77	133.78	19
1.15	1.85	2.09	2.04	3.21	3.60	4.96	8.23	8.88	11.07	22.48	7.27	20
1.23	0.43	1.03	1.00	2.51	0.23	4.45	12.62	5.83	3.57	15.09	19.82	21
1.40	0.48	1.29	0.38	0.57	2.08	0.13	5.00	1.06	2.94	1.50	20.94	22
0.19	1.63	3.55	1.56	4.57	7.10	11.07	2.00	12.45	6.17	14.70	83.00	23
1.21	0.29	0.27	0.79	0.94	0.38	2.59	7.76	6.93	15.48	22.37	5.90	24
0.43	0.57	0.27	1.48	0.19	4.49	3.31	6.72	13.60	2.82	20.33	42.90	25
0.09	0.30	0.24	0.66	1.01	1.60	3.40	5.31	6.15	7.15	3.11	25.81	26
1.60	2.08	2.75	3.73	5.51	7.42	7.58	8.85	10.68	11.65	14.21	8.10	27
1.59	2.00	3.21	4.66	3.56	9.65	12.76	9.14	5.23	22.33	22.02	69.14	28
0.08	1.47	2.59	3.32	5.60	6.32	5.73	13.78	18.98	5.95	32.55	54.52	29
2.34	4.26	1.40	4.92	7.51	7.24	7.94	3.73	9.33	12.90	5.58	203.69	30
1.16	1.48	3.28	2.86	3.91	6.91	5.54	7.43	9.88	7.30	3.14	0.82	31
2.04	2.89	2.71	2.42	5.04	8.21	10.75	12.77	6.39	15.22	7.53	15.58	32
0.34	0.04	1.11	1.56	1.98	3.63	3.63	10.44	8.23	2.35	15.82	65.06	33
2.55	2.69	2.66	4.06	6.66	8.88	12.52	5.13	2.65	9.00	44.35	12.31	34
2.49	2.65	8.38	7.64	18.41	20.11	24.06	29.64	23.16	13.60	110.45	91.42	35
1.96	1.97	3.13	4.41	5.24	6.78	4.93	5.34	8.10	18.26	15.06	6.35	36
1.30	2.27	1.75	2.17	4.15	6.16	6.90	8.56	8.44	7.03	7.90	25.57	37
1.15	3.16	4.09	3.70	6.76	5.30	3.49	14.78	18.68	3.60	38.70	114.09	38
1.21	2.04	1.84	2.28	8.28	12.95	12.87	16.72	17.19	26.68	12.59	100.42	39
4.48	3.46	3.09	8.17	11.78	10.08	14.55	7.48	22.40	18.59	29.55	77.61	40
2.76	3.36	3.24	3.71	5.81	5.09	12.31	31.20	32.25	4.91	9.53	2.26	41
1.97	1.76	0.32	0.08	5.23	0.31	3.14	1.51	13.18	17.30	23.82	31.84	42
1.74	2.87	4.23	3.43	5.34	4.83	4.22	6.18	9.51	24.23	15.70	61.12	43
2.39	0.29	0.57	0.16	4.39	3.46	10.04	18.49	12.79	16.67	34.62	59.24	44
0.94	0.86	0.67	1.31	5.07	1.50	5.73	8.70	7.18	30.56	51.64	28.13	45
3.31	3.44	3.36	6.34	3.87	5.78	4.39	18.20	26.38	9.27	26.76	25.04	46
2.57	0.14	2.11	3.48	7.68	1.42	0.72	8.07	0.15	77.74	59.60	124.03	47
0.08	1.27	5.71	7.92	19.25	2.40	-----	-----	-----	-----	-----	-----	48
1.92	0.12	2.38	4.05	6.48	9.45	12.10	20.10	18.41	23.21	27.90	31.90	49

* The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.

* The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

* The 12 cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

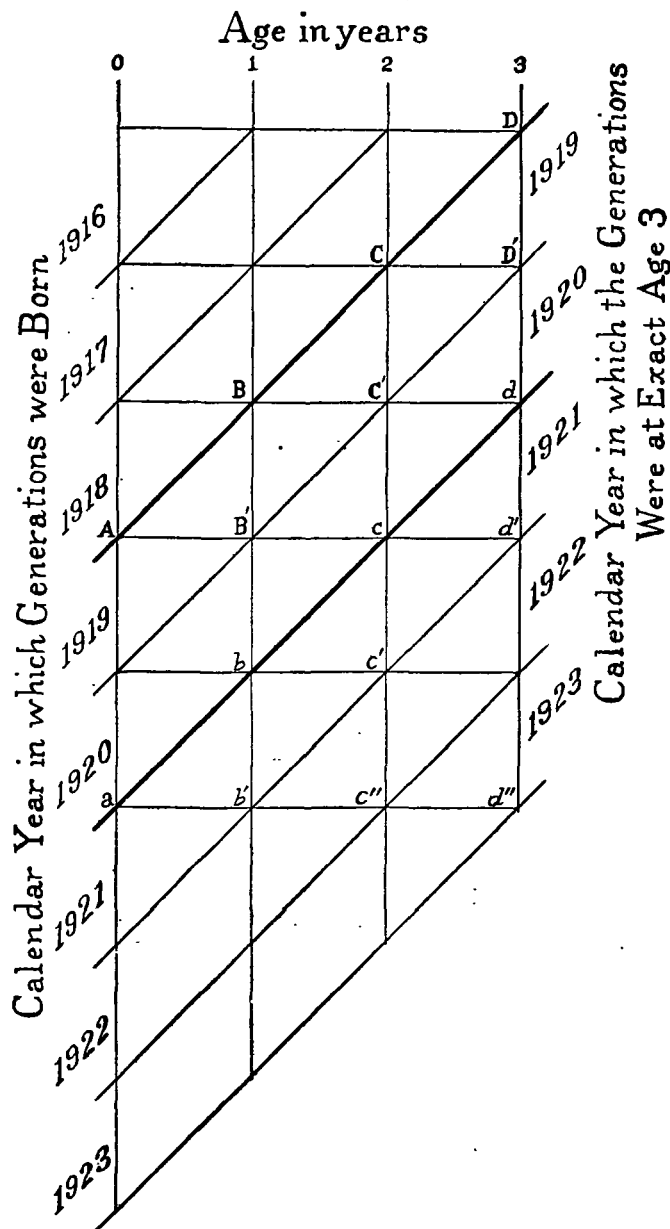
PART II.—METHODS USED AND ACTUAL COMPUTATION.

A.—EXPLANATION OF METHODS USED.

THEORY OF METHOD USED IN OBTAINING RATES OF MORTALITY AT AGES UNDER 3 YEARS.

7. Diagrams 1 to 3 represent the progress of generations. These diagrams are fully explained in sections 96, 106, and 109, pages 329, 338, and 340 of the United States Life Tables, 1890, 1901, 1910, and

DIAGRAM 1.—MOVEMENT OF GENERATIONS REPRESENTED GRAPHICALLY.



1901–1910. In brief, the ages of the generations are measured by vertical lines along the horizontal axis. In the diagram, time in calendar years is measured by the diagonal lines which are at right angles to the bisector of the angle between the vertical and horizontal axes. This bisector is not drawn in these diagrams. Thus the generations begin along the vertical

axis at age 0 and move horizontally to the right. See Diagrams 2 and 3, pages 33 and 37. In any generation many die under 1 year of age; for instance, of those born in 1916, E_0^{1916} , some die in 1916, lD_0^{1916} , and some in 1917, eD_0^{1917} . Of those who survive to exact age 1 year, E_1^{1916} , many die between exact ages 1 and 2 years, some in 1917, lD_1^{1917} , and some in 1918, eD_1^{1918} . Likewise, the deaths among the survivors to exact age 2 years, E_2^{1916} , occur in 1918, lD_2^{1918} , and some in 1919, eD_2^{1919} .

If a census be taken of these generations at any time, for instance, January 1, 1919, the children under 3 years of age enumerated would be those who were born between January 1, 1916, and January 1, 1919, who had not died before January 1, 1919. Thus the children between 2 and 3 years of age on January 1, 1919, would be that part of the 1916 generation, E_0^{1916} , which was not included in $lD_0^{1916} + eD_0^{1917} + lD_1^{1917} + eD_1^{1918} + lD_2^{1918}$.

The method used to derive the formula for the annual rate of mortality at each year of age under 3 is a modification of the method suggested by Mr. Robert Henderson. The rate of mortality of the generation that attains age x during the calendar period is by definition $q_x = d_x/l_x$, where l_x is the number that attain age x during the calendar period and d_x is the number of deaths that occur among the l_x persons before they become aged exactly $x+1$ years. Part of these d_x occur in the year following the calendar period of years. An illustration of this is afforded in Diagram 2. Thus, $E_0^{1919} + E_0^{1920}$, or E_0 , is the number of children born during the calendar period 1919–1920, or the number that attain age 0 during that period. Before this generation has become aged exactly 1 year, d_0 of them have died, lD_0^{1919} in 1919, $eD_0^{1920} + lD_0^{1920}$ in 1920, and eD_0^{1921} in 1921. On the other hand, some of the deaths under 1 year of age in 1919–1920, eD_0^{1919} , were of children born in 1918. Accordingly, it appears that the number of deaths under 1 year of age during 1919 and 1920 is

$$D_0 = eD_0^{1919} + lD_0^{1919} + eD_0^{1920} + lD_0^{1920}$$

and that in the generation born in 1919–1920 before it attains exact age 1 year is

$$d_0 = lD_0^{1919} + eD_0^{1920} + lD_0^{1920} + eD_0^{1921}$$

Thus the difference between the number of deaths under 1 year of age in the calendar period 1919–1920 and in the generation born in that period is

$$D_0 - d_0 = eD_0^{1919} - eD_0^{1921} = r_0^{1919}P_{1919}^{0/1} - r_0^{1921}P_{1921}^{0/1},$$

where r_y^x is the ratio of the number of deaths under 1 year of age in the calendar year y among those born in the previous year, $y-1$, to $P_y^{0/1}$.

From Diagram 2 it appears that the deaths under 1 year of age in the calendar period 1919-1920 must occur among the $P_{1919}^{0/1} + E_0^{1919} + E_0^{1920}$ children and that the $P_{1919}^{0/1}$ and $P_{1921}^{0/1}$ children lived only a part of their lives between birth and 1 year of age in the period 1919-1920. Hence the rate of mortality under 1 year of age in the *calendar period* 1919-1920 must be

$$q_0^c = D_0/E'_0,$$

where E'_0 may be called the equivalent generation which corresponds to the deaths D_0 .

In the special case where the force of mortality at each age in triangle AB'B, Diagram 1, is equal to that at the corresponding age in triangle $ab'b$ and in quadrilateral AabB', the rates of mortality under 1 year of age in 1919-1920 and in the generation born in 1919-1920 would be the same, and r_0^{1919} , r_0^{1920} , r_0^{1921} would all be equal.

Then the equation

$$D_0 - d_0 = r_0^{1919} P_{1919}^{0/1} - r_0^{1921} P_{1921}^{0/1}$$

may be written

so that $D_0 = d_0 + r_0^{1919} \delta_0$, where δ_0 is $P_{1919}^{0/1} - P_{1921}^{0/1}$,

$$E'_0 q_0^c = E_0 q_0 + r_0^{1919} \delta_0.$$

Then since $q_0 = q_0^c$,

$$E'_0 = E_0 + k_0 \delta_0, \text{ where } k_0 \text{ is } r_0^{1919}/q_0.$$

When k_0 equals $\frac{1}{2}$, this formula for the approximate value of the equivalent generation is that given in equation (22) of the United States Life Tables, 1890, 1901, 1910, 1901-1910, page 337.

By reasoning similar to the above approximate values for rate of mortality between exact ages 1 and 2 years and between 2 and 3 years in 1919-1920 are shown to be, respectively,

$$q_1^c = D_1/(E_1 + r_1 \delta_1/q_1) \text{ and } q_2^c = D_2/(E_2 + r_2 \delta_2/q_2),$$

where E_1 and E_2 are the numbers of children that attain ages 1 and 2 years, respectively, in the calendar period 1919-1920.

Where the rate of mortality does not change very rapidly between ages x and $x+1$, r_x/q_x is very nearly equal $\frac{1}{2}$. However, the rate of mortality under 1 year of age does change very rapidly, and for this reason k_0 was determined from infant mortality statistics given in Table 13 of Birth Statistics of the Birth Registration Area of the United States in each year from 1918 to 1921, published by the Bureau of the Census. The statistics from which the value for k_0 was determined were from the same area as that covered by the 1919-1920 life tables, except Rhode Island, Illinois, Missouri, Tennessee, and Hawaii, and should, therefore, be a very good average for these tables. The results obtained were 0.275 for males and 0.280 for females. While the rate of mortality under 1 year of age has been very much lowered between 1909 and 1919, that under 1 day of age has not changed much. The consequence is that the per cent of born and died in a calen-

dar year has been raised, so that k_0 has changed from about 33 $\frac{1}{3}$ per cent in 1909-1911 to about 28 per cent in 1919-1920.¹

Unfortunately no statistics are available to determine k_1 and k_2 . However, there is no evidence of irregularity in the lowering of the rates of mortality during the age periods 1 to 2 years and 2 to 3 years, and so k_1 and k_2 were set equal to $\frac{1}{2}$, the ratio used for the 1909-1911 life tables. See United States Life Tables, 1890, 1901, 1910, and 1901-1910, page 343, equations (30).

From Diagram 2 it will be seen that

$$E_1 = E_0 + P_{1919}^{0/1} - P_{1921}^{0/1} - D_0 = E_0 + \delta_0 - D_0,$$

while

$$E_2 = E_1 + P_{1919}^{1/2} - P_{1921}^{1/2} - D_1 = E_1 + \delta_1 - D_1.$$

For the convenience of the operator the three equations just derived were expanded. Let G_x represent the denominator in the equation $q_x = D_x/(E_x + k_x \delta_x)$. Then

$$G_0 = E_0 + k_0 \delta_0,$$

$$G_1 = E_1 + \frac{1}{2} \delta_1 = E_0 + \delta_0 + \frac{1}{2} \delta_1 - D_0$$

$$= G_0 + (1 - k_0) \delta_0 - D_0 + \frac{1}{2} \delta_1.$$

$$G_2 = E_2 + \frac{1}{2} \delta_2 = E_1 + \delta_1 + \frac{1}{2} \delta_2 - D_1$$

$$= G_1 - D_1 + \frac{1}{2} (\delta_1 + \delta_2).$$

Therefore, the three equations become

$$q_0 = D_0/G_0, \quad (1)$$

$$q_1 = D_1/[G_0 + (1 - k_0) \delta_0 - D_0 + \frac{1}{2} \delta_1], \quad (2)$$

$$q_2 = D_2/[G_1 - D_1 + \frac{1}{2} (\delta_1 + \delta_2)]. \quad (3)$$

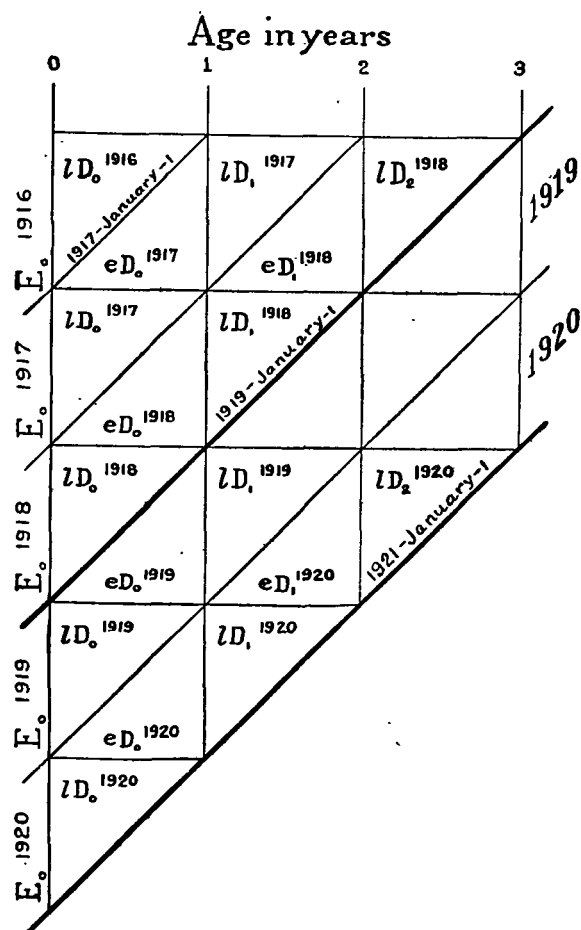
METHOD USED TO DETERMINE DIFFERENCE BETWEEN POPULATION IN SAME AGE INTERVAL AT BEGINNING AND END OF PERIOD.

8. Only the *differences* between the populations at corresponding ages on January 1, 1919, and on January 1, 1921, were used. Therefore, populations derived from birth and death statistics are sufficient since the effect of migration on the number of children under 1 year of age on January 1, 1919, should be about the same as that on the number of children under 1 year of age on January 1, 1921, and this effect would be cancelled out in a difference. The same is true of children between 1 and 2 years of age on January 1, 1919, and January 1, 1921, and also of children between 2 and 3 years on those dates. The method of determining these populations from birth and death statistics is based on the method used to determine the number of births for the United States Life Tables, 1890, 1901, 1910, 1901-1910,

¹ Mr. Henderson bases the ratio of the number of deaths under 1 year of age in the calendar year y among those born in the previous year, $y-1$, upon the statistics for two consecutive calendar years, so that he sets $r_0^{1920-21} = r_0^{1919-20} = r_0 = (eD_0^{1919} + eD_0^{1920})/(P_{1919}^{0/1} + P_{1920}^{0/1})$. The value for k_0 derived from this value of r_0 is 0.288 for males and 0.290 for females. While as a rule the value of k_0 seems to be decreasing with time, it probably varies considerably from locality to locality and from race to race. However, no statistics were available for the separate localities and races from which their values of k_0 could be determined.

explained in section 109, page 340. Instead of adding populations to deaths to find the number of births, deaths were subtracted from the births to obtain populations. E_0^y in Diagram 2 represents the number of births in any calendar year y ; lD_x^y , the number of deaths between ages x and $x+1$ in that year of those who were born in the *later* calendar year, and eD_x^y , the number of deaths between ages x and $x+1$ in that year of those who were born in the *earlier* calendar year.

DIAGRAM 2. GRAPHIC REPRESENTATION OF RELATION BETWEEN BIRTH AND DEATH RECORDS AND CENSUS STATISTICS FOR 1919-1920 LIFE TABLES.



From this it appears that the population under 1 year of age on January 1, 1919, is $P_{1919}^{0/1} = E_0^{1918} - lD_0^{1918}$ and the population under 1 year of age on January 1, 1921, is $P_{1921}^{0/1} = E_0^{1920} - lD_0^{1920}$.

As in equations (1) to (3) on page 32, the expression $(P_{1919}^{x/x+1} - P_{1921}^{x/x+1})$, is designated by δ_x . Consequently,

$$\delta_0 = (-E_0^{1920} + E_0^{1918}) + (-lD_0^{1918} + lD_0^{1920}). \quad (4)$$

The population between 1 and 2 years of age on January 1, 1919, is

$$P_{1919}^{1/2} = E_0^{1917} - lD_0^{1917} - eD_0^{1918} - lD_1^{1918}$$

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and the population between 1 and 2 years of age on January 1, 1921, is

$$P_{1921}^{1/2} = E_0^{1919} - lD_0^{1919} - eD_0^{1920} - lD_1^{1920}.$$

Hence,

$$\delta_1 = (-E_0^{1919} + E_0^{1917}) + (-lD_0^{1917} + lD_0^{1919}) + (-eD_0^{1918} + eD_0^{1920}) + (-lD_1^{1918} + lD_1^{1920}). \quad (5)$$

The population between 2 and 3 years of age on January 1, 1919, is

$$P_{1919}^{2/3} = E_0^{1916} - lD_0^{1916} - eD_0^{1917} - lD_1^{1917} - eD_1^{1918} - lD_2^{1918}$$

and the population between 2 and 3 years of age on January 1, 1921, is

$$P_{1921}^{2/3} = E_0^{1918} - lD_0^{1918} - eD_0^{1919} - lD_1^{1919} - eD_1^{1920} - lD_2^{1920}.$$

Accordingly,

$$\delta_2 = (-E_0^{1918} + E_0^{1916}) + (-lD_0^{1916} + lD_0^{1918}) + (-eD_0^{1917} + eD_0^{1919}) + (-lD_1^{1917} + lD_1^{1919}) + (-eD_1^{1918} + eD_1^{1920}) + (-lD_2^{1918} + lD_2^{1920}). \quad (6)$$

Then each number of deaths in Table 17, pages 58 to 61 was divided into lD and eD by applying the percentages given in the United States Life Tables, 1890, 1901, 1910, 1901-1910, page 340, Table 109, and the resulting lD and eD were entered in different colored ink just below the D from which they were derived. The method of taking these values of lD , eD , and E_0^y from the table in computing infant mortality is illustrated in tape 16, page 39.

METHOD USED TO OBTAIN RATES OF MORTALITY FOR AGES BETWEEN ADOLESCENCE AND OLD AGE.

9. In obtaining graduated rates of mortality for each fifth year of age from 12 to 92, the formula used was that employed by Mr. George King¹ for finding the graduated central value of a fifteen term series. Equations (82) in the United States Life Tables, 1890, 1901, 1910, 1901-1910, page 390, section 180, were transformed for the convenience of operators as follows:

	$-\Delta T_{x-7}$	$-\Delta T_{x-2}$	$-\Delta T_{x+2}$
$-200\Delta T_{x-2}$		-200	
$-(-8\Delta^3 T_{x-7})$	-8	+16	-8

Since $-\Delta T_x$ is the sum of the population aged x to $x+4$ on January 1, 1920, the symbol $P_{1920}^{x/x+4}$ is used, and

$$10^3 L_{x+2} = (-10 + 2) (P_{1920}^{x-5/x-1} - 2P_{1920}^{x/x+4} + P_{1920}^{x+5/x+9}) + 200P_{1920}^{x/x+4}. \quad (7)$$

¹ Supplement to the Seventy-fifth Annual Report of the Registrar-General of Births, Deaths, and Marriages in England and Wales, Part I—Life Tables, page 49, section 2.

Also since $-\Delta(2l)_x$ is the sum of the deaths occurring between ages x and $x+5$ during the two calendar years 1919 and 1920, the symbol $D_{x/5+4}^{1919-20}$ is used, and

$$10^3(2d)_{x+2} = (-10+2) (D_{x-5/5+1}^{1919-20} - 2D_{x/5+4}^{1919-20} + D_{x+5/5+9}^{1919-20}) + 200D_{x/5+4}^{1919-20}. \quad (8)$$

No knowledge of differencing, negative values, or fractions is required to use the equations in this form. The method of using them is illustrated on page 39, tapes 18 and 19.

METHOD USED TO JOIN MORTALITY OF CHILDREN UNDER 3 YEARS OF AGE WITH THAT IN THE MAIN TABLE.

10. The formula discussed in section 9 is for finding the central or eighth term of a fairly symmetrical series of fifteen values. The derivation of a formula for interpolating the third term in this series of fifteen values is similar to that for interpolating the eighth term of the series. If u_2 be the third term in a series of fifteen terms, u_0 , u_1 , and so on up to u_{14} , and

$y_n = \sum_{x=n}^{x=14} u_x$, so that $\Delta y_n = -\sum_{x=n}^{x=n+4} u_x$, then

$$\begin{aligned} -u_2 &= y_3 - y_2 \\ y_3 &= y_0 + \frac{3}{5}\Delta y_0 - \frac{3}{25}\Delta^2 y_0 + \frac{7}{125}\Delta^3 y_0 \\ y_2 &= y_0 + \frac{2}{5}\Delta y_0 - \frac{3}{25}\Delta^2 y_0 + \frac{8}{125}\Delta^3 y_0 \\ -u_2 &= \frac{1}{5}\Delta y_0 - \frac{1}{125}\Delta^3 y_0 \\ &= .2\Delta y_0 - .008\Delta^3 y_0 \end{aligned}$$

OR

$$-10^3 u_2 = 200 \sum_{x=0}^{x=14} u_x - 8 \left(\sum_{x=0}^{x=4} u_x - 2 \sum_{x=5}^{x=9} u_x + \sum_{x=10}^{x=14} u_x \right).$$

When L_7 and $(3d)_7$ are substituted for u_2 , and $P_{x/5+4}^{1919-20}$ and $D_{x/5+4}^{1919-20}$ are substituted for $\sum u_x$, and age 5 is taken as 0, the following two equations are obtained:

$$10^3 L_7 = 200 P_{1920}^{5/9} + (-10+2) (P_{1920}^{5/9} - 2P_{1920}^{10/14} + P_{1920}^{15/19}) \quad (9)$$

$$10^3 (3d)_7 = 200 D_{5/9}^{1919-20} + (-10+2) (D_{5/9}^{1919-20} - 2D_{10/14}^{1919-20} + D_{15/19}^{1919-20}) \quad (10)$$

These formulas were used to determine graduated populations and deaths at age 7, and the results were found to be fairly good and served to join life table values of children under 3 years of age with those beginning at age 12. See values in Table 2, page 10.

METHOD USED TO EXTEND THE PROBABILITIES OF LIVING TO EXTREME OLD AGE.

11. The plan suggested by Mr. George King¹ was followed for the most part, in some cases a constant third difference being used when the fourth differences did not seem suitable. The logarithms of the last seven probabilities of living, given at quinquennial ages, were differenced four times and the largest negative fourth difference or the last negative fourth difference was used to extend these probabilities of living over periods of five years up to age 112. The processes used are illustrated in tapes 24 to 34, pages 43 and 45.

METHOD USED TO DERIVE $\log {}_5p_x$ FROM $\log p_x$ AT EVERY FIFTH YEAR OF AGE AND DETERMINATION OF l_x COLUMN.

12. The formulas used for this process are those given by Mr. George King,¹ but the equations were put in another form that requires no differencing and is better suited for machine work. For convenience and reference equations (i) and (iii) are copied here.

$$w_5 = 5u_0 + 7\Delta u_0 + 1.6\Delta^2 u_0 - .2\Delta^3 u_0 \quad (i)$$

$$w_0 = 5u_0 + 2\Delta u_0 - 0.4\Delta^2 u_0 + .2\Delta^3 u_0, \quad (iii)$$

where $w_5 = \sum_{x=5}^{x=9} u_x$ and $w_0 = \sum_{x=0}^{x=4} u_x$. These two equations were transformed by substituting for the leading differences of u_0 their equivalents in terms of the quinquennial values of u_x . This work is indicated below.

Transformation of equation (iii)

	u_0	u_5	u_{10}	u_{15}
$5.0u_0 = +5.0$				
$2.0\Delta u_0 = -2.0$	+2.0			
$-0.4\Delta^2 u_0 = -0.4$	+0.8	-0.4		
$0.2\Delta^3 u_0 = -0.2$	+0.6	-0.6	+0.2	
Total, $w_0 = +2.4u_0 + 3.4u_5 - 1.0u_{10} + 0.2u_{15}$				

OR

$$\begin{aligned} 10w_0 &= 24u_0 + 34u_5 - 10u_{10} + 2u_{15} \\ &= 24(u_0 + u_5) + 10u_5 - 10u_{10} + 2u_{15} \end{aligned} \quad (11)$$

Transformation of equation (i)

	u_0	u_5	u_{10}	u_{15}
$5.0u_0 = +5.0$				
$7.0\Delta u_0 = -7.0$	+7.0			
$1.6\Delta^2 u_0 = +1.6$	-3.2	+1.6		
$-0.2\Delta^3 u_0 = +0.2$	-0.6	+0.6	-0.2	
Total, $w_5 = -0.2u_0 + 3.2u_5 + 2.2u_{10} - 0.2u_{15}$				

OR

$$\begin{aligned} 10w_5 &= -2u_0 + 32u_5 + 22u_{10} - 2u_{15} \\ &= 2[-u_0 + 11(u_5 + u_{10}) - u_{15}] + 10u_5 \end{aligned} \quad (12)$$

Section 36, page 44, shows that the computations indicated in equations (11) and (12) may be readily performed upon an adding machine.

Mr. Robert Henderson suggested that the curve of probabilities of living between ages 2 and 7 is so skew that formula (iii) should be adjusted by determining the coefficient of $\Delta^3 u_0$ from known values of $\log {}_5p_2$.

¹ Supplement to the Seventy-fifth Annual Report of the Registrar-General of Births, Deaths, and Marriages in England and Wales, Part I—Life Tables, pages 26 to 28.

The values for the coefficient of $\Delta^3 u_0$, computed from a number of the United States 1910 life tables, varied slightly about unity. Values for the coefficient $\Delta^3 u_0$, computed in the same way from known values of $\log {}_5p_7$ in these same life tables, all varied only slightly from 0.2. Accordingly, $\log {}_5p_7$ was determined by using equation (11) and $\log {}_5p_2$ by using equation (11a), which is derived from a modification of equation (iii)—that is, from

$$w_0 = 5u_0 + 2\Delta u_0 - 0.4\Delta^2 u_0 + \Delta^3 u_0. \quad (\text{iiiia})$$

Transformation of equation (iiiia).

u_0	u_5	u_{10}	u_{15}
$5u_0 = +5.0$			
$2\Delta u_0 = -2.0 + 2.0$			
$-0.4\Delta^2 u_0 = -0.4 + 0.8 - 0.4$			
$\Delta^3 u_0 = -1.0 + 3.0 - 3.0 + 1.0$			
Total, $w_0 = +1.6u_0 + 5.8u_5 - 3.4u_{10} + 1.0u_{15}$			

or

$$10w_0 = +17(u_0 + 4u_5 - 2u_{10}) - u_0 - 10u_5 + 10u_{15} \\ = (20-3)(u_0 + 4u_5 - 2u_{10}) - u_0 - 10u_5 + 10u_{15}. \quad (11a)$$

When $\log {}_5p$ is substituted for w and $\log p$ for u in equations (11a), (11), and (12), they become

$$10\log {}_5p_2 = (20-3)(\log p_2 + 4\log p_7 - 2\log p_{12}) \\ - \log p_2 - 10\log p_7 + 10\log p_{17} \quad (13)$$

$$10\log {}_5p_7 = 24(\log p_7 + \log p_{12}) + 10\log p_{12} \\ - 10\log p_{17} + 2\log p_{22} \quad (14)$$

$$10\log {}_5p_{12} = 2[-\log p_7 + 11(\log p_{12} + \log p_{17}) \\ - \log p_{22}] + 10\log p_{12} \quad (15)$$

$$10\log {}_5p_{17} = 2[-\log p_{12} + 11(\log p_{17} + \log p_{22}) \\ - \log p_{27}] + 10\log p_{17} \quad (16)$$

and so on.

100,000 was taken as the radix of the table, and to 5, its logarithm, $\log p_0$, $\log p_1$, $\log {}_5p_2$, $\log {}_5p_7$, and so on, were added, subtotals being taken after each addition. These subtotals are the logarithm of l_x .

METHOD OF DETERMINING EXPECTATION OF LIFE FROM SURVIVORS AT EVERY FIFTH YEAR OF AGE.

13. Equations (11) and (12) were transformed by substituting $N'_{w:5}$ for w and l for u , and the following equations were obtained:

$$10N'_{2:5} = 24(l_2 + l_7) + 10l_7 - 10l_{12} + 2l_{17} \quad (17)$$

$$10N'_{7:5} = 2[-l_2 + 11(l_7 + l_{12}) - l_{17}] + 10l_7 \quad (18)$$

$$10N'_{12:5} = 2[-l_7 + 11(l_{12} + l_{17}) - l_{22}] + 10l_{12} \quad (19)$$

and so on to

$$10N'_{(w-10):5} = 2[-l_{w-15} + 11(l_{w-10} + l_{w-5}) - l_w] \\ + 10l_{w-10}. \quad (20)$$

w designates the age of the last l_x , determined by the method described above, which had a value as large as 0.5. Any value between 0.5 and 1.0 was taken as 1.0. It will be noted that $N'_{(w-5):5}$ and $N'_{w:5}$ can not be determined by this formula. The general rule for obtaining $N'_{w-5:5}$ was to use 0 for l_{w+5} , thus forming the equation:

$$10N'_{(w-5):5} = 2[-l_{w-10} + 11(l_{w-5} + l_w) - 0] + 10l_{w-5}. \quad (21)$$

Sometimes, however, a negative value was obtained by using this formula and in that case $N'_{(w-5):5}$ was determined as follows: $\log p_{w-5}$ was added four times to $\log l_{w-5}$, a subtotal being taken after each addition and a total at the end. These three subtotals and the total are the logarithms of the approximate values of

$$l_{w-4}, l_{w-3}, l_{w-2}, l_{w-1}. \quad \text{Then } N'_{(w-5):5} = \sum_{x=w-5}^{x=w-1} l_x. \quad (21a)$$

It was never necessary to use (21a) for $N'_{(w-5):5}$ except when $l_w = 1$. In that case $N'_{w:5}$ was simply taken as 1. When l_w was greater than 1, $N'_{w:5}$ was determined according to the process outlined for (21a). That is, $\log p_w$ was added four times to $\log l_w$, a subtotal being taken after each addition with a total at the end. Whenever any of these subtotals became less than 999|698980000, which is $\log 0.5$, the additions were stopped, since all values of l_x lower than 0.5 were taken as 0. Since $l_w = 1$ in tape 39, page 49, $N'_{w:5}$ is taken as 1, and the process indicated by (21a) was not needed.

Then to obtain N'_x , these values of $N'_{x:5}$ were summed, beginning with $N'_{w:5}$, and a subtotal was taken after each addition with a total at the end. The equation for the complete expectation of life is then

$$e_x = N'_x / l_x - 0.5. \quad (22)$$

B.—ACTUAL COMPUTATION OF ABRIDGED LIFE TABLE FOR MALES IN THE STATE OF NEW YORK: 1909–1911.

PRELIMINARY STATEMENT.

14. To illustrate the process of constructing these abridged life tables, photographs of the actual computation of the New York Male, 1909–1911, Life Table, are shown on pages 39 to 52. The work of compiling the original statistics and that indicated in Table 12 is not given, but no other part of these computations is omitted except the divisions performed on computing machines to obtain the 21 rates of mortality in tapes 17 and 22 and the 22 expectations of life in tape 43, the multiplication of δ_0 by k_0 , and also the work of looking up the antilogarithms in tape 37. The computations are on 28 tapes, each tape being described in a section having same number as tape. Ages and complete headings were copied on many of the tapes which are not needed in actual computations.

Checks for the comparer are designated by numbers enclosed in circles. Thus the 1 and 2 opposite the totals in tapes 21 and 22, respectively, and also opposite the totals in tape 23 indicate that the numbers marked by the same symbol should agree.

Throughout this description the word "complements" is used freely to mean any two numbers whose sum is any power of ten instead of only for those whose sum is unity. The use of these "complements" is a great aid to speed and accuracy, for no attention need be given to signs.

PREPARATION OF STATISTICS FOR DETERMINATION OF RATES OF MORTALITY OF CHILDREN UNDER 3 YEARS OF AGE.

15. The first step in the computation of rates of mortality at ages under 3 years was to arrange the births and deaths as in Table 12. The numbers of registered births were copied from state reports. The adjusted number of births for the period 1909–1911 was taken from the computations by the extended method. (See United States Life Tables, 1890, 1901, 1910, 1901–1910, page 373, tape 142.) The ratio between this adjusted number of births and the sum of the number of births registered was determined, $346,664/327,314 = 1.059117545$, and this was applied to the numbers of registered births in 1906, 1907, and 1908 to obtain the adjusted number of births for each of these years.

The number of deaths by single years of age under 3 during each of the calendar years, 1906 through 1911, was obtained from the Mortality Statistics for each of these years, published by the Bureau of the Census. 72 per cent of the deaths under age 1 year were assumed to be born in the *later* calendar year, lD_0 , and 28 per cent in the *earlier* calendar year, eD_0 ; 59 per cent of the deaths in age interval 1–2 years were assumed to be born in the *later* calendar year, lD_1 , and 41 per cent in the *earlier* year, eD_1 ; 53 per cent of the

deaths in age interval 2–3 years were assumed to be born in the *later* calendar year, lD_2 , and 47 per cent in the *earlier* year, eD_2 . This is in accordance with the constants used in construction of United States Life Tables, 1890, 1901, 1910, 1901–1910, given in Table 109, page 340, of the volume of this title.

TABLE 12.—STATISTICS FROM WHICH RATES OF MORTALITY OF CHILDREN UNDER 3 YEARS OF AGE WERE DETERMINED FOR THE NEW YORK MALE LIFE TABLE, 1909–1911.

Calendar year.....	1906	1907	1908	1909	1910	1911
Number of births registered..	93,988	100,522	101,992	104,382	109,229	113,703
Adjusted number of births..	99,544	106,465	111,199	111,666	115,948	119,050
Number of deaths, 0–1, D_0 ..	15,209	15,432	14,632	14,569	15,234	14,040
Born in later year, lD_0 ..	10,950	11,111	10,535	10,490	10,968	10,109
Born in earlier year, eD_0 ..	4,259	4,321	4,097	4,079	4,266	3,931
Number of deaths, 1–2, D_1 ..		3,414	3,229	3,523	3,401	2,993
Born in later year, lD_1 ..		2,014	1,905	2,079	2,007	1,766
Born in earlier year, eD_1 ..		1,400	1,324	1,444	1,394	1,227
Number of deaths, 2–3, D_2 ..			1,442	1,484	1,545	1,320
Born in later year, lD_2 ..			764			700
Born in earlier year, eD_2 ..			678			620

DIFFERENCES BETWEEN POPULATIONS AT CORRESPONDING AGES ON JANUARY 1, 1909, AND JANUARY 1, 1912.

16. It was necessary to determine first the difference between the populations at corresponding ages on January 1, 1909, and January 1, 1912. Formulas for this work, (4), (5), and (6), were derived on page 33. The New York Male, 1910, Life Table, is based on a three-year period, 1909–1911. Hence, to use these equations for the computations of this table, 1906 was substituted for 1916, 1907 for 1917, 1908 for 1918; then 1909 for 1918, 1910 for 1919, 1911 for 1920, and 1912 for 1921. (See Diagram 3.)

$$\delta_0 = (-E_0^{1911} + E_0^{1908}) + (-lD_{0/1}^{1908} + lD_{0/1}^{1911}) \quad (4a)$$

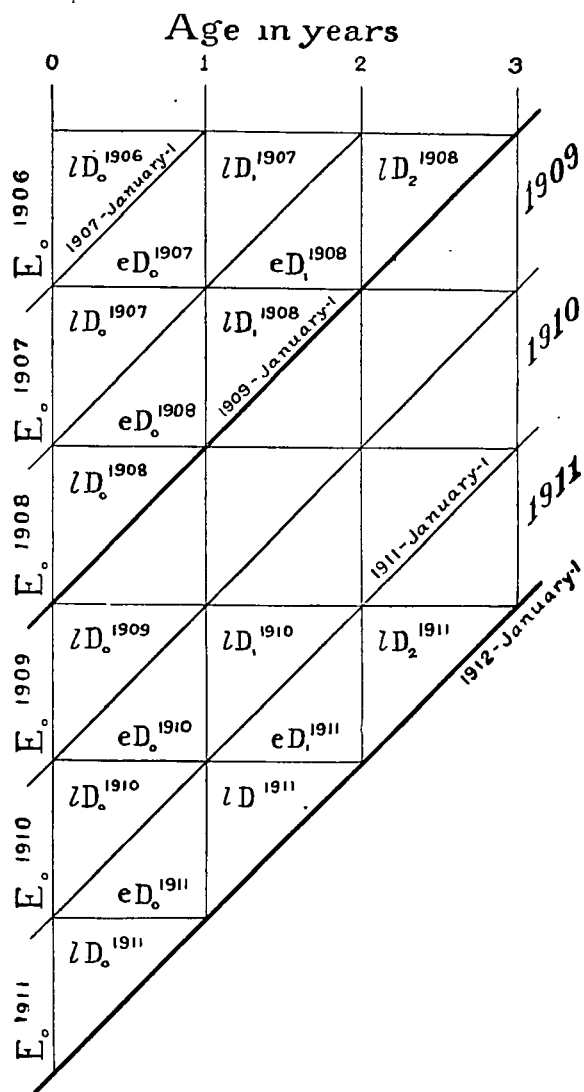
$$\delta_1 = (-E_0^{1910} + E_0^{1907}) + (-lD_{0/1}^{1907} + lD_{0/1}^{1910}) \\ + (-eD_{0/1}^{1908} + eD_{0/1}^{1911}) + (-lD_{1/2}^{1908} + lD_{1/2}^{1911}) \quad (5a)$$

$$\delta_2 = (-E_0^{1909} + E_0^{1906}) + (-lD_{0/1}^{1906} + lD_{0/1}^{1909}) \\ + (-eD_{0/1}^{1907} + eD_{0/1}^{1910}) + (-lD_{1/2}^{1907} + lD_{1/2}^{1910}) \\ + (-eD_{1/2}^{1908} + eD_{1/2}^{1911}) + (-lD_{2/3}^{1908} + lD_{2/3}^{1911}). \quad (6a)$$

As will be noticed these equations are rather symmetrical and their values can be selected from Table 12 according to rule. The last group on the right is always $-lD_{x/x+1}^{1908} + lD_{x/x+1}^{1911}$, x being 0, 1, and 2. The next to the last group of deaths is always $-eD_{x/x+1}^{1908} + eD_{x/x+1}^{1911}$, x being 0 and 1; the second from the last group of deaths is always $-lD_{x/x+1}^{1907} + lD_{x/x+1}^{1910}$, x being 0 and 1; the third from the last group of deaths is $-eD_{x/x+1}^{1907} + eD_{x/x+1}^{1910}$; the fourth from the last group of deaths is $-lD_{x/x+1}^{1906} + lD_{x/x+1}^{1909}$. The group of E 's is always for the same calendar years as the group of deaths adjoining, only the signs are changed. The additions were begun with the last

group in each equation. The adding machine was split between the banks 9 and 10, and the lD 's and eD 's were set up from Table 12 on the adding machine

DIAGRAM 3.—GRAPHIC REPRESENTATION OF RELATION BETWEEN BIRTH AND DEATH RECORDS AND CENSUS STATISTICS FOR 1909-1911 LIFE TABLES.



in the same order as they appear in the equations, while the E 's were added in the reverse order because of the change of sign.

Diagram 4 contains three outlines of Table 12 to indicate how to obtain the values for equations (4a), (5a), and (6a).

In actual computations Table 12 was extended in a straight line as in Table 17, which form was convenient

for the operator and also for those preparing the statistics for a number of tables at the same time. It will be noted that negative quantities were set up on the left side of the machine and positive on the right. Hence, when all the values on the right side of each equation were set up, a subtotal was taken and the complement of the sum on the left side was set up on

DIAGRAM 4.—OUTLINE SHOWING ORDER IN WHICH BIRTHS AND DEATHS IN TABLE 12 SHOULD BE ADDED TO OBTAIN VALUES FOR EQUATIONS (4a), (5a), AND (6a).

	1906	1907	1908	1909	1910	1911
Equation (4a)						
Adjusted Births			3			4
Deaths 0-1, D_0						
lD_0			2			1
eD_0						
Equation (5a)						
Adjusted Births		7			8	
Deaths 0-1, D_0						
lD_0		6			5	
eD_0			4			3
Deaths 1-2, D_1						
lD_1			2			1
eD_1						
Equation (6a)						
Adjusted Births	11			12		
Deaths 0-1, D_0						
lD_0	10			9		
eD_0		8			7	
Deaths 1-2, D_1						
lD_1		6			5	
eD_1			4			3
Deaths 2-3, D_2						
lD_2			2			1
eD_2						

both sides of the machine and a total taken in the case of the additions for (4a) and (5a) and a subtotal after additions for (6a). The left side of the machine should be cleared if the correct complement is set up. The remainders on the right are δ_0 , δ_1 , and δ_2 , respectively. δ_1 is then set up below δ_2 and a total taken. δ_0 is then multiplied by k_0 , which in 1910 was about $\frac{1}{3}$, and the product entered in pencil just below δ_0 , and the difference $(1-k_0)\delta_0$ is written just below the product $k_0\delta_0$. Then $\frac{1}{2}$ of δ_1 and also of $(\delta_1+\delta_2)$ is copied just below them.

DETERMINATION OF RATES OF MORTALITY OF CHILDREN UNDER 3 YEARS OF AGE.

17. In tape 17 the values from equations (1), (2), and (3) were set up. The deaths during the period 1909-1911 were added on the right of the adding machine and the corresponding number of children, or the equivalent generation, was obtained on the left. To obtain the values needed in equation (1) the deaths aged 0-1, D_0 , for 1911, 1910, 1909, were added on the right side of the machine, and at the same time the number of births just above them in Table 12 were added on the left. To the left side was then added one-third of the first total in tape 16, 99997241, and a total taken.

To obtain the values needed in equation (2) the total just obtained on the left was added to the complement of the total on the right and to this was added the remainder (99994482) of the first total and one-half of the second total in tape 16. On the right side of the machine the deaths aged 1-2, D_1 , in the calendar years 1911, 1910, and 1909 were set up and a total taken.

To obtain the values needed in equation (3) the total just obtained on the left was added to the complement of the total on the right, and to this one-half of the third total in tape 16 was added. On the right side of the machine the deaths 2-3, D_2 , in the calendar years 1911, 1910, and 1909 were set up and a total taken. Then each total on the right was divided by the corresponding total on the left to obtain the rate of mortality at each age. The result to the nearest sixth decimal place was set up as a whole number under the heading 10^6q_x .

ORIGINAL STATISTICS FOR DETERMINING RATES OF MORTALITY AT AGES 7 YEARS AND OVER.

18. The original statistics, on which the life table for males in the state of New York, 1909-1911, was based, were obtained from the United States Life Tables, 1890, 1901, 1910, 1901-1910, page 450, Table 159. The populations in column 2 and the deaths in column 6 were summed in the quinquennial age groups 0-4, 5-9, 10-14, and so on through the group 95-99. The machine was split between banks 15-16 and 8-9, ages being entered in banks 16-17. Beginning with the age group 5-9, the populations were entered on the left side of the machine and the deaths on the right side, and a subtotal was taken after the group 95-99 was entered. To these subtotals the populations and deaths, respectively, 100 years of age and over, and the age groups 0-4, were added in order to check to the total populations and deaths as given in Table 159 mentioned above. The values in tape 18 are the $P_{x/x+4}^{1919-20}$ and the $P_{x/x+4}^{1919-20}$ required by equations (7) to (10), pages 33 and 34, to obtain the graduated values of L_x and $(3d)_x$ for $x=7, 12, 17$, and so on. These are the central ages of the quinquennial age groups 5-9, 10-14, 15-19, and so on.

APPLICATION OF EQUATIONS (7) TO (10) TO THE STATISTICS IN TAPE 18.

19. For convenience of reference equations (7) to (10) are given with subscripts for period 1909-1911.

$$10^3L_7 = (-10 + 2) (P_{1910}^{5/9} - 2P_{1910}^{10/14} + P_{1910}^{15/19}) + 200P_{1910}^{5/9} \quad (9)$$

$$10^3(3d)_7 = (-10 + 2) (D_{1909-11}^{5/9} - 2D_{1909-11}^{10/14} + D_{1909-11}^{15/19}) + 200D_{1909-11}^{5/9} \quad (10)$$

$$10^3L_{x+2} = (-10 + 2) (P_{1910}^{x-5/x-1} - 2P_{1910}^{x/x+4} + P_{1910}^{x+5/x+9}) + 200P_{1910}^{x/x+4} \quad (7)$$

$$10^3(3d)_{x+2} = (-10 + 2) (D_{1909-11}^{x-5/x-1} - 2D_{1909-11}^{x/x+4} + D_{1909-11}^{x+5/x+9}) + 200D_{1909-11}^{x/x+4} \quad (8)$$

It was found convenient to split the adding machine between banks 9 and 10 and to apply equations (9) and (7) to the numbers on the left of tape 18 in banks 10 to 17 of the adding machine while applying equations (10) and (8) to the numbers on the right of tape 18 in banks 1 to 9. Accordingly, the first numbers in tape 18 (405163 and 4710) were set up in corresponding places on the adding machine and beneath them the complements of the second set of numbers in tape 18 were repeated twice and then the third set added. The numbers now appearing at the base of the adding machine, 24737 and 3820, are the values of the quantities in the second parentheses of equations (9) and (10), and are really second differences but may be called the operands. Since these operands are to be operated on by +2 and -10, they were added in unit's place and their complements in ten's place. In accordance with the last expressions in equations (9) and (10), the first numbers in tape 18 were added twice in hundred's place and a total taken. The sum on the right, 80834704, is $1000L_x$ and that on the left, 911440, is $1000(3d)_x$.

When 10 is substituted for x in equations (7) and (8), the left-hand members of the equations are 10^3L_{12} and $10^3(3d)_{12}$, while the operands are the same as in equations (9) and (10). Accordingly, the values for these operands, 24737 and 3820, were repeated twice in unit's place and their complements added in ten's place, and the second set of numbers in tape 18, 396114 and 2855, are repeated twice in hundred's place and a total taken. When 15 is substituted for x in equations (7) and (8), the left-hand members of the equations are 10^3L_{17} and $10^3(3d)_{17}$, while the first numbers in the operands are the 396114 and 2855 which appear in hundred's place just before the last total. To these are added the complements (repeated twice) of the numbers just below them in tape 18, 411802 and 4820, and then the fourth set of numbers in tape 18. The totals then appearing at the base of the adding machine, 36060 and 827, are set up in unit's place and their complements in ten's place in accordance with the operators +2 and -10, and to them are added the 411802 and 4820 in hundred's place (repeated twice), which are

RATES OF MORTALITY UNDER 3 YEARS OF AGE.

CALCULATION OF THE LIFE TABLE FOR MALES IN THE STATE OF NEW YORK: 1909-1911.

PHOTOGRAPHS OF ADDING MACHINE TAPES ON WHICH COMPUTATIONS WERE MADE.

16 x δ_x and $k_x \delta_x$ * 10535 10109 * 119050 111199 129585 121308 * 99870415 99870415 3|99991723* $k_0 \delta_0 = 99997241$ * 0 $(1-k_0) \delta_0 = 99994482$ * 1905 1766 4097 3931 11111 10968 115948 106465 133061 123130 * 99866939 99866939 1 $\frac{1}{2} \delta_1 = 2|99990069$ * $\frac{1}{2} \delta_1 = 99995035$ * 764 700 1324 1227 2014 2007 4321 4266 10950 10490 111666 99544 131039 118234 * 99868961 99868961 99987195 * 99990069 2 $\frac{1}{2} [\delta_1 + \delta_2] = 2|199977264$ * $\frac{1}{2} [\delta_1 + \delta_2] = 99988632$ *	18 x $P^{x/x+4}_{1910}$ $D^{1909-11}_{x/x+4}$ * 5 405163 4710 10 396114 2855 15 411802 4820 20 463550 7612 25 453622 8929 30 399449 10192 35 367773 12358 40 312661 12605 45 260805 13189 50 216306 13711 55 149105 13117 60 115823 14323 65 84802 14253 70 56690 13466 75 32248 11303 80 15543 7840 85 5680 4186 90 1451 1361 95 222 269 50 4148809 1710998 42 57 456206 62342 50 4605057 233498 *	463550 7612 * 99546378 9991071 99546378 9991071 399449 10192 99955755 9999946 442450 540 45362200 892900 45362200 892900 91078360 31786232 * 453622 8929 * 99600551 9989808 99600551 9989808 367773 12358 22497 903 99775030 9990970 39944900 1019200 39944900 1019200 79709824 32031176 * 399449 10192 99632227 9987642 99632227 9987642 312661 12605 99976564 9998081 234360 19190 36777300 1235800 36777300 1235800 73742088 32486952 * 367773 12358 99687339 9987395 99687339 9987395 260805 13189 3256 337 99967440 9996650 31266100 1260500 31266100 1260500 62506152 32518304 * 312661 12605 99739195 9986811 99739195 9986811 216306 13711 7357 9999938 99926430 620 26080500 1318900 26080500 1318900 52102144 32638296 * 260805 13189 99783694 9986289 99783694 9986289 149105 13117 99977298 9998884 227020 11160 21630600 1371100 21630600 1371100 43442816 32751128 * 216306 13711 99850895 9986883 99850895 9986883 115823 14323 33919 1800 99660810 9982000 14910500 1311700 14910500 1311700 29549648 32609000 *
17 x $E_x + k_x \delta_x$ $10^5 L_x$ D_x 119050 14040 * 115948 15234 111666 14569 99997241 343905 43843 * 127486 343905 2993 99956157 3401 99994482 3523 99995035 289579 9917 * 34246 289579 1320 99990083 1545 99988632 1484 268294 4349 * 16210	19 $10^3 L_x$ $10^3 (3d)_x$ * 405163 4710 99603886 9997145 99603886 9997145 411802 4820 24737 3820 99752630 9961800 40516300 471000 40516300 471000 80834704 911440 * 24737 3820 24737 3820 99752630 9961800 39611400 285500 39611400 285500 79024904 540440 * 396114 2855 99588198 9995180 99588198 9995180 463550 7612 36060 827 99639400 9991730 41180200 482000 41180200 482000 82071920 957384 * 411802 4820 99536450 9992388 99536450 9992388 453622 8929 99938324 9998525 616760 14750 46355000 761200 46355000 761200 93203408 31534200 *	312661 12605 99739195 9986811 99739195 9986811 216306 13711 7357 9999938 99926430 620 26080500 1318900 26080500 1318900 52102144 32638296 * 260805 13189 99783694 9986289 99783694 9986289 149105 13117 99977298 9998884 227020 11160 21630600 1371100 21630600 1371100 43442816 32751128 * 216306 13711 99850895 9986883 99850895 9986883 115823 14323 33919 1800 99660810 9982000 14910500 1311700 14910500 1311700 29549648 32609000 *
2	2	2

the second numbers in the operands. After a total is taken, the 411802 and 4820 are entered in unit's place to begin the next computation. The operator soon learns this routine of repeating twice in hundred's place the second numbers in the operands, whose complements were repeated twice, and then so soon as a total is taken, starting the next set of computations with the same set of numbers, and the results can be obtained very rapidly by a careful machine operator without his understanding negative values, differencing, or decimals.

DETERMINATION OF NUMBER EXPOSED TO RISK OF DEATH TO OBTAIN RATES OF MORTALITY.

20. The rates of mortality were determined according to equations $q_x = d_x / (L_x + .5d_x)$. Since the deaths were for a 3-year period, as indicated by the symbols $(3d)_x$ and $(3d)_x$, and it was desired to obtain average annual rates, either the deaths had to be divided by three or the population multiplied by three. The latter method was found to be more convenient. Accordingly the above equation was written:

$$q_x = (3d)_x / [3L_x + \frac{1}{2}(3d)_x]. \quad (23)$$

In tape 20 the values of the denominator, $3L_x + \frac{1}{2}(3d)_x$, were determined by adding to the totals on the left

side of tape 19, repeated three times, one-half of the corresponding totals on the right side of tape 19.

21. In order to check the work from tapes 18 to 20, and for convenience in dividing, the totals in tape 20 were added in tape 21. These totals are the $10^6[3L_x + \frac{1}{2}(3d)_x]$ of equation (23).

22. Also the totals on the right side of tape 19 were added and fastened to the right side of the values in tape 21. They are the $(3d)_x$ of equation (23). Where the populations are small and the period is for two years instead of for three, so that only $2L_x + \frac{1}{2}(2d)_x$ is needed for the denominator in equation (23), it is often convenient to add these two sets of values on the same tape, the $10^6[2L_x + \frac{1}{2}(2d)_x]$ on the left side and the $(2d)_x$ on the right.

With the two tapes, 21 and 22, side by side, the operator performs the divisions indicated in equation (23), and enters the quotients to the nearest sixth decimal between them. Then they were cleared of fractions by entering them under the heading 10^6q_x .

23. Table 13 shows how the values in tape 18 enter into the totals in tape 19. In this table the values in tape 18 are represented by w_x at the top of the columns, and the totals in tape 19 by u_y in the left-hand margin. The coefficients of w_x in the equation for u_y are in the same line with u_y and each coefficient is in the same column with the w_x to which it belongs.

B.—ACTUAL COMPUTATION.

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NUMBER EXPOSED TO RISK OF DEATH FOR ONE YEAR.

CALCULATION OF LIFE TABLE FOR MALES IN THE STATE OF NEW YORK: 1909-11.

PHOTOGRAPHS OF ADDING MACHINE TAPES UPON WHICH CALCULATIONS WERE MADE.

149105	13117	20	Additions to obtain $x \quad 10^3[3L_x + \frac{1}{2}(3d)_x]$	52	43442816*
99884177	9985677				43442816
99884177	9985677				43442816
84802	14253				1375564
2261	9998724				
99977390	12760		80834704*		
11582300	1432300		80834704		
11582300	1432300		80834704		
			455720		
23146512	32874808*	7	242959832*		29549648
					29549648
					29549648
					1304500
115823	14323				
99915198	9985747		79024904		
99915198	9985747		79024904		
56690	13466		79024904		
2909	9999283		270220	57	89953444*
99970910	7170				
8480200	1425300	12	237344932*		
8480200	1425300				23146512
					23146512
					23146512
					1437404
16937128	32856336*		82071920		
			82071920		
			82071920		
			478692		
84802	14253			62	70876940*
99943310	9986534	17	246694452*		
99943310	9986534				
32248	11303				
3670	9998624				16937128
99963300	13760		93203408		16937128
5669000	1346600		93203408		16937128
5669000	1346600		93203408		1428168
			767100		
11308640	32704208*	22	280377324*	67	52239552*
56690	13466				
99967752	9988697		91078360		11308640
99967752	9988697		91078360		11308640
15543	7840		91078360		11308640
7737	9998700		893116		1352104
99922630	13000				
3224800	1130300	27	274128196*	72	35278024*
3224800	1130300				
6387704	32271000*				
32248	11303		79709824		6387704
99984457	9992160		79709824		6387704
99984457	9992160		79709824		6387704
5680	4186		1015588		1135500
6842	9999809				
99931580	1910	32	240145060*	77	20298612*
1554300	784000				
1554300	784000				
3053864	31569528*		73742088		3053864
			73742088		3053864
			73742088		3053864
			1243476		784764
15543	7840				
99994320	9995814	37	222469740*	82	9946356*
99994320	9995814				
1451	1361				
5634	829				
99943660	9991710		62506152		1090928
568000	418600		62506152		1090928
568000	418600		62506152		1090928
			1259152		415284
1090928	830568*	42	188777608*	87	3688068*
5680	4186				
99998549	9998639				
99998549	9998639		52102144		
222	269		52102144		266200
3000	1733		52102144		266200
99970000	9982670		1319148		266200
145100	136100				129168
145100	136100				
		47	157625580*	92	927768*
266200	258336*				

TABLE 13.—DERIVATION OF FORMULA FOR CHECK ON WORK IN TAPES 18 TO 22.

COMPUTATION OF CHECK IS GIVEN IN TAPE 23.

This table shows the coefficients of the values in tape 18 in the equations for the totals in tape 19, derived according to equations (7) to (10), page 38. The values in tape 18 are represented by w_x at the head of the columns and the totals in tape 19 by u_y in the left-hand margin. Any number in the table is the coefficient of the w_x at the head of its column in the equation for the u_y in the left margin of its line.

	w_5	w_{10}	w_{15}	w_{20}	w_{25}	w_{30}	{ and so } on to }	w_{75}	w_{80}	w_{85}	w_{90}	w_{95}
u_7	200-8	+16	- 8									
u_{12}	-8	200+16	- 8									
u_{17}	-----	- 8	200+16	- 8								
u_{22}	-----		- 8	200+16	- 8							
u_{27}	-----			- 8	200+16	- 8						
and so on to												
u_{82}	-----							-8	200+16	- 8		
u_{87}	-----								- 8	200+16	- 8	
u_{92}	-----									- 8	200+16	- 8
Total..	200-16	200+24	200-8	200	200	200		200	200	200	200+ 8	- 8

Thus 200 times either sum in tape 18, ages 5 to 95 (4148809 and 171099), lacks $-16w_5 + 24w_{10} - 8w_{15} + 8w_{90} - 8w_{95} - 200w_{95}$ of being equal to the sum of the corresponding totals in tape 19. This expression may be written as $(+2-10)(2w_5 - 3w_{10} + w_{15} - w_{90} + w_{95}) - 200w_{95}$. Then the sum of u_y for $y=7$ to $y=92$ is equal to the sum of 200 times the totals, ages 5 to 95, in tape 18 plus $(+2-10)(2w_5 - 3w_{10} + w_{15} - w_{90} + w_{95}) - 200w_{95}$. These additions are performed in tape 23, those for populations under tape 21, and those for deaths under tape 22. As in tape 19 the values of the operands were first obtained, and these were then added in unit's place and their complements in ten's place; then the complements of w_{95} were added once and the subtotals in tape 18 (4148809 and 171099) twice in hundred's place. A subtotal was then taken in the addition for populations, and this subtotal repeated twice and one-half the total of the deaths ($\frac{1}{2} \times 34129336$) added to it. As indicated by the symbols ① and ② to the right of the totals in tapes 21 and 22, respectively, and of those beneath in tape 23, the corresponding totals agree, indicating that the computations from tapes 18 to 23 are correct.

PROCESS OF OBTAINING THE $\log p_x$ NEEDED TO COMPUTE $\log {}_5p_x$.

24. Formulas 13 to 16 for determining $\log {}_5p_x$ required $\log p_x$. Accordingly the $10^6 q_x$ in tape 24 were copied on the left of the machine and at the same time their complements, p_x , or in this case, $1,000,000 - 10^6 q_x = 10^6 p_x$, were set up on the right. After each addition the totals should be found to be complementary as are the totals at the end of the tape. To indicate this agreement the operator adds the subtotal on the left of the machine to that on the right. The total should be 0 in the first six places and 21 in the next two places. The 21 shows the operator how many terms he has set down.

25. Bauschinger and Peters eight-place logarithmic tables were used to obtain $\log p_x$. The mantissa of the logarithm of the first five digits of the p_x could be read directly from the book, and this was set up on the adding machine. Then the operator looked up the P. P. (proportional part) which corresponded to the sixth figure in p_x and added it to the mantissa of the first five digits, and took a total. Since the characteristics of all these $\log p_x$'s were -1 , the characteristics are omitted here and in the tapes that follow until tape 37, the additions for $\log L_x$. Also the decimal point is omitted. Accordingly $10^8 (\log p_x + 1)$, is put in the headings of tapes 25 to 36, but in the discussion of the tapes simply $\log p_x$ is used.

To condense the work, the machine was split between banks 9-10, and the mantissas for two consecutive logarithms were set up side by side. That is, after the two parts of the mantissa of the first logarithm had been entered on the left of the adding machine, the platen was rolled back two places and the two parts of the mantissa of the second $\log p_x$ were added before a total was taken. Putting the logarithms on a tape in this form is of great convenience to the comparer and also tends to increase the accuracy of the computer.

EXTENSION OF THE SERIES OF $\log p_x$ TO A VERY OLD AGE.

26-30. As explained in section 11, the mantissas of the last seven values of $\log p_x$ in tape 25 were copied on a separate tape and differenced four times in tapes 27 to 30. This includes the logarithms of p_x from $x=62$ to $x=92$. The method of making these tapes was as follows: The first value in the tape for $\Delta^n (\log p_x + 1)$ was set up at the beginning of the tape for $\Delta^{n+1} (\log p_x + 1)$, and then the operator mentally subtracted the first value in the $\Delta^n (\log p_x + 1)$ tape from the one next below it and added the remainder under the first value which was set up at the beginning

RATES OF MORTALITY AND LOGARITHMS OF THE PROBABILITY OF LIVING ONE YEAR.

CALCULATION OF LIFE TABLE FOR MALES IN THE STATE OF NEW YORK: 1909-1911.

PHOTOGRAPHS OF ADDING MACHINE TAPES UPON WHICH CALCULATIONS WERE MADE.

21 x $10^3[3L_x + \frac{1}{2}(3d)_x]$ 7 242959832 12 237344932 17 246694452 22 280377324 27 274128196 32 240145060 37 222469740 42 188777608 47 157625580 52 131704012 57 89953444 62 70876940 67 52239552 72 35278024 77 20298612 82 9946356 87 3688068 92 927768 2505435500*^①	22 $10^6 q_x$ $(3d)_x$ * 3751 911440 2277 540440 3881 957384 5472 1534200 6516 1786232 8458 2031176 11179 2486952 13340 2518304 16738 2638296 20889 2751128 29004 2609000 40561 2874808 54678 2856336 76654 2704208 111880 2271000 157799 1569528 225204 830568 278449 258336 34129336*^②	99416752 99266837* 88 99416752 99266925* 99083149 98721476* 44 268 99083193 98721744* 98201329 97557885* 408 92 98201737 97557977* 96536165 94847165* 282 96536447 94847165* 92541524 88918401* 52 336 92541576 88918737* 85826643 60 85826703 *
23 Checks on Computations Tapes 18 to 22 405163 405163 999999603886 999999603886 999999603886 411802 99999998549 222 32557 999999674430 999999977800 999999977800 414880900 414880900 8294569448 829456944 829456944 17064668 2505435500*^①	Operands 4710 4710 999999997145 999999997145 999999997145 4820 999999998639 269 4583 999999954170 999999973100 999999973100 17109900 17109900 34129336*^②	26 x $10^8(\log p_x + 1)$ * 62 98201737 67 97557977 72 96536447 77 94847165 82 92541576 87 88918737 92 85826703*^③ 654430342* 98201737 $10^8 \Delta[\log p_x + 1]$ 62 999999356240 67 999998978470 72 999998310718 77 999997694411 82 999996377161 87 999996907966*^④ 85826703*^③
24 x $10^6 q_x$ $10^6 p_x$ * 0 127486 872514 1 34246 965754 2 16210 983790 7 3751 996249 12 2277 997723 17 3881 996119 22 5472 994528 27 6516 993484 32 8458 991542 37 11179 988821 42 13340 986660 47 16738 983262 52 20889 979111 57 29004 970996 62 40561 959439 67 54678 945322 72 76654 923346 77 111880 888120 82 157799 842201 87 225204 774796 92 278449 721551 1244672 197553288 1244672 1244672 210000000*	25 $10^8(\log p_x + 1)$ * 94077041 98486472* 199 180 94077240 98486652* 99290240 99836398* 392 99290240 99836790* 99900868 99830730* 131 392 99900999 99831122* 99761352 99715913* 350 175 99761702 99716088* 99631024 99511724* 88 44 99631112 99511768*	27 x $10^8 \Delta[\log p_x + 1]$ 62 999999356240 67 999998978470 72 999998310718 77 999997694411 82 999996377161 87 999996907966*^④ 85826703*^③
28 x $10^8 \Delta^2[\log p_x + 1]$ 62 999999622230 67 999999332248 72 999999383693 77 999998682750 82 530805*^⑤ 9999996907966*^④		

of the $\Delta^{n+1}(\log p_x + 1)$ tape. If the subtraction is correct, the second value appears through the glass at the base of the adding machine. This is in accordance with the equation $\Delta^n u_x + \Delta^{n+1} u_x = \Delta^n u_{x+5}$. If the first value in the $\Delta^n(\log p_x + 1)$ is larger than the second, the subtraction is made as though the second value had been increased by 10^{12} , or whatever multiple of 10 is necessary to carry it beyond the split. This process of differencing is described fully in the United States Life Tables: 1890, 1901, 1910, 1901-1910, page 374, section 149.

31. An examination of tape 30 shows that these fourth differences are very rough. Either $\Delta^4 \log p_{62}$ or $\Delta^4 \log p_{72}$, if used as a constant $\Delta^4 \log p_x$ for all older ages, would give the *greatest* probability of living at the *oldest* age. Only $\Delta^4 \log p_{67}$ would produce reasonable results, if it were used as a constant $\Delta^4 \log p_x$ for ages older than 67. Accordingly this assumption was made, and $\Delta^4 \log p_{67}$ was added to the $\Delta^3 \log p_{72}$ six times, a subtotal being taken after the first five additions and a total at the end. Tape 31 shows this work. The first subtotal is used as $\Delta^3 \log p_{77}$ in place of 1,848,055 which produced such an irregular $\Delta^4 \log p_{72}$. The other five subtotals are used as $\Delta^3 \log p_{82}$ to $\Delta^3 \log p_{102}$.

32. In tape 32 the five subtotals and the total in tape 31 were added to $\Delta^2 \log p_{77}$, a subtotal being taken after each addition until the last when a total was taken. These subtotals and total serve as $\Delta^2 \log p_x$ from $x=82$ to $x=107$.

33-34. In the same way the subtotals and the total in tape 32 were added to $\Delta \log p_{82}$ to obtain $\Delta \log p_x$ for $x=87$ to $x=112$ in tape 33, and in tape 34 these new values of $\Delta \log p_x$ were added to $\log p_{87}$ to obtain $\log p_{92}$ to $\log p_{117}$. As stated in section 11, these values of $\log p_x$ to a very old age were used to determine $\log {}_5p_x$ to ages old enough to reduce the radix of 100,000 to less than 0.5 or practically 0.

PROCESS OF OBTAINING $\log {}_5p_x$ NEEDED TO COMPUTE l_x AT FIVE YEAR INTERVALS.

35. The $10^8[\log p_x + 1]$ obtained in tape 25 were copied in tape 35, except the last, for age 92, which was replaced by its estimated value in tape 34. The values in tape 25 were then followed by the other estimated $10^8[\log p_x + 1]$ in tape 34. Since equations (13) to (16) and so on, page 35, do not require the logarithms of p_0 and p_1 , they were added separately at the beginning of tape 35 and a total taken. The addition was begun with $\log p_2$ and continued through $\log p_{117}$.

36. In obtaining the value of $10^9 \log {}_5p_2$ according to equation (13), ten times the value of the operand was obtained first. $10^8(\log p_2 + 1)$ in tape 35 was set up in ten's place, $10^8(\log p_7 + 1)$ repeated four times in ten's place, and the complement of $10^8(\log p_{12} + 1)$ repeated twice in ten's place. This gave ten times

the operand, which was read through the glass of the machine and set up again, and then one-tenth of its complement added three times. Then, in accordance with the other terms in equation (13), the complement of $10^8(\log p_2 + 1)$ was added in unit's place, that of $10^8(\log p_7 + 1)$ in ten's place, and $10^8(\log p_{17} + 1)$ was added in ten's place, and a total taken. This total is $10^9(\log {}_5p_2 + 5)$.

To obtain the value for $10^9 \log {}_5p_7$ according to equation (14) $10^8[\log p_7 + 1]$ in tape 35 was added to $10^8[\log p_{12} + 1]$ and a subtotal taken. Then the subtotal was set up and repeated three times in unit's place and set up again and repeated twice in ten's place, so that the total on the machine at the end of this step in the work may be represented by the expression $24[10^8(\log p_7 + 1 + \log p_{12} + 1)]$. This is in accordance with the first term on the right of equation (14). Then in accordance with the next three terms, $10^8(\log p_{12} + 1)$ was set up in ten's place, the complement of $10^8(\log p_{17} + 1)$ was set up in ten's place and $10^8[\log p_{22} + 1]$ is repeated twice in unit's place, giving as a total,

$$10^8[24(\log p_7 + \log p_{12}) + 10 \log p_{12} - 10 \log p_{17} + 2 \log p_{22} + (48 + 10 - 10 + 2)] = 10^8[24(\log p_7 + \log p_{12}) + 10 \log p_{12} - 10 \log p_{17} + 2 \log p_{22}] + 5(10^9).$$

In other words the result obtained is $10^9 \log {}_5p_7 + 5(10^9)$.

In the formulas (13) to (16) it will be noted that only four consecutive values of $\log p_x$ are used in each period. In this connection it was found convenient to use as a marker a cardboard with a rectangular opening cut in it just wide enough to allow four of the values on tape 35 to be seen.

Since the same ages appear in equation (15) as in equation (14), the cardboard was not moved, but the four values were added again in a different way. It will be noted that the values for ages 7 and 22, the first and last of the four values appearing in the opening of the cardboard, are in the first expression on the right of equation (15) with the coefficient -1 , while the two middle values have the coefficient $+11$ in this expression. Accordingly the first and last values in the opening of the cardboard were added first and a total taken. Then the two middle values were added and their sum, appearing at the base of the adding machine, was set up in ten's place. This gave $10^8[11(\log p_{12} + 1 + \log p_{17} + 1)]$. To this the complement of the first two values were added, giving 10^8 times the value of the expression—

$$-\log p_7 - 1 + 11(\log p_{12} + 1 + \log p_{17} + 1) - \log p_{22} - 1 \\ = 20 + [-\log p_7 + 11(\log p_{12} + \log p_{17}) - \log p_{22}]$$

The expression in brackets is the same as that in equation (15). Since twice this expression is required, the sum appearing at the base of the adding machine was

PROBABILITIES OF LIVING ONE YEAR AT VERY OLD AGES.

CALCULATION OF LIFE TABLE FOR MALES IN THE STATE OF NEW YORK: 1909-1911.

PHOTOGRAPHS OF ADDING MACHINE TAPES UPON WHICH CALCULATIONS WERE MADE.

29 999999622230* x $10^8 \Delta^3 [\log p_x + 1]$ 62 999999710018 67 51445 72 999999299057 77 -1848055 (6) 5308.05* (5) 30 999999710018 x $10^8 \Delta^3 [\log p_x + 1]$ 62 341427 67 999999247612 72 -2548998 1848055* (6) 31 x $10^8 \Delta^3 [\log p_x + 1]$ 72 999999247612 999999299057 77 9999998546669* 999999247612 82 2999997794281* 999999247612 87 3999997041893* 999999247612 92 4999996289505* 999999247612 97 5999995537117* 999999247612 102 6999994784729* 32 x $10^8 \Delta^2 [\log p_x + 1]$ 77 9999998682750 9999998546669 82 1999997229419* 9999997794281 87 2999995023700* 9999997041893 92 3999992065593* 9999996289505 97 49999988355098* 9999995537117 102 59999983892215* 9999994784729 107 69999978676944* 33 x $10^8 \Delta [\log p_x + 1]$ 82 9999996377161 9999997229419 87 1999993606580*	87 1999993606580* 9999995023700 92 29999988630280* 9999992065593 97 39999980695873* 99999988355098 102 49999969050971* 99999983892215 107 59999952943186* 99999978676944 112 69999931620130* 34 x $10^8 [\log p_x + 1]$ 87 88918737 9999993606580 92 82525317* 99999988630280 97 71155597* 99999980695873 102 51851470* 99999969050971 107 20902441* 99999952943186 112 49999973845627* 99999931620130 117 59999905465757* 35 x $10^8 [\log p_x + 1]$ 0 94077240 a 1 98486652 b 192563892* 2 99290240 c 7 99836790 d 12 99900999 e 17 99831122 f 22 99761702 g 27 99716088 32 99631112 37 99511768 42 99416752 47 99266925 52 99083193 57 98721744 62 98201737 67 97557977 72 96536447 77 94847165 82 92541576 87 88918737 92 82525317 97 71155597 102 51851470 107 20902441 x 112 99999973845627 y 117 99999905465757 z 1868318283*	36 Computations of $10^8 \log_5 p_x + 5$ x 992902400 998367900 998367900 998367900 998367900 999000990010 999000990010 2988354020 990701164598 999701164598 999701164598 999900709760 999001632100 998311220 2 4980854914* 99836790* 99900999 199737789* 199737789 199737789 199737789 199737789 199737789 999009990 999001688780 99761702 99761702 7 4993929110* 99836790* 99761702 199598492* 99900999 99831122 1997321210 999800401508 1997454839 999009990 12 4993919668* 99900999 99716088 199617087* 99831122 99761702 1995928240 999800382913 1995903977 998311220 17 4990119174* 99831122 99631112 199462234* 99761702 99716088 1994777900 999800537766 1994793456 997617020 22 4987203932*
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set up again. In accordance with the last term in equation (15) the second value in the opening of the cardboard was added in ten's place and a total taken. The result is:

$$\begin{aligned} & 10^8 \{ 2[20 - \log p_7 + 11(\log p_{12} + \log p_{17}) - \log p_{22}] \\ & \quad + 10(\log p_{12} + 1) \} \\ & = 10^8 \{ 2[-\log p_7 + 11(\log p_{12} + \log p_{17}) - \log p_{22}] \\ & \quad + 10\log p_{12} \} + 5(10^9) \\ & = 10^9 \log {}_5p_{12} + 5(10^9). \end{aligned}$$

Then the cardboard was moved down one space and equation (16) applied to the next four consecutive values. It will be noted that equation (16) is the same general equation as (15). Hence the first and last values appearing in the cardboard were added and a total taken. Next the second and third values were added, their sum, appearing at the base of the adding machine, was set up in ten's place; the complement of the sum of the first and fourth just above was added; the sum appearing at the base of the adding machine was set up, and finally the second value in the opening was added in ten's place and a total taken. For reasons similar to the above, it will be found that this total is $10^9 \log {}_5p_{17} + 5(10^9)$. This same process was repeated on each four consecutive values in tape 35. These totals in tape 36 furnish the $\log {}_5p_x$ needed to obtain $\log l_x$ at every fifth year of age. The $\log {}_5p_x$ are in the following form: $10^9 \log {}_5p_x + 5(10^9)$.

$\log l_x$ AT EVERY FIFTH YEAR OF AGE.

37. Logarithms of l_x at every fifth year of age were obtained in tape 39 by adding to the logarithm of the radix $\log p_0$ and $\log p_1$ and then of each consecutive $\log {}_5p_x$, and taking a subtotal after each. Since the totals obtained in tape 36 are multiples of 10^9 , the decimal point comes between banks 9 and 10 of the machine and may be indicated by a vertical line drawn between these banks. The radix is taken as 100,000, and since its logarithm is 5, this figure was added in the tenth bank of the adding machine.

$\log p_0$ is given in tape 35 as $10^8(\log p_0 + 1)$, and multiplying this expression by 10 changes it to $10^9 \log p_0 + 10^9$. Accordingly 94,077,240, the first number in tape 35, was entered in ten's place. To remove the 10^9 , 9's were set up from bank 10 to the split in the machine between banks 12 and 13, and a subtotal taken. This subtotal is $\log l_1$. In the same way $10^8(\log p_1 + 1)$, the second number in tape 35, was set up in ten's place, with 9's from bank 10 to bank 12. The subtotal taken here is $\log l_2$.

From age 2 the l_x are required at five-year intervals. Accordingly, $10^9 \log {}_5p_2 + 5(10^9)$, the first total in tape 36, or 4,980,854,914, was added. To remove the $5(10^9)$, 5 was subtracted from the tenth bank of this first total, leaving 999 from banks 10 to 12 instead of 4 in bank 10. The subtotal taken here is $\log l_7$.

In this way each of the totals in tape 36 was added after 5 had been subtracted from the number in the tenth bank of the total, and a subtotal was taken after each addition. Since 4 is the number in the tenth bank of the totals in tape 36 from age 2 to 87, 999 is added in banks 10 to 12 for all these totals. The totals for age 92 and 97 contain 3 in the tenth bank, while those for ages 102 and 107 contain 2 and 0, respectively. Accordingly, for these four ages the numbers added in banks 10 to 12 in tape 37, were 998, 998, 997, 995, respectively.

Thus the series of subtotals in tape 37 are the logarithms of l_x . Whenever these subtotals became less than 999|698,000,000, which is $\log 0.5$ on the adding machine tape, the remaining totals in tape 36 were added in without taking a subtotal, since all values in for l_x less than 0.5 were called 0.

Since 10^9 was subtracted from ten times each of the first two values in tape 35 before adding them in tape 37, and $5(10^9)$ was subtracted from each of the totals in tape 36 before they were added in tape 37, the total thus far obtained in tape 37 does not equal ten times the first two terms in tape 35 plus the totals in tape 36. Since there are always 22 totals in tape 36 and $5(10^9)$ was added at beginning of tape 37, this difference is $10^9(-5 + 2 + 5 \times 22) = 107(10^9)$. Therefore, for checking purposes 107 was added in banks 10 and 12 of tape 37 before the final total was taken. This final total is then ten times the first two values in tape 35 plus the totals in tape 36.

After this total had been checked, the antilogarithms of the subtotals in tape 37 were looked up in Bauschinger and Peters' logarithm tables and entered to the nearest integer to the left of the subtotal.

38. A check on the work in tapes 35 to 37 is derived in Table 14. In this table letters represent the $\log p_x$ for the values of x given just above them, and any number in the table is the coefficient of the $\log p_x$ at the top of its column in the equation for the $\log {}_5p_x$ on the left margin of the table in the same line with this number. These coefficients are taken from equations (13) to (16), and so on, page 35.

PROBABILITY OF LIVING FIVE YEARS.

CALCULATION OF LIFE TABLE FOR MALES IN THE STATE OF NEW YORK: 1909-1911.

PHOTOGRAPHS OF ADDING MACHINE TAPES UPON WHICH CALCULATIONS WERE MADE.

36 *Continued*Computations of $10^9[\log p_x + 5]$

997617.02* 995117.68 1992734.70* 997160.88 996311.12 19934720.00 9998007265.30 19935457.30 9971608.80	992669.25* 982017.37 1974686.62* 990831.93 987217.44 19780493.70 9998025313.38 19783856.45 9908319.30	965364.47* 889187.37 1854551.84* 948471.65 925415.76 1873887.410 9998145448.16 18758209.67 948471.650
27 1 49842523.40* * * 997160.88 994167.52 1991328.40* 996311.12 995117.68 19914288.00 9998008671.60 19914388.40 9963111.20	52 1 49476032.20* * * 990831.93 975579.77 1966411.70* 987217.44 982017.37 19692348.10 9998033588.30 19695171.21 987217.440	77 1 47001135.84* * * 948471.65 825253.17 1773724.82* 925415.76 889187.37 1814603.130 9998226275.18 18186909.61 925415.760
32 1 49791888.00* * * 9963111.2 992669.25 19889803.7* 995117.68 994167.52 19892852.00 9998011019.63 19893156.83 995117.680	57 1 49262516.82* * * 987217.44 965364.47 1952581.91* 982017.37 975579.77 1957597.140 9998047418.09 19580986.63 982017.370	82 1 45627976.82* * * 925415.76 711555.97 1636971.73* 889187.37 825253.17 1714440.540 9998363028.27 17221874.21 889187.370
37 1 49737490.46* * * 995117.68 990831.93 1985949.61* 994167.52 992669.25 19868367.70 9998014050.39 19869254.86 994167.520	62 1 48982146.96* * * 982017.37 948471.65 19304890.2* 975579.77 965364.47 19409442.40 9998069510.98 19419897.62 975579.770	87 1 43335622.12* * * 889187.37 518514.70 14077020.7* 825253.17 711555.97 15368091.40 9998592297.93 15497198.47 825253.170
42 1 49680184.92* * * 994167.52 987217.44 1981384.96* 992669.25 990831.93 19835011.80 9998018615.04 19837128.02 992669.250	67 1 48595592.94* * * 975579.77 925415.76 1900995.53* 965364.47 948471.65 19138361.20 9998099004.47 19151201.79 965364.470	92 1 39246928.64* * * 825253.17 209024.41 1034277.58* 711555.97 518514.70 12300706.70 9998965722.42 12496499.79 711555.970
47 1 49600948.54*	72 1 47956048.28*	97 1 32108559.28*

TABLE 14.—DERIVATION OF FORMULA FOR CHECK ON WORK IN TAPES 35 TO 37.

COMPUTATION OF CHECK IS GIVEN IN TAPE 38.

In this table letters represent the $\log p_x$ for values of x given just above the letters, and any number in the table is the coefficient of the $\log p_x$ at the top of its column in the equation for the $\log {}_5p_x$ on the left margin of the table in the same line with this number. These coefficients are taken from equations (13) to (16), and so on, page 35.

10 log ${}_5p_x$ for x equals—	log p_x for x equals—																
	0	1	2	7	12	17	22	27	32	37	and so on to	92	97	102	107	112	117
	a	b	c	d	e	f	g	h	i	j		u	v	w	x	y	z
2.....			+16	+58	-34	+10											
7.....				+24	+34	-10	+ 2										
12.....				- 2	+32	+22	- 2										
17.....					- 2	+32	+22	- 2									
22.....						- 2	+32	+22	- 2								
27.....							- 2	+32	+22	- 2							
32.....								- 2	+32	+22							
37.....									- 2	+32							
42.....										- 2							
and so on to																	
82.....												- 2					
87.....												+22	- 2				
92.....												+32	+22	- 2			
97.....												- 2	+32	+22	- 2		
102.....													- 2	+32	+22	- 2	.....
107.....														- 2	+32	+22	- 2
Total, 10 $\sum_{x=2}^{x=107}$ log ${}_5p_x$			+16	+80	+30	+52	+52	+50	+50	+50	and so on to	+50	+50	+50	+52	+20	- 2
50 $\sum_{x=2}^{x=117}$ log p_x			+50	+50	+50	+50	+50	+50	+50	+50		+50	+50	+50	+50	+50	+50
$50 \sum_{x=2}^{x=117}$ log p_x - $10 \sum_{x=2}^{x=107}$ log ${}_5p_x$			+34 =30+4	-30	+20	- 2	-2	0	0	0	.....	0	0	0	- 2	+30	+52= 2(30-4)

Therefore to reduce the sum of the totals in tape 36 to 50 times the second total in tape 35, ten times this sum must be increased by:

$$(30+4)c - 30d + 20e - 2f - 2g - 2x + 30y + 2(30-4)z,$$

$$\text{or: } 30(c-d+y+2z) + 2(2c+10e-f-g-x-4z).$$

This formula was reduced to the following form, convenient for computation upon the adding machine:

$$2[2(c-2z) + 10e - f - g - x] + 3[10(c-d+y+2z)].$$

Accordingly, the complete expression for the check on tapes 36-37 is:

I. Add c to complement of z repeated twice, and repeat total seen at the base of the machine. To this add e in ten's place and the complements of f , g , and x in unit's place and again repeat the total now seen at the base of the adding machine. Then clear machine.

II. Add $c-d+y+2z$ in ten's place and then set up the total seen in the glass at the base of the adding machine, repeating this total twice. To this add the total obtained in I just above, indicated by symbol $\star$, and then the total in tape 37.

III. Set up the second total in tape 35 and repeat 5 times; add to it, in ten's place, the first total in that tape, and take a total. The totals of II and III should agree. They are designated by the mark $\odot$ to the right of each total.

Before starting his check the computer puts the letters a , b , c , d , e , f , g , and x , y , and z in the right margin of tape 35 to aid him in following the rule for the check. To preserve the first part of II, should his totals in II and III not agree, the operator takes a subtotal before adding the total in I.

39. No check was provided for the l_x determined by finding the antilogarithms of the subtotals in tape 37 except to compare them with the duplicate work. When this was done these l_x in pencil on tape 37 were added in tape 39. This put the l_x column in a more convenient form for deriving from it the $N'_{x:\overline{5}}$ according to equations (17) to (20), page 35.

DETERMINATION OF $N'_{x:\overline{5}}$ FROM l_x AND OF N'_x FROM $N'_{x:\overline{5}}$.

40. Equations (17) to (20) are the same general equations as (13) to (16) and accordingly the same general method was used in computing the $N'_{x:\overline{5}}$ from the l_x as was used in computing the $\log {}_5p_x$ from the $\log p_x$. The same cardboard was used to mark off the l_x to which the equation was being applied, and the addition was begun with the third number on the tape; the first two may be separated by a horizontal line. The method of computing $N'_{x:\overline{5}}$ is identical with that of computing $\log {}_5p_x$, but this is the only value of $N'_{x:\overline{5}}$ obtained by the irregular formula.

However, since the l_x are much smaller numbers than the $\log p_x$, it was found more convenient to add the first and last values appearing in the opening of the cardboard on the right of the adding machine and

NUMBER OF SURVIVORS.

CALCULATION OF LIFE TABLE FOR MALES IN THE STATE OF NEW YORK: 1909-1911.

PHOTOGRAPHS OF ADDING MACHINE TAPES UPON WHICH CALCULATIONS WERE MADE.

71155597 * 999973845627 1 45001224* 51851470 20902441 727539110 999954998776 753291797 518514700 102 1 2029098294* 51851470 999905465757 999957317227* 20902441 999973845627 999947480680 42682773 999984911521 209024410 107 3 178847452*	40,815 14 46108241528 999898214696 32,288 15 45090388488 999859559294 23,367 16 43685981428 999795604828 14,595 17 41642029708 999700113584 7,317 18 38643165548 999562797682 2,674 19 34271142368 99933562212 576 20 27606764488 998924692864 48 21 16853693128 998210855928 1 22 9998962252408 997 29098294 0 22 99969253235348 995178847452 107 24 99104170986*	39 x 0 100000 * 1 87251 2 84263 7 80629 12 79510 17 78405 22 76641 27 74416 32 71766 37 68408 42 64396 47 59824 52 54572 57 48370 62 40815 67 32288 72 23367 77 14595 82 7317 87 2674 92 576 97 48 102 1 1150132*
37 $10^3 \log l_x$ * 100,000 5 999940772400 87,251 1 49407724008 999984866520 84,263 2 49256389208 999980854914 80,629 3 49064938348 999993929110 79,510 4 49004229448 999993919668 78,405 5 48943426128 999990119174 76,641 6 48844617868 999987203932 74,416 7 48716657188 999984252340 71,766 8 48559180588 999979188800 68,408 9 48351068588 999973749046 64,396 10 48088559048 999968018492 59,824 11 47768743968 999960094854 54,572 12 47369692508 999947603220 48,370 13 46845724708 999926251682 14 46108241528	38 Check on tapes 35 to 37 99290240 * 94534243-C 94534243-Z 288358726C-2Z 99900999010E 999900168878-f 999900238298-g 999979097559-x 1355232177 2710464354 * 992902400 10C 999001632100-10d 999738456270 10Y 999054657570 10Z 999054657570 10Z 997842305910 997842305910 2710464354 * Total-Tape 37 → 99104170986 95341553070 ⑦ * Second Total Tape 35 → 18683182830 18683182830 18683182830 18683182830 18683182830 First Total Tape 35 → 934159141508 1925638920 ⑦ * 95341553070 *	40 Computations of $N'_{x:37}$ 84263 * 80629 1648928 164892 164892 164892 1648920 1648920 806290 9992049000 78405 78405 2 4125408 * 80629 79510 1601390 99837332 1598861 806290 7 162668 * 4004012 79510 78405 1579150 99842730 1579795 795100 12 157270 * 3954690 78405 76641 1550460 99846074 1551580 784050 17 153926 * 3887210

the second and third on the left, the machine being split between banks 9-10. Accordingly the first value in the opening was set up on the right and the second on the left and the adding machine lever struck. Then the third was set up on the left and the fourth on the right and the lever again touched. The total seen at the base of the machine on the left was set up in ten's place, the complement of the total seen through the glass on the right was added to this, and the total then seen through the glass on the left was added. Then ten times the second number appearing in the opening of the cardboard was added on the left and a total taken. This process was continued until a total had been obtained from each group of four consecutive l_x . A total was then obtained from the last three l_x according to equation (21), page 35, which gives $10N'_{(w-5):5}$. Since $l_w = 1$, $N'_{w:5}$ was taken simply as 1.

That is, $\sum_{x=w+1}^{x=w+4} l_x$ is zero in this table.

According to equations (17) to (21) the totals in tape 40 are $10N'_{x:5}$.

41. Then to obtain N'_x these $10N'_{x:5}$ were added, beginning with $10N'_{w:5} = 10$ and taking a subtotal after each addition. After $10N'_{2:5}$ had been added and a subtotal taken, the $10N'_{1:5}$ and then the $10N'_{0:5}$ ($= 1,000,000$) were added, a subtotal being taken after addition of the first and a total after addition of the last.

For the benefit of the reader the l_x were copied on tape 41 to the left of the N'_x for the same age. Thus, the dividends of equation (22), page 35, are given on the right side of tape 41 and the divisors in the center and the ages on the left margin of the tape. To aid the computer a vertical line between the first and second banks marks the decimal point in these N'_x .

42. The check on the work in tapes 39 to 41 is derived in Table 15. As in Table 14 any number in the table is the coefficient of the l_x at the top of its column in the equation for the $N'_{x:5}$ on the left margin of the page in the same line with the number. These equations for $N'_{x:5}$ are (17) to (21), page 35.

TABLE 15.—DERIVATION OF CHECK ON WORK IN TAPES 39 TO 41.

COMPUTATION OF CHECK IS GIVEN IN TAPE 42.

This table shows equations for $10N'_{x:5}$ in terms of l_x to l_{x+4} according to equations (17) to (21), page 35; $N'_{0:5} = l_0$ and $N'_{1:5} = l_1$.

Any number in the table from columns l_2 to $l_{w+5} = 0$ is the coefficient of the l_x at the top of its column in the equation for the $10N'_{x:5}$ in first column in same line with the number.

$10N'_{x:5}$	l_0	l_1	l_2	l_7	l_{12}	l_{17}	l_{22}	l_{27}	(and so on to)	l_{w-20}	l_{w-15}	l_{w-10}	l_{w-5}	l_w	$l_{w+5}=0$
$10N'_{0:5}$	+10														
$10N'_{1:5}$		+10													
$10N'_{x:5}$ for x equals—															
2.....			+24	+34	-10	+2									
7.....			-2	+32	+22	-2									
12.....				-2	+32	+22	-2								
17.....					-2	+32	+22	-2							
22.....						-2	+32	+22							
27.....							-2	+32							
32.....								-2							
37.....															
And so on to															
$w-30$										-2					
$w-25$										+22	-2				
$w-20$										+32	+22	-2			
$w-15$										-2	+32	+22	-2		
$w-10$											-2	+32	+22	-2	
$w-5$												-2	+32	+22	-2
w														+10	
Total $10N'_0$	+10	+10	+22	+64	+42	+52	+50	+50	(and so on to)	+50	+50	+50	+52	+30	-2
$50 \sum_{x=0}^{x=w} l_x$	+50	+50	+50	+50	+50	+50	+50	+50		+50	+50	+50	+50	+50	+50
$50 \sum_{x=0}^{x=w} l_x - 10N'_0$	+40	+40	+28= (30-2)	-14= (-10-4)	+8= (+10-2)	-2	0	0	0	0	0	0	-2	+20	+52
or $40(l_0 + l_1) + 30l_2 - 10l_7 + 10l_{12} + 20l_w - 2(l_2 + 2l_7 + l_{12} + l_{17} + l_{w-5}) - 10 \sum_{x=w+1}^{x=w+4} l_x$, when $l_{w+5} = 0$.															
															$+10 \sum_{x=w+1}^{x=w+4} l_x$
															$+10 \sum_{x=w+1}^{x=w+4} l_x$
															$-10 \sum_{x=w+1}^{x=w+4} l_x$

B.—ACTUAL COMPUTATION.

51

SUM OF SURVIVORS IN FIVE-YEAR GROUPS AND AT EACH FIFTH YEAR OF AGE AND OVER.

CALCULATION OF LIFE TABLE FOR MALES IN THE STATE OF NEW YORK: 1909-1911.

PHOTOGRAPHS OF ADDING MACHINE TAPES UPON WHICH CALCULATIONS WERE MADE.

40 <i>Continued</i>				41		
Computations of N'_x				x	l_x	N'_x
76641	784.05	40815	483.70			
74416	717.66	32288	233.67			
1510570		731030				
99849829		99928263				
1511456		732396				
766410		408150				
22		62				
3789322	1501.71*	1872942	717.37*	102	1	10
						4.06
74416	766.41	32288	408.15	97	48	41.68
71766	684.08	23367	145.95			14.138
1461820		556550				
99854951		99944590		92	576	145.548
1462953		556795				83510
744160		322880				
27		67		87	2674	980.648
3670066	1450.49*	1436470	554.10*			262630
				82	7317	3606948
						575932
71766	744.16	23367	322.88			
68408	643.96	14595	73.17	77	14595	9366268
1401740		379620				989624
99861188		99960395		72	23367	19262508
1403102		377977				1436470
717660		233670		67	32288	33627208
32		72				1872942
3523864	1388.12*	989624	396.05*	62	40815	52356628
						2272050
				57	48370	75077128
68408	717.66	14595	233.67			2609166
64396	598.24	7317	26.74	52	54572	101168788
1328040		219120				2889420
99868410		99973959		47	59824	13 62988
1329254		214991				3130840
684080		145950		42	64396	161371388
37		77				3342588
3342588	1315.90*	575932	260.41*	37	68408	194797268
						3523864
				32	71766	23 35908
64396	684.08	7317	145.95			3670066
59824	545.72	2674	5.76	27	74416	266736568
1242200		99910				3789322
99877020		99984829		22	76641	304629788
1243440		94730				3887210
643960		73170		17	78405	343501888
42		82				3954690
3130840	1229.80*	262630	151.71*	12	79510	383048788
						4 4012
				7	80629	423088908
59824	643.96	2674	73.17			4125408
54572	483.70	576	48	2	84263	464342988
1143960		32500				872510
99887234		9992635		1	87251	473068088
1145590		28385				1
598240		26740		0	100000	48306808*
47		87				
2889420	1127.66*	83510	73.65*			
54572	598.24	576	26.74			
48370	408.15	48	1			
1029420		6240				
99899361		99997325				
1031723		4189				
545720		5760				
52		92				
2609166	1006.39*	14138	26.75*			
48370	545.72	48	5.76			
40815	322.88	1				
891850		490				
99913140		99999424				
894175		99999963				
483700		480				
57		97				
2272050	868.60*	406	5.76*			

UNITED STATES ABRIDGED LIFE TABLES.

COMPLETE EXPECTATION OF LIFE.

CALCULATION OF LIFE TABLE FOR MALES IN THE STATE OF NEW YORK: 1909-1911.

PHOTOGRAPHS OF ADDING MACHINE TAPES UPON WHICH CALCULATIONS WERE MADE:

42

Check on tapes 39 to 41.

1872510	
1872510	
1872510	
1872510	
842630	
842630	
842630	84263
	80629
99193710	80629
795100	79510
10	78405
10	48
	403484
99193032	
9199792	806958*
48306808	
⑧57506600	806958*
	**
	11501320
	11501320
	11501320
	11501320
	11501320
	*
	⑧57506600*

43

x	N_x/l_x	e_x *
0	4831	4781
1	5422	5372
2	5511	5461
7	5247	5197
12	4818	4768
17	4381	4331
22	3975	3925
27	3584	3534
32	3205	3155
37	2848	2798
42	2506	2456
47	2174	2124
52	1854	1804
57	1552	1502
62	1283	1233
67	1041	991
72	824	774
77	642	592
82	493	443
87	367	317
92	253	203
97	87	37

Accordingly the rule for checking the work in tapes 39 to 41 is as follows: Split machine between banks 9 and 10.

I.—(1) Set up $l_0 + l_1$, that is, $100,000 + l_1$, in ten's place on the left of the machine and repeat four times.

(2) Set up $10l_2$ on the left and repeat three times, adding it in unit's place on the right with the third repetition.

(3) Set up l_7 on the right of the machine, repeating twice, and with the second repetition setting up the complement of l_7 in ten's place on the left.

(4) Set up $10l_{12}$ on the left of the machine and l_{12} on the right.

(5) Set up $10l_w$ on the left of the machine and l_{17} on the right.

(6) Set up $10l_w$ on the left of the machine and l_{w-5} on the right.

(7) Repeat total seen at right through glass at base of machine.

(8) Set up on left of machine the complement of total now seen at right through the glass at its base.

(9) Set up complement of $10 \sum_{x=w+1}^{x=w+4} l_x$ on right of machine. $\sum_{x=w+1}^{x=w+4} l_x$ is zero in this table. See end of section 40.

(10) Add total of tape 41, and take a total.

II.—Repeat total of tape 39 five times in ten's place and take a total. As indicated by the marks ⑧

to the left of each of the totals of I and II, they should agree.

The operator, to preserve the first part of his check should his totals not agree, takes a subtotal between steps (8) and (9).

DETERMINATION OF e_x .

43. The work on this tape is generally performed in pencil on the left margin of tape 41, since the l_x are not copied there in actual practice. By putting in the ages in the right margin of tapes 39 and 41, the operator can readily find the dividend in tape 41 and the corresponding divisor in tape 39, and he can enter his quotient from the computing machine to the left of the dividend in tape 43.

When the finished tapes were no longer needed for further computations, they were pasted on a large sheet of heavy manila paper and enough headings inserted to make easy any possible future reference to them. In this way all the computations for each life table were kept in order. This paper was also easy to file away.

No knowledge of algebraic processes is needed to compute life table by the methods described in sections 16 to 45. Under proper supervision any good adding machine operator can readily learn these steps and then do all the work of computing life tables.

PART III.—ORIGINAL STATISTICS.

SOURCES OF ORIGINAL STATISTICS.

44. The population statistics upon which these life tables are based are the census returns for January 1, 1920. Practically all the birth and mortality statistics used were compiled by the Bureau of the Census. The exceptions to this rule are shown in Table 16. Only the total number of deaths by color and sex in Buffalo in 1919 and 1920, and in Cleveland and Detroit in 1919 could be obtained, whereas deaths by color, sex, and age groups as compiled by the Bureau of the Census were needed to render life tables for these cities comparable with those for other cities.

Accordingly certain registrars were requested to furnish the mortality statistics for whites and for Negroes separately by sex for the following age groups: single years of age under 5 and the quinquennial age groups 5-9, 10-14, and so on, to age 100 and over. When the totals for deaths by sex and color furnished by the state did not agree with those compiled by the Bureau of the Census, the totals compiled by the Bureau were distributed into age groups proportionately to those furnished by the state department.

Since birth statistics by sex and color for many other states and cities were not available for all the years 1916 to 1920, it was necessary either to vary the method of computing rates of mortality at ages under 3 years or else to estimate the sex and color distribution of the births. After studying the statistics which could be obtained, it was decided not to vary the method of computing rates of mortality at ages under 3 years, but to use the birth statistics which were available and then to distribute these by sex and color according to the birth statistics of

later years, or according to computed number of births for these years derived from population and death statistics. This last method was necessary only in the case of Chicago, Illinois, and New Jersey. It will be noted that it was necessary to make these distributions by sex and color for only a few areas in the years 1919 and 1920. Since only the differences between births in 1916 and 1918, 1917 and 1919, 1918 and 1920, were required by the formulas used, the errors introduced by these estimated distributions must be very small for the years 1916 to 1918.

For a few areas it was necessary to take from the state reports the deaths under 1 year of age in 1916 by sex and color or to estimate the distribution by sex and color of the total deaths under 1 year of age from state reports. In the case of Illinois the deaths under 1 year of age in 1916, and under 1 and from 1 to 2 years of age in 1917 had to be estimated from those in Chicago for these years. However, since but little weight is given to these deaths in the formulas it was possible to estimate for large areas with only slight errors in the rates of mortality under three years of age.

The populations and deaths at unknown ages are distributed in Tables 17 and 18, pages 58 and 62. This distribution was made by the usual method. That is, the population in each age group was multiplied by the constant ratio of total population to population at known ages to distribute the population at unknown ages among those of known ages, and the deaths at unknown ages were distributed among those of known ages by the same process.

TABLE 16.

STATISTICS USED IN THE CONSTRUCTION OF LIFE TABLES

A.—BIRTH

No. of line.	AREA AND SEX.	1916						1917					
		Total.	Total white.	Total colored.	Negro.	Other colored.	Color not stated.	Total.	Total white.	Total colored.	Negro.	Other colored.	Color not stated.
	STATES.												
1	California: Total.....	50,638	46,272		199	4,167		52,230	47,313		328	4,589	
2	Males.....		23,928						24,319				
3	Females.....		22,344						22,994				
4	Illinois: Total.....	116,283						108,901					
5	Indiana: Total.....		62,343	969									
6	Males.....		31,893	528									
7	Females.....		30,450	441									
8	Kansas: Total.....	41,163											
9	Kentucky: Total.....	61,077											
10	Missouri: Total.....		71,344		2,129	13		67,041	64,616		2,425		
11	Males.....		37,848					34,402					
12	Females.....		35,638					32,639					
13	New Jersey: Total.....		68,283		1,927	1			73,063		2,243	3	
14	North Carolina: Males.....		27,481		11,950								
15	Females.....		25,965		11,262								
16	Ohio: Total.....	112,951											
17	Oregon: Total.....	12,960						13,149					
18	Males.....		6,644					6,871					
19	Females.....		6,316					6,278					
20	Rhode Island: Males.....												
21	Females.....												
22	South Carolina: Total.....		22,385		25,476		35		20,395		22,080		35
23	Males.....		11,742		13,045				10,564		11,368		
24	Females.....		10,643		12,431				9,831		10,712		
25	Tennessee: Total (cities).....	6,072						6,304					
26	Males.....												
27	Females.....												
28	Total (rural).....	44,659						44,366					
29	Males.....												
30	Females.....												
31	Utah: Males.....		6,753		8	77							
32	Females.....		6,400		14	74							
33	Virginia: Total.....		41,297	18,855			30						
34	Males.....		21,150	9,481									
35	Females.....		20,147	9,374									
36	Washington: Total.....	23,831	22,685		66	1,080							
37	Males.....	12,328											
38	Females.....	11,503											
39	Wisconsin: Total.....	58,921					92						
40	Males.....	30,463											
41	Females.....	28,458											
	CITIES.												
42	Chicago: Total.....	49,754						49,561					
43	Cleveland: Total.....	18,662											
44	Los Angeles: Males.....		3,712						3,802				
45	Females.....		3,612						3,678				
46	New Orleans: Total.....		5,836	2,693					5,877	2,303			
47	Males.....		3,001	1,394					3,030	1,226			
48	Females.....		2,835	1,299					2,847	1,077			
49	St. Louis: Total.....	14,101	13,414		678	9		13,868	12,893		975		
50	Males.....	7,228						7,091					
51	Females.....	6,873						6,777					
52	San Francisco: Males.....		3,827						3,809				
53	Females.....		3,471						3,595				
	HAWAII.												
54	All races combined: Males.....	4,324						4,880					
55	Females.....	3,846						4,316					
AREA AND SEX.		NUMBER OF BIRTHS DURING											
		1916				1917							
		All races.		Japanese.		All races.		Japanese.					
56	Hawaii: Total.....												
57	Males.....							4,197	1,974		4,640	2,321	
58	Females.....							3,702	1,688		4,067	1,939	

BUT NOT COMPILED IN THE BUREAU OF THE CENSUS.

TABLE 16.

STATISTICS.

1918						1919						1920						No. of line.
Total.	Total white.	Total colored.	Negro.	Other colored.	Color not stated.	Total.	Total white.	Total colored.	Negro.	Other colored.	Color not stated.	Total.	Total white.	Total colored.	Negro.	Other colored.	Color not stated.	
51,248	50,986		262															1
	26,221																	2
	24,765																	3
118,368						115,072						128,902						4
																		5
																		6
																		7
																		8
64,001	61,843		2,143	15		61,193	58,777		2,416			65,416	62,056		2,760			9
32,702						29,730						33,609						10
31,299						31,463						31,807						11
	72,216		2,328	5			68,269		2,655	11			73,471		2,949	11		12
																		13
																		14
																		15
																		16
13,295																		17
6,780																		18
6,515																		19
													7,687		159			20
													7,203		149			21
																		22
	20,705		23,414		32													23
	10,653		12,165															24
	10,052		11,249															25
																		26
6,569						7,202						7,901	6,058	1,843				27
													3,099	928				28
													2,959	915				29
45,248						40,470						43,002	37,753	5,249				30
													19,627	2,746				31
													18,126	2,503				32
																		33
																		34
																		35
																		36
																		37
																		38
																		39
																		40
																		41
																		42
51,020						47,460						54,879						43
																		44
	4,063																	45
	3,866																	46
		2,298					6,153	2,381				9,264						47
	6,064	1,133					3,142	1,221										48
	3,157	1,165					3,011	1,160										49
	2,907																	50
13,432	12,510		916	6		12,701	11,614		1,087			14,415	13,187		1,228			51
6,876						6,516						7,200						52
6,556						6,185						7,155						53
	4,103																	54
	3,877																	55
																		56
4,758						5,080						2,657						57
4,556						4,532						2,358						58

January 1 to June 30, 1920

YEAR ENDED JUNE 30 OF CALENDAR YEARS--

1918		1919		1920		1921		No. of line.
All races.	Japanese.	All races.	Japanese.	All races.	Japanese.	All races.	Japanese.	
4,829	2,365	4,807	2,356	10,165	4,963	10,156	4,910	56
4,575	2,214	4,357	2,035	5,385	2,630			57
				4,780	2,327			58

ORIGINAL STATISTICS.

57

BUT NOT COMPILED IN THE BUREAU OF THE CENSUS—Continued.

TABLE 16.

STATISTICS.

AGE INTERVAL IN YEARS.																Age un- known.	No. of line.
25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 to 100	100 years and over.		
27	41	38	39	42	24	11	11	15	6	5	2	1					1
25	41	38	38	41	21	11	10	15	6	5	2	1					2
2			1	1	3		1										3
29	23	23	16	26	30	11	5	9	5	5	4						4
29	23	23	16	26	30	11	5	9	5	5	4						5
																	6
321	360	316	266	275	240	244	288	259	242	179	111	59	11	5	4	1	7
29	27	45	22	30	13	10	3	7	4	2		1					8
379	291	221	217	214	190	224	250	249	233	207	131	81	27	3	2		9
30	17	23	13	13	5	6	6	5	4	5	3	3	3				10
161	170	187	184	167	238	265	268	200	158	152	80	41	14	5	2		11
5	6	9	4	9	8	1	1		1	3		1					12
1	1				1												13
167	167	130	143	134	168	171	229	210	213	187	145	68	21	5	1		14
2		2	4	2	2		2							1			15
																	16
143	144	169	190	196	217	241	255	255	207	151	98	45	21		1		17
4	5	8	3	2	8	2	2	1	1		1						18
2			1	1		2											19
157	147	124	106	173	155	191	217	228	234	178	141	80	31	2			20
2	4	3	1	6	4	2	3		2	1							21
				1			1	1									22

YEARS OF AGE DURING YEAR ENDED—

DEATHS FROM JULY 1, TO DECEMBER
31, 1916.

June 30, 1916.			June 30, 1917.			All ages.	
All ages.		Under 1 year.	All ages.		Under 1 year.		
Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.
2,333	1,607	1,137	2,103	1,395	1,259	1,316	937
817	568		736	510			

UNITED STATES ABRIDGED LIFE TABLES.

TABLE 17.

STATISTICS ON WHICH RATES OF MORTALITY

[Italics indicate statistics not compiled in the Bureau of the Census; bold-faced type indi-

No. of life table.	AREA, SEX, AND COLOR.	NUMBER OF BIRTHS REGISTERED.					ADJUSTED NUMBER OF BIRTHS.				
		1916	1917	1918	1919	1920	1916	1917	1918	1919	1920
	WHITE.										
	Aggregate: ¹										
1	Males.....						925,118	930,225	941,806	880,694	952,938
2	Females.....						873,214	877,881	889,163	836,788	900,382
3	Original registration states: ¹										
4	Males.....	326,054	334,357	333,843	308,301	327,823	334,795	343,320	342,793	316,566	336,611
	Females.....	308,956	316,863	315,491	293,680	310,288	317,239	325,357	323,949	301,553	318,606
	STATES.										
5	California:										
	Males.....	23,928	24,380	26,221	26,446	30,976	26,685	27,122	29,242	29,493	34,545
6	Females.....	22,344	22,994	24,765	24,261	29,763	24,919	25,644	27,619	27,057	33,193
7	Connecticut:										
	Males.....	18,095	18,885	18,633	17,251	17,019	18,638	19,451	19,192	17,768	17,530
8	Females.....	16,884	18,125	17,830	16,119	16,513	17,390	18,669	18,365	16,603	17,008
9	Illinois:										
	Males.....	58,397	54,728	59,520	57,307	64,676	72,211	67,674	73,599	70,863	79,975
10	Females.....	56,654	52,109	56,463	55,064	61,676	68,819	64,435	69,807	68,089	76,264
11	Indiana:										
	Males.....	31,893	31,734	32,476	29,805	32,373	34,278	34,107	34,905	32,034	34,794
12	Females.....	30,450	30,152	30,602	28,110	30,928	32,727	32,407	32,890	30,212	33,241
13	Kansas:										
	Males.....	20,876	19,576	19,648	18,137	19,904	23,741	22,264	22,345	20,627	22,637
14	Females.....	19,231	18,034	18,443	17,255	18,690	21,871	20,510	20,975	19,624	21,256
15	Kentucky:										
	Males.....	29,104	29,400	30,322	27,853	30,414	33,655	33,997	35,063	32,208	35,170
16	Females.....	27,682	27,862	28,051	25,805	28,333	31,895	32,219	32,437	29,840	32,763
17	Maryland:										
	Males.....	14,008	14,149	14,317	14,198	15,033	14,724	14,872	15,048	14,923	15,801
18	Females.....	13,297	13,370	13,643	13,250	14,419	13,976	14,053	14,340	13,927	15,155
19	Massachusetts:										
	Males.....	47,767	48,382	48,597	44,080	46,524				43,760	
20	Females.....	44,730	46,169	45,770	42,576	43,873				42,266	
21	Michigan:										
	Males.....	44,750	45,723	46,523	42,350	46,922	47,748	48,787	49,640	45,188	50,066
22	Females.....	41,638	42,853	43,622	40,526	44,375	44,428	45,724	46,545	43,241	47,348
23	Minnesota:										
	Males.....	28,331	27,859	28,756	26,458	28,560	30,598	30,088	31,057	28,575	30,845
24	Females.....	26,814	26,555	26,739	24,994	26,905	28,960	28,680	28,879	26,994	29,058
25	Missouri:										
	Males.....	36,745	33,158	31,599	28,556	32,191	43,059	38,856	37,029	33,463	37,723
26	Females.....	34,599	31,458	30,244	26,221	30,466	40,544	36,864	35,441	35,414	35,700
27	New Jersey:										
	Males.....	34,787	37,597	37,099	34,745	37,546	36,823	39,586	39,271	36,777	39,744
28	Females.....	33,496	35,066	35,117	33,576	35,825	35,457	37,754	37,173	35,488	38,028
29	New York:										
	Males.....	121,638	124,494	122,278	113,703	118,719				113,209	
30	Females.....	116,081	117,638	115,665	107,927	111,528				107,459	
31	North Carolina:										
	Males.....	27,451	27,581	27,027	26,895	29,515	30,802	30,914	30,293	30,145	33,082
32	Females.....	26,965	25,269	25,116	24,937	27,539	29,103	28,323	28,151	27,951	30,867
33	Ohio:										
	Males.....	56,838	60,970	62,613	56,366	61,571	65,249	69,870	71,753	64,594	70,559
34	Females.....	55,540	57,331	58,861	53,286	58,251	61,355	65,700	67,453	61,064	66,754
35	Oregon:										
	Males.....	6,450	6,702	6,613	6,846	7,464	7,370	7,622	7,521	7,786	8,489
36	Females.....	6,159	6,121	6,363	6,369	7,097	7,005	6,962	7,226	7,244	8,072
37	Pennsylvania:										
	Males.....	109,470	111,758	110,406	103,659	110,177	120,720	123,243	121,752	114,312	121,500
38	Females.....	103,513	105,771	104,554	98,010	103,775	114,151	116,641	115,299	108,082	114,440
39	South Carolina:										
	Males.....	11,751	10,673	10,661	11,416	12,331	14,068	12,658	12,763	13,667	14,762
40	Females.....	10,661	9,839	10,069	10,600	11,482	12,751	11,779	12,042	12,690	13,746
41	Tennessee:										
	Males.....	22,765	22,622	23,220	21,296	22,726	30,141	29,952	30,755	28,196	30,089
42	Females.....	21,099	20,889	21,533	19,766	21,086	27,935	27,789	28,510	26,157	27,917
43	Utah:										
	Males.....	6,763	6,863	7,312	6,567	7,086	7,184	7,301	7,779	6,986	7,538
44	Females.....	6,400	6,590	6,962	6,233	6,791	6,808	7,011	7,406	6,631	7,224
45	Virginia:										
	Males.....	21,160	21,591	22,299	21,410	23,191	22,969	23,437	24,206	23,241	25,174
46	Females.....	20,167	20,333	21,338	20,246	22,038	21,881	22,072	23,163	21,977	23,922
47	Washington:										
	Males.....	11,766	11,575	12,553	12,269	13,130	13,270	13,066	14,170	13,849	14,821
48	Females.....	10,943	10,774	11,993	11,516	12,478	12,352	12,161	13,537	12,999	14,085
49	Wisconsin:										
	Males.....	30,404	30,486	31,087	28,001	30,170	33,877	33,969	34,638	31,200	33,617
50	Females.....	28,406	28,434	29,553	26,471	28,145	31,650	31,682	32,929	29,495	31,360

¹ Statistics for the aggregate tables are a compilation of those for the original registration states, and Pennsylvania, Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Illinois, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.

AT AGES UNDER 3 YEARS ARE BASED.

TABLE 17.

cate aggregates which include some statistics not compiled in the Bureau of the Census.]

NUMBER OF DEATHS IN AGE INTERVAL.*												No. of life table.
0—1 year.					1—2 years.				2—3 years.			
1916	1917	1918	1919	1920	1917	1918	1919	1920	1918	1919	1920	
86,163 65,985 34,486 26,388	86,196 65,335 34,119 25,697	92,160 70,330 36,508 27,840	74,506 56,588 28,857 21,933	79,652 60,010 31,585 23,770	17,342 14,891 6,330 5,425	23,573 21,388 9,311 8,442	13,840 11,995 5,091 4,485	15,630 13,570 6,288 5,435	11,274 10,724 4,138 3,996	6,774 5,975 2,613 2,260	7,173 6,347 2,808 2,494	1 2 3 4
1,832 1,443	1,998 1,606	2,386 1,770	2,013 1,549	2,543 1,955	373 308	543 463	307 286	484 399	277 258	159 151	217 191	5 6
1,968 1,564	1,945 1,491	2,153 1,725	1,660 1,186	1,714 1,316	350 288	508 466	251 275	309 309	211 223	138 127	165 141	7 8
7,606 5,992	7,284 5,673	7,253 5,404	6,100 4,684	6,430 4,722	1,942 1,592	1,811 1,631	1,290 1,060	1,250 1,106	968 851	556 541	592 516	9 10
2,985 2,241	3,008 2,217	3,081 2,321	2,586 1,914	2,841 2,195	637 551	736 682	475 421	543 464	380 344	252 219	265 223	11 12
1,587 1,111	1,592 1,242	1,657 1,287	1,366 1,031	1,561 1,170	296 249	345 283	241 233	288 249	195 181	125 106	160 135	13 14
2,484 1,978	2,640 2,096	2,866 2,241	2,385 1,758	2,273 1,767	718 657	855 807	599 554	507 451	455 466	276 250	235 222	15 16
1,502 1,248	1,567 1,217	1,910 1,567	1,454 1,088	1,467 1,193	253 237	521 458	244 221	225 235	202 209	136 112	98 90	17 18
5,245 3,967	5,274 3,954	6,004 4,579	4,273 3,310	4,693 3,480	977 771	1,528 1,374	735 663	883 776	608 633	388 312	376 334	19 20
4,725 3,517	4,447 3,357	4,489 3,506	4,174 3,211	4,721 3,529	764 631	947 795	684 598	874 781	418 416	387 324	391 372	21 22
2,162 1,640	2,092 1,545	2,235 1,692	1,990 1,429	2,100 1,546	271 235	397 411	301 260	317 262	272 194	153 119	163 135	23 24
3,243 2,304	3,113 2,438	3,035 2,483	2,527 1,925	2,753 2,102	815 676	853 772	577 470	646 593	468 386	293 249	304 296	25 26
3,893 3,081	4,034 3,070	4,467 3,394	3,237 2,467	3,478 2,714	733 596	1,243 1,240	618 504	752 642	601 589	285 236	315 273	27 28
12,480 9,613	12,467 9,333	12,965 9,769	10,340 7,892	11,180 8,365	2,369 2,197	3,597 3,226	1,949 1,690	2,475 2,091	1,592 1,457	978 861	1,065 973	29 30
2,410 1,815	2,487 1,997	2,512 1,940	2,176 1,670	2,363 1,829	821 701	897 776	557 453	561 462	398 371	224 191	206 180	31 32
5,998 4,698	6,132 4,593	6,398 4,781	5,397 4,205	5,497 4,161	1,110 962	1,398 1,272	949 819	1,046 943	643 652	450 422	531 449	33 34
406 290	468 336	485 382	497 307	506 376	76 47	96 87	64 49	85 58	51 45	41 45	38 31	35 36
13,616 10,412	13,650 10,100	15,489 11,640	11,212 8,649	11,578 8,755	2,395 2,110	4,166 3,779	2,058 1,745	2,238 1,923	1,994 1,934	910 828	977 891	37 38
1,012 796	1,036 800	1,118 848	954 721	1,133 855	324 295	372 348	203 177	280 242	132 167	107 90	111 87	39 40
1,690 1,281	2,076 1,576	2,049 1,616	1,817 1,465	1,885 1,445	613 518	713 647	489 413	442 380	352 354	231 186	231 186	41 42
476 414	502 415	487 418	518 379	561 425	101 91	84 95	64 48	104 88	57 48	43 36	49 50	43 44
1,827 1,492	1,911 1,462	2,073 1,676	1,904 1,345	1,849 1,395	419 383	508 550	367 338	328 301	285 297	190 167	182 176	45 46
865 548	864 621	963 680	834 634	964 710	140 107	162 128	132 100	156 131	90 72	76 48	73 63	47 48
2,961 2,115	2,665 1,921	2,736 2,065	2,505 1,816	2,604 1,834	345 298	541 439	307 284	385 312	297 243	191 174	198 155	49 50

* The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.

* Proportionate part of number of deaths at unknown ages included.

TABLE 17.

STATISTICS ON WHICH RATES OF MORTALITY

(Italics indicate statistics not compiled in the Bureau of the Census; bold-faced type indi-

No. of life table.	AREA, SEX, AND COLOR.	NUMBER OF BIRTHS REGISTERED.					ADJUSTED NUMBER OF BIRTHS.				
		1916	1917	1918	1919	1920	1916	1917	1918	1919	1920
	WHITE—Continued.										
	CITIES.										
	Aggregate in cities: ¹										
51	Males.....	193,763	199,249	199,299	187,722	200,630					
52	Females.....	184,150	188,528	189,113	179,280	189,856					
	Baltimore:										
53	Males.....	6,311	6,456	6,527	7,621	7,960	6,388	6,535	6,607	7,714	8,057
54	Females.....	5,967	6,189	6,292	7,190	7,694	6,040	6,265	6,360	7,278	7,788
	Boston:										
55	Males.....	9,966	9,983	10,165	9,239	9,801				8,085	
56	Females.....	9,248	9,528	9,482	9,118	9,217				7,979	
	Buffalo:										
57	Males.....	6,631	6,912	7,138	6,426	6,734				6,119	
58	Females.....	6,409	6,521	6,759	6,195	6,469				5,899	
	Chicago:										
59	Males.....	24,883	24,917	25,486	23,504	27,393	31,431	31,474	32,117	29,689	34,602
60	Females.....	23,718	23,516	24,266	22,533	26,090	29,960	29,703	30,652	28,463	32,956
	Cleveland:										
61	Males.....	9,383	10,193	10,439	9,082	9,478	9,879	10,732	10,991	9,562	9,979
62	Females.....	8,970	9,745	9,817	8,698	9,103	9,444	10,260	10,336	9,158	9,584
	Detroit:										
63	Males.....	12,540	13,516	13,789	12,830	13,801	12,709	13,699	13,975	13,003	13,988
64	Females.....	11,597	12,524	12,787	12,182	12,928	11,754	12,693	12,960	12,347	13,103
	Los Angeles:										
65	Males.....	3,712	3,802	4,063	4,140	5,249				4,000	
66	Females.....	3,612	3,868	3,866	3,927	5,212				3,795	
	New Orleans:										
67	Males.....	3,001	3,080	3,157	3,142	3,447				2,850	
68	Females.....	2,835	2,847	2,907	3,011	3,238				2,731	
	New York City:										
69	Males.....	69,126	70,929	68,905	64,939	66,483				63,139	
70	Females.....	65,993	67,302	65,371	61,685	62,191				59,976	
	Philadelphia:										
71	Males.....	19,629	20,880	20,865	19,765	20,760				19,700	
72	Females.....	18,579	19,496	19,957	19,140	19,716				19,077	
	Pittsburgh:										
73	Males.....	8,003	8,115	7,754	7,028	7,257				6,956	
74	Females.....	7,798	7,773	7,451	6,679	6,655				6,610	
	St. Louis:										
75	Males.....	6,876	6,592	6,404	5,968	6,642	6,991	6,703	6,512	6,058	6,754
76	Females.....	6,538	6,301	6,106	5,666	6,545	6,648	6,407	6,209	5,751	6,655
	San Francisco:										
77	Males.....	3,827	3,809	4,103	4,067	4,331				3,726	
78	Females.....	3,471	3,695	3,877	3,758	4,132				3,443	
	Washington, D. C.:										
79	Males.....	2,547	2,716	3,027	3,043	3,285				2,957	
80	Females.....	2,432	2,534	2,994	2,858	3,034				2,777	
	NEGROES.										
	States with less than 4 per cent Negroes: ²										
81	Males.....	9,574	10,325	11,356	12,423	13,752	12,019	12,962	14,256	15,596	17,264
82	Females.....	9,232	10,211	11,077	12,210	13,563	11,590	12,819	13,906	15,328	17,027
	States with more than 5 per cent Negroes: ³										
83	Males.....	44,562	43,104	43,625	42,012	45,313	60,350	58,375	59,081	56,897	61,367
84	Females.....	42,621	41,209	41,468	40,956	43,844	57,721	55,809	56,160	55,466	59,378
	Large cities: ⁴										
85	Males.....	7,775	8,105	8,529	9,591	10,621	8,520	8,881	9,346	10,509	11,638
86	Females.....	7,540	7,887	8,340	9,330	10,294	8,262	8,642	9,139	10,224	11,280
	Original registration states: ⁵										
87	Males.....	5,445	5,912	6,341	6,737	7,703	6,440	6,993	7,500	7,968	9,111
88	Females.....	5,218	5,936	6,311	6,634	7,471	6,172	7,021	7,465	7,847	8,837
	HAWAII.										
	Hawaii (all races combined):										
89	Males.....	4,324	4,880	4,758	5,080	5,388	4,537	5,120	4,992	5,330	5,648
90	Females.....	3,846	4,316	4,656	4,532	4,777	4,035	4,528	4,780	4,755	5,012
	Japanese in Hawaii:										
91	Males.....	2,102	2,415	2,331	2,488	2,618	2,213	2,542	2,454	2,619	2,756
92	Females.....	1,796	2,074	2,167	2,164	2,318	1,891	2,183	2,281	2,278	2,440

¹ This aggregate includes the number of births registered in the fourteen cities shown below except in Chicago, Cleveland, Detroit, and St. Louis, whose adjusted number of births were included.² The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.³ The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

AT AGES UNDER 3 YEARS ARE BASED—Continued.

TABLE 17.

cate aggregates which include some statistics not compiled in the Bureau of the Census.]

NUMBER OF DEATHS IN AGE INTERVAL.*												No. of life table.
0—1 year.					1—2 years.				2—3 years.			
1916	1917	1918	1919	1920	1917	1918	1919	1920	1918	1919	1920	
21,014 16,218	20,938 15,919	22,060 16,834	17,957 13,749	18,936 14,191	4,644 4,064	6,267 5,643	3,612 3,123	4,140 3,579	2,902 2,673	1,775 1,547	1,924 1,611	51 52
697 578	744 564	958 800	761 560	826 664	122 106	293 252	132 124	130 140	105 108	78 64	51 50	53 54
1,130 862	1,106 804	1,254 972	981 789	1,096 804	248 178	382 330	192 141	213 193	166 158	77 71	93 66	55 56
826 661	812 581	946 731	778 609	769 588	125 102	232 244	121 123	140 112	95 92	81 68	69 56	57 58
3,807 2,982	3,646 2,823	3,649 2,703	3,130 2,411	3,121 2,257	1,029 865	976 904	724 618	612 545	496 435	297 283	315 232	59 60
1,090 894	1,218 920	1,109 834	945 714	878 701	241 209	221 230	183 149	179 162	117 114	80 58	107 79	61 62
1,557 1,137	1,492 1,181	1,495 1,149	1,359 1,030	1,560 1,175	270 239	312 281	238 225	311 263	144 130	138 105	145 125	63 64
258 224	276 235	333 264	298 238	405 336	61 50	75 58	42 32	88 71	45 44	20 19	37 33	65 66
237 195	263 198	318 250	246 185	235 200	60 84	88 72	42 42	42 33	43 35	31 21	19 23	67 68
6,969 5,417	6,855 5,184	6,839 5,198	5,735 4,323	6,066 4,602	1,547 1,417	2,187 1,917	1,240 1,066	1,616 1,404	943 871	611 531	686 622	69 70
2,262 1,645	2,359 1,817	2,740 2,087	1,870 1,485	1,978 1,415	464 423	829 719	363 279	411 333	409 372	199 160	184 164	71 72
986 800	1,062 784	1,193 877	872 669	862 646	210 191	362 361	166 166	196 153	195 188	72 76	97 67	73 74
676 468	625 465	652 518	481 369	570 394	179 129	155 171	99 85	102 101	79 71	53 47	67 59	75 76
283 180	270 201	300 216	280 190	301 223	54 42	87 48	34 42	64 42	35 30	19 27	34 24	77 78
236 175	210 162	274 235	221 177	269 186	34 29	68 56	36 31	36 27	30 25	16 17	20 11	79 80
1,702 1,375	1,987 1,628	2,362 1,958	2,022 1,659	2,521 1,955	547 480	781 723	465 426	641 634	356 356	217 160	200 189	81 82
6,893 5,453	7,213 5,736	7,510 6,308	6,276 4,869	6,548 5,263	1,826 1,661	2,426 2,261	1,390 1,136	1,294 1,158	1,124 1,098	629 570	539 499	83 84
1,391 1,093	1,603 1,289	1,762 1,438	1,503 1,136	1,821 1,509	449 346	585 521	323 293	459 432	313 293	162 131	158 133	85 86
1,022 831	1,114 908	1,234 1,066	1,087 881	1,327 1,081	292 242	409 371	246 235	346 331	184 176	111 89	90 94	87 88
790 520	730 520	676 604	548 472	619 466	85 65	95 100	80 86	133 117	47 51	45 29	56 46	89 90
256 187	340 245	274 264	229 183	242 176	36 30	51 44	40 44	68 51	25 20	21 15	28 23	91 92

* The twelve cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

* The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.

* Proportionate part of number of deaths at unknown ages included.

TABLE 18.

POPULATIONS AND MORTALITY STATISTICS ON WHICH ALL

Populations and deaths at

No. of life table.	AREA, SEX, COLOR, POPULATION, AND DEATHS.	All ages.	AGE INTERVAL IN YEARS.									
			0-1	1-2	2-3	3-4	4-5	0-5	5 to 10	10 to 15	15 to 20	20 to 25
	WHITE.											
1	Aggregate—Males: ¹											
	Population, Jan. 1, 1920.....	37,026,026	754,699	786,844	791,693	797,257	779,549	3,910,042	3,757,878	3,483,084	3,078,576	3,050,889
	Deaths, 1919.....	476,933	74,506	13,840	6,774	4,752	3,604	103,476	11,479	7,862	12,226	15,702
	Deaths, 1920.....	488,529	79,652	15,631	7,173	4,751	3,614	110,821	11,838	8,093	11,793	14,502
	Deaths, 1919 and 1920.....	965,462	154,158	29,471	13,947	9,503	7,218	214,297	23,317	15,955	24,019	30,204
2	Aggregate—Females: ¹											
	Population, Jan. 1, 1920.....	35,787,552	734,897	763,509	770,428	780,328	756,032	3,805,194	3,682,128	3,417,409	3,107,135	3,190,808
	Deaths, 1919.....	421,871	56,588	11,995	5,975	4,295	3,190	82,043	9,677	6,765	10,902	17,748
	Deaths, 1920.....	442,566	60,010	13,570	6,347	4,482	3,322	87,731	10,041	6,742	10,655	16,729
	Deaths, 1919 and 1920.....	864,437	116,598	25,565	12,322	8,777	6,512	169,774	19,718	13,507	21,557	34,477
3	Original registration states—Males: ¹											
	Population, Jan. 1, 1920.....	13,729,188	269,612	282,866	288,178	287,058	277,175	1,404,889	1,327,302	1,223,673	1,085,948	1,130,899
	Deaths, 1919.....	187,949	28,857	5,091	2,613	1,839	1,379	39,779	4,572	2,816	4,365	5,896
	Deaths, 1920.....	192,782	31,585	6,289	2,808	1,825	1,373	43,880	4,493	2,937	4,100	5,374
	Deaths, 1919 and 1920.....	380,731	60,442	11,380	5,421	3,664	2,752	83,659	9,065	5,753	8,465	11,270
4	Original registration states—Females: ¹											
	Population, Jan. 1, 1920.....	13,573,563	264,122	274,740	281,584	280,607	270,935	1,371,988	1,305,723	1,206,952	1,111,162	1,221,556
	Deaths, 1919.....	173,259	21,933	4,485	2,260	1,600	1,259	31,537	3,718	2,421	3,914	6,866
	Deaths, 1920.....	181,453	23,770	5,435	2,494	1,764	1,283	34,746	3,838	2,482	3,860	6,236
	Deaths, 1919 and 1920.....	354,712	45,703	9,920	4,754	3,364	2,542	66,283	7,556	4,903	7,774	13,102
	STATES.											
5	California—Males:											
	Population, Jan. 1, 1920.....	1,710,223	25,508	26,315	26,093	26,367	26,475	130,758	135,767	127,287	119,555	132,938
	Deaths, 1919.....	25,143	2,013	307	159	146	104	2,729	398	327	533	803
	Deaths, 1920.....	25,342	2,543	484	217	147	129	3,520	474	401	609	767
	Deaths, 1919 and 1920.....	50,485	4,556	791	376	293	233	6,249	872	728	1,142	1,570
6	California—Females:											
	Population, Jan. 1, 1920.....	1,554,488	24,034	25,222	25,424	25,650	25,774	126,104	133,326	124,981	115,437	128,301
	Deaths, 1919.....	17,919	1,549	286	151	98	90	2,174	341	247	442	754
	Deaths, 1920.....	18,881	1,955	399	191	133	112	2,790	424	286	449	726
	Deaths, 1919 and 1920.....	36,800	3,504	685	342	231	202	4,964	765	533	891	1,480
7	Connecticut—Males:											
	Population, Jan. 1, 1920.....	683,837	15,091	15,290	15,950	15,858	14,630	76,819	69,184	60,522	51,654	54,329
	Deaths, 1919.....	9,385	1,660	251	138	94	67	2,210	236	142	210	289
	Deaths, 1920.....	9,448	1,714	309	165	87	65	2,340	228	139	189	259
	Deaths, 1919 and 1920.....	18,833	3,374	560	303	181	132	4,550	464	281	399	548
8	Connecticut—Females:											
	Population, Jan. 1, 1920.....	674,895	14,573	15,127	15,885	15,250	14,428	75,263	68,196	59,910	53,612	59,647
	Deaths, 1919.....	8,371	1,186	275	127	93	59	1,740	184	108	141	327
	Deaths, 1920.....	8,966	1,316	309	141	93	57	1,916	183	102	167	275
	Deaths, 1919 and 1920.....	17,337	2,502	584	268	186	116	3,656	367	210	308	602
9	Illinois—Males:											
	Population, Jan. 1, 1920.....	3,207,773	60,945	65,011	65,975	68,009	66,322	326,262	319,516	294,469	262,825	261,272
	Deaths, 1919.....	39,651	6,100	1,290	556	431	299	8,676	921	638	1,008	1,214
	Deaths, 1920.....	41,526	6,430	1,250	592	441	357	9,070	1,133	719	1,100	1,216
	Deaths, 1919 and 1920.....	81,177	12,530	2,540	1,148	872	656	17,746	2,054	1,357	2,108	2,430
10	Illinois—Females:											
	Population, Jan. 1 1920.....	3,091,560	59,453	63,097	64,244	66,328	64,094	317,214	313,743	289,044	265,319	280,606
	Deaths, 1919.....	33,969	4,684	1,060	541	374	204	6,953	803	565	923	1,444
	Deaths, 1920.....	36,773	4,722	1,106	516	390	300	7,043	882	590	916	1,436
	Deaths, 1919 and 1920.....	70,742	9,406	2,166	1,057	764	603	13,996	1,685	1,155	1,839	2,880
11	Indiana—Males:											
	Population, Jan. 1, 1920.....	1,446,825	27,372	29,486	28,707	29,186	28,745	143,496	141,083	135,913	124,200	116,212
	Deaths, 1919.....	18,233	2,586	475	252	153	112	3,578	421	285	544	556
	Deaths, 1920.....	19,342	2,841	543	265	176	122	3,947	441	324	501	547
	Deaths, 1919 and 1920.....	37,575	5,427	1,018	517	329	234	7,525	862	609	1,045	1,103
12	Indiana—Females:											
	Population, Jan. 1, 1920.....	1,402,246	26,779	28,401	28,082	28,665	28,179	140,106	137,707	132,439	123,713	118,755
	Deaths, 1919.....	17,264	1,914	421	219	162	106	2,822	346	274	518	787
	Deaths, 1920.....	18,281	2,195	464	223	167	122	3,171	352	307	510	708
	Deaths, 1919 and 1920.....	35,545	4,109	885	442	329	228	5,993	698	581	1,028	1,495
13	Kansas—Males:											
	Population, Jan. 1, 1920.....	878,150	17,860	18,882	18,820	18,802	18,506	92,870	91,166	87,867	78,333	73,976
	Deaths, 1919.....	9,889	1,366	241	125	92	68	1,892	223	204	280	346
	Deaths, 1920.....	10,131	1,561	288	160	88	71	2,168	259	177	295	280
	Deaths, 1919 and 1920.....	20,020	2,927	529	285	180	139	4,060	482	381	575	626
14	Kansas—Females:											
	Population, Jan. 1, 1920.....	830,756	17,493	18,177	17,998	18,258	17,816	89,742	89,079	86,249	78,897	73,886
	Deaths, 1919.....	8,107	1,031	233	106	77	62	1,509	176	161	242	320
	Deaths, 1920.....	8,907	1,170	249	135	79	75	1,708	206	181	234	340
	Deaths, 1919 and 1920.....	17,014	2,201	482	241	156	137	3,217	382	342	476	660
15	Kentucky—Males:											
	Population, Jan. 1, 1920.....	1,108,853	27,575	28,062	27,128	27,567	27,868	138,200	134,863	126,191	107,514	92,575
	Deaths, 1919.....	13,133	2,385	599	276	188	138	3,586	413	311	520	559
	Deaths, 1920.....	12,213	2,273	507	235	132	120	3,267	375	268	405	453
	Deaths, 1919 and 1920.....	25,346	4,658	1,106	511	320	258	6,853	788	579	925	1,012
16	Kentucky—Females:											
	Population, Jan. 1, 1920.....	1,071,707	26,630	26,876	26,075	26,714	26,826	133,121	130,061	122,182	106,850	95,050
	Deaths, 1919.....	12,573	1,758	554	250	176	133	2,871	380	314	546	755
	Deaths, 1920.....	11,791	1,767	451	222	155	97	2,692	339	231	387	571
	Deaths, 1919 and 1920.....	24,364	3,525	1,005	472	331	230	5,563	719	545	933	1,326
17	Maryland—Males:											
	Population, Jan. 1, 1920.....	605,601	12,666	12,440	12,415	12,494	12,146	62,161	59,999	58,049	54,604	55,032
	Deaths, 1919.....	8,689	1,454	244	136	91	74	1,999	184	140	216	297
	Deaths, 1920.....	8,218	1,467	225	98	74	39	1,903	176	125	150	252
	Deaths, 1919 and 1920.....	16,907	2,921	469	234	165	113	3,902	360	265	366	549
18	Maryland—Females:											
	Population, Jan. 1, 1920.....	599,136	12,133	12,054	12,200	12,420	11,961	60,768	58,268	56,883	53,158	53,467
	Deaths, 1919.....	7,868	1,088	221	112	82	52	1,555	152	127	183	331
	Deaths, 1920.....	7,934	1,193	235	90	58	43	1,619	140	96	175	308
	Deaths, 1919 and 1920.....	15,802	2,281	456	202	140	95	3,174	292	223	358	639

¹ Statistics for the aggregate tables are a compilation of those for the New England states, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Kansas, Utah, California, Oregon, and Washington.

RATES OF MORTALITY AT AGES 7 YEARS AND OVER ARE BASED.

TABLE 18.

unknown ages are distributed.

AGE INTERVAL IN YEARS.																No. of life table.
25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 to 100	100 years and over.	
3,176,040	2,958,375	2,867,053	2,353,629	2,189,634	1,829,925	1,392,008	1,154,021	786,254	519,714	314,762	139,199	51,254	11,249	2,126	314	1
19,469	21,445	22,698	21,042	23,532	25,282	28,125	32,480	33,422	33,533	29,900	20,200	10,858	3,264	729	110	
17,442	19,207	20,947	19,930	22,313	25,788	28,666	33,914	35,421	36,118	32,978	22,540	11,732	3,657	708	121	
36,911	40,652	43,645	40,972	45,845	51,070	56,791	66,394	68,843	69,651	62,977	42,740	22,500	6,921	1,437	231	
3,155,083	2,800,117	2,602,938	2,204,847	1,938,197	1,656,189	1,284,533	1,067,924	754,292	527,320	338,650	167,437	66,883	16,651	3,297	502	2
21,145	19,581	18,243	16,711	17,958	20,223	22,497	26,188	29,195	31,201	30,264	22,553	13,059	4,667	1,062	189	
20,011	19,487	18,506	16,860	18,352	21,180	23,703	28,529	31,075	33,603	32,955	25,217	14,450	5,253	1,205	187	
41,156	39,068	36,749	33,571	36,310	41,403	46,200	54,717	60,270	64,894	63,219	47,770	27,509	9,925	2,267	376	
1,221,406	1,142,984	1,094,345	905,120	840,474	708,189	528,809	433,172	294,299	193,676	117,025	52,600	19,263	4,213	806	96	3
7,687	8,329	8,904	8,427	9,602	10,572	11,561	13,098	13,392	13,302	11,805	7,978	4,257	1,199	277	41	
6,680	7,405	8,040	8,051	9,151	10,660	11,739	13,688	14,230	14,246	12,073	8,787	4,598	1,436	272	42	
14,367	15,734	16,944	16,478	18,753	21,232	23,300	26,786	27,622	27,548	24,868	16,765	8,855	2,635	549	83	
1,231,495	1,083,987	1,017,366	872,555	772,703	672,110	515,110	426,903	300,097	211,837	136,128	69,228	28,035	7,042	1,391	195	4
8,452	7,602	7,013	6,951	7,716	8,823	9,822	11,569	12,747	13,345	12,892	9,695	5,625	2,035	455	71	
7,782	7,490	7,156	6,783	7,786	9,292	10,180	12,299	13,493	14,512	13,860	10,656	6,242	2,206	487	67	
16,234	15,092	14,169	13,734	15,502	18,115	20,002	23,868	26,240	27,847	26,752	20,351	11,867	4,241	942	138	
149,958	153,459	159,392	132,138	122,036	101,523	78,483	63,424	42,627	29,650	18,619	8,455	3,259	712	154	29	5
1,191	1,484	1,619	1,522	1,575	1,659	1,776	1,996	1,867	1,829	1,679	1,213	694	197	44	8	
981	1,102	1,461	1,311	1,368	1,609	1,760	1,961	1,958	1,950	1,850	1,271	745	192	43	9	
2,172	2,586	3,080	2,833	2,943	3,268	3,536	3,957	3,825	3,779	3,529	2,484	1,439	380	87	17	
142,730	137,273	133,866	115,660	99,606	85,440	65,732	54,083	37,269	26,391	16,349	7,906	3,115	755	135	29	6
1,071	1,035	975	866	932	1,000	1,032	1,208	1,261	1,388	1,383	1,013	533	211	45	8	
818	919	914	891	919	1,056	1,093	1,353	1,346	1,471	1,434	1,084	620	225	51	12	
1,889	1,954	1,889	1,757	1,851	2,056	2,125	2,561	2,607	2,850	2,817	2,097	1,153	436	96	20	
62,122	58,145	54,542	44,909	41,966	33,666	24,186	20,579	13,484	8,952	5,203	2,400	898	229	45	3	7
398	403	455	467	489	519	573	632	607	616	557	323	199	43	13	4	
351	396	433	400	448	535	598	631	646	623	578	367	202	70	15		
749	799	888	867	937	1,054	1,171	1,263	1,253	1,239	1,135	690	401	113	28	4	
62,197	53,587	49,702	42,181	37,703	32,289	23,905	20,097	14,069	10,221	6,740	3,567	1,492	416	91	10	8
393	366	332	312	360	422	479	582	585	600	563	443	292	112	29	1	
378	352	353	342	346	453	466	601	646	717	645	551	321	118	33	2	
771	718	685	654	706	875	945	1,183	1,231	1,317	1,208	994	613	230	62	1	
287,494	275,323	260,471	207,996	189,178	160,668	120,920	96,635	61,679	40,502	25,410	11,628	4,339	994	170	22	9
1,631	1,852	2,020	1,901	2,076	2,290	2,445	2,702	2,712	2,548	2,285	1,599	887	279	62	5	
1,541	1,777	1,844	1,741	2,069	2,331	2,562	2,891	2,811	2,813	2,640	1,866	1,024	311	59	8	
3,172	3,629	3,864	3,542	4,145	4,621	5,007	5,593	5,523	5,361	4,925	3,465	1,911	590	121	13	
292,624	257,864	230,102	189,146	166,215	142,978	110,663	87,853	59,334	41,417	26,882	13,478	5,359	1,393	297	29	10
1,827	1,645	1,464	1,372	1,410	1,782	1,888	1,943	2,283	2,302	2,218	1,651	1,044	365	74	13	
1,893	1,713	1,627	1,403	1,621	1,806	2,062	2,334	2,440	2,677	2,534	2,058	1,160	404	111	9	
3,720	3,358	3,091	2,775	3,031	3,582	3,950	4,277	4,723	4,979	4,752	3,709	2,204	829	188	22	
115,198	107,451	106,056	88,402	85,438	76,719	61,799	53,002	39,148	26,165	16,242	7,199	2,500	495	97	10	11
651	679	732	644	725	848	1,059	1,225	1,480	1,579	1,462	1,017	577	136	28	1	
565	605	711	677	734	875	1,029	1,332	1,645	1,702	1,727	1,157	596	185	37	5	
1,216	1,284	1,443	1,321	1,459	1,723	2,088	2,557	3,131	3,281	3,189	2,174	1,173	321	65	6	
115,035	105,950	101,052	85,324	78,415	69,278	57,224	48,345	35,894	25,197	16,284	7,678	3,035	677	126	12	12
828	780	705	638	713	888	1,059	1,253	1,425	1,521	1,521	1,064	612	199	33	3	
761	826	748	652	742	902	1,059	1,253	1,425	1,521	1,521	1,064	612	199	33	3	
1,589	1,606	1,453	1,290	1,455	1,583	1,790	2,235	2,647	2,942	3,132	2,228	1,303	411	77	9	
70,303	63,660	61,380	51,896	48,242	41,289	32,881	29,727	20,952	15,751	10,945	4,700	1,796	334	71	11	13
409	408	353	311	336	403	500	630	680	887	833	619	345	101	23	6	
284	329	349	344	324	383	453	615	724	917	1,013	682	388	121	25	1	
693	737	702	655	660	786	953	1,245	1,404	1,804	1,946	1,301	733	222	48	7	
68,924	61,947	56,897	48,429	42,476	34,796	28,251	24,199	18,300	13,300	8,995	4,289	1,634	392	65	9	14
414	417	379	322	298	316	383	410	539	644	642	536	262	112	24	1	
373	405	351	320	322	360	423	548	589	712	734	620	331	115	32	3	
787	822	730	642	620	676	806	958	1,128	1,356	1,376	1,156	593	227	56	4	
83,558	70,942	71,150	58,723	57,718	47,864	36,007	31,138	22,565	14,953	9,222	3,905	1,398	306	50	11	15
550	506	521	447	521	537	574	744	755	888	785	535	256	100	18	7	
398	372	413	384	470	471	597	735	865	940	812	593	272	101	15	7	
948	878	934	831	991	1,008	1,171	1,479	1,620	1,828	1,597	1,128	528	201	33	14	
83,067	71,480	68,924	57,240	51,472	41,838	33,025	27,568	20,406	14,238	8,986	4,102	1,605	394	81	17	16
707	634	585	450	486	437	523	641	698	782	757	548	323	104	21	11	
606	544	462	404	433	460	569	631	731	852	815	570	331	113	41	9	
1,313	1,178	1,047	854	919	897	1,092	1,272	1,429	1,634	1,572	1,118	654	217	62	20	
51,514	46,272	43,552	36,825	36,004	29,754	22,713	19,272	13,250	8,548	5,070	2,091	721	140	25	5	17
350	389	399	382	462	465	520	608	608	628	531	303	148	38	6	1	
288	305	312	293	374	471	516	607	671	664	546	348	162	45	8	2	
638	694	711	675	836	936	1,036	1,230	1,279	1,292	1,077	661	310	83	14	3	
51,175	45,645	43,536	37,462	33,914	29,603	22,401	19,385	14,082	9,326	5,882	2,868	1,036	229	39	9	18
385	348	324	292	335	377	438	487	566	660	601	417	216	57	15	2	
310	327	306	297	337	391	446	539	556	666	639	433	243	88	17	1	
695	675	630	589	672	768	884	1,026	1,122	1,326	1,240	850	459	145	32	3	

* The original registration states include the New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.

TABLE 18.

POPULATIONS AND MORTALITY STATISTICS UPON WHICH ALL RATES

Populations and deaths at

No. of life table.	AREA, SEX, COLOR, POPULATION, AND DEATHS.	All ages.	AGE INTERVAL IN YEARS.										
			0-1	1-2	2-3	3-4	4-5	0-5	5 to 10	10 to 15	15 to 20	20 to 25	
	WHITE—Continued. STATES—continued.												
19	Massachusetts—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,864,317 25,730 26,023 51,753	36,939 4,273 4,693 8,966	39,237 735 883 1,618	39,264 888 376 764	39,091 272 271 543	37,957 183 190 373	192,488 5,851 6,413 12,264	178,910 615 593 1,208	165,620 345 366 711	146,262 528 454 982	151,831 691 606 1,297	
20	Massachusetts—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,939,207 25,387 26,415 51,802	37,005 3,310 3,480 6,790	38,338 663 776 1,439	38,571 312 334 646	38,064 224 232 456	37,119 174 180 354	189,097 4,883 5,002 9,685	177,505 506 513 1,019	164,773 290 314 604	152,746 469 473 942	171,355 882 759 1,641	
21	Michigan—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,890,265 23,517 26,371 49,888	38,434 4,174 4,721 8,895	42,051 684 874 1,558	41,585 387 391 778	41,473 302 289 591	39,427 188 223 411	202,070 5,735 6,498 12,233	184,723 651 714 1,365	163,735 399 445 844	147,305 575 685 1,260	159,112 666 842 1,508	
22	Michigan—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,711,362 20,903 23,463 44,366	37,845 3,211 3,529 6,740	40,543 598 781 1,379	40,206 324 372 696	40,168 214 272 486	38,363 186 199 385	197,125 4,533 5,153 9,686	179,361 520 661 1,181	159,103 356 382 738	143,861 552 607 1,159	148,281 866 944 1,810	
23	Minnesota—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,235,728 13,453 13,815 27,268	24,707 1,990 2,100 4,090	26,954 301 317 618	26,494 153 163 316	27,217 115 109 224	26,315 104 87 191	131,687 2,663 2,776 5,439	125,464 322 336 658	117,572 267 249 516	109,232 402 383 785	107,567 480 493 973	
24	Minnesota—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,133,208 11,026 11,494 22,520	24,028 1,429 1,546 2,975	25,989 260 262 522	25,680 119 135 254	26,352 115 119 234	26,035 71 59 130	128,084 1,994 2,121 4,115	121,611 277 290 567	115,154 218 211 429	109,330 376 315 691	109,014 571 532 1,103	
25	Missouri—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,631,697 19,541 20,428 39,969	30,432 2,527 2,753 5,280	32,510 577 646 1,223	31,812 293 304 597	32,934 187 184 371	32,899 161 156 317	160,587 3,745 4,043 7,788	164,870 519 587 1,106	162,725 368 378 746	144,490 611 565 1,176	133,022 708 677 1,385	
26	Missouri—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,593,347 16,825 18,434 35,259	29,835 1,925 2,102 4,027	31,618 470 593 1,063	30,730 249 296 545	32,304 186 199 385	31,189 130 156 286	155,676 2,960 3,346 6,306	160,412 472 473 945	158,530 334 335 669	148,642 506 546 1,046	141,762 760 834 1,594	
27	New Jersey—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,531,146 20,189 20,137 40,326	31,590 3,237 3,478 6,715	32,800 618 752 1,370	34,322 285 315 600	34,423 196 216 412	33,198 171 157 328	166,333 4,507 4,918 9,425	157,588 574 499 1,073	141,354 316 318 634	121,595 446 426 872	125,286 710 582 1,292	
28	New Jersey—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,505,941 18,339 18,714 37,053	30,962 2,467 2,714 5,181	31,885 504 642 1,146	33,568 236 273 509	33,910 177 195 372	32,078 160 140 300	162,403 3,544 3,904 7,508	155,307 471 413 884	140,493 280 265 545	124,333 409 423 832	134,101 715 669 1,384	
29	New York—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	5,081,010 72,981 72,556 145,537	96,494 10,340 11,160 21,500	100,001 978 1,065 4,424	104,255 690 632 2,043	103,335 543 525 1,322	99,920 543 525 1,068	504,005 14,500 15,857 30,357	483,598 1,685 1,698 3,383	448,736 1,091 1,069 2,160	393,639 1,663 1,449 3,112	422,955 2,495 2,054 4,549	
30	New York—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	5,091,017 65,794 67,818 133,612	93,983 7,892 8,365 16,257	96,958 1,690 2,091 3,781	101,698 861 973 1,834	101,252 559 683 1,272	97,817 470 485 955	491,708 11,502 12,597 24,099	476,243 1,397 1,425 2,822	442,190 907 927 1,834	410,952 1,477 1,367 2,844	477,651 2,650 2,400 5,050	
31	North Carolina—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	899,031 9,388 10,340 19,728	25,964 2,176 2,363 4,539	25,328 557 561 1,118	25,362 224 206 430	25,583 123 90 245	25,520 86 342 176	127,757 3,166 3,342 6,508	122,995 255 244 499	110,152 188 217 405	90,081 329 295 624	75,178 379 343 722	
32	North Carolina—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	884,748 9,299 9,849 19,148	24,809 1,670 1,829 3,499	24,369 453 462 915	24,188 191 180 371	25,223 117 112 229	24,183 87 94 181	122,772 2,518 2,677 5,195	119,527 247 209 456	106,264 150 149 329	90,536 309 323 632	81,147 465 440 905	
33	Ohio—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	2,854,664 36,385 36,784 73,169	55,244 5,397 5,497 10,894	59,279 949 1,046 1,995	59,346 450 531 981	58,964 337 330 667	57,696 232 256 488	290,520 7,365 7,660 15,025	269,785 815 848 1,663	250,190 551 547 1,098	225,937 852 910 1,762	242,917 1,117 1,087 2,204	
34	Ohio—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	2,717,229 32,445 33,529 65,974	53,734 4,205 4,161 8,366	57,443 819 943 1,762	57,427 422 449 871	57,474 281 307 588	55,619 191 238 429	281,697 5,918 6,098 12,016	265,291 687 682 1,369	244,939 453 440 893	225,051 771 779 1,550	237,041 1,324 1,199 2,523	
35	Oregon—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	407,159 4,957 5,080 10,037	6,748 497 506 1,003	7,131 64 85 149	7,215 41 38 79	7,223 36 36 72	7,218 28 28 56	35,535 666 693 1,359	36,602 103 94 197	34,507 85 95 180	30,547 156 127 283	30,791 142 144 286	
36	Oregon—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	361,987 3,619 3,843 7,462	6,513 307 376 683	6,961 49 58 107	6,827 45 31 76	7,061 30 29 59	7,062 14 23 37	34,424 445 517 962	35,544 75 73 148	33,633 81 63 144	31,120 114 114 228	31,237 177 182 359	
37	Pennsylvania—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	4,278,332 58,601 60,301 118,902	96,509 11,212 11,578 22,790	98,852 2,053 2,238 4,296	100,874 910 977 1,887	101,204 627 700 1,327	98,505 472 506 978	495,044 15,279 15,999 31,278	464,880 1,498 1,513 3,011	417,183 946 972 1,918	358,585 1,293 1,360 2,653	339,631 1,781 1,707 3,488	
38	Pennsylvania—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	4,154,304 51,681 54,499 106,180	94,482 8,649 8,755 17,404	97,221 1,745 1,923 3,663	99,668 828 891 1,719	100,069 633 613 1,246	96,366 455 456 911	487,806 12,310 12,638 24,948	458,896 1,240 1,323 2,563	414,013 804 849 1,653	362,531 1,197 1,222 2,419	356,891 2,002 1,895 3,893	

OF MORTALITY AT AGES 7 YEARS AND OVER ARE BASED—Continued.

TABLE 18.

unknown ages are distributed.

AGE INTERVAL IN YEARS.																	No. of life table.
25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 to 100	100 years and over.		
163,323 994 845 1,839	151,391 1,061 856 1,917	146,584 1,148 988 2,136	124,848 1,145 1,008 2,153	120,938 1,356 1,263 2,619	100,323 1,498 1,479 2,977	73,436 1,593 1,571 3,164	58,423 1,788 1,886 3,674	39,056 1,888 1,968 3,856	25,525 1,826 1,988 3,814	15,000 1,537 1,690 3,227	6,992 1,075 1,175 2,250	2,579 562 622 1,184	656 188 202 390	122 37 47 84	10 4 7 3		
174,927 1,121 973 2,094	154,236 1,055 994 2,049	147,017 1,028 981 2,009	130,822 1,054 971 2,025	118,417 1,191 1,158 2,349	101,490 1,335 1,419 2,754	77,811 1,356 1,533 2,889	63,918 1,773 1,783 3,556	44,844 1,866 2,028 3,894	32,067 1,969 2,192 4,161	20,886 1,904 2,068 3,972	11,105 1,571 1,727 3,298	4,687 893 1,037 1,930	1,253 345 397 742	220 82 81 163	31 14 12 26		
180,939 940 1,036 1,976	164,730 1,015 1,127 2,142	150,554 990 1,082 2,072	116,982 841 971 1,812	105,425 918 1,004 1,922	86,892 1,001 1,095 2,096	69,694 1,227 1,360 2,587	58,817 1,472 1,677 3,149	41,957 1,665 1,808 3,473	27,821 1,777 1,923 3,700	17,290 1,642 1,844 3,486	7,684 1,154 1,277 2,431	2,883 640 717 1,357	601 163 218 381	129 40 36 76	22 6 12 18		
155,831 1,080 1,239 2,319	138,101 952 1,091 2,043	121,927 834 984 1,818	101,220 784 984 1,609	87,351 814 915 1,729	75,627 895 988 1,883	61,653 1,043 1,095 2,138	50,858 1,196 1,385 2,581	36,666 1,443 1,457 2,900	25,498 1,470 1,637 3,116	16,718 1,509 1,743 3,252	8,127 1,129 1,306 2,435	3,164 654 733 1,387	725 214 264 478	144 43 46 89	21 7 8 15		
109,900 614 546 1,160	100,111 650 669 1,319	90,531 603 603 1,206	71,960 553 477 1,030	67,151 606 578 1,184	58,004 674 688 1,362	48,708 849 859 1,708	39,431 989 1,015 2,004	25,106 904 962 1,866	16,109 911 1,008 1,919	10,083 800 931 1,731	4,504 653 659 1,312	2,021 350 401 751	500 122 153 275	80 36 28 64	7 5 1 6		
102,256 638 652 1,290	88,322 568 623 1,191	76,543 527 514 1,041	62,227 418 444 892	54,216 484 434 918	46,500 503 508 1,011	38,263 623 620 1,243	30,032 611 654 1,265	20,487 655 701 1,356	13,886 727 743 1,428	9,491 836 827 1,563	4,878 949 637 1,182	2,165 419 431 850	604 141 178 319	133 40 47 87	12 6 3 9		
131,158 711 743 1,454	119,678 779 768 1,547	119,172 856 849 1,705	101,146 810 759 1,569	97,900 951 886 1,837	83,118 959 1,075 2,034	65,299 1,235 1,201 2,436	56,346 1,422 1,458 2,880	38,626 1,446 1,525 2,971	26,635 1,458 1,594 3,052	16,435 1,319 1,488 2,807	7,210 934 1,085 2,019	2,561 503 533 1,041	581 175 164 339	118 31 40 71	20 1 5 6		
137,440 848 930 1,778	121,126 783 914 1,697	114,937 787 818 1,605	98,740 707 704 1,411	88,708 724 756 1,480	74,958 766 863 1,629	58,059 887 894 1,781	48,140 984 1,089 2,073	34,405 1,193 1,253 2,446	24,416 1,235 1,367 2,602	15,929 1,263 1,420 2,683	7,560 893 1,021 1,914	3,031 507 612 1,119	693 168 196 364	151 46 49 95	32 8 14 22		
137,012 914 734 1,648	130,283 1,066 839 1,845	125,739 1,068 868 1,936	102,148 1,016 912 1,928	93,550 1,176 1,110 2,286	75,501 1,188 1,181 2,369	53,323 1,249 1,268 2,517	41,694 1,291 1,399 2,690	26,236 1,253 1,324 2,577	17,126 1,248 1,355 2,603	10,048 1,074 1,149 2,223	4,458 677 761 1,438	1,524 348 368 716	289 103 102 205	51 20 23 43	8 5 1 6		
137,508 1,012 847 1,859	122,824 841 767 1,608	113,627 759 749 1,508	95,991 739 731 1,470	83,841 836 803 1,639	70,673 946 994 1,940	51,992 1,054 1,222 2,080	42,433 1,222 1,301 2,523	28,448 1,348 1,319 2,667	20,135 1,259 1,445 2,704	12,504 1,298 1,343 2,641	6,234 914 918 1,832	2,384 484 501 985	584 167 205 372	106 35 25 60	28 6 6 12		
463,055 3,163 2,672 5,835	440,889 3,530 3,008 6,538	421,165 3,823 3,302 7,125	347,369 3,644 3,375 7,019	313,532 4,190 3,836 8,026	265,983 4,583 4,603 9,186	193,349 4,880 4,798 9,678	154,909 5,393 5,414 10,807	100,938 5,012 5,283 10,295	64,135 4,714 4,356 9,641	38,148 4,070 4,356 8,426	16,778 2,686 2,852 5,538	6,184 1,323 1,458 2,781	1,354 414 456 870	259 107 77 184	30 15 12 27		
479,947 3,359 2,956 6,315	426,581 2,949 2,818 5,767	394,321 2,695 2,666 5,361	335,324 2,828 2,649 5,477	291,703 3,144 3,117 6,261	256,747 3,716 3,748 7,464	190,584 4,059 4,155 8,214	155,958 4,509 4,892 9,401	106,231 4,863 5,220 10,083	73,494 5,084 5,395 10,479	45,835 4,552 4,858 9,410	23,194 3,273 3,607 6,880	9,390 1,945 2,095 4,040	2,385 700 2,095 1,422	497 155 179 334	82 30 25 55		
64,386 387 393 780	54,424 358 376 734	54,571 336 377 713	43,351 301 361 662	39,699 315 350 665	32,076 312 438 750	24,714 401 397 798	22,875 495 585 1,080	17,281 626 710 1,336	10,979 587 726 1,313	5,281 437 552 989	2,193 290 357 647	838 169 183 352	193 40 80 120	43 12 10 22	14 5 4 9		
68,681 472 493 965	56,308 476 440 916	52,131 447 497 944	44,932 353 404 757	35,369 319 322 641	27,771 322 307 629	22,032 326 356 682	20,357 418 473 891	15,339 531 582 1,113	10,561 554 695 1,323	6,342 394 642 1,196	2,998 304 483 877	1,218 223 212 435	354 91 105 196	84 23 23 46	25 3 17 20		
257,064 1,359 1,379 2,738	236,092 1,700 1,555 3,160	227,892 1,779 1,779 3,334	186,297 1,622 1,443 3,065	172,077 1,737 1,581 3,318	141,050 1,809 1,778 3,587	109,729 1,972 2,069 4,041	92,492 2,507 2,515 5,022	65,132 2,792 2,798 5,590	43,370 2,734 2,918 5,652	27,083 2,593 2,937 5,530	11,758 1,792 1,971 3,763	4,248 907 959 1,866	861 308 297 605	147 62 64 126	14 12 8 20		
240,702 1,545 1,437 2,982	215,694 1,500 1,517 3,017	201,311 1,437 1,295 2,732	170,844 1,320 1,218 2,472	151,487 1,437 1,327 2,647	129,796 1,799 1,466 2,945	104,538 1,712 1,716 3,428	88,137 1,989 2,273 4,262	64,368 2,286 2,547 4,833	45,085 2,642 2,747 5,389	29,682 2,651 2,839 5,490	14,473 1,943 2,189 4,132	5,526 1,113 1,203 2,316	1,314 369 456 825	225 79 92 171	28 18 27 30		
33,441 229 190 419	34,359 257 212 469	35,571 269 286 555	28,795 221 187 408	26,147 224 236 460	22,821 289 274 563	18,717 328 342 670	15,564 375 432 807	10,613 443 446 889	6,648 386 394 818	3,884 350 284 744	1,753 241 284 525	670 135 158 293	162 45 42 87	26 13 9 22	6 ----- 3 3		
32,298 235 177 412	30,526 192 209 401	28,383 204 197 401	23,862 181 163 344	20,336 158 197 355	17,546 176 213 389	13,735 225 208 433	11,306 256 266 522	7,493 250 269 519	5,145 259 283 542	3,199 240 305 545	1,458 183 222 405	581 110 118 228	125 48 56 104	35 10 19 2	1 ----- 2 2		
357,916 2,271 2,112 4,383	336,643 2,509 2,425 4,934	329,213 2,900 2,672 5,572	270,272 2,714 2,613 5,327	252,434 3,070 2,929 5,999	202,313 3,082 3,229 6,311	149,207 3,390 3,500 6,890	120,420 3,749 3,969 7,718	81,548 3,788 3,969 7,837	53,074 3,769 4,100 7,869	30,551 3,206 3,442 6,648	13,106 2,012 2,276 4,288	4,332 1,005 1,059 2,064	898 272 321 593	160 61 43 104	22 6 11 17		
352,546 2,320 2,296 4,616	313,321 2,260 2,287 4,547	292,160 2,053 2,230 4,283	246,958 1,913 2,045 3,958	219,614 2,109 2,189 4,298	185,688 2,455 2,561 5,016	141,816 2,592 3,046 5,638	117,862 3,233 3,449 6,682	83,091 3,465 3,670 7,135	57,678 3,701 3,874 7,575	36,841 3,485 3,835 7,320	17,844 2,535 2,871 5,406	6,861 1,366 1,561 2,927	1,632 515 532 1,047	303 407 113 232	42 17 13 30		

TABLE 18. POPULATIONS AND MORTALITY STATISTICS UPON WHICH ALL RATES

Populations and deaths at

No. of life table.	AREA, SEX, COLOR, POPULATION, AND DEATHS.	All ages.	AGE INTERVAL IN YEARS.									
			0-1	1-2	2-3	3-4	4-5	0-5	5 to 10	10 to 15	15 to 20	20 to 25
	WHITE—Continued.											
	STATES—continued.											
39	South Carolina—Males:											
	Population, Jan. 1, 1920.....	415,823	11,744	11,047	11,046	11,610	11,309	56,756	54,642	50,450	41,517	37,235
	Deaths, 1919.....	4,856	954	203	107	60	50	1,374	131	108	168	244
	Deaths, 1920.....	4,873	1,133	280	111	63	48	1,635	112	91	138	183
	Deaths, 1919 and 1920.....	9,429	2,087	483	218	123	98	3,009	243	199	306	432
40	South Carolina—Females:											
	Population, Jan. 1, 1920.....	402,715	11,337	10,466	10,616	11,347	10,539	54,305	52,935	49,110	41,580	37,606
	Deaths, 1919.....	4,038	721	177	90	64	43	1,095	124	72	130	200
	Deaths, 1920.....	4,552	855	242	87	71	41	1,296	100	77	133	206
	Deaths, 1919 and 1920.....	8,590	1,576	419	177	135	84	2,391	224	149	263	406
41	Tennessee—Males:											
	Population, Jan. 1, 1920.....	951,224	24,334	23,881	23,504	23,874	24,244	119,837	119,546	114,507	94,415	76,590
	Deaths, 1919.....	10,329	1,817	489	231	130	122	2,789	299	234	383	405
	Deaths, 1920.....	10,369	1,885	442	231	157	90	2,805	294	214	331	343
	Deaths, 1919 and 1920.....	20,698	3,702	931	462	287	212	5,594	593	448	714	748
42	Tennessee—Females:											
	Population, Jan. 1, 1920.....	934,769	23,377	22,758	22,933	23,616	22,714	115,398	115,309	109,650	96,429	85,537
	Deaths, 1919.....	9,862	1,465	413	186	155	97	2,316	253	207	385	508
	Deaths, 1920.....	9,857	1,445	380	186	139	96	2,246	305	201	356	525
	Deaths, 1919 and 1920.....	19,719	2,910	793	372	294	193	4,562	558	408	741	1,033
43	Utah—Males:											
	Population, Jan. 1, 1920.....	227,232	6,054	6,536	6,252	6,064	5,854	30,760	28,340	25,832	21,307	19,022
	Deaths, 1919.....	2,608	518	64	43	27	24	676	63	77	104	99
	Deaths, 1920.....	2,785	561	104	49	25	24	763	95	70	82	95
	Deaths, 1919 and 1920.....	5,393	1,079	168	92	52	48	1,439	158	147	186	194
44	Utah—Females:											
	Population, Jan. 1, 1920.....	214,669	5,850	6,289	5,983	5,905	5,789	29,816	27,633	25,429	21,626	18,999
	Deaths, 1919.....	2,168	379	48	36	31	14	508	50	58	88	115
	Deaths, 1920.....	2,280	425	88	50	18	23	604	52	68	74	102
	Deaths, 1919 and 1920.....	4,448	804	136	86	49	37	1,112	102	126	162	217
45	Virginia—Males:											
	Population, Jan. 1, 1920.....	825,133	19,881	19,835	19,684	20,177	19,606	99,183	99,096	92,994	82,964	73,144
	Deaths, 1919.....	9,776	1,904	367	190	112	89	2,662	245	205	349	455
	Deaths, 1920.....	9,478	1,849	328	182	85	68	2,512	208	181	275	324
	Deaths, 1919 and 1920.....	19,254	3,753	695	372	197	157	5,174	453	386	624	779
46	Virginia—Females:											
	Population, Jan. 1, 1920.....	792,776	19,469	19,467	18,946	19,939	18,947	96,768	95,989	89,303	78,521	72,430
	Deaths, 1919.....	8,669	1,345	338	167	113	76	2,039	216	176	259	385
	Deaths, 1920.....	8,875	1,395	301	176	119	68	2,059	221	120	225	374
	Deaths, 1919 and 1920.....	17,544	2,740	639	343	232	144	4,098	437	296	484	759
47	Washington—Males:											
	Population, Jan. 1, 1920.....	711,693	12,093	12,569	12,327	12,602	12,830	62,421	63,751	58,604	52,356	54,796
	Deaths, 1919.....	7,918	834	132	76	56	54	1,152	179	127	252	339
	Deaths, 1920.....	8,333	964	156	73	58	44	1,295	198	166	227	294
	Deaths, 1919 and 1920.....	16,251	1,798	288	149	114	98	2,447	377	293	479	633
48	Washington—Females:											
	Population, Jan. 1, 1920.....	608,084	11,575	12,222	11,910	12,040	12,046	59,793	62,022	57,437	52,226	53,272
	Deaths, 1919.....	5,740	634	100	48	53	39	874	166	133	195	283
	Deaths, 1920.....	5,997	710	131	63	44	39	987	151	123	203	267
	Deaths, 1919 and 1920.....	11,737	1,344	231	111	97	78	1,861	317	256	398	550
49	Wisconsin—Males:											
	Population, Jan. 1, 1920.....	1,348,522	26,823	29,346	29,168	29,508	29,061	143,906	139,294	130,832	118,416	114,304
	Deaths, 1919.....	14,967	2,505	307	191	155	120	3,278	339	270	405	437
	Deaths, 1920.....	15,731	2,604	385	198	175	128	3,490	399	286	441	466
	Deaths, 1919 and 1920.....	30,698	5,109	692	389	330	248	6,768	738	556	846	903
50	Wisconsin—Females:											
	Population, Jan. 1, 1920.....	1,268,416	26,023	28,540	27,995	29,023	28,137	139,718	136,759	127,656	118,720	113,006
	Deaths, 1919.....	12,804	1,816	254	174	110	83	2,467	300	214	328	488
	Deaths, 1920.....	13,618	1,834	312	155	133	110	2,544	333	240	344	556
	Deaths, 1919 and 1920.....	26,422	3,650	566	329	243	193	5,011	633	454	672	1,044
	CITIES.											
51	Aggregate in cities—Males: ¹											
	Population, Jan. 1, 1920.....	8,149,409	155,937	160,438	165,753	164,115	158,094	804,337	754,457	681,848	617,572	724,622
	Deaths, 1919.....	114,370	17,957	3,612	1,775	1,279	992	25,615	2,940	1,698	2,416	3,854
	Deaths, 1920.....	113,724	18,936	4,140	1,924	1,208	973	27,181	3,170	1,714	2,382	3,561
	Deaths, 1919 and 1920.....	228,094	36,893	7,752	3,699	2,487	1,965	52,796	6,110	3,412	4,798	7,415
52	Aggregate in cities—Females: ¹											
	Population, Jan. 1, 1920.....	8,061,689	152,460	155,950	161,989	161,003	155,551	786,953	745,625	679,701	653,627	800,924
	Deaths, 1919.....	99,877	13,749	3,123	1,547	1,126	868	20,413	2,452	1,518	2,375	4,663
	Deaths, 1920.....	102,982	14,191	3,579	1,611	1,108	878	21,427	2,589	1,451	2,366	4,227
	Deaths, 1919 and 1920.....	202,859	27,940	6,702	3,158	2,234	1,746	41,840	5,041	2,969	4,741	8,890
53	Baltimore—Males:											
	Population, Jan. 1, 1920.....	308,324	6,601	6,079	6,162	6,061	5,847	30,750	28,587	27,027	25,800	29,241
	Deaths, 1919.....	4,642	761	132	78	51	43	1,065	106	69	90	142
	Deaths, 1920.....	4,429	826	130	51	45	23	1,075	95	54	65	136
	Deaths, 1919 and 1920.....	9,071	1,587	262	129	96	66	2,140	201	123	155	278
54	Baltimore—Females:											
	Population, Jan. 1, 1920.....	316,806	6,285	5,970	6,122	6,109	5,755	30,241	27,846	27,399	27,569	30,528
	Deaths, 1919.....	4,254	560	124	64	49	31	828	71	66	90	187
	Deaths, 1920.....	4,353	664	140	50	35	23	912	67	60	98	185
	Deaths, 1919 and 1920.....	8,607	1,224	264	114	84	54	1,740	138	116	188	372
55	Boston—Males:											
	Population, Jan. 1, 1920.....	359,403	6,775	7,262	7,232	7,146	6,876	35,291	32,457	30,407	27,447	31,049
	Deaths, 1919.....	5,727	981	192	77	65	40	1,355	144	68	100	151
	Deaths, 1920.....	5,597	1,096	213	93	56	39	1,497	142	85	87	146
	Deaths, 1919 and 1920.....	11,324	2,077	405	170	121	79	2,852	286	153	187	297
56	Boston—Females:											
	Population, Jan. 1, 1920.....	371,082	6,801	6,952	6,978	6,934	6,762	34,427	32,315	30,147	28,834	34,810
	Deaths, 1919.....	5,533	789	141	71	61	42	1,104	137	79	89	217
	Deaths, 1920.....	5,559	804	193	66	61	39	1,103	124	66	99	199
	Deaths, 1919 and 1920.....	11,092	1,593	334	137	122	81	2,207	261	145	188	416

¹ The 14 cities included in aggregate white in cities are those shown in the table.

OF MORTALITY AT AGES 7 YEARS AND OVER ARE BASED—Continued.

TABLE 18.

unknown ages are distributed.

AGE INTERVAL IN YEARS.																No of life table.
25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 to 100	100 years and over.	
32, 113 193 175 368	26, 588 195 184 379	27, 097 213 201 414	21, 749 182 177 359	19, 163 195 182 377	13, 958 173 197 370	9, 716 183 200 383	10, 144 228 316 544	7, 144 313 323 641	4, 373 313 333 646	2, 108 179 225 404	753 90 117 207	249 54 54 108	54 18 11 29	10 1 7 8	4 1 2 3	39
32, 520 210 213 423	26, 635 225 212 437	25, 954 209 249 458	20, 333 155 165 320	16, 266 144 143 287	12, 269 159 141 300	9, 045 150 163 313	8, 815 208 257 465	6, 468 232 290 522	4, 471 265 283 548	2, 570 199 262 461	1, 227 145 203 348	460 76 110 186	114 26 40 66	24 11 7 18	8 3 2 5	40
69, 024 375 380 755	59, 983 388 360 748	61, 329 423 410 833	48, 494 388 399 787	47, 460 396 459 767	41, 505 426 459 885	28, 791 467 468 935	25, 595 578 626 1, 204	18, 778 666 692 1, 358	12, 983 780 772 1, 552	7, 865 645 717 1, 362	3, 134 404 441 845	1, 087 211 200 411	238 54 65 119	48 14 18 32	15 4 4 8	41
74, 725 556 552 1, 108	62, 939 512 471 983	60, 887 515 481 996	49, 254 430 424 854	43, 185 399 406 805	33, 812 371 377 748	25, 409 406 391 797	22, 420 490 475 965	16, 541 588 605 1, 193	11, 561 629 639 1, 268	6, 951 580 598 1, 178	3, 165 408 468 876	1, 232 222 242 464	276 55 126 126	66 26 16 42	23 6 8 14	42
18, 227 132 131 263	16, 635 161 138 299	15, 800 150 152 302	12, 224 123 126 249	10, 432 124 113 237	8, 868 100 132 232	6, 618 106 152 258	5, 356 140 148 288	3, 433 152 170 322	2, 151 127 126 253	1, 303 123 126 249	602 89 87 176	253 47 54 101	59 12 21 33	10 3 4 7	..... ..... ..... .....	43
17, 121 130 117 247	15, 134 146 129 275	13, 595 127 127 254	10, 811 93 92 185	8, 654 73 64 137	7, 361 90 77 167	5, 864 88 87 175	4, 802 85 104 189	3, 192 114 115 229	2, 096 119 116 235	1, 399 108 125 233	736 100 124 224	322 50 69 119	64 21 26 47	15 4 8 12	..... ..... ..... .....	44
63, 496 399 310 709	53, 555 402 334 736	54, 208 360 371 731	45, 107 341 321 662	43, 264 351 353 704	33, 501 368 383 751	24, 388 404 435 839	22, 820 541 592 1, 133	16, 749 666 687 1, 353	10, 894 740 782 1, 522	6, 059 589 670 1, 259	2, 557 395 450 845	899 226 209 435	196 63 58 121	51 13 20 33	8 2 3 5	45
62, 992 386 358 774	53, 749 385 354 739	51, 724 402 413 815	43, 556 296 325 621	37, 742 301 333 634	30, 099 338 381 719	22, 052 352 369 721	20, 718 476 533 1, 009	15, 249 543 608 1, 151	10, 706 658 671 1, 329	6, 438 610 631 1, 241	3, 080 473 443 916	1, 261 267 279 546	305 74 109 183	78 24 35 59	16 9 4 13	46
61, 666 437 374 811	63, 461 466 392 858	64, 883 452 459 911	52, 307 373 434 807	46, 547 395 427 822	39, 909 464 518 982	32, 337 543 542 1, 085	24, 657 628 679 1, 307	15, 976 570 652 1, 222	9, 452 533 593 1, 126	5, 225 503 509 1, 012	2, 289 281 319 600	817 168 183 351	197 41 59 100	33 15 9 24	9	47
55, 619 361 316 677	52, 321 310 328 638	49, 107 304 341 645	40, 567 277 303 580	33, 243 270 295 565	28, 250 293 322 615	21, 894 365 353 718	17, 075 363 393 756	10, 992 366 397 763	6, 982 362 374 736	4, 371 357 369 726	1, 971 260 263 523	736 134 151 285	178 57 49 106	26 7 12 19	2 3 3	48
113, 416 544 537 1, 081	104, 206 612 599 1, 211	96, 496 541 593 1, 134	79, 229 524 509 1, 033	73, 708 596 551 1, 147	63, 515 701 691 1, 392	53, 971 871 874 1, 745	44, 953 1, 035 1, 082 2, 117	30, 496 1, 113 1, 143 2, 185	19, 966 1, 042 1, 204 2, 317	12, 594 1, 147 1, 153 2, 300	5, 961 496 947 1, 719	2, 503 496 545 1, 041	611 200 180 380	124 38 34 72	21 6 7 13	49
108, 168 589 557 1, 246	95, 946 543 605 1, 148	85, 515 491 528 1, 019	72, 271 425 476 901	62, 991 480 468 948	55, 374 536 605 1, 141	46, 644 685 727 1, 412	38, 269 817 859 1, 676	27, 179 878 883 1, 761	18, 233 907 1, 011 1, 918	12, 224 997 1, 077 2, 074	6, 176 814 872 1, 686	2, 706 569 535 1, 104	787 218 229 447	149 49 55 104	25 9 14 23	50
833, 151 5, 268 4, 736 10, 004	775, 483 6, 140 5, 356 11, 496	722, 381 6, 758 5, 891 12, 649	567, 992 6, 353 5, 775 12, 128	498, 467 7, 393 6, 712 14, 105	405, 485 7, 700 7, 635 15, 335	280, 373 7, 861 7, 897 15, 758	214, 497 8, 252 8, 390 16, 642	125, 736 7, 096 7, 266 14, 362	76, 189 6, 039 6, 402 12, 441	41, 909 4, 638 4, 894 9, 532	17, 221 2, 614 2, 910 5, 524	6, 028 1, 255 1, 359 2, 614	1, 354 377 416 793	272 89 61 150	35 14 16 30	51
839, 771 5, 872 5, 323 11, 195	717, 328 5, 150 4, 881 10, 031	644, 328 4, 666 4, 579 9, 245	529, 928 4, 650 4, 450 9, 100	451, 898 5, 076 5, 190 10, 266	384, 948 5, 787 5, 859 11, 646	275, 346 6, 020 6, 379 12, 399	216, 974 6, 401 7, 163 13, 564	138, 712 6, 579 7, 087 13, 666	92, 515 6, 399 6, 984 13, 383	54, 547 5, 386 5, 770 11, 156	26, 405 3, 709 4, 091 7, 800	10, 006 1, 880 2, 136 4, 016	2, 490 701 800 1, 501	559 156 205 361	104 24 25 49	52
29, 549 202 159 361	26, 149 217 172 389	24, 294 215 196 411	19, 698 261 178 439	18, 510 302 237 539	15, 318 289 285 574	11, 371 297 317 614	9, 310 356 342 698	5, 999 328 363 691	3, 592 281 325 606	2, 006 230 225 455	770 123 126 249	270 53 57 110	67 14 18 32	14 2 3 5	2	53
29, 771 222 167 389	25, 908 186 170 356	24, 240 178 156 334	20, 313 183 187 370	18, 259 206 207 413	16, 109 217 237 454	11, 917 278 273 551	10, 231 321 310 568	7, 009 321 304 625	4, 632 343 348 691	2, 831 293 315 608	1, 370 185 196 381	497 106 119 225	110 27 43 70	21 7 9 16	5 2 2	54
34, 444 225 201 426	31, 381 296 199 495	29, 811 281 237 518	25, 038 303 252 555	24, 320 393 346 739	19, 747 414 369 785	13, 735 390 407 765	10, 445 422 407 829	6, 407 382 361 743	3, 985 334 356 690	2, 160 239 274 513	847 127 160 287	314 75 75 150	104 23 22 45	13 5 11	1	55
35, 761 293 236 529	30, 506 252 218 470	29, 619 280 236 516	26, 351 270 237 507	23, 721 302 295 597	19, 856 344 328 653	14, 523 318 359 646	11, 384 359 398 757	7, 643 384 409 793	5, 387 372 407 779	3, 296 320 331 651	1, 646 272 262 534	650 126 138 264	168 38 53 91	33 11 15 26	5 1 1 2	56

TABLE 18.

POPULATIONS AND MORTALITY STATISTICS UPON WHICH ALL RATES

Populations and deaths at

No. of life table.	AREA, SEX, COLOR, POPULATION, AND DEATHS.	All ages.	AGE INTERVAL IN YEARS.									
			0-1	1-2	2-3	3-4	4-5	0-5	5 to 10	10 to 15	15 to 20	20 to 25
	WHITE—Continued. CITIES—continued.											
57	Buffalo—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	250,973 3,903 3,858 7,761	5,067 778 769 1,547	5,315 121 140 261	5,316 84 69 153	5,233 55 50 105	5,111 27 31 58	26,042 1,065 1,059 2,124	23,838 128 116 244	21,071 69 64 133	18,908 90 61 151	21,593 105 109 214
58	Buffalo—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	251,069 3,492 3,494 6,986	5,049 609 588 1,197	5,181 123 112 235	5,227 68 56 124	5,233 53 39 92	5,111 45 38 83	25,801 898 833 1,731	23,535 110 109 219	21,214 56 59 115	20,797 86 71 157	24,258 134 149 283
59	Chicago—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,311,243 16,988 17,280 34,268	25,154 3,130 3,121 6,251	26,257 724 612 1,336	27,786 297 315 612	28,353 221 225 446	27,322 170 182 352	134,872 4,542 4,455 8,997	126,667 437 555 992	108,820 248 274 522	94,164 325 386 711	108,202 494 513 997
60	Chicago—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,277,926 14,525 15,269 29,794	24,558 2,411 2,257 4,668	25,818 618 545 1,163	26,900 283 232 515	27,779 195 191 386	26,473 153 158 311	131,528 3,660 3,383 7,043	125,801 346 433 779	108,398 214 221 435	100,951 338 384 722	125,886 674 625 1,299
61	Cleveland—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	394,337 5,065 4,913 9,978	8,056 945 878 1,823	8,901 183 179 362	9,104 80 107 187	8,837 67 64 131	8,395 40 45 85	43,293 1,315 1,273 2,588	38,674 166 135 301	32,881 78 83 161	27,425 103 107 210	34,157 164 130 294
62	Cleveland—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	367,689 4,147 4,303 8,450	8,029 714 701 1,415	8,611 149 162 311	8,816 58 79 137	8,884 45 56 101	8,471 45 44 89	42,811 1,011 1,042 2,053	38,232 140 131 271	32,824 57 64 121	28,957 108 106 214	36,353 219 157 376
63	Detroit—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	515,989 5,691 6,767 12,458	10,919 1,359 1,560 2,919	11,683 238 311 549	11,603 138 145 283	11,057 102 102 204	10,217 59 77 136	55,479 1,896 2,195 4,091	43,325 191 236 427	33,572 90 94 184	34,005 125 186 311	55,329 209 296 505
64	Detroit—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	436,076 5,091 5,893 10,984	10,770 1,030 1,175 2,205	11,460 225 263 488	11,056 105 125 230	10,831 80 89 169	10,091 62 69 131	54,208 1,502 1,721 3,223	42,785 163 202 365	33,252 76 88 164	33,468 144 163 307	47,566 287 326 613
65	Los Angeles—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	268,231 3,866 4,155 8,021	3,482 298 405 703	3,579 42 88 130	3,513 20 23 57	3,576 24 18 47	3,549 21 23 39	17,699 405 571 976	18,979 57 92 149	17,776 56 61 117	17,104 75 91 166	21,408 123 127 250
66	Los Angeles—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	278,633 3,269 3,580 6,849	3,317 238 336 574	3,419 32 71 103	3,585 19 20 52	3,509 20 15 45	3,463 12 15 27	17,293 321 480 801	18,762 56 72 128	18,387 43 48 91	18,952 69 81 150	23,892 145 125 270
67	New Orleans—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	141,790 2,453 2,236 4,689	2,422 246 235 481	2,440 42 42 84	2,485 31 19 50	2,533 12 14 26	2,544 20 9 29	12,424 351 319 670	13,170 35 53 88	13,043 51 41 92	13,277 71 58 129	15,342 92 78 170
68	New Orleans—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	144,126 2,140 1,946 4,086	2,416 185 200 385	2,267 42 33 75	2,496 21 23 44	2,477 19 15 34	2,520 11 12 23	12,176 278 283 561	12,959 29 28 57	13,402 32 20 52	13,818 53 53 106	14,694 116 88 204
69	New York City—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	2,723,217 38,082 36,670 74,752	53,936 5,735 6,066 11,801	54,948 1,240 1,616 2,856	58,036 611 686 1,297	56,940 425 357 782	54,835 354 319 673	278,695 8,365 9,044 17,409	265,466 997 999 1,996	244,969 588 999 1,567	215,387 891 764 1,655	241,018 1,476 1,165 2,641
70	New York City—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	2,736,246 32,889 33,537 66,426	52,410 4,323 4,602 8,925	53,043 1,066 1,404 2,470	56,733 531 622 1,153	55,447 356 406 702	53,828 279 280 559	271,461 6,555 7,314 13,869	262,648 813 825 1,638	242,380 526 516 1,042	229,091 858 768 1,626	285,002 1,586 1,394 2,980
71	Philadelphia—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	839,296 11,867 12,026 23,893	16,744 1,870 1,978 3,848	16,877 363 411 774	17,429 199 184 383	17,289 140 127 267	16,684 95 113 208	85,023 2,667 2,813 5,480	79,608 286 312 598	72,796 167 176 343	65,442 244 219 463	73,800 388 325 713
72	Philadelphia—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	848,884 11,400 11,558 22,958	16,629 1,485 1,415 2,900	16,075 279 333 612	17,169 160 164 324	16,992 129 126 255	16,464 99 106 205	83,929 2,152 2,144 4,296	78,445 270 242 512	72,446 145 141 286	68,397 257 422 499	80,614 511 428 939
73	Pittsburgh—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	276,025 4,630 4,625 9,255	5,763 872 862 1,734	6,096 166 196 362	5,967 72 54 169	6,102 39 54 93	5,746 37 54 91	29,074 1,186 1,263 2,449	27,828 127 154 281	25,044 68 71 139	21,861 94 106 200	23,399 157 173 330
74	Pittsburgh—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	274,236 4,065 4,188 8,253	5,671 669 646 1,315	5,949 166 153 319	6,123 76 67 143	6,080 49 48 97	5,821 29 36 65	29,644 989 950 1,939	27,159 95 121 216	24,775 86 63 149	23,652 90 103 193	26,213 191 194 385
75	St. Louis—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	347,665 4,776 4,995 9,771	5,248 481 570 1,051	5,531 99 102 201	5,746 53 67 120	5,572 40 49 89	5,744 40 36 76	27,841 713 824 1,537	28,584 154 178 332	28,367 77 61 138	27,274 91 107 198	31,362 130 152 282
76	St. Louis—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	354,950 4,119 4,513 8,632	5,028 369 394 763	5,272 85 101 186	5,445 47 59 106	5,514 46 52 98	5,488 24 24 48	26,747 571 630 1,201	28,007 133 128 261	28,431 73 65 138	30,833 90 121 211	36,093 176 196 372

OF MORTALITY AT AGES 7 YEARS AND OVER ARE BASED—Continued.

TABLE 18.

unknown ages are distributed.

AGE INTERVAL IN YEARS.																No. of life table.
25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 to 100	100 years and over.	
25,383	23,497	21,046	16,643	14,752	12,985	9,373	7,218	4,188	2,382	1,300	520	182	36	14	2	57
169	188	199	209	183	253	276	289	215	164	151	85	43	15	5	2	
149	153	179	202	203	229	252	268	265	217	156	100	48	22	1	1	
318	346	378	411	386	482	528	557	480	381	307	185	91	37	5	3	
25,085	21,989	19,178	15,986	13,953	12,245	9,253	7,278	4,576	2,836	1,725	917	334	94	14	1	58
162	174	128	146	139	170	175	210	216	221	196	147	76	21	6	1	
165	149	128	117	180	164	207	223	236	251	180	155	85	31	2	1	
327	323	256	263	319	334	382	453	452	472	376	302	161	52	8	1	
135,598	131,317	120,157	90,759	78,316	64,374	45,491	33,814	18,536	10,726	5,888	2,448	867	185	39	3	59
691	879	1,004	892	1,091	1,139	1,175	1,166	1,011	776	578	329	159	47	13	2	
736	868	881	875	1,038	1,137	1,175	1,279	945	858	661	394	180	59	10	1	
1,427	1,747	1,885	1,767	2,129	2,276	2,350	2,445	1,956	1,634	1,239	723	339	106	23	3	
140,218	119,276	101,346	80,001	68,294	57,891	42,030	31,664	19,242	12,667	7,353	3,592	1,322	361	84	12	60
874	766	638	657	643	841	887	854	864	800	647	453	251	89	26	3	
885	773	721	655	772	865	947	908	945	935	747	552	274	122	28	4	
1,759	1,539	1,359	1,312	1,415	1,706	1,834	1,852	1,809	1,735	1,394	1,005	525	211	54	7	
43,402	40,856	37,511	27,419	22,549	16,728	11,014	8,103	5,005	2,856	1,574	611	238	35	5	1	61
236	309	379	306	323	291	261	287	284	222	183	100	41	12	4	1	
239	285	314	291	286	289	304	281	235	215	187	104	57	14	3	1	
475	594	693	507	609	580	565	583	565	457	370	204	98	26	7	1	
39,524	33,935	29,443	22,207	18,106	14,361	10,367	8,171	5,319	3,486	2,096	967	411	97	18	4	62
255	235	250	170	197	218	205	189	218	201	223	132	77	35	6	1	
243	248	176	186	193	208	222	263	265	265	239	160	85	37	13	1	
498	483	426	356	390	426	427	452	483	466	462	292	162	72	19	1	
70,702	61,237	50,744	32,886	26,056	19,003	12,892	9,411	5,415	3,135	1,710	736	287	48	13	4	63
321	360	316	266	275	240	244	288	259	242	179	111	59	11	5	4	
423	419	397	314	283	329	316	331	280	254	204	123	68	15	2	2	
744	779	713	580	558	569	560	619	539	496	383	234	127	26	7	6	
53,243	43,542	34,087	24,732	19,636	16,004	11,816	8,777	5,684	3,609	2,124	1,016	406	97	22	2	64
379	291	217	217	214	190	224	250	249	233	207	131	81	27	3	2	
432	374	284	224	246	243	242	264	274	262	231	186	85	40	4	2	
811	665	505	441	460	433	466	514	523	495	438	317	166	67	7	4	
25,459	25,758	26,542	21,787	19,764	16,264	12,626	10,481	6,938	4,819	2,969	1,283	461	88	24	2	65
191	251	284	247	247	251	286	329	316	232	237	167	85	24	13	1	
174	185	223	197	237	279	309	352	350	321	270	182	106	23	4	1	
365	436	507	444	484	530	595	681	666	553	507	349	191	47	7	1	
27,260	25,912	25,999	22,582	19,660	17,258	13,195	11,027	7,742	5,377	3,182	1,463	547	126	15	2	66
201	190	187	166	180	189	224	231	262	267	254	174	79	26	5	1	
144	176	178	172	194	231	220	285	286	288	269	195	95	37	4	1	
345	366	365	338	374	420	444	516	548	555	523	369	174	63	9	1	
14,017	11,967	11,357	9,180	8,423	6,954	4,482	3,510	2,116	1,285	780	327	106	24	6	1	67
121	142	154	140	190	175	217	188	169	134	101	63	46	9	3	1	
89	126	130	111	168	189	169	210	161	141	99	58	26	8	2	1	
210	268	284	251	358	364	386	398	330	275	200	121	72	17	5	1	
13,832	11,773	10,977	9,298	8,410	6,824	4,845	4,220	2,870	1,859	1,260	597	242	54	11	5	68
155	129	131	95	117	138	114	135	145	144	136	105	55	25	8	1	
117	76	88	101	101	109	125	167	157	136	122	95	48	23	3	1	
272	205	219	201	218	247	239	302	302	280	258	200	103	48	11	1	
269,037	253,201	237,199	188,768	161,861	132,959	88,774	66,865	37,909	22,439	11,859	4,757	1,604	365	72	13	69
1,879	2,077	2,317	2,138	2,556	2,713	2,660	2,727	2,252	1,927	1,333	752	312	103	26	3	
1,481	1,689	1,887	1,893	2,290	2,700	2,649	2,674	2,281	1,882	1,421	801	357	106	15	5	
3,360	3,766	4,204	4,031	4,846	5,413	5,299	5,401	4,533	3,809	2,754	1,553	669	209	41	8	
283,501	240,250	217,684	177,711	147,865	128,120	87,622	67,948	41,795	27,135	15,148	7,248	2,719	701	179	38	70
2,037	1,733	1,546	1,592	1,765	2,103	2,136	2,165	2,169	2,072	1,570	953	474	191	37	8	
1,716	1,525	1,478	1,484	1,727	1,976	2,155	2,391	2,396	2,228	1,683	1,132	564	199	50	10	
3,753	3,258	3,024	3,076	3,492	4,079	4,291	4,556	4,565	4,300	3,253	2,085	1,038	390	93	18	
81,147	72,583	68,152	56,522	52,740	43,597	30,606	24,702	15,036	9,296	5,082	2,153	756	170	23	2	71
476	526	604	629	719	781	842	937	766	742	570	316	156	39	11	1	
442	508	551	590	660	746	855	986	893	792	583	362	148	57	6	2	
918	1,034	1,155	1,219	1,379	1,527	1,697	1,923	1,659	1,534	1,153	678	304	96	17	3	
81,893	69,607	63,863	56,278	50,398	43,555	31,678	26,307	17,086	11,783	7,151	3,651	1,377	336	75	15	72
544	522	437	502	585	663	685	836	817	824	725	538	255	108	21	3	
558	482	482	460	551	669	806	882	825	911	769	557	275	101	29	4	
1,102	1,004	919	962	1,136	1,332	1,491	1,718	1,642	1,735	1,404	1,095	530	209	50	7	
26,515	24,367	23,567	18,930	16,920	13,344	9,050	6,955	4,123	2,458	1,302	500	144	36	7	1	73
213	242	316	268	315	303	287	277	239	232	187	67	38	11	3	1	
194	243	267	266	269	271	294	298	251	221	155	92	45	10	1	1	
407	485	563	534	584	574	581	575	490	453	342	159	83	21	4	1	
26,630	22,776	21,291	17,787	15,086	12,450	9,078	7,139	4,620	3,054	1,756	781	282	50	11	2	74
247	217	223	195	178	223	209	241	242	237	188	123	66	21	4	1	
213	219	235	195	219	217	252	271	271	233	203	129	74	20	6	1	
460	436	458	390	397	440	461	512	513	470	391	252	140	41	10	1	
34,426	31,652	30,566	25,740	23,521	19,554	14,160	10,800	6,379	3,902	2,198	888	343	83	23	2	75
186	219	248	263	324	319	393	415	402	320	267	145	70	36	4	1	
187	206	271	237	293	346	396	462	388	333	278	158	88	25	4	1	
373	425	519	500	617	665	789	877	790	653	515	308	158	61	8	1	
36,648	32,161	29,314	25,220	21,878	18,788	13,833	10,416	6,924	4,652	2,880	1,396	573	119	31	6	76
218	190	217	202	253	254	262	261	314	274	292	194	108	25	10	2	
227	229	210	186	238	293	279	312	357	341	313	201	136	35	14	2	
445	419	427	388	491	547	541	573	671	615	605	395	244	60	24	4	

TABLE 18. POPULATION AND MORTALITY STATISTICS UPON WHICH ALL RATES

Populations and deaths at

No. of life table.	AREA, SEX, COLOR, POPULATION, AND DEATHS.	All ages.	AGE INTERVAL IN YEARS.									
			0-1	1-2	2-3	3-4	4-5	0-5	5 to 10	10 to 15	15 to 20	20 to 25
	WHITE—Continued. CITIES—continued.											
77	San Francisco—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	260,885 4,501 3,963 8,464	3,204 280 301 581	3,177 34 64 98	3,104 19 34 53	3,192 21 22 43	3,091 22 17 39	15,768 376 438 814	16,509 63 57 120	15,524 45 53 98	18,034 65 103 168	22,332 144 130 274
78	San Francisco—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	229,137 3,026 2,836 5,862	3,064 190 223 413	3,080 42 42 84	3,119 27 24 51	3,041 12 13 25	3,137 20 20 40	15,441 291 322 613	16,328 59 70 129	15,732 38 35 73	15,863 56 47 103	21,848 136 104 240
79	Washington, D. C.—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	152,031 2,179 2,210 4,389	2,566 221 269 490	2,293 36 36 72	2,270 16 20 36	2,224 17 20 37	2,133 24 10 34	11,486 314 355 669	10,705 49 46 95	10,551 24 30 54	11,444 52 42 94	16,390 89 81 170
80	Washington, D. C.—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	174,829 1,927 1,953 3,880	2,433 177 186 363	2,253 31 27 58	2,220 17 11 28	2,173 12 12 24	2,167 16 14 30	11,246 253 250 503	10,803 30 37 67	10,914 27 15 42	12,445 47 30 77	22,167 84 57 141
	NEGROES.											
81	States having less than 4 per cent Negroes—Males: ¹ Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	668,278 13,594 14,854 28,448	10,672 2,022 2,521 4,543	9,647 465 641 1,106	9,268 217 200 417	9,671 99 117 216	9,574 77 75 152	48,832 2,880 3,554 6,434	47,573 274 285 559	44,682 230 226 456	45,992 531 531 1,062	71,208 884 986 1,870
82	States having less than 4 per cent Negroes—Females: ¹ Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	628,941 11,746 12,836 21,582	11,089 1,659 1,955 3,614	9,872 426 634 1,060	9,712 160 189 349	9,884 83 110 193	9,755 84 74 158	50,312 2,412 2,962 5,374	49,216 277 259 536	47,917 267 254 521	50,151 571 503 1,074	73,545 848 890 1,738
83	States having more than 5 per cent Negroes—Males: ² Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,694,317 30,551 29,784 60,335	39,667 6,276 6,548 12,824	37,481 1,390 1,294 2,684	40,411 629 539 1,168	42,075 359 310 669	43,160 254 201 455	202,794 8,908 8,892 17,800	220,498 853 724 1,577	211,299 788 755 1,456	176,118 1,623 1,274 2,897	153,928 1,944 1,797 3,741
84	States having more than 5 per cent Negroes—Females: ² Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	1,734,242 31,407 30,687 62,094	40,631 4,869 5,263 10,132	37,877 1,136 1,158 2,294	40,954 570 499 1,069	43,814 370 324 694	42,187 286 226 512	205,463 7,231 7,470 14,701	221,544 951 804 1,755	212,469 993 755 1,748	190,019 2,081 1,725 3,806	182,522 2,599 2,378 4,977
85	Large cities—Males: ³ Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	454,516 9,719 10,327 20,046	7,098 1,503 1,821 3,324	6,208 323 459 782	5,996 162 158 320	6,186 93 92 185	6,123 54 52 106	31,611 2,135 2,582 4,717	30,556 189 176 365	28,454 165 168 333	30,287 362 340 702	50,827 563 660 1,223
86	Large cities—Females: ³ Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	464,585 9,075 9,964 19,039	7,398 1,136 1,509 2,645	6,403 293 432 725	6,345 131 133 264	6,561 66 75 141	6,316 56 67 123	33,023 1,682 2,216 3,898	32,022 206 181 387	31,941 187 162 349	37,284 460 409 869	59,287 666 741 1,407
87	Original registration states—Males: ⁴ Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	319,926 6,660 7,059 13,719	5,364 1,087 1,327 2,414	4,903 246 346 592	4,752 111 90 201	4,793 69 59 128	4,789 44 40 84	24,601 1,557 1,862 3,419	23,528 126 142 268	21,897 117 110 227	22,543 238 251 489	34,448 455 442 897
88	Original registration states—Females: ⁴ Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	325,598 6,195 6,761 12,956	5,718 881 1,081 1,962	5,014 235 334 569	5,096 89 94 183	4,994 51 57 108	4,860 51 39 90	25,682 1,307 1,605 2,912	24,363 147 146 293	23,501 128 114 242	26,212 268 289 557	38,891 390 450 840
	HAWAII.											
89	All races combined—Males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	151,146 2,305 2,743 5,048	4,417 548 619 1,167	3,965 80 133 213	4,010 45 56 101	3,713 25 34 59	3,401 20 26 46	10,506 718 868 1,586	15,485 61 65 126	11,269 40 37 77	11,552 83 79 162	14,828 129 154 283
90	All races combined—Females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	104,766 1,571 1,857 3,428	4,166 472 466 938	3,998 86 117 203	3,954 29 46 75	3,699 28 44 72	3,243 22 28 50	19,060 637 701 1,338	14,723 82 85 143	10,801 41 37 78	9,102 72 106 178	9,946 106 118 224
91	Japanese males: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	62,644 821 984 1,805	2,162 229 242 471	1,950 40 68 108	2,037 21 28 49	1,801 14 26 40	1,604 12 17 29	9,554 316 381 697	6,844 25 21 46	4,500 14 14 28	4,417 31 25 56	3,321 26 29 55
92	Japanese females: Population, Jan. 1, 1920..... Deaths, 1919..... Deaths, 1920..... Deaths, 1919 and 1920.....	46,630 568 663 1,231	2,060 183 176 359	1,925 44 51 95	2,016 15 23 38	1,766 11 18 29	1,471 6 13 19	9,238 259 281 540	6,683 23 37 60	4,126 12 16 28	3,439 27 33 60	4,271 49 44 93

¹ The states with less than 4 per cent Negro population are Connecticut, Massachusetts, New York, Michigan, Wisconsin, Minnesota, Washington, Oregon, California, Utah, Kansas, Illinois, Indiana, Ohio, Pennsylvania, and New Jersey.

² The states with more than 5 per cent Negro population are Maryland, Virginia, North Carolina, South Carolina, Tennessee, Kentucky, and Missouri.

OF MORTALITY AT AGES 7 YEARS AND OVER ARE BASED—Continued.

TABLE 18.

unknown ages are distributed.

AGE INTERVAL IN YEARS.															100 years and over.	No of life table.
25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 65	65 to 70	70 to 75	75 to 80	80 to 85	85 to 90	90 to 95	95 to 100		
26,632 208 173 381	27,508 329 198 527	28,668 346 273 619	23,431 331 247 578	20,203 366 272 638	16,117 389 341 730	11,167 415 335 750	8,159 399 337 736	4,813 311 298 609	3,249 264 265 529	1,674 210 227 437	750 138 137 275	267 76 60 136	67 22 17 39	12 4 2 6	1	77
25,280 190 138 328	23,483 182 170 352	22,417 151 162 287	18,576 165 182 327	15,257 199 177 381	12,330 180 177 357	8,916 193 195 388	6,953 242 238 480	4,376 229 195 424	3,151 240 219 459	1,823 196 194 390	913 162 133 295	331 70 76 146	92 39 31 70	23 7 12 19	4	78
16,840 150 89 239	14,010 105 100 205	12,767 95 105 200	11,191 100 122 222	10,532 109 130 239	8,541 143 125 268	5,632 128 151 279	4,724 172 148 320	2,872 162 149 311	2,065 169 202 371	1,407 173 154 327	631 91 113 204	189 42 44 86	46 11 20 31	7 1 3 4	1	79
21,125 95 82 177	16,210 83 72 155	14,870 79 71 150	12,886 90 79 169	11,375 98 85 183	9,157 92 126 218	6,264 110 128 238	5,459 150 161 311	3,826 149 167 316	2,887 171 160 331	1,922 139 138 278	848 140 138 278	315 56 82 138	85 29 28 57	22 5 10 15	3	80
78,426 898 977 1,875	68,097 911 920 1,831	76,535 1,206 1,270 2,476	54,483 973 1,067 2,040	51,215 1,109 1,073 2,182	32,150 877 932 1,809	17,848 620 654 1,274	12,479 580 587 1,167	7,965 483 527 1,010	5,171 418 444 862	3,361 374 368 742	1,330 169 235 404	594 109 118 227	196 36 56 92	76 16 23 39	65	81
78,488 896 927 1,823	63,953 799 828 1,627	64,503 874 960 1,834	45,686 740 808 1,548	35,183 673 799 1,472	24,772 709 696 1,405	14,842 562 647 1,209	11,279 501 566 1,067	7,707 447 484 931	5,272 405 453 858	3,217 299 322 621	1,562 198 218 416	774 125 130 255	284 85 67 152	139 26 32 58	139	82
125,346 1,641 1,513 3,154	97,550 1,446 1,352 2,798	112,710 1,720 1,563 3,283	85,369 1,392 1,309 2,701	93,645 1,649 1,525 3,174	71,661 1,564 1,721 3,285	43,143 1,156 1,261 2,417	38,623 1,290 1,337 2,627	27,098 1,259 1,263 2,522	17,314 1,164 1,271 2,435	9,594 865 910 1,775	4,435 626 654 1,280	1,879 308 365 673	717 173 199 372	335 85 86 171	261	83
146,465 2,335 2,062 4,397	110,943 1,839 1,833 3,672	119,756 2,026 1,897 3,923	89,890 1,680 1,663 3,363	74,122 1,585 1,552 3,137	57,093 1,502 1,526 3,028	34,801 1,167 1,157 2,324	31,155 1,182 1,249 2,431	22,185 1,106 1,148 2,254	16,278 1,004 1,092 2,096	9,181 742 770 1,512	5,252 583 665 1,248	2,193 335 364 699	1,240 217 255 472	489 97 102 199	582	84
58,412 634 711 1,345	50,158 702 734 1,436	54,981 981 968 1,949	38,589 748 763 1,511	35,198 893 816 1,709	20,305 697 723 1,420	10,052 450 432 882	6,751 377 407 784	3,792 309 287 596	2,295 212 247 459	1,361 170 146 316	526 66 86 152	236 36 46 82	78 17 19 36	26 10 11 21	21	85
63,435 778 791 1,569	50,404 636 711 1,347	50,536 763 792 1,555	34,498 644 678 1,322	25,944 601 686 1,287	17,298 611 612 1,223	9,617 404 481 925	7,585 261 427 831	4,654 294 341 635	3,337 261 277 538	1,896 191 194 385	963 115 128 243	492 62 71 133	207 34 33 67	93 16 19 35	69	86
38,209 466 442 908	32,692 442 424 866	35,433 535 554 1,089	25,649 446 484 930	23,287 488 490 987	14,888 409 411 820	8,294 308 302 610	5,861 285 297 582	3,782 251 259 510	2,319 212 214 426	1,526 169 162 331	603 85 107 192	233 43 57 100	81 13 26 39	27 8 7 15	25	87
40,387 471 456 927	33,276 400 440 840	33,670 464 507 971	23,952 410 416 826	18,544 357 405 762	13,216 390 374 764	7,747 291 339 647	6,111 229 336 627	4,127 253 257 510	2,865 152 245 474	1,605 152 169 321	804 105 99 204	393 68 55 123	133 25 29 54	62 14 17 27	57	88
11,645 97 167 264	12,934 127 128 255	11,833 123 180 303	11,921 148 156 304	10,978 159 205 364	7,520 139 183 322	4,543 131 119 250	3,779 124 130 254	1,888 83 105 188	797 49 63 112	390 43 42 85	146 24 31 55	76 16 17 33	22 2 12 14	16 7 1 8	18	89
9,859 124 174 298	7,761 100 138 238	7,087 97 122 219	5,648 67 79 146	4,145 55 65 120	2,551 43 48 91	1,541 30 32 62	1,098 33 43 76	651 29 37 66	365 22 24 46	209 29 16 45	121 15 11 26	54 7 9 16	19 11 7 18	15 6 4 10	10	90
2,392 16 26 42	6,732 47 63 110	5,827 52 78 130	6,691 69 75 144	5,254 72 86 153	3,774 62 91 153	1,802 43 51 94	1,170 36 24 60	294 9 16 25	51 3 2 5	16 1 1 1	1 1 1 1	3 1 1 1	1 1 1 1	1 1 1 1	1	91
4,786 60 69 129	3,942 43 65 108	3,413 37 41 78	3,079 23 35 58	1,917 17 19 36	1,072 8 18 26	454 5 2 7	157 5 3 8	41 5 3 7	5 5 3 7	4 5 3 7	2 5 3 7	1 5 3 7	1 5 3 7	1 5 3 7	1	92

¹ The 12 cities included in "large cities" for Negroes are Boston, Buffalo, Detroit, Chicago, St. Louis, New Orleans, Cleveland, Pittsburgh, Philadelphia, New York, Baltimore, and Washington.

² The original registration states include New England states, New York, New Jersey, District of Columbia, Indiana, and Michigan.

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- births among white population in, 1916–1920:
 - number registered and adjusted number of, life table nos. 43 and 44 in table 17, p. 58.
- excess of rate of mortality among white males over that among white females in, line 23, table 11, p. 28.
- life table values for white—
 - males in, life table no. 43 in tables 3, 5, 7, 9, pp. 12, 16, 20, 24.
 - females in, life table no. 44 in tables 4, 6, 8, 10, pp. 14, 18, 22, 26.
- Negro population of, included in life tables for Negroes in states with less than 4 per cent Negro population, section 3, p. 8.
- original statistics for life tables for white in:
 - ages under 3 years, life table nos. 43 and 44 in table 17, p. 58.
 - ages 7 years and over, life table nos. 43 and 44 in table 18, p. 66.
- not compiled in the Bureau of the Census, lines 31, 32, table 16A, p. 54.
- white population of, included in life tables for aggregate white, section 3, p. 8.

Variation in values for life table functions due to variation in age group of original statistics and to the different processes applied to them, table 2, p. 10.

Vertical lines:

- ages of generations measured by, p. 31.
- cross out numbers on left of split in adding machine that are not needed, pp. 39, 41, 43, 45, 47.
- indicate position of decimal point on adding machine tape, tape 41, p. 51.

Virginia:

- births among white population in, 1916–1920:
 - number registered and adjusted number of, life table nos. 45 and 46 in table 17, p. 58.
- excess of rate of mortality among white males over that among white females in, line 24, table 11, p. 28.
- life table values for white—
 - males in, life table no. 45 in tables 3, 5, 7, 9, pp. 12, 16, 20, 24.
 - females in, life table no. 46 in tables 4, 6, 8, 10, pp. 14, 18, 22, 26.
- Negro population of, included in life tables for Negroes in states with more than 5 per cent Negro population, section 3, p. 8.
- original statistics for life tables for white in:
 - ages under 3 years, life table nos. 45 and 46 in table 17, p. 58.
 - ages 7 years and over, life table nos. 45 and 46 in table 18, p. 66.
- not compiled in the Bureau of the Census, lines 33 to 35, table 16A, p. 54.
- white population of, included in life tables for aggregate white, section 3, p. 8.

w , last age in life table, section 13, p. 35.

$w_x = \sum_{z=0}^{x+4} u_z$, section 12, p. 34; section 23, p. 42.

Washington:

- births among white population in, 1916–1920:
 - number registered and adjusted number of, life table nos. 47 and 48 in table 17, p. 58.
- excess of rate of mortality among white males over that among white females in, line 25, table 11, p. 28.
- life table values for white—
 - males in, life table no. 47 in tables 3, 5, 7, 9, pp. 12, 16, 20, 24.
 - females in, life table no. 48 in tables 4, 6, 8, 10, pp. 14, 18, 22, 26.
- Negro population of, included in life tables for Negroes in states with less than 4 per cent Negro population, section 3, p. 8.
- original statistics for life table for white in:
 - ages under 3 years, life table nos. 47 and 48 in table 17, p. 58.
 - ages 7 years and over, life table nos. 47 and 48 in table 18, p. 66.
- not compiled in the Bureau of the Census, lines 36 to 38, table 16A, p. 54.
- white population of, included in life tables for aggregate white, section 3, p. 8.

Washington, D. C.:

- births among white population in, 1916–1920:
 - number registered and adjusted number of, life table nos. 79 and 80 in table 17, p. 60.
- excess of rate of mortality among white males over that among white females in, line 41, table 11, p. 28.
- investigation of children registered as born in, during 1919, p. 9.
- life table values for white—
 - males in, life table no. 79 in tables 3, 5, 7, 9, pp. 12, 16, 20, 24.
 - females in, life table no. 80 in tables 4, 6, 8, 10, pp. 14, 18, 22, 26.
- Negro population of, included in life tables for Negroes in the original registration states and for Negroes in large cities, section 3, pp. 8, 9.
- original statistics for life tables for white in:
 - ages under 3 years, life table nos. 79 and 80 in table 17, p. 60.
 - ages 7 years and over, life table nos. 79 and 80 in table 18, p. 70.
- white population of, included in life tables for aggregate white in cities and white in original registration states, section 3, p. 8.

White population:

- life tables computed separately for, and Negroes, p. 7; section 3, p. 8.
- separate constants for correcting census returns for children under 1 year of age obtained for, and Negroes, p. 9.

Wisconsin:

- births among white population in, 1916-1920:
 - number registered and adjusted number of, life table nos. 49 and 50 in table 17, p. 58.
- excess of rate of mortality among white males over that among white females in, line 26, table 11, p. 28.
- life table values for white—
 - males in, life table no. 49 in tables 3, 5, 7, 9, pp. 12, 16, 20, 24.
 - females in, life table no. 50 in tables 4, 6, 8, 10, pp. 14, 18, 22, 26.
- Negro population of:
 - included in life tables for Negroes in states with less than 4 per cent Negro population, section 3, p. 8.
 - was 0.6 per cent of total population on January 1, 1920, p. 7.

Wisconsin—Continued.

- original statistics for life tables for white in:
 - ages under 3 years, life table nos. 49 and 50 in table 17, p. 58.
 - ages 7 years and over, life table nos. 49 and 50 in table 18, p. 66.
 - not compiled in the Bureau of the Census, lines 39 to 41, table 16A, p. 54.
 - rate of mortality at age 22 among males lowest among white males in, p. 7.
 - white population of, included in life tables for aggregate white, section 3, p. 8.
- $$\bar{u}_n = \sum_{x=14}^x u_x, \text{ section 10, p. 34.}$$

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