DEPARTMENT OF COMMERCE AND LABOR

BUREAU OF THE CENSUS

E. DANA DURAND, DIRECTOR

BULLETIN 108

MORTALITY STATISTICS: 1909

DEATHS ❧ CAUSES OF DEATH ❧ COMPARISONS WITH 1908 ❧ DEATHS OF INFANTS AND YOUNG CHILDREN ❧ OCCUPATIONAL MORTALITY

WASHINGTON

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1910

BULLETINS OF THE PERMANENT CENSUS.

1. Geographical distribution of population: 1880, 1890, 1900.
2. Cotton ginned in the United States: 1899 to 1902.
*3. Street and electric railways: 1902.
4. A discussion of increase of population: Twelfth Census.
*5. Central electric light and power stations: 1902.
*6. Mineral industries of Porto Rico: 1902.
7. Estimates of population of the larger cities: 1901, 1902, 1903.
8. Negroes of the United States: Twelfth Census.
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NOTE.—Bulletins in this list, except those marked with an asterisk (*), may be obtained upon application to the Director of the Census.

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LETTER OF TRANSMITTAL.

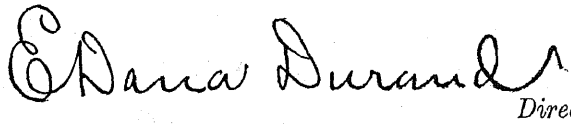
DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF THE CENSUS,
Washington, D. C., September 15, 1910.

SIR:

I have the honor to transmit Census Bulletin 108, on Mortality Statistics, 1909. It presents advance information in regard to some of the most important facts derived from the annual compilation of deaths, and compares the results of registration for the year 1909 with corresponding figures for the previous years. The annual report is somewhat delayed by the necessity of waiting for population data for the purpose of computing rates, but many comparisons of interest may be made on the basis of the number of deaths returned. The year was the most favorable on record, the death rate for the entire registration area being only 15 per 1,000 of provisionally estimated population. The mortality was distributed with great uniformity throughout the year, no epidemics of more than very local prevalence having occurred.

The bulletin was prepared by Dr. Cressy L. Wilbur, chief statistician for vital statistics of this bureau.

Very respectfully,



Director.

Hon. CHARLES NAGEL,
Secretary of Commerce and Labor.

MORTALITY STATISTICS: 1909.

INTRODUCTION.

Some difficulty is encountered in the preparation of this bulletin, which is the second one prepared for the purpose of presenting advance information in regard to the annual compilation of deaths, for the reason that estimates of population are not available as is usually the case for the computation of rates. The census of population was taken as of April 15, 1910, and in a supplementary table (Table 11) are presented the figures for the population of all areas for which the data are available at the time of closing this bulletin, and also estimated midyear populations for 1909, so that rates may be computed for certain areas. The number of such areas, however, is not sufficient to warrant the general presentation of rates in this bulletin, and it was deemed advisable to proceed with the publication of the data derived from the returns without waiting for the completion of the compilation of the population data for additional areas. These will be given in the annual report for 1909, now in preparation.

The usefulness of the bulletin in presenting early information in regard to the returns of registration for each year has been greatly appreciated, and, with the continued cooperation of state and city registration officials in making prompt return of transcripts by months during the year of registration, it will be possible to publish the bulletin in future years at a still earlier date. Such publication, moreover, enables additional time to be devoted to the preparation of the annual report, so that a more thorough analysis of the statistics can be given in that publication. It is intended, moreover, to make the bulletin a medium for the presentation of rules and instructions of general interest to registration officials as, for example, the Rules of Statistical Practice adopted by the American Public Health Association, Section on Vital Statistics, at its recent session at Milwaukee, Wis., September 5 to 9, 1910, which may be found beginning on page 37, together with the rules adopted at the previous meetings.

SOURCES OF DATA.

For the year 1909 the registration area of the United States included the following states:

California.	Massachusetts.	Pennsylvania.
Colorado.	Michigan.	Rhode Island.
Connecticut.	New Hampshire.	South Dakota.
Indiana.	New Jersey.	Vermont.
Maine.	New York.	Washington.
Maryland.	Ohio.	Wisconsin.

In addition to the states given in this list, returns of deaths were received from 54 cities in nonregistration states, in which registration under local ordinances was considered satisfactory. In 1908 there were 74 such cities, the decrease to 54 in 1909 being due to the admission of Ohio as a registration state, which caused the 20 cities of that state formerly shown among the registration cities in nonregistration states to be included in the group of cities in registration states. The District of Columbia, which is coterminous with the city of Washington, is not included in the list of separate registration cities. For most purposes it is treated as a city, but in the tables showing groups of registration states the District of Columbia is included as a state area.

EXTENSION OF THE REGISTRATION AREA.

The aggregate estimated population of the registration area for the year 1909 is 48,776,893, or 55.3 per cent of the total estimated population of continental United States (88,262,446). The growth of the registration area and its proportion to the total population of the United States for each year since its constitution in 1880 may be seen in the following table:

YEAR.	Population of continental United States.	POPULATION OF REGISTRATION AREA.	
		Number.	Per cent.
Calendar year 1909	88,262,446	48,776,893	55.3
Calendar year 1908	86,874,990	45,028,707	51.8
Calendar year 1907	85,532,761	41,758,037	48.8
Calendar year 1906	83,941,510	40,996,317	48.8
Calendar year 1905	82,574,195	33,757,811	40.9
Calendar year 1904	81,261,856	33,135,453	40.8
Calendar year 1903	79,922,397	32,536,989	40.7
Calendar year 1902	78,589,669	31,908,655	40.6
Calendar year 1901	77,292,021	31,292,130	40.5
Calendar year 1900	75,994,575	30,765,618	40.5
Census year 1899–1900		28,807,269	37.9
Census year 1889–1890	62,622,250	19,659,440	31.4
Census year 1879–1880	50,155,783	8,538,366	17.0

As shown in the preceding table the registration area, which contained 40.5 per cent of the total population of the United States for the calendar year 1900, has increased until considerably more than one-half of the total population is now represented. The term "registration area" does not refer to a fixed group of states and cities with populations of uniform age, sex, or other distribution, but is a term of variable meaning corresponding to the growth and changes in the areas included. From 1900 to 1905 no additions were made, so that the slight increase in the proportion of reporting population was due to the greater growth of

the registration area as compared with the total population of the country.

For the year 1906 a large addition was made, namely, the states of California, Colorado, Maryland, Pennsylvania, and South Dakota. No further change of importance was made until 1908, for which year the states of Washington and Wisconsin were added. The last change during the intercensal decade, namely, the addition of Ohio, occurred for 1909. Each of these additions of registration states has increased the proportion of rural population so that the registration area as constituted for the year 1909 is quite different in some respects from the original registration area of 1900. This fact must be taken into consideration in comparing the crude rates for the successive years of the past decade, and, of course, the large additions of population must be considered in examining the actual number of deaths registered for each year.

ESTIMATES OF POPULATION FOR 1909.

Vital statistics are significant chiefly through comparisons with statistics of population, and the absence of estimates of population for the year 1909 is a very serious handicap to the study of the registration returns. This year is the only one in the course of the decade for which such data have not been available in advance of the compilation of the mortality returns. While estimated populations obtained on the bases of the censuses of 1890 and 1900, as used for the reports for the years 1901 to 1908, could have been prepared for 1909, the long interval since the last completed census (1900) renders the estimates of population obtained for remote postcensal years open to much question, and it is preferable, therefore, to wait until the results of the census of 1910 shall be available, so that intercensal estimates of population can be computed for the year 1909.

In Table 11 may be found a comparison of the population as enumerated on June 1, 1900, and April 15, 1910, and the estimated midyear population for 1909 for all areas for which the results of the latest census are available at the time of going to press with this bulletin. In connection with the population data the general death rates are given. Attention is called especially to the column showing the estimated *midyear* population for 1909, since this is the first midyear population introduced into the annual mortality statistics. Heretofore all estimates have been for June 1, since the censuses were taken as of that date and it was not regarded as of practical importance to attempt to make allowance for the interval between June 1 and the middle of the year. The presentation of estimates for the midyear population for 1909 makes it necessary that some of the estimates for previous years should be revised on the same basis and that all estimates for future years shall be made for the middle of the year, our methods in this respect now coming into agreement with those of foreign countries.

As an example of the differences in various processes that might be used for the estimation of populations depending on the selection of the point in the census year from which to reckon, the following table is given showing a comparison of several methods of estimating population as applied to the District of Columbia for the intercensal period 1900 to 1910 and the postcensal period 1910 to 1920:

YEAR AND EXACT DATE OF CENSUS OR ESTIMATE.	METHOD I. Present estimates based on censuses of June 1, 1890, and June 1, 1900.	METHOD II. Revised estimates based on census of June 1, 1900, and estimate for June 1, 1910.	METHOD III. Revised estimates based on censuses of June 1, 1900, and April 15, 1910.	METHOD IV. Revised estimates based on census of June 1, 1900, and estimate for July 1, 1910.	METHOD V. Revised estimates based on estimates for July 1, 1900, and July 1, 1910.
1890 (June 1)	***230,392**				
1891	235,225				
1892	240,057				
1893	244,890				
1894	249,722				
1895	254,555				
1896	259,388				
1897	264,220				
1898	269,053				
1899	273,885				
1900 June 1	***278,718**	***278,718**	***278,718**	***278,718**	
1900 July 1, estimated					*279,160
1901	283,551	284,019	283,953	284,064	284,461
1902	288,383	289,321	289,188	289,409	289,763
1903	293,216	294,622	294,423	294,755	295,064
1904	298,048	299,924	299,658	300,100	300,365
1905	302,881	305,225	304,894	305,446	305,667
1906	307,714	310,526	310,129	310,791	310,968
1907	312,546	315,828	315,364	316,137	316,269
1908	317,379	321,129	320,599	321,482	321,570
1909	322,211	326,431	325,834	326,828	326,872
1910 April 15			***331,069**		
1910 June 1, estimated	327,044	*331,732			
1910 July 1, estimated				*332,173	*332,173
1911		337,033	336,304	337,519	337,474
1912		342,335	341,539	342,864	342,776
1913		347,636	346,774	348,210	348,077
1914		352,938	352,009	353,555	353,378
1915		358,239	357,245	358,901	358,680
1916		363,540	362,480	364,246	363,981
1917		368,842	367,715	369,592	369,282
1918		374,143	372,950	374,937	374,583
1919		379,445	378,185	380,283	379,885
1920 March 1, estimated			383,420		
1920 June 1, estimated	375,370	384,746			
1920 July 1, estimated				385,628	385,186

In the above table census figures are printed in boldfaced type and the annual average increase in each column is taken between the figures distinguished by asterisks as the bases for the estimated populations.

Method I represents the method of estimating population used up to the present time. The enumerated populations for the census years 1890 and 1900, both taken as of June 1, are used as the bases. The difference between these populations, divided by 10, represents the annual average increase from June 1, 1890, to June 1, 1900. This difference added successively to each of the years 1891 to 1899 gives the estimated population for each year of the *intercensal* period, and the continued addition of the same annual average to the years 1901 to 1909 or 1910 would give the *postcensal* estimates on the same basis, that for the year 1910 (June 1) being 327,044, or only 4,025 less than the actual enumerated population (April 15), 331,069.

The postcensal estimates by this method have been used in the annual reports for 1901 to 1908, and there would have been little objection to using the estimate for 1909 in this individual case, but for some areas the difference might have been considerable and the intercensal estimate for 1909, based upon the censuses of 1900 and 1910, is more desirable.

Method II shows how the estimates as of June 1 might be supplied for the intercensal period 1900 to 1910 and continued for future years by estimating the population as of June 1 from the enumeration of April 15, 1910, and comparing as usual with the former census of June 1, 1900.

Method III is an objectionable one, but is shown because registration officials may attempt perhaps to make estimates by direct comparison of the population as enumerated June 1, 1900, and April 15, 1910, without regarding the differences in dates of enumeration. While it is true that in many cities population resident on April 15 is more nearly the correct midyear population than would be the population actually enumerated as of July 1, it is certain that for the country as a whole considerable growth takes place between April 15 and the middle of the year. Consequently, if we compare an enumeration of June 1, 1900, with an enumeration not ten years later but less than ten years later by one and one-half months, it is evident that the estimated population on this basis ten years subsequent, or for 1920, would be for three months prior to June 1, or as of March 1.

Method IV. Another method would be to obtain the midyear estimate for 1910 and compare it directly with the enumeration of June 1, 1900, disregarding the differences in dates for the intercensal period 1900 to 1910, then continuing with midyear estimates. This would be fairly satisfactory, although it would seem preferable to adopt the plan next in order.

Method V, which has been adopted by the Bureau of the Census for the intercensal estimates from 1900, or from the date of the latest state census, to 1910, and for future estimates of population beginning with 1911, is the midyear estimate, or that of approximately July 1. It makes necessary a slight computation before using the actual results of enumeration according to the census of April 15, 1910, but the estimated midyear populations for 1900 and 1910 once having been obtained the subsequent interpolations or extrapolations are very simple. No change is proposed in the arithmetic method, or that of the annual average increase, which has given good results for the past decade and is more applicable to the observed method of growth of population of this country than the geometric method.

The process of estimating the midyear populations for 1900 and 1910 from the census enumerations as of June 1 and April 15, respectively, is very simple. In former estimates, when each census was of date June 1, the interval between them was exactly ten years, or 120 months. The interval between the census of June 1, 1900, and the census of April 15, 1910, is not 120 months, but only 118.5 months; dividing the observed increase of population for a given area by 118.5, the average monthly increase during the decade is obtained. This monthly increase added to the population June 1, 1900, gives the midyear population for 1900, and two and one-half times the monthly increase added to the population of April 15, 1910, gives the midyear population for 1910. One-tenth of the difference between the two midyear populations is then added successively for the intercensal years 1900 to 1910 and the postcensal years beginning with 1911. Suitable allowance must of course be made for changes of area.

SUMMARY OF RESULTS.

Under this head will be discussed the general relations of the deaths returned, while in subsequent sections the particulars of importance relative to causes of death and to occupations of decedents will be considered. No rates are presented in the text, except for the registration area as a whole, for which large aggregate it is considered that the error due to estimation of population may be inconsiderable. The present text will be restricted necessarily, therefore, to a discussion of the differences that may appear from a comparison of the actual deaths returned for 1909 and previous years, chiefly 1908, since the variations due to changes of population in the course of a single year may be neglected.

DEATHS AND PROVISIONAL DEATH RATES FOR THE YEAR 1909.

The total number of deaths returned for the registration area for the year 1909 was 732,538, an increase of 40,964 from the number returned for 1908 (691,574). As shown in Table 7, however, upon the basis of the old estimates of population which are being used until the revised estimates shall become available, the death rate for 1909 (15) was lower than that for 1908 (15.4), and, in fact, was lower than that for any previous year of registration and probably the lowest that has ever occurred in the history of the United States. It is a fact of much interest, as showing the general prevalence of extremely favorable conditions for human life, that the death rate of England and Wales for 1909 (14.5) was the lowest on record for that country, while the rate for the city of London (14) was even lower, thus showing the fallacy of the opinion sometimes expressed that high death rates are necessarily found in great cities. The diminution of death from certain causes to which the credit for the low mortality of the past year is due will be discussed under the division of the bulletin relating to causes of death.

AREA.	NUMBER OF DEATHS.			INCREASE (+) OR DECREASE (−).	
	1909	1908	1907	1909 over 1908	1908 over 1907
The registration area	732,538	691,574	687,034	+40,964	+ 4,540
Registration cities	457,188	448,113	464,673	+ 9,075	−16,560
Registration states	630,057	567,245	550,245	+62,812	+17,000
Cities in registration states	354,707	323,784	327,884	+30,923	− 4,100
Rural part of registration states	275,350	243,461	222,361	+31,889	+21,100
Registration cities in other states	102,481	124,329	136,789	−21,848	−12,460
Registration states:					
California	30,964	31,264	31,088	− 300	+ 176
Colorado	11,040	10,923	11,079	+ 117	− 156
Connecticut	16,479	15,991	17,478	+ 488	− 1,487
Indiana	34,519	34,029	34,302	+ 490	− 273
Maine	11,500	11,503	11,932	− 3	− 429
Maryland	19,931	20,177	20,802	− 246	− 625
Massachusetts	51,096	51,523	53,870	− 427	− 2,347
Michigan	36,260	36,505	36,403	− 245	+ 102
New Hampshire	7,256	7,157	7,469	+ 99	− 312
New Jersey	36,310	35,526	37,274	+ 784	− 1,748
New York	140,073	138,883	146,882	+ 1,190	− 7,999
Ohio	60,670	(1)	(1)	(1)	(1)
Pennsylvania	111,062	112,246	115,969	− 1,184	− 3,723
Rhode Island	8,288	8,271	9,009	+ 17	− 738
South Dakota	4,814	4,946	4,649	− 132	+ 297
Vermont	5,579	5,639	5,696	− 60	− 57
Washington	10,706	9,566	(1)	+ 1,140	(1)
Wisconsin	27,294	26,960	(1)	+ 334	(1)
Registration cities of 100,000 population or over in 1900:					
San Francisco, Cal	6,151	6,260	6,575	− 109	− 315
Denver, Colo	3,526	3,668	3,614	− 142	+ 54
New Haven, Conn	2,217	2,121	2,290	+ 96	− 169
Washington, D. C	6,216	6,136	6,343	+ 80	− 207
Chicago, Ill	31,296	30,388	32,198	+ 908	− 1,810
Indianapolis, Ind	3,287	3,171	3,451	+ 116	− 280
Louisville, Ky	3,456	3,740	4,146	− 284	− 406
New Orleans, La	6,770	7,345	7,633	− 575	− 288
Baltimore, Md	10,387	10,416	11,182	− 29	− 766
Boston, Mass	11,056	11,752	11,704	− 696	+ 48
Fall River, Mass	2,235	2,346	2,384	− 111	− 38
Worcester, Mass	2,214	2,329	2,594	− 115	− 265
Detroit, Mich	6,309	5,882	6,062	+ 427	− 180
Minneapolis, Minn	3,147	3,077	2,959	+ 70	+ 118
St. Paul, Minn	2,413	2,187	2,238	+ 226	− 51
Kansas City, Mo	3,489	3,165	3,333	+ 324	− 168
St. Joseph, Mo	1,062	1,023	1,103	+ 39	− 80
St. Louis, Mo	10,739	9,783	10,389	+ 956	− 606
Omaha, Nebr	1,797	1,589	1,588	+ 208	+ 1
Jersey City, N. J	4,406	4,430	4,734	− 24	− 304
Newark, N. J	5,571	5,236	5,759	+ 335	− 523
Paterson, N. J	1,882	1,871	1,835	+ 11	+ 36
Buffalo, N. Y	6,331	6,231	6,629	+ 100	− 398
New York, N. Y	74,263	72,995	79,036	+ 1,268	− 6,041
Bronx Borough	6,451	6,323	6,344	+ 128	− 21
Brooklyn Borough	24,417	23,900	26,019	+ 517	− 2,119
Manhattan Borough	38,031	37,707	41,231	+ 324	− 3,524
Queens Borough	3,846	3,569	3,843	+ 277	− 274
Richmond Borough	1,518	1,496	1,599	+ 22	− 103
Rochester, N. Y	3,064	2,812	3,065	+ 252	− 253
Syracuse, N. Y	1,947	2,043	1,919	− 96	+ 124
Cincinnati, Ohio	5,938	6,450	6,423	− 512	+ 27
Cleveland, Ohio	6,975	6,994	7,717	− 19	− 723
Columbus, Ohio	2,365	2,489	2,470	− 124	+ 19
Toledo, Ohio	2,414	2,368	2,424	+ 46	− 56
Allegheny, Pa	(2)	(2)	2,552	(3)	(3)
Philadelphia, Pa	25,029	25,926	27,476	− 897	− 1,550
Pittsburg, Pa	8,343	9,030	7,378	− 687	+ 4900
Scranton, Pa	2,081	2,051	1,926	+ 30	+ 125
Providence, R. I	3,535	3,574	4,006	− 39	− 432
Memphis, Tenn	2,348	2,320	2,448	+ 28	− 128
Milwaukee, Wis	4,938	4,446	4,640	+ 492	− 194

[1] Nonregistration.
[2] Annexed to Pittsburg, December 9, 1907.
[3] Included in Pittsburg.
[4] Includes Allegheny.

In the absence of rates for the main subdivisions of the registration area, registration states, and registration cities, comparison may be made of the actual number of deaths returned for the past three years and a statement given as to the increase or decrease of 1909 compared with the preceding year and of that year compared with 1907.

The increase of 40,964 deaths for 1909 as compared with 1908 is due in part to the increase of population by natural growth or immigration, but chiefly to the addition of those portions of the state of Ohio which were not comprised in the registration cities of that state previously included in the registration area. In proportion to the provisionally estimated population the number of deaths was less for 1909 than for 1908. No comparison can be made of the number of deaths for the main subdivisions of the registration area so far as they are affected by the transfer of the Ohio cities from the registration cities in other states to the cities in registration states.

With a normal growth of population and the maintenance of a stationary death rate, it may be expected that each area will show an increase in the number of deaths from year to year. Consequently, for those registration states that show a decrease in the number of deaths it is certain that the death rates were lower in the later year. The largest decreases in the number of deaths in 1909 compared with 1908 are those of Pennsylvania (1,184), Massachusetts (427), California (300), Maryland (246), and Michigan (245). States showing the largest increases are New York (1,190), Washington (1,140), New Jersey (784), Indiana (490), and Connecticut (488). Taken in connection with the general size and population of these states, the increase in mortality is not marked except for Washington, and in this case, since the state was admitted to the registration area only in 1908, it may indicate an increase in completeness of registration.

Among the registration cities having a population of at least 100,000 in 1900, the largest numerical increases occurred for New York, N. Y. (1,268), St. Louis, Mo. (956), and Chicago, Ill. (908). Such amounts of increase are insignificant, especially when they are considered in connection with the large amounts of decrease for 1908 compared with 1907 for the same large cities. Among the cities with the largest amounts of decrease in the actual number of deaths returned for 1909 as compared with the previous year are Philadelphia, Pa. (897), Boston, Mass. (696), Pittsburg, Pa. (687), New Orleans, La. (575), and Cincinnati, Ohio (512). The continued decrease in the number of deaths in Philadelphia is noteworthy, the decrease for the year 1908 compared with 1907 having been 1,550.

DEATHS BY SEX AND AGE.

The per cent distribution of the deaths that occurred in the registration area during the year 1909 is shown by sex and age, together with the comparative figures for 1908, in the following table:

SEX AND AGE.	1909		1908	
	Number of deaths.	Per cent.	Number of deaths.	Per cent.
Aggregate	732,538	100.0	691,574	100.0
Sex:				
Male	398,597	54.4	375,497	54.3
Female	333,941	45.6	316,077	45.7
Age:				
Under 1 year	140,057	19.1	136,432	19.7
1 year	30,279	4.1	27,833	4.0
2 years	12,659	1.7	12,415	1.8
3 years	7,853	1.1	7,739	1.1
4 years	5,686	0.8	5,446	0.8
Under 5 years	196,534	26.8	189,865	27.5
5 to 9 years	16,142	2.2	15,822	2.3
10 to 14 years	10,761	1.5	10,588	1.5
15 to 19 years	18,138	2.5	18,145	2.6
20 to 24 years	27,303	3.7	27,137	3.9
25 to 29 years	29,733	4.1	28,635	4.1
30 to 34 years	29,905	4.1	29,056	4.2
35 to 39 years	32,965	4.5	31,188	4.5
40 to 44 years	32,115	4.4	30,506	4.4
45 to 49 years	34,646	4.7	32,717	4.7
50 to 54 years	36,428	5.0	34,128	4.9
55 to 59 years	37,007	5.1	34,738	5.0
60 to 64 years	42,475	5.8	39,417	5.7
65 to 69 years	46,649	6.4	41,506	6.0
70 to 74 years	45,610	6.2	41,306	6.0
75 to 79 years	41,989	5.7	37,419	5.4
80 to 84 years	29,680	4.1	27,219	3.9
85 to 89 years	16,533	2.3	14,787	2.1
90 to 94 years	5,486	0.7	4,932	0.7
95 years and over	1,645	0.2	1,502	0.2
Unknown	794	0.1	901	0.1

Of the 732,538 deaths registered for the year 1909, 398,597, corresponding to 54.4 per cent of the total, were deaths of males. This ratio is practically identical with that shown for males in 1908 (54.3 per cent). The age distribution by quinquennial periods shows a slightly lower proportion of deaths of children under 5 years of age for 1909 (26.8 per cent) than for the preceding year (27.5 per cent). This is due to a somewhat lower ratio of deaths of infants under 1 year of age in the later (19.1) than in the earlier year (19.7). The quinquennial percentages for all periods up to and including 45 to 49 years are either the same for 1909 and 1908 or a trifle lower in 1909, and consequently the proportions at the higher ages up to 85 to 89 years are greater for 1909 than for 1908, the largest amount of difference being for the five-year period 65 to 69. While the ratios shown in this table are not as satisfactory as specific death rates based upon the population at each age, they may serve to indicate in a general way the relations of the number of deaths at various periods of life to the mortality of the year.

DEATHS OF INFANTS AND YOUNG CHILDREN.

Of the total number of deaths that occurred in 1909 (732,538), no less than 196,534, or 26.8 per cent, were of children under 5 years of age, and 140,057, or 19.1 per cent, were of infants under 1 year of age. The proportion of deaths of children under 5 years of age to the total number of deaths that occurred in the year is far greater than that of any other five-year period, a fact which does not indicate necessarily that the actual mortality or death rate per 1,000 persons living is higher at that period than at certain other periods, especially at the more advanced ages. A consideration of the deaths at the early years of life, however, is of special importance, not only because of the large number of deaths that occur during these years, but also because the number of deaths that are entirely preventable is probably greater proportionally for this period than for any other period of life, and the causes which produce them are now being successfully combated. Great progress has been made in the reduction of infant mortality in England and other countries during recent years, and an organization, known as the American Association for the Study and Prevention of Infant Mortality, has been formed lately in this country for the purpose of coordinating all of the sanitary agencies available with a view to reducing the number of preventable deaths of infants. It is extremely desirable that for such an important purpose reliable statistics of infant mortality should be available for the entire registration area, and as soon as possible for the entire United States, with which the registration area for deaths will ultimately be coterminous. The correct statement of *infant mortality*, which term used technically denotes the number of deaths of infants under 1 year of age per 1,000 living births, depends on the accurate registration of births, which is scarcely to be found in the United States.

When the proper statement of infant mortality is lacking, recourse may be had to the ratio between the number of deaths of infants under 1 year of age and the population under 1 year, although this ratio is unsatisfactory for many reasons, and the population under 1 year is not available except by estimation for intercensal years. A very crude means of judging of the condition as regards the general extent of infant and child mortality is to compare the total number of deaths of infants under 1 year and of children under 5 years of age with the total number of deaths registered. Other things being equal—that is to say, with substantially similar populations with respect to age distribution and in the absence of epidemic diseases prevailing at higher age periods—the relative proportions of deaths of infants and children to the total number of deaths should show approximately the prevalence of infantile diseases and the importance of reducing the general mortality by efforts directed toward the prevention of infant mortality.

In Table 2 a detailed statement relative to the age distribution of deaths for the year 1909 is given for each portion of the registration area. From this table the following table has been computed, which shows the percentages of deaths of infants under 1 year and of children under 5 years of age to the total number of deaths in each subdivision of the registration area, registration state, and registration city:

REGISTRATION AREA.	OUT OF EVERY 100 DEATHS AT ALL AGES IN 1909 THERE WERE—	
	Under 1 year.	Under 5 years.
TOTAL.		
The registration area	19	27
Registration cities	20	28
Registration states	19	27
Cities in registration states	20	29
Rural part of registration states	18	24
Registration cities in other states	18	26
REGISTRATION STATES.		
California	11	15
Colorado	17	24
Connecticut	20	27
Indiana	16	23
Maine	17	21
Maryland (total)	22	30
White	21	28
Colored	24	34
Massachusetts	21	28
Michigan	20	27
New Hampshire	19	24
New Jersey	21	31
New York	19	27
Ohio	17	23
Pennsylvania	23	33
Rhode Island	22	30
South Dakota	23	33
Vermont	16	20
Washington	16	23
Wisconsin	21	28
REGISTRATION CITIES.		
ALABAMA.		
Birmingham (total)	18	28
White	19	30
Colored	17	26
Mobile (total)	15	21
White	12	18
Colored	18	23
Montgomery (total)	15	23
White	16	25
Colored	15	21
CALIFORNIA.		
Alameda	10	14
Berkeley	14	19
Fresno (total)	21	27
White	21	28
Colored	19	22
Los Angeles	11	15
Oakland	12	16
Pasadena	7	10
Sacramento	15	19
San Diego	9	12
San Francisco (total)	12	17
White	12	16
Colored	11	17
San Jose	12	16
Stockton	6	8
COLORADO.		
Colorado Springs	11	16
Denver	13	17
Leadville	31	38
Pueblo	21	29
CONNECTICUT.		
Ansonia	30	43
Bridgeport	25	33
Bristol town	25	35
Danbury town	16	21
Greenwich town	19	30
Hartford	15	20
Manchester town	21	23
Meriden town	14	20
Middletown town	15	22
Naugatuck	30	38
New Britain	38	46
New Haven	19	28
New London	16	21
Norwalk town	17	22
Norwich town	16	21
Stamford town	21	32
Stonington town	20	24
Torrington town	29	42
Vernon town	19	24
Wallingford town	29	35
Waterbury	30	39
Windham town	28	40

REGISTRATION AREA.	OUT OF EVERY 100 DEATHS AT ALL AGES IN 1909 THERE WERE—	
	Under 1 year.	Under 5 years.
REGISTRATION CITIES—Con.		
DELAWARE.		
Wilmington (total)	23	32
White	23	32
Colored	21	33
DISTRICT OF COLUMBIA.		
Washington (total)	17	23
White	14	19
Colored	21	29
FLORIDA.		
Jacksonville (total)	14	21
White	14	19
Colored	14	22
Key West (total)	27	35
White	25	33
Colored	31	38
GEORGIA.		
Atlanta (total)	18	26
White	18	27
Colored	18	26
Savannah (total)	20	26
White	14	19
Colored	23	29
ILLINOIS.		
Aurora	15	21
Belleville	16	21
Chicago (total)	20	30
White	21	30
Colored	11	17
Decatur	12	17
Evanston	16	22
Jacksonville	7	10
Ottawa	10	13
Quincy	11	14
Springfield	13	21
INDIANA.		
Anderson	16	23
Columbus	9	15
Elkhart	13	17
Elwood	24	38
Evansville (total)	15	22
White	16	22
Colored	11	21
Fort Wayne	14	18
Hammond	32	39
Huntington	14	19
Indianapolis (total)	14	19
White	13	18
Colored	15	24
Jeffersonville (total)	17	26
White	15	25
Colored	25	29
Kokomo	20	29
Lafayette	8	11
Logansport	13	19
Marion	19	23
Michigan City	25	30
Muncie	17	22
New Albany	15	19
Peru	15	18
Richmond	13	17
South Bend	26	34
Terre Haute	15	22
Vincennes	19	32
Wabash	17	26
Washington	24	30
KANSAS.		
Kansas City (total)	19	26
White	19	26
Colored	15	23
Leavenworth (total)	14	19
White	15	19
Colored	11	18
Wichita	17	23
KENTUCKY.		
Covington	12	18
Louisville (total)	12	19
White	13	20
Colored	11	17
Newport	12	19
Paducah (total)	15	25
White	16	26
Colored	15	25

REGISTRATION AREA.	OUT OF EVERY 100 DEATHS AT ALL AGES IN 1909 THERE WERE—	
	Under 1 year.	Under 5 years.
REGISTRATION CITIES—Con.		
LOUISIANA.		
New Orleans (total)	16	21
White	16	21
Colored	15	20
MAINE.		
Auburn	16	20
Augusta	14	18
Bangor	11	16
Bath	16	23
Biddeford	29	38
Lewiston	25	32
Portland	16	21
Rockland	10	12
Waterville	31	38
MARYLAND.		
Annapolis (total)	28	35
White	18	21
Colored	34	44
Baltimore (total)	22	30
White	21	29
Colored	22	32
Cumberland (total)	22	31
White	21	31
Colored	26	39
Frederick (total)	14	19
White	14	18
Colored	15	22
Hagerstown (total)	23	32
White	24	33
Colored	13	30
MASSACHUSETTS.		
Adams town	32	43
Amesbury town	12	13
Arlington town	8	13
Attleboro town	25	30
Beverly	15	26
Boston (total)	19	27
White	19	27
Colored	17	25
Brockton	26	32
Brookline town	6	9
Cambridge	18	25
Chelsea	18	24
Chicopee	39	50
Clinton town	18	27
Danvers town	6	6
Everett	16	24
Fall River	39	50
Fitchburg	25	36
Framingham town	16	26
Gardner town	20	23
Gloucester	20	26
Haverhill	15	22
Holyoke	37	44
Hyde Park town	20	25
Lawrence	33	45
Leominster town	27	32
Lowell	26	36
Lynn	17	23
Malden	19	26
Marlboro	18	23
Medford	14	19
Melrose	11	15
Milford town	16	21
Natick town	13	17
New Bedford	34	47
Newburyport	9	14
Newton	17	23
North Adams	21	28
Northampton	15	19
Peabody town	18	22
Pittsfield	19	23
Plymouth town	20	30
Quincy	20	27
Revere town	24	34
Salem	21	27
Somerville	15	22
Southbridge town	33	44
Springfield	20	26
Taunton	20	26
Wakefield town	22	29

REGISTRATION AREA.	OUT OF EVERY 100 DEATHS AT ALL AGES IN 1909 THERE WERE—	
	Under 1 year.	Under 5 years.
REGISTRATION CITIES—Con.		
MASSACHUSETTS—continued.		
Waltham	13	20
Ware town	30	43
Watertown town	18	25
Webster town	31	36
Westfield town	29	33
Weymouth town	13	17
Woburn	14	20
Worcester	20	25
MICHIGAN.		
Adrian	12	15
Alpena	26	34
Ann Arbor	10	13
Battle Creek	14	17
Bay City	20	26
Detroit	29	37
Escanaba	29	36
Flint	22	29
Grand Rapids	20	26
Iron Mountain	31	43
Ironwood	36	51
Ishpeming	27	39
Jackson	14	17
Kalamazoo	15	19
Lansing	17	25
Manistee	22	24
Marquette	20	25
Menominee	14	22
Muskegon	18	22
Owosso	20	26
Pontiac	9	16
Port Huron	17	20
Saginaw	17	24
Sault Ste. Marie	30	39
Traverse City	9	11
MINNESOTA.		
Duluth	22	30
Mankato	13	18
Minneapolis	15	22
St. Paul	19	27
Winona	14	20
MISSOURI.		
Kansas City (total)	17	22
White	17	23
Colored	14	20
St. Joseph	14	19
St. Louis (total)	16	23
White	16	24
Colored	12	18
NEBRASKA.		
Lincoln	19	26
Omaha	16	22
NEW HAMPSHIRE.		
Berlin	46	52
Concord	10	13
Dover	15	17
Keene	13	14
Laconia	21	26
Manchester	31	42
Nashua	33	42
Portsmouth	13	19
Rochester	22	28
NEW JERSEY.		
Atlantic City (total)	18	24
White	17	21
Colored	22	32
Bayonne	31	44
Bloomfield	17	27
Bridgeton	14	23
Camden	22	30
East Orange	14	18
Elizabeth	27	40
Hackensack	18	27
Harrison	25	40
Hoboken	20	32
Jersey City	22	35
Kearny	10	17
Long Branch (total)	16	19
White	16	20
Colored	16	16
Millville	25	30
Montclair	23	30
Morristown	22	28
New Brunswick	30	40
Newark	20	32

REGISTRATION AREA.	OUT OF EVERY 100 DEATHS AT ALL AGES IN 1909 THERE WERE—	
	Under 1 year.	Under 5 years.
REGISTRATION CITIES—Con.		
NEW JERSEY—continued.		
Orange	20	30
Passaic	42	55
Paterson	19	28
Perth Amboy	39	52
Phillipsburg	13	19
Plainfield	15	24
Trenton	23	30
Union	18	25
West Hoboken	24	38
NEW YORK.		
Albany	13	18
Amsterdam	26	31
Auburn	16	19
Batavia	17	22
Binghamton	15	21
Buffalo	23	32
Cohoes	25	38
Corning	19	24
Cortland	18	19
Dunkirk	24	29
Elmira	9	14
Geneva	14	16
Glens Falls	16	20
Gloversville	12	16
Hornell	8	10
Hudson	19	24
Ithaca	10	15
Jamestown	13	19
Johnstown	9	13
Kingston	14	18
Little Falls	23	27
Lockport	12	16
Middletown	9	13
Mount Vernon	20	30
New Rochelle	23	34
New York (total)	21	33
Bronx Borough	15	24
Brooklyn Borough	20	32
Manhattan Borough	23	35
Queens Borough	22	33
Richmond Borough	20	29
New York (white)	21	33
Bronx Borough	15	24
Brooklyn Borough	20	32
Manhattan Borough	23	35
Queens Borough	22	33
Richmond Borough	20	29
New York (colored)	23	34
Bronx Borough	10	15
Brooklyn Borough	22	33
Manhattan Borough	25	37
Queens Borough	24	30
Richmond Borough	14	24
Newburg	14	20
Niagara Falls	27	34
North Tonawanda	34	47
Ogdensburg	13	16
Olean	18	25
Oswego	22	27
Peekskill	24	33
Plattsburg	24	34
Port Jervis	9	14
Poughkeepsie	15	21
Rochester	14	22
Rome	16	22
Saratoga Springs	9	11
Schenectady	25	35
Syracuse	21	26
Troy	14	20
Utica	22	28
Watertown	19	23
Watervliet	18	27
Yonkers	27	40
NORTH CAROLINA.		
Raleigh (total)	16	25
White	11	18
Colored	20	32
Wilmington (total)	27	35
White	26	34
Colored	27	36
OHIO.		
Akron	19	24
Alliance	21	31
Ashtabula	28	38
Bellaire	25	48
Cambridge	14	20

REGISTRATION AREA.	OUT OF EVERY 100 DEATHS AT ALL AGES IN 1909 THERE WERE—	
	Under 1 year.	Under 5 years.
REGISTRATION CITIES—Con.		
OHIO—continued.		
Canton	19	28
Chillicothe	11	14
Cincinnati (total)	14	19
White	14	18
Colored	14	23
Cleveland	24	32
Columbus	13	18
Dayton	18	23
East Liverpool	23	35
Elyria	24	29
Findlay	14	17
Fremont	14	18
Hamilton	18	24
Ironton	17	30
Lancaster	14	20
Lima	21	24
Lorain	34	51
Mansfield	16	20
Marietta	20	24
Marion	18	23
Massillon	19	25
Middletown	19	28
Newark	17	22
Piqua	13	14
Portsmouth	19	29
Sandusky	13	16
Springfield (total)	12	16
White	14	17
Colored	7	15
Steubenville	23	34
Tiffin	13	18
Toledo	16	21
Warren	8	14
Wellston	23	32
Xenia	17	24
Youngstown	28	41
Zanesville	16	21
OREGON.		
Portland (total)	16	22
White	16	22
Colored	8	11
PENNSYLVANIA.		
Allentown	24	33
Altoona	25	32
Beaver Falls	24	35
Braddock	29	55
Bradford	13	17
Butler	26	38
Carbondale	23	31
Carlisle (total)	14	19
White	15	18
Colored	13	25
Chambersburg	11	18
Chester (total)	27	35
White	28	35
Colored	25	35
Columbia	17	24
Danville	18	25
Dubois	29	35
Dunmore	39	54
Duquesne	40	66
Easton	16	20
Erie	24	34
Harrisburg	17	24
Hazleton	28	39
Homestead	39	57
Johnstown	28	43
Lancaster	18	24
Lebanon	18	25
McKeesport	31	43
Mahanoy City	38	51
Meadville	13	20
Mount Carmel	39	58
Nanticoke	38	56
Newcastle	26	35
Norristown	12	15
Oil City	25	31
Philadelphia (total)	20	28
White	20	28
Colored	25	35
Phoenixville	24	35
Pittsburg (total)	23	33
White	23	33
Colored	18	29
Pittston	24	45
Plymouth	36	50

REGISTRATION AREA.	OUT OF EVERY 100 DEATHS AT ALL AGES IN 1909 THERE WERE—	
	Under 1 year.	Under 5 years.
REGISTRATION CITIES—Con.		
PENNSYLVANIA—continued.		
Pottstown	17	22
Pottsville	15	19
Reading	19	25
Scranton	25	36
Shamokin	25	40
Sharon	25	36
Shenandoah	46	61
South Bethlehem	42	55
Steelton (total)	34	46
White	35	48
Colored	29	29
Sunbury	16	23
Titusville	16	18
Warren	11	16
West Chester (total)	11	16
White	9	13
Colored	17	26
Wilkes-Barre	21	32
Wilkinsburg	15	25
Williamsport	16	23
York	19	25
RHODE ISLAND.		
Central Falls	35	51
Cranston town	7	9
Cumberland town	18	22
East Providence town	33	39
Lincoln town	24	31
Newport	19	24
Pawtucket	24	30
Providence	21	30
Warwick town	25	31
Woonsocket	35	44
SOUTH CAROLINA.		
Charleston (total)	22	33
White	13	24
Colored	25	36
SOUTH DAKOTA.		
Sioux Falls	22	28

REGISTRATION AREA.	OUT OF EVERY 100 DEATHS AT ALL AGES IN 1909 THERE WERE—	
	Under 1 year.	Under 5 years.
REGISTRATION CITIES—Con.		
TENNESSEE.		
Knoxville (total)	19	27
White	19	27
Colored	19	27
Memphis (total)	12	18
White	11	18
Colored	14	18
Nashville (total)	16	25
White	18	27
Colored	14	22
TEXAS.		
Galveston (total)	16	21
White	19	24
Colored	10	12
San Antonio (total)	22	29
White	21	29
Colored	23	27
UTAH.		
Ogden	23	28
Salt Lake City	17	26
VERMONT.		
Barre	14	26
Bennington town	11	15
Burlington	33	39
Rutland	16	19
VIRGINIA.		
Alexandria (total)	18	27
White	22	31
Colored	15	22
Danville (total)	18	32
White	19	34
Colored	17	30
Lynchburg (total)	23	32
White	16	25
Colored	30	39
Manchester (total)	21	31
White	21	31
Colored	21	32

REGISTRATION AREA.	OUT OF EVERY 100 DEATHS AT ALL AGES IN 1909 THERE WERE—	
	Under 1 year.	Under 5 years.
REGISTRATION CITIES—Con.		
VIRGINIA—continued.		
Norfolk (total)	20	26
White	18	25
Colored	21	27
Petersburg (total)	26	36
White	23	35
Colored	28	36
Richmond (total)	22	28
White	19	24
Colored	25	32
WASHINGTON.		
Seattle	15	21
Spokane	17	25
Tacoma	15	22
Walla Walla	19	30
WEST VIRGINIA.		
Wheeling	16	23
WISCONSIN.		
Appleton	17	20
Ashland	18	22
Beloit	11	18
Chippewa Falls	12	18
Eau Claire	8	16
Fond du Lac	18	25
Green Bay	28	35
Janesville	13	16
Kenosha	34	43
La Crosse	14	17
Madison	13	19
Manitowoc	20	27
Marinette	31	38
Merrill	23	30
Milwaukee	27	39
Oshkosh	18	22
Racine	19	27
Sheboygan	16	22
Stevens Point	23	30
Superior	21	31
Watertown	13	18
Wausau	22	29

In general, one death out of five that occurred during the year 1909 was of an infant under 1 year of age, and a little more than one death in four (27 per cent) was of a child under 5 years of age. The registration cities showed slightly higher, and the rural part of the registration states slightly lower, proportions than those for the registration area as a whole.

The percentages of deaths of infants under 1 year to the total number of deaths for all ages range from 11 for California to 23 for Pennsylvania and South Dakota, while for children under 5 years of age the range is from 15 per cent for California to 33 per cent for Pennsylvania and South Dakota. The colored population of Maryland, the only state for which a comparison of white and colored is available, shows still higher ratios, namely, 24 per cent for infants under 1 year of age and 34 per cent for children under 5. The low proportion of deaths of infants in California may be explainable in part by high proportions of deaths from tuberculosis and other diseases at more advanced periods of life and perhaps the relatively small proportion of children. The high ratios for Pennsylvania and South Dakota are related to the high birth rates of those states.

For individual cities it happens frequently that the presence of an institution, in which many deaths at advanced ages occur, lowers the proportion of deaths of infants and children, although the infant and child mortality may be fairly high. Such a table as this, therefore, is only suggestive and does not possess the value that a properly constructed table of infant mortality would have, but it does show, in many instances, that relative to the total mortality the number of deaths occurring at those ages is large and indicates what proportion of the total mortality can be prevented by restrictive measures aimed at the prevention of children's diseases.

As stated by Dr. Arthur Newsholme, Medical Officer of the Local Government Board of England, in his recent report on "Infant and Child Mortality:"[1]

> The subject of child mortality is of national importance. As shown by the statement below, one out of three deaths at all ages occurs under 5 years of age, one out of five during infancy, and one out of nine total deaths at all ages occurs under 3 months of age.
>
> Infant mortality is the most sensitive index we possess of social welfare and of sanitary administration, especially under urban conditions.
>
> A heavy infant mortality implies a heavier death rate up to 5 years of age; and right up to adult life the districts suffering from a heavy child mortality have higher death rates than the districts whose infant mortality is low.
>
> A careful study of the death rate of England and Wales during the last fifty years at each of the first five years of life leaves it doubtful whether any appreciably greater selection or "weeding out"

[1] Thirty-ninth Annual Report of Local Government Board, 1909–10; supplement to the report of the board's medical officer containing a report by the medical officer on infant and child mortality: London, 1910.

is exercised by a heavier than by a lighter infant mortality. Any such effect, if it exists, is concealed behind the overwhelming influence exerted by the evil environment to which children are exposed in districts of high infant mortality. It is strictly correct, therefore, to say that a high infant mortality implies a high prevalence of the conditions which determine national inferiority.

Under the subject of Causes of Death are stated the age distribution for individual causes and the proportion of deaths due to each cause at successive periods of life, and especially for the early years.

DEATHS BY COLOR AND NATIVITY.

The following table shows, for the past two years, the number of deaths and their per cent distribution with respect to color and nativity of the decedents:

COLOR, NATIVITY, AND PARENT NATIVITY.	1909		1908	
	Number of deaths.	Per cent.	Number of deaths.	Per cent.
Aggregate	732,538	100.0	691,574	100.0
White	686,230	93.7	645,562	93.3
Native	497,537	67.9	464,085	67.1
Both parents native	252,268	34.4	231,745	33.5
One or both parents foreign	180,626	24.7	171,637	24.8
Parentage unknown	61,058	8.3	56,683	8.2
Parentage not stated	3,585	0.5	4,020	0.6
Foreign	178,788	24.4	171,834	24.9
Unknown	9,905	1.4	9,643	1.4
Colored	46,308	6.3	46,012	6.7
Negro	43,240	5.9	43,113	6.2
Indian	1,435	0.2	1,306	0.2
Chinese	997	0.1	984	0.1
Japanese	636	0.1	609	0.1

A slight increase in the proportion of deaths of white persons may be due to the addition of new registration territory. Nearly 94 per cent of the deaths registered are those of white persons, and nearly 6 per cent are those of negroes, while the percentages of deaths of Indians, Chinese, and Japanese are so small as to be entirely negligible.

DEATHS BY MONTHS OF OCCURRENCE.

Table 1 shows for each division of the registration area the monthly distribution of deaths from all causes. This table is of service not only as a means of showing the distribution of the general mortality throughout the year, but also as a check list for comparing the compilations of the states and cities for the calendar year. Returns are now received monthly from the larger registration offices, and the reports are checked up each month so that absolute agreement should be secured between the census compilation and the compilations made by the states or individual cities. The largest number of deaths returned for any month, as shown in Table 1, was that for the month of March (70,093). Since the calendar months differ in length, a comparison of the relative mortality by months should take this fact into consideration as is done in the following table, which shows the average daily number of deaths for each month for the registration area, its main subdivisions, registration states, and registration cities with populations of at least 100,000 in 1900:

AREA.	AVERAGE DAILY NUMBER OF DEATHS: 1909.[1]											
	Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
The registration area	2,007	2,026	2,111	**2,261**	2,196	1,979	*1,809*	1,944	2,017	1,939	1,907	1,848	2,050
Registration cities	1,253	1,267	1,301	**1,380**	1,345	1,239	*1,148*	1,241	1,243	1,179	1,196	1,172	1,321
Registration states	1,726	1,746	1,823	**1,954**	1,902	1,695	*1,546*	1,676	1,733	1,674	1,635	1,579	1,754
Cities in registration states	972	986	1,014	**1,073**	1,051	955	*885*	973	959	914	924	903	1,025
Rural part of registration states	754	759	809	**882**	851	740	*661*	703	774	760	711	676	730
Registration cities in other states	281	280	287	**307**	294	284	*268*	268	284	265	271	269	296
Registration states:													
California	85	91	90	91	86	84	83	78	*77*	78	81	86	**93**
Colorado	30	33	33	**34**	32	30	*28*	*28*	31	29	29	*28*	30
Connecticut	45	44	47	**51**	50	43	*40*	46	48	43	*40*	42	47
Indiana	95	90	99	**111**	106	90	*83*	97	102	90	91	*83*	93
Maine	32	32	32	**38**	35	32	29	*27*	29	31	32	29	31
Maryland	55	55	54	61	63	50	52	**64**	59	51	49	*47*	51
Massachusetts	140	146	148	**159**	147	139	127	*129*	148	136	131	*129*	142
Michigan	99	96	101	**115**	**115**	102	*87*	88	107	106	94	*87*	95
New Hampshire	20	18	21	**23**	22	21	20	19	18	22	20	*17*	18
New Jersey	99	103	104	**109**	106	95	*86*	104	102	94	96	90	104
New York	384	383	399	424	**430**	393	*353*	365	375	363	357	360	402
Ohio	166	166	174	**191**	181	161	*145*	170	171	160	158	149	169
Pennsylvania	304	318	339	**350**	332	279	*257*	308	306	287	287	275	314
Rhode Island	23	24	24	**25**	24	*20*	21	23	24	23	21	*20*	23
South Dakota	13	14	14	**17**	15	14	*11*	*11*	13	14	13	12	*11*
Vermont	15	14	16	19	**21**	18	*13*	*13*	15	14	15	*13*	14
Washington	29	27	29	29	32	28	*26*	27	30	**34**	32	29	29
Wisconsin	75	74	79	**87**	**87**	79	69	*61*	67	82	76	65	70
Registration cities of 100,000 population or over in 1900:													
San Francisco, Cal	17	18	**19**	**19**	17	17	16	15	15	*14*	17	18	18
Denver, Colo	10	**11**	**11**	**11**	9	9	*8*	8	9	9	10	9	**11**
New Haven, Conn	6	6	7	6	7	6	6	6	6	*5*	6	6	6
Washington, D. C	17	17	18	**19**	**19**	16	18	17	*14*	16	15	*14*	**19**
Chicago, Ill	86	90	88	**97**	95	86	75	*73*	87	86	84	82	88

[1] Deaths in unknown month (44) distributed. Maxima in **bold face**; minima in *italics*.

AREA.	AVERAGE DAILY NUMBER OF DEATHS: 1909.[1]											
	Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Registration cities of 100,000 population or over in 1900—Continued.													
Indianapolis, Ind	9	8	9	**10**	9	9	*7*	**10**	**10**	8	8	9	**10**
Louisville, Ky	9	10	10	**11**	9	*8*	**11**	10	*8*	*8*	*8*	9	**11**
New Orleans, La	19	**21**	20	18	18	20	18	18	*16*	*16*	17	19	**21**
Baltimore, Md	28	29	27	**32**	**32**	27	*25*	**32**	29	27	27	*25*	29
Boston, Mass	30	34	31	**37**	34	30	27	*26*	29	27	28	*26*	33
Fall River, Mass	6	7	6	6	6	*5*	6	**9**	7	6	6	*5*	*5*
Worcester, Mass	6	6	6	6	**7**	6	6	6	**7**	6	*5*	6	6
Detroit, Mich	17	16	16	19	19	16	*15*	18	**20**	17	17	16	18
Minneapolis, Minn	9	9	9	**10**	**10**	9	*6*	7	8	9	**10**	8	9
St. Paul, Minn	7	6	7	7	7	**8**	*5*	6	**8**	**8**	6	6	7
Kansas City, Mo	10	9	10	**11**	10	9	*8*	10	10	*8*	9	9	**11**
St. Joseph, Mo	3	3	3	4	3	3	*2*	2	3	3	*2*	*2*	3
St. Louis, Mo	29	30	**33**	32	31	28	*27*	29	30	*27*	29	29	29
Omaha, Nebr	5	*4*	*4*	5	**6**	*4*	*4*	5	7	*4*	5	5	5
Jersey City, N. J	12	**14**	13	**14**	**14**	11	11	13	11	11	*10*	11	12
Newark, N. J	15	15	15	16	16	15	*12*	14	15	14	16	15	**18**
Paterson, N. J	5	**6**	**6**	*5*	**6**	5	*4*	**6**	5	*4*	5	*4*	**6**
Buffalo, N. Y	17	17	17	16	17	17	*15*	18	18	18	18	18	**21**
New York, N. Y	203	203	208	226	**232**	207	191	199	193	*180*	189	195	218
Bronx Borough	18	17	19	20	**21**	17	18	18	18	*16*	*16*	*16*	17
Brooklyn Borough	67	68	67	71	71	67	62	71	62	*61*	*61*	67	**75**
Manhattan Borough	104	105	109	120	**126**	110	98	93	97	*89*	97	98	111
Queens Borough	11	*9*	10	11	10	10	10	**13**	12	*9*	11	10	11
Richmond Borough	4	4	4	**5**	**5**	4	*3*	**5**	**5**	4	4	4	4
Rochester, N. Y	8	**9**	**9**	**9**	8	**9**	8	8	8	**9**	*7*	8	**9**
Syracuse, N. Y	5	5	5	**6**	**6**	**6**	5	5	**6**	**6**	5	*4*	**6**
Cincinnati, Ohio	16	17	17	**18**	**18**	16	*15*	16	*15*	*15*	*15*	*15*	17
Cleveland, Ohio	19	18	19	**21**	**21**	18	*17*	**21**	20	18	18	*17*	20
Columbus, Ohio	6	*6*	*6*	**8**	7	*6*	*6*	*6*	*6*	*6*	7	7	7
Toledo, Ohio	7	7	7	6	6	7	*5*	7	**8**	7	7	7	7
Philadelphia, Pa	69	77	**82**	78	75	65	61	72	*57*	59	62	61	74
Pittsburg, Pa	23	24	22	22	22	22	21	24	*20*	*20*	24	23	**28**
Scranton, Pa	6	6	6	**7**	6	*5*	*5*	**7**	**7**	*5*	*5*	*5*	*5*
Providence, R. I	10	10	**11**	**11**	**11**	9	9	10	9	*8*	9	9	10
Memphis, Tenn	6	**7**	6	6	6	**7**	**7**	**7**	6	*5*	6	**7**	**7**
Milwaukee, Wis	14	13	14	14	**15**	**15**	14	13	14	**15**	13	*12*	*12*

[1] Deaths in unknown month (44) distributed. Maxima in **bold face**; minima in *italics*.

In the above table the highest monthly average for each area is printed in bold-faced type, and the lowest in italics, so that the points of maximum and minimum mortality for the year can be seen readily. For the great majority of states and cities shown in the table, March is the month having the most deaths, and June possesses in almost equal degree the honor of being the month of lowest mortality. The unusually favorable character of the year with respect to the absence of epidemics or special causes of mortality prevalent in certain months is shown by the fact that in many areas the differences between the maximum and minimum numbers are slight. The seasonable distribution of mortality can not be known definitely from the examination of the returns of a single year, nor are the figures from the smaller registration areas of special significance. For the main subdivisions of the registration area it may be of interest to express the relative monthly deaths in the form of a ratio to the average month taken as a standard, or 100 per cent, which would correspond to 1.200 deaths per annum.

AREA.	MONTHLY DEATHS CORRESPONDING TO 1,200 ANNUAL DEATHS: 1909.[1]											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
The registration area	101	105	**113**	109	99	*90*	97	100	97	95	92	102
Registration cities	101	104	**110**	107	99	*92*	99	99	94	96	94	105
Registration states	101	106	**113**	110	98	*90*	97	100	97	95	91	102
Cities in registration states	102	104	**110**	108	98	*91*	100	99	94	95	93	106
Rural part of registration states	100	107	**117**	113	98	*88*	93	103	101	94	89	97
Registration cities in other states	100	102	**109**	105	101	*94*	96	101	*94*	97	96	105

[1] Deaths in unknown month (44) distributed and ratios based on average daily number of deaths, thus correcting for unequal length of months. Maxima in **bold face**; minima in *italics*.

CAUSES OF DEATH.

Causes of death are one of the most important factors with reference to which mortality statistics can be compiled. Eight of the eleven principal tables contained in this bulletin present data bearing upon this subject, as follows:

Table 3 gives the age distribution of the deaths that occurred in the registration area during the year 1909 for each cause and class of causes of death according to the detailed International Classification.

Tables 4 and 5 are ratio tables, prepared for the purpose of showing certain important relations contained in Table 3. In Table 4 the per cent distribution of deaths by age of decedent is shown for each cause and class of causes of death, and in Table 5 the per cent distribution of deaths by causes and classes of causes of death is shown for each age. In other words, Table 4 shows for any individual disease, as, for example, typhoid fever, how many deaths out of every 100 deaths at known ages resulting from that disease in 1909 occurred among persons under 10 years of age, among those from 10 to 19 years of age, etc., while Table 5 shows how many deaths from typhoid fever occurred out of every 100 deaths from known causes for persons under 10 years of age, etc. The ages are given by decennial periods above 10 years instead of by quinquennial periods throughout, as in Table 3.

Table 6 shows the number of deaths from certain important causes for 1908 and 1909 for the registration area, its main subdivisions, the registration states, and registration cities.

In Table 7 the deaths and death rates per 100,000 population are given for the detailed International List of Causes as registered for the registration area for each year from 1905 to 1909, and also for the quinquennial period 1901 to 1905. The rates are based upon populations provisionally estimated from the average annual increase between the last two censuses prior to that of 1910, and will be replaced by rates based upon populations estimated by interpolation between the results of the Thirteenth Census, 1910, and the preceding census as soon as the results of the enumeration during the present year shall be available. It is probable, however, that for the registration area as a whole the provisional rates may be used with a considerable degree of assurance, and that comparisons between recent years computed on the same basis may be made safely.

Table 8 makes comparison of the number of deaths returned from certain important causes for the years 1908 and 1909 for the registration area and its main subdivisions, the registration states, and the cities that had a population of 100,000 or over in 1900. For the two years any marked variation in mortality from the specified causes in a given state or city will be clearly shown, since the population may be assumed to be practically constant for the short period of time.

Tables 9 and 10 show, for males and females, respectively, the number of deaths from certain causes and the per cent distribution with respect to period of age of those engaged in certain occupations.

The first reference will naturally be made to Table 7, which shows the general incidence of each cause of death upon the registration area as a whole for the year 1909 in comparison with preceding years. Since the registration area was increased by the addition of Ohio as a registration state—adding chiefly to the rural population, since a considerable proportion of the urban population of the state had previously been included in the registration area—the total number of deaths and the deaths from each cause would be somewhat increased for 1909 as compared with 1908 if the rate of mortality remained exactly the same and was distributed in the same way with respect to cause. The total number of deaths increased from 691,574 for 1908 to 732,538 for 1909, or 40,964, but the death rate, as provisionally estimated, decreased from 15.4 to 15 per 1,000 population.

Some of the most important causes are discussed separately in the following text with reference to the data shown in Table 7 for 1909 and previous years for the registration area as a whole, and in Table 8 for the years 1908 and 1909 for the main subdivisions of the registration area, the registration states, and the cities having a population of at least 100,000 in 1900. These causes are the following: Typhoid fever, measles, scarlet fever, whooping cough, diphtheria and croup, tuberculosis (all forms), cancer, diabetes, meningitis, heart disease, pneumonia (all forms), diarrhea and enteritis, nephritis and Bright's disease, diseases of early infancy, suicide, accident (and homicide). Attention may be called at this point to the general variations in the groups or classes of causes shown in Table 7, and to the occurrence of certain diseases of special interest although of minor importance with respect to the number of deaths caused by them in 1909.

MORTALITY BY CLASSES OF THE INTERNATIONAL CLASSIFICATION.

Deaths from general diseases increased from 186,264 for 1908 to 192,788 for 1909 (6,524, or 3.5 per cent), the ratio of increase being less than that for all causes (5.9 per cent). The death rate from general diseases per 100,000 provisionally estimated population decreased from 413.7 for 1908 to 395.2 for 1909, the rate for the latter year being the lowest of any year since the first publication of the annual reports (1900), and probably of any previous year in the history of the country.

The greater share of the reduction in the death rate from general diseases was due to a diminution in the number of deaths and the death rate caused by the group of epidemic diseases. There were only 49,988 deaths from such diseases during 1909, corresponding to a death rate of 102.5 per 100,000 population, as compared with 53,164 deaths and a rate of 118.1 for 1908. The number of deaths was 6 per cent less in the latter year, although an increase of 6 per cent might have been expected, this fact showing a very favorable condition of the country as represented by registration records for the year. While typhoid fever, measles, scarlet fever, diphtheria and croup, and nearly all of the infectious diseases belonging to this group showed decreased death rates for 1909, the chief numerical decrease in the deaths was due to the decrease in the number of deaths from influenza, which fell from 9,989 for 1908 to 6,649 for 1909. This decrease is remarkable, since bronchitis and pneumonia, diseases classified under respiratory diseases but usually closely associated with influenza, showed either about the same number of deaths (bronchitis) for the two years or a marked increase (pneumonia) for 1909.

Among the rarer diseases included in the epidemic group—speaking, fortunately, on the basis of their representation among the causes of death returned from the registration area of the United States—may be found some whose occasional occurrence awakens more interest and popular fear than many hundred times as many deaths from more accustomed causes. The deaths from such diseases during the year 1909 included 3 from typhus (typhus fever), 79 from smallpox, 2 from plague, and 9 from leprosy. No deaths occurred from Asiatic cholera or from yellow fever. In the second subdivision of the class of general diseases there were compiled 8 deaths from glanders, 14 from anthrax (malignant pustule), 55 from rabies (hydrophobia), 38 from actinomycosis, trichinosis, etc., 116 from pellagra, 86 from lead poisoning, and 5 from other occupational poisonings. Pellagra is a new disease in the mortality statistics. Only 23 deaths were returned from this cause for the preceding year, and no deaths for any previous year except 1 for 1904. Deaths from this disease undoubtedly occurred, but were not recognized and were consequently returned as due to other causes or as of unknown cause. As the registration area includes only a small portion of the country in which pellagra is most prevalent, it would seem that many hundreds and perhaps thousands of deaths from this disease must occur each year in the United States. How many can never be known until systems of complete registration of deaths are more generally adopted. Of the 154 deaths due to "other epidemic diseases," 21 were caused by German measles, including 1 reported as "French measles," and 9 by "rubella;" 84 by chickenpox; 34 by mumps; 1 by roseola; 1 by Rocky Mountain spotted fever (Garfield County, Colo.); 3 by glandular fever; and 10 by beriberi (8 Japanese and 1 Chinese on the Pacific coast and 1 Chinese at Bayonne, N. J.).

The second group of causes (other general diseases) included in the class of general diseases showed an increase in the number of deaths (133,100 to 142,800, or 7.3 per cent) and a slightly lower death rate (295.6 to 292.8 per 100,000 population). The chief diseases in this group are tuberculosis and cancer, both of which were responsible for increases in the number of deaths, although the death rate from tuberculosis decreased slightly.

Deaths from diseases of the nervous system increased from 71,090 for 1908 to 74,656 for 1909, the amount of increase (3,566, or 5 per cent) being slightly less than the average for all causes. The death rate fell from 157.9 to 153.1 per 100,000. The increase in the number of deaths for this class of diseases was due chiefly to apoplexy. The deaths reported from meningitis showed a marked decrease.

Deaths from diseases of the circulatory system increased largely, both in the numbers reported (80,607 for 1908 and 90,456 for 1909, an increase of 9,849, or 12.2 per cent), and in the death rates (179 for 1908 and 185.4 for 1909). Increased deaths and rates are shown for pericarditis, endocarditis, heart disease (including all forms of organic heart disease, some of them very indefinitely reported, but not including "heart failure"), angina pectoris, diseases of arteries, and diseases of veins. The greater part of the numerical increase of this class was due to deaths from organic heart diseases (5,933, or 9.9 per cent), although the proportional increases for deaths from endocarditis (912, or 15.2 per cent), and diseases of the arteries (2,239, or 28.2 per cent) are greater. The remarkable increase of the last-mentioned group would seem to show a tendency to report arteriosclerosis, one of the chief diseases included, as a cause of death.

Diseases of the respiratory system showed about the same increase in the number of deaths as diseases of the circulatory system for 1909 as compared with the preceding year. The number rose from 81,758 to 90,868, an increase of 9,110, or 11.1 per cent, while the death rate increased from 181.6 to 186.3 per 100,000. Bronchitis showed about the same number of deaths in each year, with a reduction in the death rate from 26.9 to 24.9 per 100,000 population. The increase in the number of deaths from this class of diseases was due largely to pneumonia, which caused 61,259 deaths, or 136 per 100,000 population, in 1908, and 70,033 deaths, or 143.6 per 100,000 population, in 1909.

Diseases of the digestive system, chief among which is diarrhea and enteritis affecting infants under two years of age, increased but slightly in the number of deaths registered for 1909 as compared with 1908 (2,327, or 2.6 per cent), while the death rate fell from 199.1 for 1908 to 188.6 for 1909. No diseases of this

class showed higher rates of any consequence, and for 1909 the mortality from infantile diarrhea (91.5 per 100,000 population) was lower than that for any recent year, although not as low as that of the five-year period 1901 to 1905 (89.4).

Deaths from diseases of the genito-urinary system increased from 51,717 for 1908 to 57,070 for 1909, the difference of 5,353, or 10.4 per cent, corresponding to the similar rise observed in the case of diseases of the circulatory system. The death rate increased from 114.9 for 1908 to 117 for 1909. Bright's disease constitutes the chief cause of death in this class, and is the only one that showed a notable increase in the number of deaths.

Diseases incident to childbirth showed a slight increase in the total number of deaths (7,344 for 1908 and 7,791 for 1909) and a decrease in the death rates per 100,000 population (16.3 for 1908 and 16 for 1909). It should be remembered that the rates given, which are based upon the total estimated population, should be doubled to show the mortality, approximately, of females, and increased still more to show the mortality of the special class alone susceptible, namely, females of childbearing age, or, with closer approximation, married females of childbearing age. Such ratios can not be given until population data shall be available for comparison, but the loss to the total population from this class of diseases can be seen in Table 7. Nearly half of the deaths of women that result from childbearing are due to puerperal sepsis, an entirely preventable disease, and for which ignorant and careless midwifery is chiefly responsible.

Passing over the minor classes (diseases of the skin, diseases of the bones, and malformations), no marked change may be noted in the class of deaths from diseases of infancy, which includes only deaths of infants under 3 months of age. It does not include all deaths of infants under this limit, many of which are elsewhere classified, but is restricted chiefly to deaths resulting from premature birth, "congenital debility," and the numerous indefinite terms such as "marasmus," "inanition," "atrophy," etc., compiled thereunder. The total number of deaths in this class increased somewhat from 1908 to 1909 (32,274 to 33,274), corresponding to the increased registration area, but the death rate fell from 71.7 to 68.2 per 100,000 total estimated population. The rate for 1909 was the lowest shown in this series of annual reports except that for the year 1901 (66.2). It should be remembered that these rates compare the deaths of a special age class (under 3 months) with the aggregate population, and hence are not as satisfactory as if they compared the number of deaths of that age class with the total number of births, data for which are not available.

Deaths from suicide and from other forms of violence, including homicide, are considered separately below, and the examination of Table 7 may be concluded with the very gratifying observation that both the number of deaths and the death rate for ill-defined causes of death are decreasing, although with the addition of new registration territory it would not be surprising to find a slight temporary increase for this class. With continued efforts on the part of state and local registrars this unsatisfactory class of returns may soon become negligible.

AGE DISTRIBUTION OF CAUSES OF DEATH.

Perhaps the most important general factor to be considered in the study of general mortality from all causes and from individual causes of death is the distribution by age. Some diseases take their toll chiefly or entirely from infants and very young children; others affect persons in youth and early life; and others, chiefly of the degenerative type, affect persons in advanced life. As the population at each age period is less with advancing years, it is evident that a disease having a certain proportion of deaths for children under 5 years of age would cause many more deaths, and hence be of much greater importance from the point of view of possible restriction or prevention, than a disease that caused the same proportion at say the age period 50 to 54. It is necessary to know, therefore, the exact distribution of deaths from each cause by age periods and, in order to judge of the relative importance of each disease as a cause of death, to study (1) the distribution of the total number of deaths from a given cause at the various periods of life and (2) the proportion of total deaths from all causes at each age which is due to a given cause. Of course, the only exact comparisons of the mortality by ages are those stated in the form of specific rates from each cause at each limited age period to the corresponding population at the same age period. The percentage comparisons, however, obtainable from examination of the number of deaths for the year 1909 will give information of much value and show very clearly in what direction efforts should be made for the prevention of infant and child mortality.

Table 3 gives a detailed statement of the number of deaths from each cause and class of causes of death for the registration area for 1909. The ages are stated throughout in quinquennial periods up to 100 years of age and for the first five years of life the number of deaths is given by single years. On the basis of the data contained in this table, two tables showing the per cent distribution of deaths with respect to age periods have been prepared, which bring out two important sets of relation.

Table 4 shows the relative number of deaths at each age for each cause and class of causes of death; that is to say, what proportion of deaths from typhoid fever or tuberculosis occurred in children under 10 years of age, and for persons at the ages 10 to 19, 20 to 29, etc.

Table 5 shows the relative importance of causes of death at each age, as, for example, out of the total number of deaths from all known causes in the case of persons under 10 years of age, or between the ages 10 to 19, 20 to 29, etc., how many were caused by typhoid fever, how many by tuberculosis, and how many by various other diseases. For convenience the ages above 10 years in Tables 4 and 5 are given in decennial periods only.

The list of causes of death in Tables 3, 4, and 5 is a long one and it is difficult sometimes to obtain an idea of the most important elements thereof. For this reason it has seemed advisable to prepare two short tables showing the relations exhibited in Tables 4 and 5 for the twenty diseases or causes of death of the greatest importance at all ages and at each age period.

The following table, based upon Table 4, gives for the registration area of 1909 the per cent distribution of deaths by age for the twenty causes of death responsible for the largest number of deaths at all ages, the causes being arranged in order of the number of deaths that occurred in 1909:

TWENTY LEADING CAUSES OF DEATH FOR 1909 IN ORDER OF NUMBER OF DEATHS AT ALL AGES.	Number of deaths, all ages: 1909.[1]	NUMBER OF DEATHS AT EACH AGE PER 100 DEATHS AT ALL KNOWN AGES FROM EACH CAUSE, REGISTRATION AREA: 1909.															
		Under 1	1	2	3	4	Under 5	5 to 9	Under 10	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 and over.
Tuberculosis (all forms)	81,720	3.0	2.0	1.0	0.7	0.5	7.2	1.7	8.9	9.2	**25.8**	22.6	15.2	9.3	5.8	2.7	0.6	[2]
Heart disease	65,971	1.2	0.1	0.1	0.1	0.1	1.6	1.0	2.6	2.9	3.8	6.3	10.0	14.9	23.3	**24.4**	10.7	1.1
Diarrhea and enteritis	52,516	69.5	15.5	2.8	1.0	0.5	89.3	0.8	**90.1**	0.4	0.5	0.6	0.8	1.1	1.8	2.5	1.8	0.3
Pneumonia (lobar and unqualified)	49,007	17.6	6.9	2.9	1.5	0.9	29.8	2.2	**32.0**	3.2	6.0	8.8	9.9	10.5	12.4	11.3	5.3	0.7
Nephritis and Bright's disease	48,430	1.4	0.6	0.4	0.3	0.2	3.0	0.9	3.9	2.1	4.7	8.5	12.9	17.6	**22.3**	19.5	7.7	0.8
Accident	44,281	10.9	2.4	2.2	1.8	1.5	18.8	4.6	**23.4**	8.8	15.4	13.9	12.5	8.8	6.6	5.7	4.1	0.8
Cancer	37,562	0.1	0.1	0.1	0.1	0.1	0.4	0.2	0.6	0.5	1.9	6.6	16.2	24.0	**26.1**	18.4	5.3	0.5
Apoplexy	36,463	1.5	0.2	0.1	0.1	[2]	1.9	0.2	2.1	0.4	1.1	2.9	7.5	15.8	26.3	**28.8**	13.9	1.4
Bronchopneumonia	21,026	42.6	17.7	6.0	2.6	1.4	70.3	2.3	**72.6**	1.0	1.2	1.8	2.1	3.1	5.8	7.3	4.3	0.7
Premature birth	18,286	100.0	.....	.....	.....	.....	100.0	.....	**100.0**	.....	.....	.....	.....	.....	.....	.....	.....	.....
Congenital debility	14,988	100.0	.....	.....	.....	.....	100.0	.....	**100.0**	.....	.....	.....	.....	.....	.....	.....	.....	.....
Old age	13,456	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.5	29.1	**49.7**	15.8	.....
Bronchitis	12,127	34.9	8.1	2.4	1.1	0.6	47.1	1.0	**48.0**	0.8	1.2	1.4	2.3	4.4	9.7	16.4	13.1	2.5
Typhoid fever	10,722	0.6	0.9	1.3	1.2	1.0	5.1	6.0	11.1	20.3	**28.0**	17.9	10.8	6.5	3.5	1.6	0.3	[2]
Diphtheria and croup	10,358	7.3	17.5	15.0	12.8	10.5	63.1	25.1	**88.2**	8.1	1.8	0.8	0.6	0.3	0.2	0.1	.....	.....
Diseases of arteries	10,174	0.1	.....	.....	[2]	.....	0.1	[2]	0.1	0.1	0.5	1.8	4.2	9.0	20.4	**34.6**	25.0	4.3
Suicide	8,402	.....	.....	.....	.....	.....	.....	[2]	[2]	4.1	19.5	20.6	**21.4**	17.7	10.7	4.8	1.1	0.1
Other diseases of stomach	8,171	32.4	3.8	1.5	1.0	0.6	39.2	1.3	**40.4**	1.3	3.1	4.7	5.9	8.2	10.8	14.6	9.6	1.5
Meningitis	7,853	31.4	14.4	8.3	5.1	3.5	62.6	8.7	**71.3**	8.1	5.4	4.2	4.1	2.9	2.1	1.5	0.4	[2]
Childbirth	7,791	.....	.....	.....	.....	.....	.....	.....	.....	7.2	**44.6**	39.7	8.5	0.1	.....	.....	.....	.....

[1] Includes unknown ages.

[2] Less than one-tenth of 1 per cent.

The above table showing the age distribution of the deaths returned from the twenty most important causes for the year 1909 does not show the true incidence, or death rate per 100,000 population of each age. It simply enables one to compare the relative proportions of deaths at the ages stated with the total number at all known ages for each disease. For convenience in comparing the distribution among the decennial age periods, maxima are indicated by bold-faced type. It appears that of the twenty most important causes of death for 1909 no less than ten showed the largest number of deaths in the first decade of life, the ten being as follows: Diarrhea and enteritis, pneumonia (lobar and unqualified), accident, bronchopneumonia, premature birth, congenital debility, bronchitis, diphtheria and croup, diseases of stomach (exclusive of ulcer of stomach), and meningitis. Many of these showed practically the same percentages for the first five years of life, and some for the first year.

None of the twenty leading causes for 1909 derived the largest number of deaths from the second, fourth, or sixth decades of life, or from the terminal period 90 years and over; the latter fact is of course due to the very small constituent population, since the death rate is very high. From the third decade, 20 to 29 years of age, tuberculosis (all forms), typhoid fever, and childbirth took the largest numbers of their victims; suicide from the fifth; Bright's disease and cancer from the seventh; heart disease, apoplexy, and arterial diseases from the eighth; and old age from the ninth.

The following table, condensed from Table 5, shows for the registration area of 1909 the proportion of the total number of deaths caused by the twenty diseases of greatest importance at each age period:

NUMBER OF DEATHS FROM EACH OF THE TWENTY MOST IMPORTANT CAUSES PER 100 DEATHS FROM ALL KNOWN CAUSES AT EACH AGE, REGISTRATION AREA: 1909.

CAUSE OF DEATH.	All ages.	Under 1	1	2	3	4	Under 5	5 to 9	Under 10	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 and over.
All known causes {Number [1]	731,225	139,443	30,205	12,619	7,838	5,675	195,780	16,104	211,884	28,855	56,979	62,808	66,674	73,384	89,049	87,527	46,176	7,125
Per cent.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Typhoid fever	1.5	.....	.....	1.1	1.7	1.9	.....	4.0	0.6	7.5	5.3	3.1	1.7	1.0	.....	.....	.....	.....
Measles	.....	0.9	5.7	5.5	4.1	3.4	2.1	2.3	2.1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scarlet fever	.....	.....	2.4	6.7	**10.0**	**10.4**	1.7	**9.9**	2.3	2.3	.....	.....	.....	.....	.....	.....	.....	.....
Whooping cough	.....	2.0	3.8	3.4	2.6	1.8	2.4	1.1	2.3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Diphtheria and croup	1.4	0.5	6.0	***12.3**	***16.9**	***19.2**	3.3	***16.2**	4.3	2.9	.....	.....	.....	.....	.....	.....	.....	.....
Influenza	.....	.....	0.5	0.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.7	1.2	1.8	2.4	2.6
Dysentery	.....	.....	0.9	0.9	0.6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.8	1.0
Tuberculosis (all forms)	***11.2**	1.7	5.5	6.7	7.0	7.2	3.0	8.6	3.4	***26.1**	***37.0**	***29.3**	***18.6**	10.4	5.3	2.5	1.0	.....
Venereal diseases	.....	1.1	.....	.....	.....	.....	0.9	.....	0.8	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cancer	5.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.2	3.9	9.1	**12.3**	**11.0**	7.9	4.3	2.4
Rheumatism	.....	.....	.....	.....	.....	0.8	.....	1.6	.....	1.7	0.6	.....	.....	.....	.....	.....	.....	.....
Diabetes	.....	.....	.....	.....	.....	.....	.....	0.8	.....	1.4	0.6	0.8	1.1	2.0	2.2	1.3	.....	.....
Anemia, leukemia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.8	0.8	.....	.....	.....	.....
Alcoholism	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.2	1.1	.....	.....	.....	.....	.....
Meningitis	1.1	1.8	3.7	5.1	5.1	4.8	2.5	4.2	2.6	2.2	0.7	.....	.....	.....	.....	.....	.....	.....
Other diseases of spinal cord	.....	.....	.....	0.6	0.8	1.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Apoplexy	5.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.7	1.7	4.1	7.8	10.8	**12.0**	**10.9**	**7.1**
Paralysis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.2	2.0	2.9	3.1	2.3
General paralysis of insane	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.8	1.3	.....	.....	.....	.....	.....
Epilepsy	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.9	0.7	.....	.....	.....	.....	.....	.....	.....
"Convulsions"	.....	3.3	1.7	0.9	0.9	.....	2.7	.....	2.5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tetanus	.....	.....	.....	.....	.....	.....	.....	1.0	.....	1.0	.....	.....	.....	.....	.....	.....	.....	.....
Endocarditis	.....	.....	.....	.....	.....	.....	.....	1.2	.....	1.1	0.7	0.9	1.2	1.4	1.5	1.4	1.2	0.8
Heart disease	**9.0**	0.5	.....	.....	0.9	1.2	0.5	4.0	0.8	0.7	4.4	6.6	**9.9**	***13.3**	***17.2**	***18.3**	***15.3**	**9.8**
Angina pectoris	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.9	1.2	1.0	.....	.....
Diseases of arteries	1.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.2	2.3	4.0	5.5	6.1
Diseases of larynx	.....	.....	.....	0.7	1.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.3	2.3	3.4	4.3
Bronchitis	1.7	3.0	3.2	2.2	1.7	1.2	2.9	.....	2.7	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bronchopneumonia	2.9	6.4	**12.4**	10.0	6.9	5.2	7.6	3.0	7.2	0.7	.....	.....	0.7	0.9	1.4	1.7	2.0	2.1
Pneumonia (lobar and unqualified)	6.7	6.2	**11.2**	**11.3**	9.2	8.1	7.5	6.6	**7.4**	5.4	5.2	**6.9**	7.2	7.0	6.8	6.3	5.6	4.9
Pleurisy	.....	.....	0.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.8	1.1
Congestion of lungs	.....	0.5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Diseases of pharynx	.....	.....	.....	.....	.....	0.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Other diseases of stomach	1.1	1.9	1.0	0.9	1.0	0.8	1.6	.....	1.6	.....	.....	0.6	0.7	0.9	1.0	1.4	1.7	1.7
Diarrhea and enteritis	**7.2**	***26.2**	***26.9**	**11.5**	6.8	4.8	***24.0**	2.5	***22.3**	0.7	.....	.....	.....	0.8	1.1	1.5	2.0	2.2
Obstruction of intestines	.....	0.5	0.5	.....	0.6	1.0	0.5	0.9	.....	.....	0.6	0.6	0.7	.....	.....	.....	.....	0.5
Cirrhosis of liver	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.2	2.2	2.4	1.9	1.1	.....	.....
Peritonitis	.....	.....	.....	.....	.....	.....	.....	0.9	.....	1.1	0.7	0.7	.....	.....	.....	.....	.....	.....
Appendicitis	.....	.....	.....	.....	0.6	1.2	.....	3.3	.....	5.1	2.2	1.4	1.0	.....	.....	.....	.....	.....
Nephritis and Bright's disease	6.6	0.5	0.9	1.6	2.0	2.1	0.7	2.6	0.9	3.5	4.0	6.6	**9.4**	**11.6**	**12.1**	**10.8**	8.1	5.5
Diseases of bladder	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.7	.....	.....	.....	.....	.....	0.9	0.8
Diseases of tubes	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.9	**6.1**	4.9	1.0	.....	.....	.....	.....	.....
Childbirth	1.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.8	1.1	1.6
Diseases of skin	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Diseases of locomotor system	.....	.....	0.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Malformations	.....	5.2	0.7	0.6	.....	.....	3.9	.....	3.6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Premature birth	2.5	**13.1**	.....	.....	.....	.....	**9.3**	.....	**8.6**	.....	.....	.....	.....	.....	.....	.....	.....	.....
Congenital debility	2.1	**10.8**	.....	.....	.....	.....	**7.7**	.....	7.1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Old age	1.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.8	4.5	**14.5**	***29.7**
Accident	6.1	3.4	3.6	7.7	**10.0**	**11.4**	4.2	**12.7**	4.9	**13.5**	**11.9**	**9.7**	8.3	5.3	3.3	2.8	3.9	5.0
Suicide	1.2	.....	.....	.....	.....	.....	.....	.....	.....	1.2	2.9	2.7	2.7	2.0	1.0	.....	.....	.....
Homicide	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.7	1.2	.....	.....	.....	.....	.....	.....

[1] The total number of deaths from all known causes at each age is given so that the relative importance of the bases upon which the following percentage comparisons are computed may be kept in mind. The highest three percentages for each age are printed in bold-faced type, and that of the disease causing the maximum number of deaths is further designated by an asterisk (*).

In the preceding table the percentages are given for the various causes *only* when they constitute one of the twenty most important causes of death for a given period. The ratios omitted are less than the least ratios presented in each column, and are left out so that the attention can be fixed upon the most important causes only; it should not be understood that data are wanting for the spaces in which figures do not appear.

This table is of very great practical importance and is of nearly as much value for the purpose of calling the attention of sanitary authorities and the public to the most important diseases that should be restricted as if it were derived from the comparison of the deaths and population at each age. It illustrates especially for the early years of life the overwhelming importance of certain causes of death. By referring to the actual deaths at each age as printed at the top of the table, the relative importance of the various causes as factors of the general mortality may be roughly estimated. Thus "old age," which caused 29.7 per cent of all deaths of persons aged 90 years and over (7,125) is of much less consequence than diseases that caused smaller percentages of larger numbers of deaths at the earlier periods.

Taking first the division by decades of age, diarrhea and enteritis is by far the most important cause of death of children under 10 years. This disease is even more important for the first five years, and especially for the first and second years of life. Tuberculosis is supreme for the four decades covering the ages 10 to 49 years, and is followed by heart diseases for

four decades more, 50 to 89 years. "Old age," which is not a disease but is usually merely equivalent to a statement of unknown cause in elderly persons, takes precedence in the last period shown; disregarding this indefinite return, heart disease would hold the supremacy as the cause of the largest number of deaths for each period over 50 years of age.

Reduction of infant and child mortality may be effected by careful study of the causes that produce the largest number of deaths for the years under 5. The greatest gain in this respect will be reached by efforts for the prevention of the diarrheal diseases of infants under 2 years of age. The next most important causes, premature birth and congenital debility, are probably largely preventable, but require fuller analysis on the basis of the elements that enter into the statistical statements. Premature birth is frequently only an indirect cause, and "congenital debility" includes a host of vague and worthless returns, many of which, if correctly reported, might be elsewhere assigned. Such, for example, are "marasmus," "atrophy," "inanition." The pneumonias of early life are most important, and beginning with the third year of life diphtheria causes more deaths of children aged 2, 3, and 4 years than any other cause, even in this day of antitoxin.

TYPHOID FEVER.

The total number of deaths caused by typhoid fever in the registration area for the year 1909 was 10,722, a decrease of 653 from the number (11,375) recorded for 1908 for the somewhat smaller registration area. The death rate fell from 25.3 per 100,000 estimated population to 22, these rates being based on the populations as estimated upon the average annual increase between the two preceding censuses. The rates given are subject to correction as soon as revised estimates of population, derived from a comparison of the results of the census of 1910 are available for 1909. As the rates given in Table 7 relate only to the aggregate registration area and have been computed in a uniform manner for the years shown, it is probable that the relative indications will not be greatly altered in the corrected figures, and hence the general changes in mortality from this and other causes may be satisfactorily studied. This is not true for smaller areas, and consequently no rates for the main subdivisions of the registration area, for registration states, or for registration cities, are presented.

The typhoid fever death rate for 1908 was the lowest recorded since the series of annual reports was instituted in 1900, and the rate for 1909 shows a marked reduction from that of the previous year. It is nearly one-third less than the rate shown for the five-year period 1901 to 1905 (32.2), although still more than twice as large as that of England and Wales. The success already obtained in its reduction should encourage further progress in this direction until residence and travel in this country are as safe in this respect as in the best regulated countries of Europe, where the disease is becoming practically negligible as a menace to public health.

While the death rates are not yet available for a detailed comparison of the prevalence of the disease in the various subdivisions of the registration area, much of interest may be learned by studying the absolute numbers of deaths registered from typhoid fever in the year 1909 as compared with the preceding year, as shown in Table 6, for the main subdivisions of the registration area, and in Table 8, with statement of the increase and decrease for the main subdivisions, the registration states, and for the cities of 100,000 population and over in 1900. In the latter table it appears that the decrease in the number of deaths from typhoid fever from 1908 to 1909 was shared by each of the main subdivisions, except the rural part of the registration states. The increase for this subdivision may be due to the addition of the rural part of Ohio. Ohio is a new registration state, and on account of the changes in territory consequent upon this addition to the registration area, the relations of the main subdivisions are disturbed so that inferences can not be readily drawn. It is preferable, therefore, to consider the individual states and cities, whose areas remain practically unchanged.

Of the registration states for which data are available for the two years, only Washington and Wisconsin fail to show a smaller number of deaths from typhoid fever for 1909 than for 1908. As the population of none of the registration states has probably decreased during the period indicated, it follows that the typhoid death rate has probably decreased. Ohio was admitted to the group of registration states for the first time for 1909, and if the 1,276 deaths from typhoid fever in this state are not included for 1909, the group of registration states shows a reduction of 1,406 deaths from this cause. The largest absolute decrease is that of Pennsylvania (738), followed by those of Massachusetts (132), California (88), Maryland (87), and New York (73). The increases in Washington and Wisconsin were small, and probably at a lower rate than the increase in population.

A considerable part of the reduction in the number of deaths from typhoid fever that occurred in Pennsylvania was due to the decreases in Philadelphia (188) and Pittsburg (125). Of the 36 larger cities, 19 showed fewer deaths from typhoid fever for 1909 than for 1908, and in no city of this group was there any marked increase in mortality from this cause. The largest absolute decreases occurred in Philadelphia (188), Columbus (135), Pittsburg (125), Boston (68), and Chicago (61). The greatest relative decrease was in Columbus, where epidemic prevalence was shown for 1908.

MEASLES.

Measles showed a slight increase (249) in the number of deaths (4,860) reported from the larger registration area of 1909 as compared with the number (4,611) reported for 1908 for the smaller area of that year, and a slight decrease in the death rate per 100,000 estimated population (10.2 to 10). As shown in Table 8, the largest absolute increases among the registration states occurred in Michigan (146) and New York (143) and the largest absolute decreases in Massachusetts (228) and Pennsylvania (155). Among the larger cities, the greatest increases were reported from St. Louis (142), Detroit (68), New York (62), and Milwaukee (53). Considerable decreases occurred in Pittsburg (203), Boston (108), Cincinnati (53), and Fall River (47). The increased number in New York City was due chiefly to the increase in Brooklyn Borough (191), while Bronx Borough showed a marked decrease (132). These comparisons, in the absence of estimated populations and rates, are significant only when the general relations of the populations with respect to size are kept in mind, but a considerable change in the number of deaths in any area, relative to the total number reported, is of sanitary importance.

SCARLET FEVER.

Scarlet fever, like measles, was the cause of a few more deaths (204) during the year 1909 (5,781) than during 1908 (5,577), and the death rate per 100,000 provisionally estimated population also decreased to about the same extent as for measles (12.4 to 11.9). It should be remembered in connection with these figures that Ohio was added to the registration area for the year 1909. Like measles, also, as shown in Table 7, scarlet fever has shown a somewhat higher mortality for the past few years than for the year 1905 and the five-year period 1901 to 1905.

The increase in the number of deaths from scarlet fever occurred chiefly in the rural part of the registration states, as shown in Table 8, and the cities in registration states showed a considerable decrease even after the transfer of the Ohio cities to this group. For the states as a whole, the largest absolute increases in deaths from this cause were for Wisconsin (239) and Washington (145), while the largest decreases were for New York (516) and Massachusetts (102).

Deaths from scarlet fever increased 179 for Milwaukee, 68 for Buffalo, and 64 for St. Paul, while they decreased 550 for New York City—327 for Manhattan Borough, and 138 for Brooklyn Borough.

WHOOPING COUGH.

A slight decrease (63) is observed in the number of registered deaths from whooping cough for 1909 (4,906) as compared with 1908 (4,969). The death rate fell from 11 to 10.1 per 100,000 estimated population. This is the lowest rate from this disease since 1904 (6.6). The decline in the number of deaths occurred chiefly in the registration cities.

The largest absolute increases in deaths from this cause appear for the states of New York (267) and Maryland (93), and the largest decreases for Pennsylvania (354) and Michigan (79). Of the large cities, New York showed an increase of 196 deaths, 103 of which were in Manhattan Borough, and Baltimore an increase of 81, while Philadelphia had 103 fewer deaths from this cause in 1909 than in 1908.

DIPHTHERIA AND CROUP.

Diphtheria and croup continue to decrease in importance as a cause of death, the death rate for the year (21.2 per 100,000 population) being lower than that for 1908 (22.3) and, in fact, lower than that for any year since the beginning of these reports. The number of deaths, however, slightly increased, from 10,052 in 1908 to 10,358 in 1909.

No large increase in deaths from this cause was shown for any of the registration states, the greatest being for New Jersey (88) and Michigan (56). California showed a decrease of 138 deaths and New York 107. The only notable variation shown for the large cities was an increase of 125 deaths in Chicago.

TUBERCULOSIS (ALL FORMS).

While the total number of registered deaths from tuberculosis was greater for 1909 (81,720) than for any preceding year and exceeded by 3,431 the number compiled for 1908 (78,289), the death rate showed a decline from 173.9 to 167.5 per 100,000 estimated population. The latter is the lowest rate on record for the registration area, although it should be remembered that the rates for this area, to which large additions were made in 1906, 1908, and 1909, may not be strictly comparable with respect to constitution of population throughout the period covered. The addition of the new registration state of Ohio for 1909, for example, by bringing in a considerable rural population with a normally low death rate from tuberculosis, would tend to depress the death rate from this cause for the registration area as a whole.

It is remarkable that the aggregate of registration cities, which is not greatly affected by the transfer of cities from the group of cities in nonregistration states to the group of cities in registration states, shows practically the same number of deaths for 1909 (54,461) as for 1908 (54,466).

Excluding Ohio, which is shown only for a single year, eleven of the seventeen registration states for which data are given in Table 8 reported decreases in deaths from tuberculosis for 1909 as compared with 1908, the largest being for New York (415) and Rhode Island (107). The most notable increases in deaths from this cause occurred in Washington (91) and California (78). Among the larger cities the chief fluctuations were increases of 85 for St. Louis, 61 for Minneapolis, 58 for Toledo, and 56 for New Haven, and decreases of 222 for New York, 194 for Philadelphia, and 149 for New Orleans.

CANCER.

Cancer showed a much greater proportional increase in the number of deaths than tuberculosis, rising from 33,465 for 1908 to 37,562 for 1909. The death rate increased from 74.3 to 77; the latter being the highest crude death rate from cancer thus far recorded for the registration area of the United States. It should be remembered that cancer is one of the diseases having a peculiar age distribution for which the study of crude death rates is apt to be especially misleading, and until a careful analysis can be made of the data, with reference to the population details available after the compilation of the census of the present year, it will be wise to limit inferences to the fact that the number of deaths reported and the crude rate from this cause show a constant tendency to increase from year to year. The probability of more accurate statement of this disease as a cause of death by attending physicians must be taken into consideration, and the fact that the saving of lives from tuberculosis and other preventable diseases of early or middle life would leave more persons subject to cancer at the cancer ages, and thus increase the total number of deaths from this cause and the crude cancer death rate, although the actual incidence of the disease at the various periods of life may not have been altered materially.

The distribution of cancer according to location on the body shows little change, except a diminution of the residual group of "other or unspecified organs," due to more accurate statements by physicians. All certificates of death by cancer should state, whenever ascertainable, the site of origin of the disease.

In Table 8 a marked increase in deaths from cancer is shown for all the main subdivisions of the registration area except the group of cities in nonregistration states, where the decrease is due to the transfer of the Ohio cities to the group of cities in registration states. The uniform tendency toward an increase in the number of deaths reported from cancer is shown in the totals reported for the registration states and cities for 1908 and 1909. Of the seventeen states for which data are given for the two years, all showed more deaths from this cause in the latter year except Maryland and South Dakota, for which slightly diminished numbers were returned. Of the thirty-six large cities, only five showed more deaths from cancer in 1908 than in 1909, and the amount of decrease was very small in each case. The absolute increase in the number of registered deaths from cancer was not large for any particular state or city, the impressive feature being the general increase shared by all states and cities with but few exceptions.

DIABETES.

Of comparatively trifling numerical importance as a cause of death, diabetes shows a slowly progressive tendency to increased mortality, perhaps dependent, as with cancer, upon the advancing age distribution of the population. As shown in Table 7, the number of deaths in the registration area increased from 6,274 for 1908 to 7,024 for 1909, and the death rate per 100,000 estimated population rose from 13.9 to 14.4. The amounts of change for individual states and cities, as shown in Table 8, are too small to be significant; but it is noteworthy that decreased numbers were shown in but comparatively few cases.

MENINGITIS.

Fewer deaths from meningitis and lower death rates are recorded for 1909 than for 1908, both for the simple or unqualified form as reported and for that compiled under the title "Epidemic cerebrospinal meningitis." It is impossible to make a satisfactory differentiation among the forms of meningitis on the basis of the certified deaths, and it is urged that the term "cerebrospinal fever," or its only correct synonym, "epidemic cerebrospinal meningitis," be used solely for the designation of the specific infectious disease. It is not sufficient to report deaths from this disease as caused by "cerebrospinal meningitis," "spinal meningitis," "meningitis," "spinal fever," etc., as the proper compilation then becomes a matter of doubt. Meningitis when secondary to some other affection need not be reported, but only the primary disease should be stated. Thus in a case of typhoid fever with meningitis it is chiefly important that typhoid fever be stated as the cause of death. "Typhoid meningitis" is not a satisfactory term.

So far as the varieties of meningitis can be distinguished in the returns, there would seem to be a marked decline of epidemic cerebrospinal meningitis for the past two years as compared with the years 1904 to 1907. Only 2,191 deaths from this cause were compiled for 1909, a decrease of 409 from 1908, while meningitis as a whole decreased 1,051 in the same time. The death rates from all forms of meningitis (16.1) and from that portion compiled as epidemic cerebrospinal meningitis (4.5) were lower for 1909 than for any year since the beginning of these reports in 1900. Examination of Table 8 shows that fewer deaths were registered from meningitis for 1909 than for the preceding year in every one of the registration states, and in all but six of the thirty-six great cities. No city showed any considerable increase, the largest being 23 for Detroit.

ACUTE ANTERIOR POLIOMYELITIS (INFANTILE PARALYSIS).

Among the deaths included under the International title "Other diseases of the spinal cord" are the deaths reported from acute anterior poliomyelitis, or epidemic infantile paralysis. No statistical segregation has been made heretofore, but the increasing importance of the disease and its wide prevalence throughout the country in the form of local epidemics render a

statement of the mortality important. Like meningitis, which it somewhat resembles, it is difficult to obtain an exact separation of the deaths due to the specific infectious disease *acute anterior poliomyelitis* from other affections of similar nature. This is indicated by the following statement of the original form of return of the 569 deaths classified as due to acute anterior poliomyelitis in the registration area for the year 1909:

Infantile paralysis	219
Acute anterior poliomyelitis	148
Anterior poliomyelitis	103
Acute poliomyelitis	39
Infantile spinal paralysis	17
Poliomyelitis	16
Acute infantile paralysis	6
Infantile cerebral paralysis	4
Infantile paresis	2
Acute anterior spinal poliomyelitis	1
Acute ascending anterior poliomyelitis	1
Acute ascending paralysis	1
Acute ascending poliomyelitis	1
Acute ascending spinal paralysis	1
Acute atrophic infantile paralysis	1
Acute infantile progressive paralysis	1
Acute myelitis	1
Acute polio-encephalo-myelitis	1
Acute spinal paralysis	1
Infectious paralysis	1
Poliomyelitis (cephalic)	1
Posterior poliomyelitis	1
Progressive ascending anterior poliomyelitis	1
Spinal paralysis	1

Some of these terms can not properly be considered as synonymous with acute anterior poliomyelitis, but the deaths were included as they were returned with others in local epidemics. On the other hand, some deaths from "infantile paralysis" were not included because the cause was assigned, e. g., injury at birth. It is probable that some of the deaths from "infantile paralysis" that were included were not due to the specific infectious disease, acute anterior poliomyelitis. Osler (Principles and Practice of Medicine) includes acute anterior poliomyelitis under "System diseases of the lower motor segment of the nervous system," which he divides into (1) chronic anterior poliomyelitis (progressive muscular atrophy—Aran-Duchenne); (2) ophthalmoplegia; (3) acute anterior poliomyelitis (atrophic spinal paralysis, infantile paralysis); (4) acute and subacute poliomyelitis in adults; and (5) acute ascending (Landry's) paralysis. Tyson (Practice of Medicine) gives, as synonyms of acute anterior poliomyelitis of children, the following terms: Myelitis of children; spinal paralysis of children; atrophic spinal paralysis; infantile palsy; essential paralysis of children. The revised Nomenclature of Diseases and Conditions of Bellevue and Allied Hospitals distinguishes acute anterior poliomyelitis (not permitting the return of "infantile paralysis"), chronic anterior poliomyelitis, and acute bulbar poliomyelitis; and the last edition of the Nomenclature of Diseases of the Royal College of Physicians of London gives the following comparative arrangement:

DISEASES OF THE SPINAL CORD AND MEMBRANES.

Membranes.

Inflammation. Meningitis (acute or chronic).

Spinal cord.

Inflammation. Myelitis (acute or chronic).
- (*a*) Diffuse.
- (*b*) Local.
  - Special forms:
    - Transverse. From pressure (tumor or disease of bone).
    - Acute anterior poliomyelitis. *Synonyms*, acute atrophic spinal paralysis, infantile paralysis.
- (*c*) Disseminated.

It is therefore very important that all deaths from *acute anterior poliomyelitis* shall be reported by physicians in this precise form of statement if the data are to be compiled with precision. It is not sufficient to write "poliomyelitis," "anterior poliomyelitis," or "acute poliomyelitis," and it is not desirable to use the term "infantile paralysis," which is objectionable because it does not properly seem applicable to cases of this disease that occur in adults. When employed it should be accompanied by the more definite term in parentheses, thus, "Infantile paralysis (acute anterior poliomyelitis)," so that there can be no mistake about the exact nature of the disease specified. "*Epidemic* infantile paralysis" or "*epidemic* poliomyelitis" are unsatisfactory terms because sporadic cases occur. The other more or less synonymous terms would better be avoided as leading only to confusion and difficulty in learning the exact facts about the prevalence of a most dangerous disease.

Acute anterior poliomyelitis is an acute infectious disease chiefly affecting children in the first five years of life, and while not infrequently fatal, it is of even more serious consequence as the cause of more or less permanent paralysis and atrophy of muscles. Numerous outbreaks have occurred in this country, the most important of which were those in Vermont in 1894 and in New York and Connecticut in 1907. The 569 deaths compiled for the registration area for 1909 were widely distributed and indicate endemic or epidemic prevalence in many parts of the country. It should be remembered that the records relate only to registration sources and that for the nonregistration states the deaths are only those returned from the registration cities contained therein. The deaths from acute anterior poliomyelitis were as follows in the registration states: California, 12 (1 in San Francisco); Colorado, 6 (1 in Denver); Connecticut, 6 (1 in New Haven); District of Columbia (city of Washington), 1; Indiana, 14; Maine, 6; Maryland, 4 (1 in Baltimore); Massachusetts, 62 (21 in Boston and 1 in Worcester); Michigan, 16 (2 in Detroit); New Hampshire, 11; New Jersey, 24 (2 in Jersey City, 6 in Newark); New York, 115 (2 in Buffalo, 64 in New York City, 2 in Rochester,

1 in Syracuse); Ohio, 16 (1 in Cincinnati, 2 in Cleveland); Pennsylvania, 76 (8 in Philadelphia, 8 in Pittsburg, 1 in Scranton); Rhode Island, 4 (3 in Providence); South Dakota, 6; Vermont, 2; Washington, 5; and Wisconsin, 51 (1 in Milwaukee). The disease does not seem particularly to affect the large cities of 100,000 population and over in 1900 as given in the preceding list. For the nonregistration states there were, in the registration cities only, the following numbers of deaths: Alabama, 2; Illinois, 19 (17 in Chicago); Kentucky, 2 (1 in Louisville); Louisiana, 1 (New Orleans); Minnesota, 82 (21 in Minneapolis, 53 in St. Paul); Missouri, 5 (1 in Kansas City, 4 in St. Louis); Nebraska, 8 (Omaha); North Carolina, 1; Oregon, 2 (Portland); South Carolina, 1 (Charleston); Tennessee, 1; Texas, 2; Utah, 3; and Virginia, 3.

Of the 569 deaths in 1909, 552 were of white persons and 17 were of colored persons. The distribution of the deaths by sex and by months is shown in the following table, which illustrates the somewhat greater incidence of the disease upon males and the increased mortality in August, September, and October:

SEX.	DEATHS, BY MONTHS, FROM ACUTE ANTERIOR POLIOMYELITIS, REGISTRATION AREA: 1909.												
	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Total	569	11	15	16	20	31	14	33	78	115	124	66	46
Males	326	5	8	11	14	22	7	9	40	66	77	42	25
Females	243	6	7	5	6	9	7	24	38	49	47	24	21

The number and per cent distribution, by age, of the 569 deaths from acute anterior poliomyelitis in 1909 were as follows:

	DEATHS, BY AGES, FROM ACUTE ANTERIOR POLIOMYELITIS, REGISTRATION AREA: 1909.																	
	All ages.	Under 1	1	2	3	4	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64
Number	569	130	111	59	54	50	404	67	37	25	11	7	6	2	1	5	.....	3	1
Per cent	100	22.8	19.5	10.4	9.5	8.8	71.0	11.8	6.5	4.4	1.9	1.2	1.1	0.4	0.2	0.9	.....	0.5	0.2

The duration of illness prior to death was reported in only 312 of the 569 cases. In 19 of these it was one year or more, 1 each being reported as of ten, fourteen, sixteen, eighteen, and twenty years' duration. These may represent the results of old attacks or perhaps may include deaths from other forms of poliomyelitis. There were 40 cases of duration of illness in excess of one month but less than one year, 21 of which were under two months. The great majority of the fatal cases returned were apparently of very brief duration, 253, or 81.1 per cent of the total for which duration of illness was reported, being of less than one month. Of these, 20 were stated to be of one day, 22 of two days, 30 of three days, 31 of four days, 28 of five days, 18 of six days, 24 of seven days, 10 of eight days, 5 of nine days, 22 of ten days, and 1 of eleven days. The tendency to report in round numbers or to give the even weeks somewhat vitiates the exactness of the statements. The average duration of all the fatal cases reported as of a duration under one month was seven and two-tenths days.

HEART DISEASE.

"Heart disease" is an aggregate of many different causes of death, some of an indefinite character, the primary origin of which in not a few instances may be found in acute infectious diseases. "Heart failure" is, of course, not included under this title, and is not accepted as a satisfactory statement of cause of death by progressive registration officials. Many terms of an indefinite character, however, such as "organic heart disease," "heart trouble," etc., are here included, and in addition it is likely that some of the deaths reported from more specific causes, such as forms of valvular heart disease, may be of questionable authenticity. It often happens that sudden deaths are reported from "heart disease" without post-mortem or other investigation to determine the true cause.

The number of deaths compiled as due to organic diseases of the heart for the year 1909 was 65,971, an increase of 5,933 over the number (60,038) reported from the smaller registration area of 1908. The death rate rose from 133.3 to 135.3 per 100,000 estimated population. With the exception of the year 1907, for which the rate was 141.7, the death rate from heart disease was higher for 1909 than for any previous year.

The number of deaths from heart disease increased in 13 of the 17 registration states for which comparisons between 1908 and 1909 are given in Table 8, but the amount of increase was not large nor probably in most cases in excess of the ratio of increase of population. The largest absolute increases were reported for New York (609), Pennsylvania (324), and Washington (106), while Wisconsin showed a

decrease of 105. Among the large cities, Chicago showed the maximum increase in the number of deaths (474), followed by New York (252) and St. Louis (156). One-third of the cities in this group showed fewer deaths from heart disease in 1909 than in 1908, the maximum decrease being for Louisville (67).

PNEUMONIA (ALL FORMS).

Pneumonia, in the aggregate, caused more deaths in the registration area than any other disease except tuberculosis. As shown in Table 7, the number of deaths compiled from this cause increased from 61,259 for 1908 to 70,033 for 1909, the latter number being only seven less than the number of deaths from tuberculosis of the lungs (70,040). The death rate from all forms of pneumonia increased from 136 per 100,000 estimated population for 1908 to 143.6 for 1909, but the rates for both of the past two years were lower than for any previous year of the decade.

"Pneumonia" is a composite term in its statistical use, made up of about three-tenths bronchopneumonia and seven-tenths lobar and unqualified pneumonia, as shown by the proportions for 1909. A considerable part of the latter element is presumably bronchopneumonia, not definitely specified as such, and some cases of hypostatic or terminal pneumonia may be included, although when "pneumonia" is reported as a mere sequel or terminal condition of another disease the death is compiled under the primary cause. Thus "typhoid pneumonia," a most objectionable term, when equivalent to pneumonic typhoid, is compiled under typhoid fever. Nevertheless, the two groups show very distinct differences in age distribution, the average and median ages of deaths from bronchopneumonia in the registration area, 1908, being 18.4 and 1.5 years, respectively, and of pneumonia (lobar and unqualified) 36.7 and 38.7 years, respectively. Bronchopneumonia is a disease of young children, often following acute infectious diseases which fail to be returned as the primary causes, and of the aged; lobar pneumonia has a more nearly uniform distribution throughout life.

In Table 8 the absolute increase or decrease for the gross number of deaths from pneumonia may be seen for the principal subdivisions of the registration area, the registration states, and the cities with a population of 100,000 or over in 1900. A large increase in the number of deaths from this cause appears for New York (1,982) and considerable increases for Pennsylvania (794), New Jersey (550), Massachusetts (404), Indiana (320), and Maryland (244). Only three of the seventeen registration states for which comparisons can be made showed fewer deaths for 1909 than for 1908, and the only state reporting a considerable decrease was California (242). Of the 36 registration cities of over 100,000 inhabitants only 11 showed a diminution in deaths from pneumonia, Philadelphia leading with a decrease of 122 and San Francisco following with a decrease of 104. The cities showing the largest increases in deaths from pneumonia were New York (1,524), Chicago (1,202), Baltimore (163), St. Louis (115), and Newark (113).

DIARRHEA AND ENTERITIS.

An unusually favorable year in respect to infantile mortality is indicated by the low death rate from diarrhea and enteritis, which was only 107.7 per 100,000 estimated population for 1909 as compared with 116 for the preceding year. The number of deaths slightly increased (303), owing to augmentation of the registration area, the numbers for 1908 and 1909 being 52,213 and 52,516, respectively. Of the number returned for 1909, 44,648 were of infants under 2 years of age, and 7,868 were of persons aged 2 years and over. The death rate for infants under 2 years (91.5), compared with the total estimated population at all ages for 1909, was lower than for any recent year shown in Table 7, although slightly in excess of the rate for the quinquennial period 1901 to 1905 (89.4). Such comparisons are, of course, not as satisfactory as rates based upon population of the age affected or upon total births, data for which are not available. They may serve to show, however, the general importance of this disease, whose incidence is chiefly upon infants under 2 years of age, as affecting the general death rate, and also indicate the variations in infant mortality from this cause from year to year.

That the year 1909 was more favorable than 1908 with respect to diarrheal diseases of infancy throughout the country is indicated by the few states and cities in Table 8 that show any considerable increase of deaths from this cause. Only Indiana (266) and Washington (140) among the states, and Cleveland (134) among the cities, exceeded the number shown for 1908 by as many as 100 deaths, while the decreases in excess of this limit were more numerous: New York (1,278), Pennsylvania (506), Michigan (451), Maine (253), New Jersey (185), and the cities of New York (827), New Orleans (145), and Pittsburg (123).

NEPHRITIS AND BRIGHT'S DISEASE.

About one-tenth of the deaths thus compiled are due to acute nephritis, many of which should properly be chargeable to acute infectious diseases. For the most part, however, deaths from nephritis and chronic Bright's disease belong to the class of degenerative diseases, whose incidence is chiefly upon the later periods of life. The average age of persons dying in the registration area from acute nephritis was, for 1908, 38.3 years, and from Bright's disease, which term includes chronic nephritis and "nephritis," returned without qualification, 57.7 years.

The number of deaths from nephritis and Bright's disease increased from 43,835 for 1908 to 48,430 for 1909, and the death rate increased from 97.3 to 99.3 per 100,000 estimated population. All but two of the registration states showed absolute increases, the largest being for New York (690), Pennsylvania (349), Indiana (256), Massachusetts (166), and New Jersey (148). Of the 36 large cities, only 10 showed fewer deaths from this cause for 1909 than for 1908, and the decreases were but trifling. The largest increases were shown by New York (434), Chicago (135), Cleveland (81), and Newark (72).

DISEASES OF EARLY INFANCY.

The designation of this group is to a certain extent misleading because it does not include all the diseases of early infancy, but only that portion of them embraced under the separate titles of Class XI, as given in Table 7. Furthermore, the group does not include all deaths corresponding to the separate titles, but only those of infants under 3 months of age, which is taken as the limit of "early infancy" according to the International Classification as used for the decade 1900 to 1909. It is not known just how many of the deaths of the 140,057 infants under 1 year of age that occurred in 1909 were of infants under 3 months of age, but if approximately the same ratio existed as for 1905 (54 per cent), then the total number of deaths of infants under 3 months of age included under Class XI, Diseases of early infancy, would represent only about one-half of the total deaths of young infants under 3 months of age.

As classified, however, the deaths reported for 1909 (33,274) as due to diseases of early infancy increased by exactly 1,000 from the number registered for the registration area for 1908 (32,274). The general death rate, which it should be remembered involves the comparison of a limited group of deaths with respect to age with the total population at all ages, decreased from 71.7 for 1908 to 68.2 for 1909. The latter rate is lower than any recorded since the year 1901 (66.2). Only two states, Michigan (257) and Washington (121), showed any material increase in deaths from this cause, and only one of the large cities, Detroit (78); while considerable decreases were reported for Massachusetts (267), New York (252), Pennsylvania (160), and Indiana (116), and for the cities of Boston (191), Chicago (179), and St. Louis (103).

SUICIDE.

The slight increase in the number of deaths from suicide registered for 1909 (8,402) over the number for 1908 (8,332) is less than the relative increase of the estimated population of the registration area, so that the death rate decreased from 18.5 to 17.2 per 100,000 population. The variations in the numbers registered for the two years may be seen in Table 8 for the registration states and large cities. The most common means of suicide for the year was poison (2,462), followed by firearms (2,395), hanging (1,215), asphyxia, chiefly by illuminating gas (989), cutting instruments (536), drowning (507), jumping from high places (156), crushing (84), and other or unspecified means (58). Undoubtedly many deaths from suicide fail to be reported so that they can be compiled under this head, but the increasing precision of statement of the nature of the death in cases of deaths from violence renders the statistics more accurate from year to year and thus accounts for some of the apparent increase in the death rate from suicide.

ACCIDENT (AND HOMICIDE).

External causes other than suicide were responsible for 47,135 of the deaths reported for the registration area for 1909, as against 44,089 for the somewhat smaller registration area of 1908. The death rate declined from 97.9 to 96.7 per 100,000 estimated population. The distribution of the various kinds of death from accident may be seen in Table 7, and in Table 8 the net increase or decrease in the total number is given for each registration state and large city for 1909 as compared with 1908.

The total number of deaths from homicide, so reported for 1909, was 2,854, a decrease of 149 from the number compiled for 1908. Not all deaths from homicide are specified, so that the total number that actually occurred would be in excess of that compiled. The increase in the death rate from this cause for 1909 (5.9) over the annual average rate for the five-year period 1901 to 1905 (2.9) is probably due largely to greater precision in the returns in this respect.

Among the causes of accidental deaths were the following, in the order of numerical importance, for the year 1909: Railroad accidents and injuries, 6,659; drowning, 4,558; burns and scalds, 3,992; injuries at birth, hereafter to be classified under diseases of early infancy, 3,508; injuries by horses and vehicles, exclusive of street cars and automobiles, 2,152; injuries by street cars, 1,723; automobile accidents and injuries, 632; injuries in mines and quarries, 1,997; inhalation of poisonous gases, including "conflagration," 1,837; other accidental poisonings, 1,779; accidental gunshot wounds, 944; heat and sunstroke, 816; cold and freezing, 251; lightning, 150. There were 1,174 fatal injuries by machinery, chiefly in factories, but the large number of accidental traumatisms of unspecified nature (10,108) makes it necessary to consider many of the figures given above as only minimal. It is important that the means of injury be specified in all returns of death from accidental violence.

OCCUPATIONS AND CAUSES OF DEATH.

A compilation of the deaths of persons engaged in gainful occupations has been made, by cause of death and age, for the registration area, 1909, and the condensed results are presented in Table 9 for males and in Table 10 for females. The tables relate only to decedents who were reported as having been actively engaged in some specified occupation at the time of death and who were at least 10 years of age. For the purpose of this bulletin occupations in which the number of decedents during 1909 was less than 1,000 are omitted, and the numbers and percentages from the causes of death are printed in italics for each age period for which the total number of deaths from all causes was less than 200. The age periods shown for the individual occupations and groups of occupations in Tables 9 and 10 are those that represent the span of chief industrial activity of human life, namely, 25 to 34 years, 35 to 44 years, 45 to 54 years, and 55 to 64 years. For the aggregate of all occupations reported quinquennial age periods are shown for 10 to 14 years, 15 to 19 years, and 20 to 24 years, and two additional decennial age periods are given, 65 to 74 years and 75 to 84 years, besides a terminal group of 85 years and over. The detailed presentation by age, which is more complete than that given for 1908, will appear for each occupation in the annual report.[1]

In the following table may be seen the relation between the number of deaths of persons of specified occupation, by sex, at each age period and the total number of deaths at each age period:

AGE PERIOD.	DEATHS IN THE REGISTRATION AREA: 1909.					
	Male.			Female.		
	Total.	Occupation stated.		Total.	Occupation stated.	
		Number.	Per cent.		Number.	Per cent.
All ages	398,597	210,507	52.8	333,941	27,459	8.2
Total 10 years of age and over	282,124	210,507	74.6	237,738	27,459	11.6
Under 10 years	116,473	.....	.....	96,203	.....	.....
10 to 14 years	5,672	176	3.1	5,089	71	1.4
15 to 19 years	9,397	5,356	57.0	8,741	2,198	25.1
20 to 24 years	14,488	12,197	84.2	12,815	3,653	28.5
25 to 34 years	32,830	28,635	87.2	26,808	5,141	19.2
35 to 44 years	37,722	32,461	86.1	27,358	4,500	16.4
45 to 54 years	41,840	35,711	85.4	29,234	4,398	15.0
55 to 64 years	44,540	35,953	80.7	34,936	4,174	11.9
65 to 74 years	48,708	33,462	68.7	43,551	1,887	4.3
75 to 84 years	35,739	20,802	58.2	35,930	1,078	3.0
85 years and over	10,570	5,464	51.7	13,094	338	2.6
Unknown	612	290	47.4	182	21	11.5

Of the 398,597 deaths of males at all ages returned for the registration area for the year 1909, 210,507, or 52.8 per cent, were of males engaged in some specified gainful occupation; while of the 333,941 deaths of females at all ages, only 27,459, or 8.2 per cent, were of those gainfully employed. Of decedents at least 10 years of age, a statement of occupation was given with reference to about three-fourths (74.6 per cent) of the males and somewhat more than one-tenth (11.6 per cent) of the females. It is obvious that the large number of women and girls who were engaged in domestic employments in their own homes are not included in the list of those gainfully employed, although domestic workers for wages are thus included.

The percentages of males employed at the various ages show a close correspondence with those of the preceding year,[2] although a slight increase in nearly every period, except the first (10 to 14 years), may indicate somewhat greater care in specifying occupation in the returns. The numbers in this first period are too small to be significant, although it is gratifying that for 1909 only 176 boys and 71 girls aged 10 to 14 years were reported as decedent child workers as compared with 215 boys and 85 girls at this age in 1908 for a somewhat smaller registration area. The relatively small proportions of females employed in distinct gainful occupations, and the transient nature of such employment in many instances, as shown by the markedly lower percentages for ages above 25 years as compared with the percentages given for the years 15 to 19 and 20 to 24, indicate the difficulty of presenting statistics on the subject of occupation as affecting the mortality of females.

CLASSIFICATION OF OCCUPATIONS.

A uniform and comparable classification of occupations is just as necessary for the purpose of ascertaining the effect of occupations upon mortality as a uniform classification of causes of death. In the case of occupations the problem deals with the classification of the numerous terms designating occupations of persons in the living population and of decedents under a reasonable number of definite titles designating specific employments. It is impracticable in the case of occupations, as in the case of causes of death, to attempt a compilation that shall present all of the individual terms, many of which are more or less synonymous. The work of compilation would be greatly simplified if persons reporting occupations and causes of death would always use the same term for the same occupation or disease; but this is too much to expect, and one of the most important duties of the central statistical office is to make sure that the same terms shall always be compiled in the same way. The general adoption of the International Classification of Causes of Death has made this possible for causes of death, and the question of the uniform classification of occupations is now being worked out along similar lines.

In the present bulletin and in the annual report on Mortality Statistics, 1909, now in preparation, the classification of occupations adopted is the classification used for the statistics of population in the

[1] Mortality statistics, 1909.

[2] Mortality statistics, 1908, p. 80.

special report on Occupations at the Twelfth Census, published in 1904. It consists of 140 specified occupations or groups of occupations, for each of which the number of decedents will be given, by sex, in the annual report. In the bulletin, however, only the most important, or those for which at least 1,000 deaths were reported, will be presented. In the bulletin and report for 1908 a somewhat different classification was employed, namely, that used in the Vital Statistics of the Twelfth Census. The comparison of the data for two adjacent years as compiled under two different systems of classification will bring out some interesting differences, and will throw light upon the best method to be pursued in constructing a working list of occupations for mortality statistics upon the basis of the new classification of occupations to be used for the population statistics of the Thirteenth Census. Theoretically, the classification used for mortality statistics should agree exactly with that used for population statistics, but for practical purposes it will necessarily be somewhat selective, as certain occupations may not be sufficiently numerous to afford reliable rates, or they may not be reported with sufficient precision in the mortality returns.

The difference in classification between the compilations for the years 1908 and 1909 should be borne in mind, and in some instances it will be found impossible to make exact comparisons. Such definite occupations as "clergymen," "lawyers," "blacksmiths" "butchers," etc., will be found stated separately in each. Other occupations may be combined readily, so that the classifications may agree, as, for example, "agricultural laborers" and "farmers, planters, and overseers" for 1909 with "farmers, planters, and farm laborers" for 1908. The title "watchmen, policemen, firemen, etc.," in the classification used for 1909 is evidently not the same as the title "policemen, watchmen, and detectives" employed for 1908, although, as a matter of fact, 2,246 deaths of watchmen, policemen, and detectives were included thereunder and only 109 deaths of firemen. In the annual report a statement will be made of the number of deaths for each of the 303 titles of the extended list of the population classification.

RELATIVE MORTALITY OF OCCUPATIONS FROM CERTAIN CAUSES.

As for general mortality statistics, so for statistics of mortality as affected by occupation, the only satisfactory basis of study is the comparison of the number of deaths with the population from which they were derived. If it were known, for example, just how many carpenters were employed in the registration area of the United States in 1909, and we then had a complete registration of all deaths of carpenters, the crude or general death rate for carpenters would be at once obtainable, and we could compare it, subject to the usual statistical safeguards, with the crude death rate of any other occupation for which we had similar data. The statistics of occupations of the Thirteenth Census (1910) have not yet been compiled, and it would be impracticable to attempt to estimate the number of carpenters in 1909 from the data of the census of 1900. Moreover, a crude death rate thus obtained would be of little use without correction for the factor of age distribution, so that, practically, occupational death rates or mortality figures can only be computed to advantage for the census year or for adjacent years to which the census year is central.

In the following table are presented figures showing the number of deaths, by sex, from certain important causes of death and the number and per cent for which some occupation was assigned:

CAUSE OF DEATH.	DEATHS IN THE REGISTRATION AREA: 1909.					
	Male.			Female.		
	Total.	Occupation stated.[1]		Total.	Occupation stated.[1]	
		Number.	Per cent.		Number.	Per cent.
All causes	398,597	210,507	52.8	333,941	27,459	8.2
Typhoid fever	6,333	4,660	73.6	4,389	758	17.3
Tuberculosis of lungs	39,456	31,059	78.7	30,584	5,764	18.8
Cancer	14,918	11,536	77.3	22,644	2,226	9.8
Rheumatism	1,748	1,055	60.4	1,885	189	10.0
Diabetes	3,342	2,392	71.6	3,682	286	7.8
Alcoholism	2,270	1,938	85.4	308	65	21.1
Chronic lead poisoning	82	80	97.6	4	.....	.....
Other occupational and chronic poisonings	140	105	75.0	127	22	17.3
Apoplexy and paralysis	22,399	15,409	68.8	21,733	1,625	7.5
Other diseases of nervous system	17,791	5,299	29.8	12,733	708	5.6
Heart disease	34,931	25,043	71.7	31,040	2,834	9.1
Other diseases of circulatory system	13,643	8,757	64.2	10,842	821	7.6
Bronchitis	5,750	1,711	29.8	6,377	207	3.2
Pneumonia (all forms)	38,321	16,866	44.0	31,712	1,926	6.1
Pleurisy	1,215	799	65.8	867	98	11.3
Asthma	772	540	69.9	647	59	9.1
Other diseases of respiratory system	2,875	1,369	47.6	2,332	187	8.0
Cirrhosis of liver	4,758	8,894	81.8	2,287	216	9.4
Other diseases of liver	1,790	1,372	76.6	2,525	231	9.1
Peritonitis	1,122	604	53.8	1,489	189	12.7
Appendicitis	3,409	2,248	65.9	2,359	355	15.0
Hernia	1,052	668	63.5	966	96	9.0
Other diseases of digestive system	37,273	5,901	15.8	32,940	975	3.0
Bright's disease	24,524	17,888	72.9	18,888	2,004	10.6
Childbirth	.....	.....	.....	7,791	803	10.3
Suicide	6,494	5,429	83.6	1,908	430	22.5
Poisonous gases, other accidental poisonings	2,268	1,430	63.1	1,348	181	13.4
Other accidents and injuries	33,672	20,771	61.7	9,847	700	7.1
All other and unknown causes	76,249	21,684	28.4	69,687	3,504	5.0

[1] Exclusive of deaths of children under 10 years of age.

Nevertheless, it is of interest and of practical sanitary importance to know what proportions of the deaths from various occupations are due to certain important diseases. When it appears, as in 1909, that 51.5 per cent of the deaths of printers, lithographers, and pressmen who died at the ages 25 to 34 years were from tuberculosis of the lungs and 32.6 per cent of the deaths of males of these occupations between the ages of 35 to 44 years were likewise from this disease, while the corresponding ratios for farmers, planters, and overseers were only 24.9 and 18.8 per cent, respectively, then it would seem that the character of

these occupations or the attendant conditions of life should be studied to account for the great difference. Such ratios can be compared directly only on the hypothesis of "other things being equal," which is the disadvantage they suffer from as compared with death rates based upon population. In the case of typhoid fever and accidental violence, the percentage of deaths of printers, lithographers, and pressmen at these ages is considerably less than that of farmers, planters, and farm overseers, a fact which would tend to increase the difference in the percentages from tuberculosis. Carefully employed, however, the ratios offer many suggestions of value, and their study as presented in Tables 9 and 10 is of service in the absence of definite rates.

These ratios may be compared conveniently in the following table, which brings together the statistics for 1908 and 1909:

DEATHS OF PERSONS AT LEAST 10 YEARS OF AGE ENGAGED IN CERTAIN SPECIFIED OCCUPATIONS.

AGE AT DEATH.[1]	Number of deaths.										Per cent of all causes at specified age.									
	All causes.	Typhoid fever.	Tuberculosis of lungs.	Cancer.	Apoplexy and paralysis.	Heart disease.	Pneumonia (all forms).	Bright's disease.	Suicide.	Accident.	Typhoid fever.	Tuberculosis of lungs.	Cancer.	Apoplexy and paralysis.	Heart disease.	Pneumonia (all forms).	Bright's disease.	Suicide.	Accident.
MALES WITH OCCUPATIONS REPORTED.																			
Total 1909	210,507	4,660	31,059	11,536	15,409	25,043	16,866	17,888	5,429	22,201	2.2	14.8	5.5	7.3	11.9	8.0	8.5	2.6	10.5
1908	196,207	4,993	29,433	10,091	13,938	22,573	15,023	16,277	5,380	20,551	2.5	15.0	5.1	7.1	11.5	7.7	8.3	2.7	10.5
10 to 14 years 1909	*176*	*7*	*7*	.....	*2*	*4*	*15*	*2*	*3*	*74*	*4.0*	*4.0*	.....	*1.1*	*2.3*	*8.5*	*1.1*	*1.7*	*42.0*
1908	215	17	10	.....	1	1	9	.....	.....	102	7.9	4.7	.....	0.5	0.5	4.2	.....	.....	47.4
15 to 19 years 1909	5,356	481	1,231	26	27	202	375	81	118	1,423	9.0	23.0	0.5	0.5	3.8	7.0	1.5	2.2	26.6
1908	5,433	503	1,159	35	41	220	377	82	116	1,430	9.3	21.3	0.6	0.8	4.0	6.9	1.5	2.1	26.3
20 to 24 years 1909	12,197	933	3,861	112	76	426	764	253	410	2,640	7.6	31.7	0.9	0.6	3.5	6.3	2.1	3.4	21.6
1908	11,999	983	3,586	86	79	397	795	300	456	2,579	8.2	29.9	0.7	0.7	3.3	6.6	2.5	3.8	21.5
25 to 34 years 1909	28,635	1,438	8,880	379	349	1,383	2,105	1,133	1,069	5,260	5.0	31.0	1.3	1.2	4.8	7.4	4.0	3.7	18.4
1908	27,366	1,607	8,446	350	358	1,292	1,963	1,098	1,049	4,773	5.9	30.9	1.3	1.3	4.7	7.2	4.0	3.8	17.4
35 to 44 years 1909	32,461	870	7,675	1,087	889	2,501	3,075	2,130	1,202	4,674	2.7	23.6	3.3	2.7	7.7	9.5	6.6	3.7	14.4
1908	30,632	941	7,453	956	879	2,268	2,643	1,977	1,186	4,181	3.1	24.3	3.1	2.9	7.4	8.6	6.5	3.9	13.6
45 to 54 years 1909	35,711	538	5,140	2,420	2,094	4,028	3,211	3,470	1,258	3,639	1.5	14.4	6.8	5.9	11.3	9.0	9.7	3.5	10.2
1908	33,192	540	4,770	2,173	1,944	3,638	2,932	3,131	1,249	3,345	1.6	14.4	6.5	5.9	11.0	8.8	9.4	3.8	10.1
55 to 64 years 1909	35,953	255	2,707	3,364	3,643	5,531	2,974	4,213	823	2,252	0.7	7.5	9.4	10.1	15.4	8.3	11.7	2.3	6.3
1908	33,301	246	2,524	2,968	3,390	5,063	2,598	3,957	829	2,096	0.7	7.6	8.9	10.2	15.2	7.8	11.9	2.5	6.3
65 years and over 1909	59,728	136	1,534	4,140	8,314	10,947	4,334	6,598	527	2,120	0.2	2.6	6.9	13.9	18.3	7.3	11.0	0.9	3.5
1908	53,741	144	1,458	3,515	7,232	9,672	3,687	5,721	482	1,927	0.3	2.7	6.5	13.5	18.0	6.9	10.6	0.9	3.6
Unknown age 1909	290	2	24	8	15	21	13	8	19	119	0.7	8.3	2.8	5.2	7.2	4.5	2.8	6.6	41.0
1908	328	12	27	8	14	22	19	11	13	118	3.7	8.2	2.4	4.3	6.7	5.8	3.4	4.0	36.0
FEMALES WITH OCCUPATIONS REPORTED.																			
Total 1909	27,459	758	5,764	2,226	1,625	2,834	1,926	2,004	430	881	2.8	21.0	8.1	5.9	10.3	7.0	7.3	1.6	3.2
1908	26,205	808	5,511	1,970	1,527	2,637	1,835	1,836	454	856	3.1	21.0	7.5	5.8	10.1	7.0	7.0	1.7	3.3
10 to 14 years 1909	*71*	*9*	*19*	.....	*1*	*4*	*5*	*2*	*1*	*4*	*12.7*	*26.8*	.....	*1.4*	*5.6*	*7.0*	*2.8*	*1.4*	*5.6*
1908	85	12	14	1	.....	3	6	3	.....	7	14.1	16.5	1.2	.....	3.5	7.1	3.5	.....	8.2
15 to 19 years 1909	2,198	202	731	15	8	104	131	57	66	117	9.2	33.3	0.7	0.4	4.7	6.0	2.6	3.0	5.3
1908	2,267	200	759	20	10	88	134	53	82	121	8.8	33.5	0.9	0.4	3.9	5.9	2.3	3.6	5.3
20 to 24 years 1909	3,653	210	1,454	26	21	176	192	108	107	143	5.7	39.8	0.7	0.6	4.8	5.3	3.0	2.9	3.9
1908	3,543	221	1,374	24	21	143	187	94	104	133	6.2	38.8	0.7	0.6	4.0	5.3	2.7	2.9	3.8
25 to 34 years 1909	5,141	172	1,837	160	69	327	295	238	123	154	3.3	35.7	3.1	1.3	6.4	5.7	4.6	2.4	3.0
1908	4,997	192	1,730	135	77	330	299	261	113	158	3.8	34.6	2.7	1.5	6.6	6.0	5.2	2.3	3.2
35 to 44 years 1909	4,500	89	959	456	178	472	290	347	51	116	2.0	21.3	10.1	4.0	10.5	6.4	7.7	1.1	2.6
1908	4,220	97	909	420	168	417	278	301	72	128	2.3	21.5	10.0	4.0	9.9	6.6	7.1	1.7	3.0
45 to 54 years 1909	4,398	44	449	685	370	559	350	441	40	127	1.0	10.2	15.6	8.4	12.7	8.0	10.0	0.9	2.9
1908	4,101	50	419	581	345	562	328	428	46	123	1.2	10.2	14.2	8.4	13.7	8.0	10.4	1.1	3.0
55 to 64 years 1909	4,174	25	234	615	514	642	377	478	32	103	0.6	5.6	14.7	12.3	15.4	9.0	11.5	0.8	2.5
1908	3,852	26	219	518	489	590	338	402	27	100	0.7	5.7	13.4	12.7	15.3	8.8	10.4	0.7	2.6
65 years and over 1909	3,303	6	80	268	460	548	286	333	9	116	0.2	2.4	8.1	13.9	16.6	8.7	10.1	0.3	3.5
1908	3,117	10	83	270	416	501	263	290	10	86	0.3	2.7	8.7	13.3	16.1	8.4	9.3	0.3	2.8
Unknown age 1909	*21*	*1*	*1*	*1*	*4*	*2*	.....	.....	*1*	*1*	*4.8*	*4.8*	*4.8*	*19.0*	*9.5*	.....	.....	*4.8*	*4.8*
1908	*23*	.....	*4*	*1*	*1*	*3*	*2*	*4*	.....	.....	.....	*17.4*	*4.3*	*4.3*	*13.0*	*8.7*	*17.4*	.....	.....

[1] Age groups having less than 200 deaths from all causes are distinguished by *italics*.

Since many deaths were of infants and children under 10 years of age for whom no occupation was compiled, a special comparison might be made, for all causes and for each individual disease, to show the percentage of occupations reported for ages of 10 years and over. This is not necessary, however, for the purpose of this table, which is to show the relations of the various diseases and forms of violence as destroyers of wage-earners. The age incidence of the different diseases, or the extent to which they attack the various periods of life, is an important factor. As a rule in this list, selected for the special study of the mortality of occupations, the average age at death is high because the diseases chiefly responsible for infant and child mortality are omitted. For the same reason, in the case of every disease shown in the list except other diseases of nervous system (which includes "convulsions" of infants), bronchitis, pneumonia (including bronchopneumonia), other diseases of respiratory system, other diseases of digestive system (including diarrhea and enteritis under 2 years), and all other and unknown causes, the percentage of occupations reported is above the average. The significance of this is great, and directs attention sharply to the economic importance of restricting many of these diseases. The average death of a male is nearly as likely to be that of a dependent as of a breadwinner, but about three deaths out of four of those dying from typhoid fever, tuberculosis of the lungs, or cancer are of persons gainfully employed.

In Tables 9 (for males) and 10 (for females) only the most important causes of death are presented, the list including typhoid fever, tuberculosis of the lungs, cancer, apoplexy and paralysis, heart disease, pneumonia (all forms), Bright's disease, suicide, and accidental violence. Of the 210,507 deaths of gainfully employed males that occurred in the registration area of the United States in 1909, 31,059, or 14.8 per cent (about 1 in 7), were due to tuberculosis of the lungs. Next in order were heart disease, with 25,043 deaths (11.9 per cent), and accidental violence, with 22,201 deaths (10.5 per cent). But this statement is for the whole period of life, and for the early active years and the most productive middle period of life a very different showing is made. Between the ages of 25 and 34 years there were 28,635 deaths of occupied males, of which 8,880, or 31 per cent, were due to tuberculosis of the lungs; 5,260, or 18.4 per cent, to accident; and only 1,383, or 4.8 per cent, to heart disease. At the next period, 35 to 44 years, out of 32,461 deaths of male workers, 7,675, or 23.6 per cent, were from tuberculosis of the lungs; 4,674, or 14.4 per cent, from accident; and 2,501, or 7.7 per cent, from heart disease. The percentage of deaths from suicide was the same (3.7) for the two age periods. Otherwise, with the exception of tuberculosis of the lungs, accident, and typhoid fever, the diseases given in the table show higher ratios for the later period.

The close correspondence between the data for the two years illustrates the constant nature of the influences linking together age, occupation, and cause of death, and shows that for the great majority of groups of ages and causes the numbers returned are sufficiently large to yield dependable results. The same comparison can be extended to individual occupations and groups of occupations, but the uncertainty due to small numbers will occasionally arise.

IMPROVEMENT OF STATEMENT OF OCCUPATION.

The statistics of occupations of decedents for the year 1909 and for previous years were based upon the registration of deaths upon the old blanks which provided simply for a statement of "occupation." The suggestions for improvement in this respect were discussed in the bulletin for 1908, and as a result of the concerted action of the state and municipal registration officials of the United States in cooperation with the Bureau of the Census the revised standard certificate of death adopted for use beginning on January 1, 1910, provides for the statement of both occupation (in the limited sense of trade, profession, or particular kind of work) and industry. This form, with the special instructions relative to the proper reporting of occupations and certain rules of statistical practice relating thereto, may be found in the appendix of the Annual Report on Mortality Statistics, 1908, and also in this bulletin (p. 41). It has already gone into extensive use, and examination of the returns received thereon during the current year shows an appreciable increase in the precision of statement. Moreover, the form is in exact accordance with that used for the collection of population statistics by the Thirteenth Census, so that for the first time we have the collection of data concerning occupation on a strictly comparable basis both in the enumeration of population and in the registration of deaths.

Following is the part relating to occupation as shown in the revised standard certificate of death:

8 OCCUPATION
(a) Trade, profession, or particular kind of work.....
(b) General nature of industry, business, or establishment in which employed (or employer).....

The first part of this double statement should always be filled out on a certificate of death. For a child or a person who has no occupation the word *None* should be written. Sometimes the statement under this head will so completely describe the decedent's calling that no further information need be given under the statement provided for industry. For example, the return of "lawyer," "physician," or "farmer" is sufficient. (In the census compilation of population every occupation is double punched for particular occupation and industry. For example, "lawyer" is punched "1-0 6-x," the "6-x" denoting *professional service.*) It is

only necessary, however, in the registration of deaths to take care that the nature of the business or industry shall be given when the mere statement of trade, profession, or particular kind of work would be indefinite without it. Thus, by adding the italicized terms denoting industries, the following are converted from indefinite to definite statements: Agent—*real estate;* foreman—*stave mill;* gilder—*picture frames;* laborer—*machine shop;* roofer—*slate.* Some of the industries that should always be specified in connection with the statement of occupation on the certificate of death of any person engaged therein are the following, taken from the Index to Occupations prepared by the population division of the Thirteenth Census:

INDUSTRY INDEX.

Agricultural implements.
Automobile factory.
Bakery (any bakery).
Bank.
Bicycle factory (or company).
Blast furnace (iron).
Bleachery.
Bookbindery.
Bottling works.
Box factory (paper).
Box factory (wood).
Brass factory or mill.
Brass foundry.
Brewery.
Brickyard.
Brittania or brittania factory.
Broom or brush factory.
Button shop or factory.
Cab or hack company.
Candy factory.
Caps.
Car shop.
Carpet factory or mill.
Carriage factory or shop.
Cartridge factory or shop.
Cement works.
Chair factory.
Chemical factory or works. State kind.
Cigar factory.
Cigar-box factory.
Clock factory or shop.
Coal mine.
Coat or cloak.
Coke oven, works, or yard.
Collar and cuff factory.
Cooper shop.
Copper mill, works, or refinery.
Copper mine.
Cordage factory or works.
Corsets or corset factory.
Cotton mill or factory.
Creamery.
Cutlery or cutlery factory.
Distillery (not turpentine).
Distillery (turpentine).
Dye house or works.
Dynamite factory or works.
Electric light or power plant or house.
Elevated railway.
Embroidery mill or factory.
Envelopes or envelope factory.
Express company (any).
Fertilizer or phosphate works.
Fireworks or fuse factory.
Fish or fish cannery.
Flour or grain mill.
Fruit cannery.
Furniture factory.
Gas house or works.
Glass works or factory.
Gloves or glove factory.
Gold mine.
Granite works or yard.
Guano factory or works.
Gypsum works.
Harness or saddle shop or factory.
Harvester factory or works.
Hat factory (straw).
Hat factory (wool or felt).
Hemp mill or factory.
Hosiery mill or factory.
Implement factory.
Insurance company (any kind).
Iron foundry.
Iron mill.
Iron mine.
Jewelry factory.
Jute mill or factory.
Knitting mill or factory.
Lace mill or factory.
Laundry (any laundry).
Lead factory or works.
Lead mine.
Lime kiln or works.
Linen mill or factory.
Livery or feed barn or stable.
Marble works or yard.
Mine (not specified). Always specify.
Necktie or neckwear.
Oil field or well.
Organ factory.
Overalls or pants.
Packing house (or company).
Paint factory or works.
Paper-box factory or shop.
Paper mill or factory.
Piano factory.
Planing mill.
Plow factory.
Pottery works.
Print works (cloth).
Printing office.
Publishing house.
Pulp mill or factory.
Quarry (any). State kind.
Quartz mine.
Railroad or railway (steam).
Railroad shop.
Rolling mill (iron).
Rope factory.
Rubber factory or works.
Salt block, mine, works, or yard.
Sardine factory.
Sawmill.
Sewing machines or sewing-machine factory.
Shipyard.
Shirt (or collar) factory.
Shirt waists.
Shoe factory.
Silk mill or factory.
Silver mine.
Soap factory, mill, or works.
Soda factory or works.
Solvay factory or works.
Starch factory or works.
Steel mill.
Stocking or stockinet factory.
Stone works or yard.
Straw works.
Street railway.
Subway.
Sugar house, refinery, or works.
Tannery (any tannery).
Telegraph or telephone company.
Terra-cotta works.
Textile mill. State kind.
Tile factory or works.
Tin-plate mill or factory.
Tinware factory.
Tobacco factory.
Truck or transfer company.
Twine factory or works.
Type foundry.
Typewriters or typewriter factory.
Umbrella or parasol factory.
Varnish factory or works.
Vegetable cannery.
Wagon factory.
Wall paper or wall-paper factory.
Watch factory.
Wire mill.
Woolen mill or factory.
Worsted mill or factory.
Wrappers or wrapper factory.
Zinc factory or works.
Zinc mine.

DEATH RATES FOR CERTAIN STATES AND CITIES, 1909, COMPUTED UPON REVISED ESTIMATES OF POPULATION BASED UPON RESULTS OF THIRTEENTH CENSUS.

In Table 11 may be found the death rates per 1,000 population, based upon new estimates of population for 1909, derived from comparison of the results of the enumeration of April 15, 1910, with that of the preceding census, for all states and cities for which the compilation of population by the Thirteenth Census was completed at the time of sending the bulletin to press. The last rates were inserted in the press proofs and include those for all areas for which the population was available up to October 5, 1910. The rates for other areas not shown in the table may readily be computed, according to the method explained on a preceding page and with due allowance for territorial changes, as soon as the populations shall be announced through the press. Complete rates for all areas will, of course, be presented in the annual report for 1909, now in preparation, together with revised rates for preceding years.

Following is an extract from the bulletin issued by the Bureau of the Census under date of September 14, and containing a recapitulation of the bulletins announcing the population of individual cities up to that

date, to which have been added additional data for cities announced since that date but prior to the time of sending this bulletin to press:

The following table is a complete roll of the thirty-eight cities which had in 1900 a population of 100,000 or more, to which have been added five cities, namely, Albany, N. Y., Atlanta, Ga., Bridgeport, Conn., Dayton, Ohio, and Grand Rapids, Mich., which have risen above the 100,000 limit since 1900. As the count progresses other cities than the five mentioned will undoubtedly be found to have passed the 100,000 limit during the decade.

Cities of over 100,000 population.

CITIES.	POPULATION.			PER CENT OF INCREASE.	
	1910	1900	1890	1900 to 1910	1890 to 1900
Albany, N. Y.	100,253	94,151	94,923	6.5	[1]0.8
Allegheny, Pa.	[2]	129,896	105,287	.....	23.4
Atlanta, Ga.	154,839	89,872	65,533	72.3	37.1
Baltimore, Md.	[3]558,485	508,957	434,439	9.7	17.2
Boston, Mass.	670,585	560,892	448,477	19.6	25.1
Bridgeport, Conn.	102,054	70,996	48,866	43.7	45.3
Buffalo, N. Y.	423,715	352,387	255,664	20.2	37.8
Chicago, Ill.	[3]2,185,283	1,698,575	1,099,850	28.7	54.4
Cincinnati, Ohio	364,463	325,902	296,908	11.8	9.8
Cleveland, Ohio	[3]560,663	381,768	261,353	46.9	46.1
Columbus, Ohio	181,548	125,560	88,150	44.6	42.4
Dayton, Ohio	116,577	85,333	61,220	36.6	39.4
Denver, Colo.	213,381	133,859	106,713	59.4	25.4
Detroit, Mich.	465,766	285,704	205,876	63.0	38.8
Fall River, Mass.	[3]119,295	104,863	74,398	13.8	40.9
Grand Rapids, Mich.	112,571	87,565	60,278	28.6	45.3
Indianapolis, Ind.	233,650	169,164	105,436	38.1	60.4
Jersey City, N. J.	267,779	206,433	163,003	29.7	26.6
Kansas City, Mo.	248,381	163,752	132,716	51.7	23.4
Los Angeles, Cal.	.....	102,479	50,395	.....	103.4
Louisville, Ky.	.....	204,731	161,129	.....	27.1
Memphis, Tenn.	.....	102,320	64,495	.....	58.6
Milwaukee, Wis.	373,857	285,315	204,468	31.0	39.5
Minneapolis, Minn.	.....	202,718	164,738	.....	23.1
Newark, N. J.	347,469	246,070	181,830	41.2	35.3
New Haven, Conn.	133,605	108,027	81,298	23.7	32.9
New Orleans, La.	[3]339,075	287,104	242,039	18.1	18.6
New York, N. Y.	[4]7,766,883	3,437,202	[4]2,507,414	38.7	37.1
Omaha, Nebr.	.....	102,555	140,452	.....	[1]27.0
Paterson, N. J.	125,600	105,171	78,347	19.4	34.2
Philadelphia, Pa.	1,549,008	1,293,697	1,046,964	19.7	23.6
Pittsburg, Pa.	533,905	[5]451,512	[5]343,904	18.2	31.3
Providence, R. I.	224,326	175,597	132,146	27.8	32.9
Rochester, N. Y.	218,149	162,608	133,896	34.2	21.4
St. Joseph, Mo.	[3]77,403	102,979	52,324	[1]24.8	96.8
St. Louis, Mo.	687,029	575,238	451,770	19.4	27.3
St. Paul, Minn.	214,744	163,065	133,156	31.7	22.5
San Francisco, Cal.	.....	342,782	298,997	.....	14.6
Scranton, Pa.	129,867	102,026	75,215	27.3	35.6
Syracuse, N. Y.	137,249	108,374	88,143	26.6	23.0
Toledo, Ohio	168,497	131,822	81,434	27.8	61.9
Washington, D. C.	331,069	278,718	230,392	18.8	21.0
Worcester, Mass.	[3]145,986	118,421	84,655	23.3	39.9

[1] Decrease.
[2] Combined with Pittsburg, census of 1910.
[3] Data added since September 14.
[4] Estimated population in 1890 of the area of present New York. The population of New York as it existed in 1890 was 1,515,301.
[5] Combined with figures for Allegheny.

The 1910 count has been completed for twenty-nine[1] of these forty-three cities. Of these twenty-nine cities, twenty-one made a greater absolute increase of population during the decade 1900 to 1910 than during the preceding decade, and thirteen made also a greater percentage increase.

The aggregate population given to these twenty-nine cities by the 1910 count is 13,596,819. In 1900 these same cities had an aggregate population of 10,376,012; in 1890, of 7,904,140. The absolute increase between 1890 and 1900 amounted to 2,471,872; between 1900 and 1910, to 3,220,807. The percentages of increase for this aggregate population show very little change in the rate of growth during the two decades, being for the earlier decade 31.3 and for the latter decade 31 per cent. For the twenty-eight cities, exclusive of New York, the corresponding percentages are 28.6 from 1890 to 1900 and and 27.3 from 1900 to 1910.

The rates for individual cities vary widely, ranging from 6.5 to 72.3 per cent, with no conspicuous breaks in the progression from the lower to the higher rates. It is rather noteworthy, however, that there are seven cities—or about one-fourth of the total number—which have shown approximately the same rate of increase during the last decade, viz, Boston (19.6 per cent), Buffalo (20.2 per cent), Paterson (19.4 per cent), Philadelphia (19.7 per cent), Pittsburg (18.2 per cent), St. Louis (19.4 per cent), and Washington (18.8 per cent).

It will appear from the above table that high rates of increase are not confined to any one geographical section of the country. Of the seven cities with rate of increase above 40 per cent, two, Newark and Bridgeport, are eastern; one, Atlanta, is southern; and four, Detroit, Denver, Kansas City, and Columbus, are scattered in the Middle West, two east and two west of the Mississippi River. Of the two cities with the lowest rates, on the other hand, one is eastern and one in the Middle West.

The rates of increase for Atlanta, Detroit, Denver, and Kansas City must be regarded as phenomenally high, but even more extraordinary is the high percentage for New York City, which exceeds the average for twenty-eight other cities in the group by 11.4, and is itself exceeded only by the rates of the seven cities mentioned above. The New York City rate, moreover, has been maintained at its present high point for two decades, and may therefore be regarded as a normal rate for that city.

It should be remembered that in some instances the growth of a city may have been due in part to annexation of suburban territory. No attempt has been made to distinguish these cases in the tables herewith presented or to make any allowance for such annexations, except in the case of New York.

From the above comparison of the growth of cities of 100,000 population in the decades ending in 1900 and 1910, it will be seen how extremely difficult it is to make estimates of population of American cities—especially at the long range of eight or nine years after a census enumeration—that will be fairly in accordance with the facts as determined by the latest census. This difficulty would be greatly diminished if it were the general practice to take an intermediate state census in the years ending in "5," or to provide for annual municipal censuses conducted by such methods as would make the results fully dependable and comparable with the decennial Federal enumeration. It should be remembered that the estimates of population employed by the Bureau of the Census, or by any national statistical office, for postcensal years are by no means set forth as guesses at the actual facts. They are simply attempts to make approximations of population, according to the previously observed amount of growth, and under the hypothesis that such growth has continued to a similar extent. They have the great advantage of uniformity, and permit ready correction as soon as the latest population data are available. Sometimes local information may be available to indicate that a city has grown much more, or much less, rapidly than during the preceding decade; in such cases it has been customary to discontinue the estimates.

[1] Population of other cities announced since September 14 not included in discussion.

It will be of interest to present, in this connection, the crude death rates per 1,000 population estimated according to the best data then available, as published in the bulletin and annual report for 1908 for the cities of 100,000 population and over in 1900. The following caution was given in the text relative thereto: "At their best, however, the death rates computed for a year so remote from the last census of population (1900), and therefore dependent upon *estimates* of the number of inhabitants in each state and city, must be used with discretion, and it is far safer to employ them for the important purpose of detecting the variations in the mortality of individual states and cities during a series of years than for the exact comparison of the mortality of different states and cities." In the following table the death rates for 1909 have been inserted for all cities of 100,000 population and over in 1900 for which the population data for 1910 are available:

REGISTRATION CITY.	NUMBER OF DEATHS FROM ALL CAUSES [1] PER 1,000 OF POPULATION.						
	Annual average: 1901 to 1905.	1904	1905	1906	1907	1908	1909
Los Angeles, Cal.	[2]	[2]	[2]	[2]	[2]	[2]	[3]
San Francisco, Cal.	20.9	20.8	20.1	[2]	[2]	[2]	[3]
Denver, Colo.	19.3	19.6	19.2	21.1	23.5	23.6	**17.0**
New Haven, Conn.	17.5	17.2	18.7	19.1	18.6	16.9	**16.9**
Washington, D. C.	20.6	20.8	20.5	20.5	20.3	19.3	**19.0**
Chicago, Ill.	14.3	13.8	13.8	14.2	15.3	14.0	**14.6**
Indianapolis, Ind.	15.2	16.3	14.1	14.6	15.2	13.5	**14.3**
Louisville, Ky.	18.6	19.8	18.1	18.2	18.1	16.0	[3]
New Orleans, La.	22.6	22.3	23.7	21.7	24.0	22.7	**20.2**
Baltimore, Md.	19.7	20.1	19.6	19.4	19.9	18.3	**18.7**
Boston, Mass.	**18.8**	**18.3**	**18.5**	18.9	19.2	19.1	**16.8**
Fall River, Mass.	**20.3**	**19.6**	**19.9**	19.7	22.5	22.1	**19.1**
Worcester, Mass.	**16.8**	**16.2**	**17.7**	17.8	19.6	17.4	**15.5**
Detroit, Mich.	**15.2**	**14.9**	14.4	17.0	16.5	15.6	**14.0**
Minneapolis, Minn.	**10.2**	**9.6**	**9.4**	10.3	10.4	10.3	[3]
St. Paul, Minn.	**10.0**	**10.0**	**10.0**	10.3	10.6	10.1	**11.4**
Kansas City, Mo.	17.2	19.7	16.9	15.3	18.0	16.8	**14.4**
St. Joseph, Mo.	7.7	7.9	7.6	8.2	9.2	8.3	[1] **13.7**
St. Louis, Mo.	17.8	18.8	16.9	15.6	15.7	14.5	**15.8**
Omaha, Nebr.	11.1	11.5	10.8	11.4	12.4	12.1	[3]
Jersey City, N. J.	**19.3**	**20.8**	**19.0**	19.5	19.5	17.8	**16.8**
Newark, N. J.	**18.7**	**19.5**	**17.7**	19.2	19.5	17.3	**16.5**
Paterson, N. J.	**16.9**	**18.0**	**16.6**	17.7	16.1	16.2	**15.3**
Buffalo, N. Y.	**15.5**	**16.0**	**15.6**	16.6	17.1	15.9	**15.2**
New York, N. Y.	**19.0**	**20.1**	**18.4**	18.6	18.7	16.8	**16.0**
Bronx Borough	**20.9**	**21.5**	**20.3**	21.9	21.1	20.1	**15.9**
Brooklyn Borough	**18.2**	**18.8**	**17.6**	18.0	18.2	16.3	**15.4**
Manhattan Borough	**19.5**	**21.2**	**18.8**	18.5	18.7	16.7	**16.6**
Queens Borough	**16.1**	**16.1**	**16.1**	17.3	17.8	15.9	**14.2**
Richmond Borough	**19.0**	**20.4**	**19.2**	20.0	21.2	19.6	**18.1**
Rochester, N. Y.	**14.6**	**15.0**	**15.3**	15.5	16.2	14.6	**14.4**
Syracuse, N. Y.	**14.5**	**15.2**	**15.5**	15.5	15.9	16.5	**14.5**
Cincinnati, Ohio.	19.3	20.8	19.2	20.8	18.5	18.5	**16.4**
Cleveland, Ohio.	15.5	15.4	14.7	16.0	16.2	14.2	**12.9**
Columbus, Ohio.	15.9	16.9	15.7	16.2	16.6	16.4	**14.0**
Toledo, Ohio.	14.1	13.7	13.7	14.7	14.7	14.0	**14.6**
Allegheny, Pa.	18.4	17.8	18.8	17.9	17.3	[4]	[4]
Philadelphia, Pa.	18.2	18.8	17.7	19.3	18.7	17.4	**16.4**
Pittsburg, Pa.	20.7	19.8	20.0	19.9	19.2	[5] 16.5	[5] **15.8**
Scranton, Pa.	16.3	17.9	18.2	16.5	15.9	16.5	**16.3**
Providence, R. I.	**18.8**	**18.5**	**17.5**	18.7	19.3	16.8	**16.1**
Memphis, Tenn.	18.3	19.5	17.9	17.6	19.0	17.5	[3]
Milwaukee, Wis.	**13.2**	**13.6**	**13.0**	14.5	14.4	13.6	**13.6**

[1] Exclusive of stillbirths. Rates in bold-faced type are based upon census figures or intercensal estimates, except that for St. Joseph, which is computed directly upon the population, April 15, 1910. Other rates, based upon postcensal estimates, are subject to revision.
[2] Population not estimated.
[3] Population not available.
[4] Annexed to Pittsburg, December 9, 1907.
[5] Includes Allegheny.

The death rates printed in bold-faced type in the last column of the table above are the first death rates computed by the Bureau of the Census on the basis of populations estimated upon the results of the Thirteenth Census. They are, furthermore, based upon *midyear* estimates, while all the rates for preceding years are based upon estimates as of June 1; this distinction is of slight difference as affecting the size of the rates, but it is of importance as bringing the method into closer conformity with international practice.

The death rates of the larger American cities for the year lie for the most part between 14 and 17 per 1,000, and are about 2 or 3 per 1,000 lower than they were ten years ago. Comparison with the death rates of foreign cities for recent years may be made by means of the following table, taken from the annual summary published by the Registrar-General of England and Wales:

CITIES.	1881 to 1885	1886 to 1890	1891 to 1895	1896 to 1900	1901 to 1905	1906	1907	1908	1909	Decrease per cent between 1881 to 1885 and 1901 to 1905.
London	20.9	19.7	19.8	18.5	16.1	15.1	14.6	13.8	14.0	23.0
Edinburgh	19.6	19.7	19.7	19.0	17.3	16.0	16.2	15.2	15.3	11.7
Glasgow	26.0	23.1	22.8	21.2	19.5	17.8	18.5	17.7	17.5	25.0
Dublin (city)	30.6	29.5	28.8	28.9	24.9	24.1	24.7	23.0	22.4	18.6
Belfast	24.7	24.4	25.1	23.4	20.8	20.1	21.3	19.5	18.2	15.8
Melbourne	20.1	21.0	16.7	15.5	14.0	13.6	12.8	13.8	12.5	30.3
Sydney	20.8	17.9	14.3	12.1	11.5	10.5	11.0	10.3	10.3	44.7
Montreal	31.0	26.7	25.3	23.1	23.3	22.9	22.6	23.0	(?)	24.8
Toronto	20.7	20.1	15.2	14.6	16.3	17.2	20.2	20.1	22.3	21.3
Paris	24.4	23.0	21.2	19.2	18.0	17.6	18.5	17.5	17.4	26.2
Brussels	23.4	21.2	20.2	17.2	15.2	14.6	13.7	14.5	13.9	35.0
Amsterdam	25.1	22.4	19.2	16.7	14.7	13.7	13.4	13.0	13.1	41.4
Rotterdam	24.2	22.0	20.8	18.0	15.6	13.9	14.3	13.7	12.6	35.5
The Hague	23.3	20.8	18.7	16.2	14.4	14.0	13.4	13.8	12.7	38.2
Copenhagen	22.3	22.3	20.2	17.6	16.1	15.4	15.2	16.4	14.5	27.8
Stockholm	24.3	21.2	20.0	18.2	16.1	14.6	14.3	15.9	14.3	33.7
Christiania	19.9	22.3	19.0	17.5	15.3	13.3	13.1	14.0	12.7	23.1
St. Petersburg	32.8	26.8	25.3	24.6	23.5	25.0	24.7	28.6	24.6	28.4
Moscow	33.3	33.6	29.2	28.7	26.6	25.7	27.5	28.0	29.6	20.1
Berlin	26.5	22.4	20.5	18.1	17.0	15.8	15.4	15.4	15.1	35.8
Hamburg	25.2	25.3	24.2	17.3	16.3	15.3	14.8	15.3	14.6	35.3
Dresden	25.0	22.1	20.6	19.0	17.6	15.4	14.9	15.3	14.0	29.6
Breslau	31.3	28.8	27.4	25.0	23.7	21.3	22.3	20.5	20.3	24.3
Munich	30.4	28.3	25.8	23.9	21.0	18.0	18.1	17.9	17.6	30.9
Vienna	28.2	25.1	24.1	21.1	19.1	17.5	17.3	17.6	16.8	32.3
Prague	32.7	29.6	27.1	24.4	22.6	19.3	19.8	20.1	19.1	30.9
Budapest	31.5	30.8	25.5	21.6	19.8	19.1	20.2	19.3	19.2	37.1
Trieste	31.1	30.4	29.8	27.5	26.3	25.7	25.4	24.2	24.6	15.4
Rome	[1] 26.8	25.9	21.4	18.1	[1] 19.8	18.7	18.2	18.5	19.3	26.1
Milan	30.3	30.4	27.4	23.2	22.1	21.6	20.3	18.4	20.3	27.1
Turin	27.2	23.5	21.6	19.8	19.6	19.2	19.3	18.7	15.4	27.9
Venice	[1] 28.3	28.0	25.1	22.8	22.2	(?)	19.7	22.0	22.1	21.6
Bucharest	(?)	(?)	(?)	24.6	23.3	22.4	25.1	23.9	26.4	(?)
New York	27.5	25.8	24.6	20.3	18.9	18.3	18.5	16.5	16.2	31.3
Chicago	21.5	19.5	20.6	15.2	14.2	14.2	15.3	14.1	14.1	34.0
Philadelphia	22.3	20.6	21.1	19.2	18.1	18.6	18.3	17.2	15.8	18.8
Boston	24.9	23.5	23.6	20.9	18.8	18.9	19.2	19.1	17.7	24.5
Rio de Janeiro	30.5	33.1	38.2	29.2	27.9	22.3	20.8	31.8	19.5	8.5

[1] Average for four years.

The arithmetic method of estimating population, which has been employed since 1900, assumes that the amount—not the rate—of increase from year to year and from decade to decade is constant. This corresponds to a decreasing annual and decennial rate of increase. Of the twenty-nine great cities discussed in the text of the population bulletin, sixteen showed lower percentages of increase for the decade 1900 to 1910 than for the decade 1890 to 1900. For these the estimate by the arithmetic method would therefore be closer than would the estimate by the geometric

method, which assumes a constant rate of increase. But no method of estimation can be applicable closely to some American cities that show phenomenal rates of increase for the last decade as compared with the preceding one, as, for example, Atlanta, Denver, Detroit, and Kansas City, Mo.

It is of importance to know how the death rates presented for American cities during recent years will be affected by the more accurate estimates of population for intercensal years made possible by the census of 1910. The following table gives a comparison of the rates computed for 1909 according to the revised estimates of population, and the rates as they would have appeared if computed upon the provisional estimates based upon the two censuses prior to 1910:

REGISTRATION CITY.	DEATH RATE FROM ALL CAUSES[1] PER 1,000 OF POPULATION: 1909.		Increase (+) or decrease (−) of revised as compared with provisional rates.
	As computed on revised intercensal estimates of population.	As computed on provisional postcensal estimates of population.	
Los Angeles, Cal.	(2)	(2)	(2)
San Francisco, Cal.	(2)	(2)	(2)
Denver, Colo.	17.0	22.5	−5.5
New Haven, Conn.	16.9	17.3	−0.4
Washington, D. C.	19.0	19.3	−0.3
Chicago, Ill.	14.6	14.1	+0.5
Indianapolis, Ind.	14.3	13.6	+0.7
Louisville, Ky.	(2)	14.6	(2)
New Orleans, La.	20.2	20.7	−0.5
Baltimore, Md.	18.7	18.0	+0.7
Boston, Mass.	16.8	17.7	−0.9
Fall River, Mass.	19.1	21.0	−1.9
Worcester, Mass.	15.5	16.3	−0.8
Detroit, Mich.	14.0	16.4	−2.4
Minneapolis, Minn.	(2)	10.2	(2)
St. Paul, Minn.	11.4	10.8	+0.6
Kansas City, Mo.	14.4	17.3	−2.9
St. Joseph, Mo.	[3] 13.7	8.5	+5.2
St. Louis, Mo.	15.8	15.6	+0.2
Omaha, Nebr.	(2)	13.3	(2)
Jersey City, N. J.	16.8	17.4	−0.6
Newark, N. J.	16.5	18.0	−1.5
Paterson, N. J.	15.3	16.1	−0.8
Buffalo, N. Y.	15.2	16.0	−0.8
New York, N. Y.	16.0	16.7	−0.7
Bronx Borough	15.9	19.6	−3.7
Brooklyn Borough	15.4	16.2	−0.8
Manhattan Borough	16.6	16.5	+0.1
Queens Borough	14.2	16.5	−2.3
Richmond Borough	18.1	19.5	−1.4
Rochester, N. Y.	14.4	15.6	−1.2
Syracuse, N. Y.	14.5	15.5	−1.0
Cincinnati, Ohio	16.4	16.9	−0.5
Cleveland, Ohio	12.9	13.8	−0.9
Columbus, Ohio	14.0	15.2	−1.2
Toledo, Ohio	14.6	13.9	+0.7
Philadelphia, Pa.	16.4	16.5	−0.1
Pittsburg, Pa.	15.8	14.9	+0.9
Scranton, Pa.	16.3	16.4	−0.1
Providence, R. I.	16.1	16.3	−0.2
Memphis, Tenn.	(2)	17.2	(2)
Milwaukee, Wis.	13.6	14.9	−1.3

[1] Exclusive of stillbirths.
[2] Population not available for 1910.
[3] Based on population as of April 15, 1910.

A very favorable condition is shown for all the cities for which rates are presented with respect to the mortality during the year 1909. The rates range from 20.2 per 1,000 population for New Orleans and 19 for Washington down to 12.9 for Cleveland and 11.4 for St. Paul. In such comparisons it must be remembered that the rates are merely crude or general rates, and that for exact comparisons of sanitary condition, as measured by mortality, allowance must be made for the differences of the population with respect to sex, age, color, nativity, etc. Corrected rates will be prepared as soon as the results of the Thirteenth Census are available in sufficient detail, but in the meantime the crude rates serve the very useful purpose of showing variations in the mortality of individual cities from year to year.

The differences are usually negative, indicating a slightly lower mortality for the year than would have been shown on the basis of the provisional estimates formerly employed. In other words, the cities have grown, as a rule, somewhat more rapidly during the past decade than the experience of the preceding decade indicated, so that the provisional estimates of population were generally a little too low. As a result, the rates were a little too high, but the differences are small, except for Denver (5.5), Detroit (2.2), Kansas City, Mo. (2.9), Newark (1.5), and Columbus (1.8). Considerable differences are also shown for the boroughs of Bronx (3.7), and Queens (2.3).

A similar comparison may be made of the rates formerly presented and the revised rates for 1909 for the registration states:

REGISTRATION STATE.	NUMBER OF DEATHS FROM ALL CAUSES[1] PER 1,000 OF POPULATION.						
	Annual average: 1901 to 1905.	1904	1905	1906	1907	1908	1909
Total	15.9	16.4	15.9	16.1	16.4	15.3	(2)
California	(3)	(3)	(3)	17.4	18.6	18.4	(2)
Colorado	(3)	(3)	(3)	15.9	17.6	17.0	(2)
Connecticut	16.0	15.9	16.5	16.7	17.1	15.4	(2)
Indiana	13.0	13.5	12.8	12.5	12.5	12.3	(2)
Maine	16.0	16.5	16.2	16.2	16.6	16.0	(2)
Maryland	(3)	(3)	(3)	15.7	16.1	15.5	(2)
Massachusetts	**16.6**	**16.3**	**16.8**	16.6	17.5	16.5	(2)
Michigan	**13.3**	**13.6**	13.5	14.3	13.9	13.8	**13.1**
New Hampshire	16.4	16.0	17.0	17.3	17.1	16.3	(2)
New Jersey	**16.1**	**16.9**	**15.8**	16.2	16.6	15.4	(2)
New York	**17.1**	**18.0**	**17.0**	17.1	17.5	16.3	(2)
Pennsylvania	(3)	(3)	(3)	16.5	16.5	15.7	(2)
Rhode Island	**17.8**	**17.2**	**17.1**	17.5	18.0	16.2	**15.6**
South Dakota	(3)	(3)	(3)	8.8	9.8	10.1	(2)
Vermont	16.2	16.0	17.0	16.8	16.2	16.0	(2)
Washington	(3)	(3)	(3)	(3)	(3)	14.8	(2)
Wisconsin	(3)	(3)	(3)	(3)	(3)	11.6	(2)

[1] Exclusive of stillbirths. Rates in bold-faced type are based upon census figures or intercensal estimates. Other rates, based upon postcensal estimates, are subject to revision.
[2] Population not available.
[3] Nonregistration.

The population of only two registration states, Michigan and Rhode Island, had been announced at the time this bulletin went to press. The death rate for Michigan (13.1 per 1,000 population) was slightly less than it would have been if computed upon the provisional estimate (13.6) and the rate for Rhode Island (15.6) was also slightly less than the provisional rate (15.9). In neither case would the lowest integer expressive of the rate be changed. The rates for preceding intercensal years may be roughly corrected by allowing a proportionate difference.

RULES OF STATISTICAL PRACTICE.

ADOPTED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION, 1908, 1909, AND 1910.

The lack of uniformity and therefore of comparability in the official publications relating to vital statistics in the United States is due to the fact that there is no general source of authority with power to prescribe forms for either the collection or statistical presentation of data dependent upon the registration of births and deaths. Hence the voluntary cooperation of registration officials must be secured for the purpose of obtaining uniformity and comparability of reports, and the Bureau of the Census has felt it to be its duty to promote the organization of state and city registrars into an association, national or international in character, which should be able to prescribe definite rules for at least the most essential requirements of registration and for the statistical presentation of the most important results. Such organization was effected at Atlantic City, N. J., September 30 to October 4, 1907, as the Section on Vital Statistics of the American Public Health Association, and the method of practical cooperation adopted is shown in the following extracts from the constitution:

PURPOSE OF THE ORGANIZATION.

1. The purpose of this organization is to bring about a closer official and personal association of the registration officials of the several countries composing the American Public Health Association; to promote the introduction of effective systems of registering vital statistics for public health and legal purposes; to aid the adoption of uniform methods of collecting, preserving, correcting, and compiling registration records and of publishing the statistical data derived therefrom in the most useful form, especially for sanitary purposes; to conduct the active cooperation of the American Public Health Association with the Government agencies of each country and with other organizations interested in the improvement and use of vital statistics; to report on the actual condition of the International Classification of Causes of Death as employed in vital statistics reports and bulletins, and to formulate recommendations for its decennial revision; to help in the better reporting and classification of the mortality of occupations; to present and discuss papers relating to vital statistics both in the section meetings and in the general sessions of the American Public Health Association; and in general to promote a proper appreciation of the necessity and importance of vital statistics as an absolutely essential basis of modern public health work, and to improve the character and status of registration service.

ACTION ON QUESTIONS OF STATISTICAL PROCEDURE.

21. Recommendations or resolutions touching methods of statistical procedure shall arise from, or be referred to, the special Standing Committee or Committees having the subjects in charge. The Standing Committee or Committees shall report thereon to the council, and the council at its annual session, which shall be presided over by the section chairman, shall refer the recommendations with its approval or disapproval to the general session of the section, in which the action of the council may ordinarily be sustained or reversed by a two-thirds vote of the members present.

REFERENDUM.

22. In decisions made under the above section, where the action taken would involve a change in current statistical practice or be otherwise of grave moment, the referendum (for a country) may be demanded in writing by not less than three registration offices of that country, with brief statement of reasons for such action, and the section secretary shall proceed to obtain and record the opinions of the constituent registration offices of the country, making report thereof at the next annual session. And each office shall be entitled to one ballot for each 1,000 deaths, or fraction thereof, exclusive of stillbirths, officially stated for the last year of registration. National offices shall have one vote for each registration state or province.

RULES OF STATISTICAL PRACTICE.

23. Recommendations or resolutions touching methods of statistical practice shall be numbered in order and appended to the paper or committee report in which they originate. The name of the person, office, or committee shall be signed, and the date of presentation. Each item shall relate to a separate point requiring statistical decision, and shall be stated in such a way, as far as possible, that a "Yes" or "No" vote can be had upon it. The secretary of the section shall number each recommendation in the order of receipt, beginning with "No. 1" for the first recommendation received after each annual meeting, and shall keep a record of the disposition of each recommendation, including reference to committees, action of council, section, American Public Health Association, United States Bureau of the Census, and of other associations. After adoption by the section, subject to referendum as provided in section 22, the recommendation shall become a Rule of Statistical Practice. Rules of Statistical Practice adopted by the section at each annual meeting shall be arranged by the Committee on Publication, numbered with new serial numbers (with reference to original filing numbers for identification), and be referred to as "[APHA] Rule No. 1 of 1908," etc. Recommendations not adopted shall be listed for reference in a similar way.

In compliance with the above-stated mode of procedure, certain recommendations relating to statistical methods were adopted by the Section on Vital Statistics at its annual meetings held at Winnipeg (1908), Richmond (1909), and Milwaukee (1910). The following list has been supplied by the secretary, now chairman, of the section, Dr. Wilmer R. Batt, State Registrar of Pennsylvania.

RULES OF STATISTICAL PRACTICE ADOPTED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION, SECTION ON VITAL STATISTICS, AT THE ANNUAL MEETING, WINNIPEG, MANITOBA, AUGUST 25 TO 28, 1908.

STATEMENT OF OCCUPATION.

Rule No. 1.—An attempt should be made to secure not only the kind of occupation (e. g., laborer), but also the kind of industry (e. g., pottery).

Rule No. 2.—Occupations should be stated for all decedents over 10 years of age (and for decedents under 10 years of age if employed in a mill, factory, or in any gainful occupation).

STATISTICAL DEFINITION OF DEATHS.

Rule No. 3.—Total deaths, as stated in mortality reports and bulletins, should include *all deaths* that occurred in the area of the state or city during the specified time. (See Rule No. 13 concerning weekly bulletins.)

STILLBIRTHS (AS RELATED TO DEATHS).

Rule No. 4.—Stillbirths should not be included in deaths.

Rule No. 5.—Children born alive and *living for any time whatever*, no matter how brief, after birth, should not be classed as stillbirths, even though reported by the attending physicians or midwives as "stillborn."

Rule No. 6.—Whenever age, in days, hours, or minutes, is reported for a "stillborn" child, or indicated by a difference between dates of birth and death, the registrar should secure a statement that will enable the case to be classed with certainty either as a stillbirth or as a death. If no additional information can be obtained, the statement of age should govern, and the case be compiled as a death, not as a stillbirth.

PREMATURE BIRTHS.

Rule No. 7.—Premature births (not stillborn) should be included in total deaths (classified under International Title No. 151).

Rule No. 8.—Premature births (stillborn) should be classed under stillbirths, and should not be included in total deaths.

Rule No. 9.—When a premature birth is reported as "stillborn" and an inconsistent statement of age (days, hours, minutes) is also given, the registrar should endeavor to secure a statement that will enable the case to be classed with certainty either as a stillbirth or as a death. If no additional information can be obtained, the statement of age should govern, and the case be compiled as a death, not as a stillbirth.

Rule No. 10.—When a premature birth is reported with no statement of age (space left blank), the local registrar should endeavor to obtain a statement of age, or at least that the child was born alive; but, in the absence of any further data, the case should be compiled as a stillbirth.

DEATHS OF NONRESIDENTS.

Rule No. 11.—All deaths of transients or nonresidents occurring in a state or city should be included in the tables of total deaths.

DEATHS IN INSTITUTIONS.

Rule No. 12.—Deaths of residents of a city in a hospital or institution situated within the city limits should be distributed by the local registrar to the districts of residence (borough, ward, sanitary district) as far as possible.

PERIOD COVERED IN BULLETINS AND REPORTS.

Rule No. 13.—Total deaths should include all deaths that occurred in the given area during the period stated in the table, and no others:

(a) A weekly bulletin should include all deaths that occurred during the week ending at 12 p. m., Saturday, and no others: Provided, that in order to secure earlier publication, a weekly bulletin may include "*deaths reported*" up to any time, but should definitely state that fact.

(b) A monthly bulletin should include all deaths that occurred during the calendar month, and no others.

(c) An annual report should include all deaths that occurred during the calendar year, and no others.

HEADINGS OF TABLES.

Rule No. 14.—Every table of total deaths should explicitly state in its heading that stillbirths are not included, and if any classes of deaths are omitted from a table apparently relating to total deaths, the items excluded should be explicitly stated either in the heading or in a footnote.

DEATH RATES BASED ON TOTAL DEATHS.

Rule No. 15.—Any statement of the death rate (general, crude, or gross death rate) of a state or city should be understood to be based, unless expressly qualified, upon the *total deaths, exclusive of stillbirths*, and without any omissions of deaths whatsoever.

VIABILITY OR NONVIABILITY.

Rule No. 16.—Statement of viability or nonviability of an infant prematurely born shall not be considered in classification.

STATISTICAL DEFINITION OF STILLBIRTHS.

Rule No. 17.—For registration purposes, stillbirths should include all children born who do not live any time whatever, no matter how brief, after birth.

Rule No. 18.—Birth (completion of birth) is the instant of complete separation of the entire body (not body in the restricted sense of trunk, but the entire organism, including head, trunk, and limbs) of the child from the body of the mother. The umbilical cord need not be cut or the placenta detached in order to constitute complete birth for registration purposes. A child dead or dying a moment before the instant of birth is a stillbirth, and one dying a moment, no matter how brief, *after* birth, was a living child, and should not be registered as a stillbirth.

Rule No. 19.—No child that shows any evidence of life after birth should be registered as a stillbirth.

Rule No. 20.—Stillbirths should not be included in tables of births or in tables of deaths. They should be given in separate tables of stillbirths.

Rule No. 21.—It is not desirable that midwives be allowed to sign certificates of stillbirths.

STATISTICAL DEFINITION OF BIRTHS.

Rule No. 22.—Total births should include children born alive only, and headings of tables should state that stillbirths are excluded.

Rule No. 23.—Whenever, under the foregoing rules, a death should be registered, there should be a corresponding registration at some previous time of a birth; and whenever a stillbirth is registered it should be rigorously excluded from both the statistics of births and deaths.

ESSENTIAL REQUIREMENTS FOR THE REGISTRATION OF DEATHS.

Rule No. 24.—Deaths must be recorded immediately after their occurrence.

NOTE.—In statistical practice the terms "record" and "recording" should be used in the limited sense of receiving and filing, while the terms "register" and "registration" should be used as embracing the further idea of inclusion of the record in the statistics of the area.

Rule No. 25.—Certificates of death of standard form should be used.

Rule No. 26.—*Burial or removal permits* are essential to the enforcement of the law.

Rule No. 27.—Efficient local registrars are necessary.

Rule No. 28.—The responsibility for reporting deaths to the local registrar should be placed upon the undertaker or other person having charge of the disposition of the body.

Rule No. 29.—The central registration office should have full control of the local machinery, and its rules should have the effect of law.

Rule No. 30.—The transmission and preservation of returns should be provided for.

Rule No. 31.—Penalties should be provided and enforced.

ESSENTIAL REQUIREMENTS FOR THE REGISTRATION OF BIRTHS.

Rule No. 32.—Births must be recorded immediately after their occurrence.

Rule No. 33.—Certificates of birth of standard form should be required.

Rule No. 34.—Some *check* is necessary to secure enforcement of the law.

Rule No. 35.—Efficient local registrars are necessary.

Rule No. 36.—The responsibility for reporting births to the local registrar should be placed upon the attending physician or midwife, and upon the parents if no physician or midwife was in attendance.

Rule No. 37.—The central registration office should have full control of the local machinery, and its rules should have the effect of law.

Rule No. 38.—The transmission and preservation of returns should be provided for.

Rule No. 39.—Penalties should be provided and enforced.

METHOD OF TESTING ACCURACY OF REGISTRATION OF DEATHS.

Rule No. 40.—The accuracy (completeness with respect to total number) of the registration of deaths in a state or city may be satisfactorily determined by the proportion found actually registered out of a sufficiently large number (10 per cent of the total?) derived from any independent source, e. g., newspaper reports, and properly distributed throughout the state.

Rule No. 41.—Local registrars should regularly note newspaper reports of deaths, in order to detect omissions and secure complete registration.

Rule No. 42.—Registrars should periodically examine the records of interments in cemeteries used by their districts and check up any interments made without proper registration and permit, in order to ascertain the number of unregistered deaths.

METHOD OF TESTING ACCURACY OF REGISTRATION OF BIRTHS.

Rule No. 43.—The accuracy (completeness with respect to total number) of the registration of births in a state or city may be satisfactorily determined by the proportion found actually registered out of a sufficiently large number (10 per cent of the total?) derived from any independent source, e. g., newspaper reports or lists of infants registered as births, and whose certificates of death enable the place and date of birth to be fixed, provided they are properly distributed throughout the state.

CONSTITUTION OF STANDARD TABLES OF VITAL STATISTICS.

Rule No. 44.—Every state or city registration office publishing an annual (or biennial) report should include therein a table showing the population (as estimated by the United States Census Bureau for intercensal years), total number of births exclusive of stillbirths, total number of deaths exclusive of stillbirths, total number of stillbirths, total number of marriages,[1] and total number of divorces[1] for each year of registration.

Rule No. 45.—It is desirable that the corresponding rates be given, but the primary figures should be presented whether it is possible to present rates or not.

Rule No. 46.—Notes should be given in all instances where discrepant figures have been officially printed relative to returns for any year, and the correct figures should be definitely stated.

Rule No. 47.—Notes should be given on changes in methods of compiling stillbirths, and a correct statement of stillbirths should be established for each year, on the basis of the definitions approved. If necessary, reexamination of the original returns should be made for the purpose of obtaining comparable figures.

ADOPTION OF UNIFORM AGE PERIODS IN MORTALITY STATISTICS.

Rule No. 48.—Unknown ages should never be accepted in returns. The approximate age, according to the best judgment of the reporter, should be given if the exact age is unknown. When accepted by the central registration office, however, they should be given a place in the statement of ages, in order to show the imperfect quality of registration.

[1] Providing this item can be obtained.

RULES OF STATISTICAL PRACTICE ADOPTED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION, SECTION ON VITAL STATISTICS, AT THE THIRD ANNUAL MEETING, RICHMOND, OCTOBER 19 TO 22, 1909.

REVISED UNITED STATES STANDARD CERTIFICATE OF DEATH.

Rule No. 1.—That a uniform mode of statement of causes of death upon certificates of death shall be adopted by all registration offices in the United States, which shall provide, first, in the case of a death from disease, for the name of the Disease Causing Death, and, in the case of death from violence, for the Means of Injury Causing Death, and Whether Accidental, Suicidal, or Homicidal, together with such subsidiary information, if any, as may be necessary under the head of "contributory (secondary)," as provided by the Revised United States Standard Certificate of Death.

Rule No. 2.—That a continuous and systematic effort be made through the conjoined action of the local, state, and government authorities, and with the aid of the organized medical profession, to secure the cooperation of physicians and coroners in the more definite and satisfactory statement of causes of death; and that for this purpose each certificate of death bear a certain minimum amount of suggestions in regard to the statement of cause of death, which shall be uniform throughout the United States, as provided upon the back of the Revised United States Standard Certificate of Death in addition to any special instructions or regulations required for local use.

Rule No. 3.—Instructions in regard to the reporting of occupations should be uniform in population, industrial, and mortality schedules (certificates of death), and uniform instructions should be printed upon the reverse side of the Revised United States Standard Certificate of Death, for physicians and local registrars, and enforced by state registration offices.

Rule No. 4.—That the following blank be adopted as the Revised United States Standard Certificate of Death. [See p. 41.]

Rule No. 5.—That the form of the Revised United States Standard Certificate of Death as adopted and as approved by the United States Bureau of the Census, be employed, beginning January 1, 1910, together with the minimum instructions in regard to the proper statement of the cause of death and occupation, and that offices not now employing the standard certificate should adopt it as soon as practicable or at least should conform to the standard form of statement of cause of death and occupation.

RULES OF STATISTICAL PRACTICE ADOPTED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION, SECTION ON VITAL STATISTICS, AT THE ANNUAL MEETING, MILWAUKEE, SEPTEMBER 5 TO 9, 1910.

Rule No. 1.—[APHA] Rule No. 13 of 1908, paragraph (*b*), shall be amended to read as follows:

"(*b*) A monthly bulletin should include all deaths that occur during the calendar month and no others, provided, however, that in order to secure earlier publication, a monthly bulletin may include '*deaths reported*' during the calendar month, but should definitely state that fact."

Rule No. 2.—The instructions as printed upon the reverse side of the Revised Standard Certificate of Death in regard to the reporting of occupation shall be the minimum instructions employed for this purpose, and shall be enforced as provided for by [APHA] Rule No. 3 of 1909.

Rule No. 3.—Passengers dying on trains or vessels should be registered as deaths at the station or port where the bodies are removed.

Rule No. 4.—Deaths caused by railroad accidents or by disasters incident to navigation should be registered in the district that includes the place of death, or where the bodies were brought ashore.

Rule No. 5.—The following certificate of death shall be the Revised Standard Certificate of Death for the use of coroners [or medical examiners] where such special forms are deemed necessary.

NOTE.—The form is an exact copy of the standard certificate, including the instructions on back, as shown on pages 41 and 42, except the heading of the second column ("Coroner's [or "Medical Examiner's] Certificate of Death" instead of "Medical Certificate of Death") and the arrangement under item 17. It is not at all necessary or desirable to use a special blank for coroners or medical examiners, except in cities where the large number of cases may render it expedient; in such instances it may be well to employ a special color of paper (yellow has been used) so that they can be readily distinguished. More detailed instructions in regard to reporting deaths from violence might be added at the option of the local office. But except for special purposes as thus indicated, the ordinary standard certificate does perfectly well, with the necessary alteration of the statement in regard to medical attendance, and a separate blank means only an unnecessary complication. It is unnecessary to reproduce the form in full, but only the portion that differs from the regular blank.

CORONER'S CERTIFICATE OF DEATH

16 DATE OF DEATH

_____, 191___
(Month) (Day) (Year)

17 **I HEREBY CERTIFY, that I took charge of the remains described above, held an**_____**thereon**
(INQUEST, AUTOPSY OR INQUIRY)
and from the evidence obtained by said_____
(INQUEST, AUTOPSY OR INQUIRY)
find that said deceased came to_____**death on the day stated above.**

The CAUSE OF DEATH* was as follows:

_____

_____

_____

_____(Duration) _____ yrs. _____ mos. _____ ds.

Contributory_____
(SECONDARY)

_____(Duration) _____ yrs. _____ mos. _____ ds.

(Signed)_____, M. D.
(CORONER OR CORONER'S PHYSICIAN)

_____, 191___ (Address)_____

*State the DISEASE CAUSING DEATH, or, in deaths from VIOLENT CAUSES, STATE (1) MEANS OF INJURY; and (2) whether ACCIDENTAL, SUICIDAL, or HOMICIDAL.

REVISED STANDARD CERTIFICATE OF DEATH.

REVISED UNITED STATES STANDARD CERTIFICATE OF DEATH IN USE JANUARY 1, 1910.

[Reverse side of certificate on following page.]

8—209 C
Y. S. No. 98

MARGIN RESERVED FOR BINDING

WRITE PLAINLY, WITH UNFADING INK—THIS IS A PERMANENT RECORD

N. B.—Every item of information should be carefully supplied. AGE should be stated EXACTLY. PHYSICIANS should state CAUSE OF DEATH in plain terms, so that it may be properly classified. Exact statement of OCCUPATION is very important. See instructions on back of certificate.

Department of Commerce and Labor
BUREAU OF THE CENSUS

STANDARD CERTIFICATE OF DEATH

State of _____ Registered No. _____

1 PLACE OF DEATH

County _____

Township _____ or

Village _____ or

City _____ (No. _____; _____ St.; _____ Ward)

[If death occurred in a hospital or institution, give its NAME instead of street and number.]

2 FULL NAME _____

PERSONAL AND STATISTICAL PARTICULARS

3 SEX

4 COLOR OR RACE

5 SINGLE, MARRIED, WIDOWED, OR DIVORCED (Write the word)

6 DATE OF BIRTH _____ (Month) _____ (Day) 1 (Year)

If LESS than 1 day, _____ hrs. or _____ min.?

7 AGE _____ yrs. _____ mos. _____ ds.

8 OCCUPATION
(a) Trade, profession, or particular kind of work _____
(b) General nature of industry, business, or establishment in which employed (or employer) _____

9 BIRTHPLACE (State or country) _____

PARENTS

10 NAME OF FATHER _____

11 BIRTHPLACE OF FATHER (State or country) _____

12 MAIDEN NAME OF MOTHER _____

13 BIRTHPLACE OF MOTHER (State or country) _____

14 THE ABOVE IS TRUE TO THE BEST OF MY KNOWLEDGE

(Informant) _____

(Address) _____

15 _____

Filed _____, 191__ REGISTRAR

MEDICAL CERTIFICATE OF DEATH

16 DATE OF DEATH _____ (Month) _____ (Day) 191 (Year)

17 I HEREBY CERTIFY, That I attended deceased from _____, 191__, to _____, 191__, that I last saw h__ alive on _____, 191__, and that death occurred, on the date stated above, at _____ m.

The CAUSE OF DEATH * was as follows:

_____

_____ (Duration) _____ yrs. _____ mos. _____ ds.

Contributory (SECONDARY) _____ (Duration) _____ yrs. _____ mos. _____ ds.

(Signed) _____, M. D.

_____, 191__ (Address) _____

* State the DISEASE CAUSING DEATH, or, in deaths from VIOLENT CAUSES, state (1) MEANS OF INJURY; and (2) whether ACCIDENTAL, SUICIDAL, or HOMICIDAL.

18 LENGTH OF RESIDENCE (FOR HOSPITALS, INSTITUTIONS, TRANSIENTS, OR RECENT RESIDENTS)

At place of death _____ yrs. _____ mos. _____ ds. In the State _____ yrs. _____ mos. _____ ds.

Where was disease contracted, if not at place of death? _____

Former or usual residence _____

19 PLACE OF BURIAL OR REMOVAL | DATE OF BURIAL

_____ | _____, 191__

20 UNDERTAKER | ADDRESS

11—3184

REVISED UNITED STATES STANDARD CERTIFICATE OF DEATH IN USE JANUARY 1, 1910.

[Face of certificate on preceding page.]

REVISED UNITED STATES STANDARD CERTIFICATE OF DEATH

[Approved by U. S. Census and American Public Health Association]

Statement of occupation.—Precise statement of occupation is very important, so that the relative healthfulness of various pursuits can be known. The question applies to each and every person, irrespective of age. For many occupations a single word or term on the first line will be sufficient, e. g., *Farmer* or *Planter, Physician, Compositor, Architect, Locomotive engineer, Civil engineer, Stationary fireman*, etc. But in many cases, especially in industrial employments, it is necessary to know (*a*) the kind of work and also (*b*) the nature of the business or industry, and therefore an additional line is provided for the latter statement; it should be used only when needed. As examples: (*a*) *Spinner*, (*b*) *Cotton mill;* (*a*) *Salesman*, (*b*) *Grocery;* (*a*) *Foreman*, (*b*) *Automobile factory.* The material worked on may form part of the second statement. Never return "Laborer," "Foreman," "Manager," "Dealer," etc., without more precise specification, as *Day laborer, Farm laborer, Laborer—Coal mine*, etc. Women at home, who are engaged in the duties of the household only (not paid *Housekeepers* who receive a definite salary), may be entered as *Housewife, Housework*, or *At home*, and children, not gainfully employed, as *At school* or *At home.* Care should be taken to report specifically the occupations of persons engaged in domestic service for wages, as *Servant, Cook, Housemaid*, etc. If the occupation has been changed or given up on account of the DISEASE CAUSING DEATH, state occupation at beginning of illness. If retired from business, that fact may be indicated thus: *Farmer* (*retired, 6 yrs.*). For persons who have no occupation whatever, write *None.*

Statement of cause of death.—Name, **first**, the DISEASE CAUSING DEATH (the primary affection with respect to time and causation), using always the same accepted term for the same disease. Examples: *Cerebrospinal fever* (the only definite synonym is "Epidemic cerebrospinal meningitis"); *Diphtheria* (avoid use of "Croup"); *Typhoid fever* (never report "Typhoid pneumonia"); *Lobar pneumonia; Bronchopneumonia* ("Pneumonia," unqualified, is indefinite); *Tuberculosis of lungs, meninges, peritonaeum*, etc., *Carcinoma, Sarcoma*, etc., of ..... (name origin; "Cancer" is less definite; avoid use of "Tumor" for malignant neoplasms); *Measles; Whooping cough; Chronic valvular heart disease; Chronic interstitial nephritis*, etc. The contributory (secondary or intercurrent) affection need not be stated unless important. Example: *Measles* (disease causing death), *29 ds.; Bronchopneumonia* (secondary), *10 ds.* Never report mere symptoms or terminal conditions, such as "Asthenia," "Anaemia" (merely symptomatic), "Atrophy," "Collapse," "Coma," "Convulsions," "Debility" ("Congenital," "Senile," etc.), "Dropsy," "Exhaustion," "Heart failure," "Haemorrhage," "Inanition," "Marasmus," "Old age," "Shock," "Uraemia," "Weakness," etc., when a definite disease can be ascertained as the cause. Always qualify all diseases resulting from childbirth or miscarriage, as "PUERPERAL *septichaemia*," "PUERPERAL *peritonitis*," etc. State cause for which surgical operation was undertaken. For VIOLENT DEATHS state MEANS OF INJURY and qualify as ACCIDENTAL, SUICIDAL, or HOMICIDAL, or as *probably* such, if impossible to determine definitely. Examples: *Accidental drowning; Struck by railway train—accident; Revolver wound of head—homicide; Poisoned by carbolic acid—probably suicide.* The nature of the injury, as fracture of skull, and consequences (e. g., *sepsis, tetanus*) may be stated under the head of "Contributory." (Recommendations on statement of cause of death approved by Committee on Nomenclature of the American Medical Association.)

NOTE.—Individual offices may add to above list of undesirable terms and refuse to accept certificates containing them. Thus the form in use in New York City states: "Certificates will be returned for additional information which give any of the following diseases, without explanation, as the sole cause of death: Abortion, cellulitis, childbirth, convulsions, haemorrhage, gangrene, gastritis, erysipelas, meningitis, miscarriage, necrosis, peritonitis, phlebitis, pyaemia, septichaemia, tetanus." But general adoption of the minimum list suggested will work vast improvement, and its scope can be extended at a later date.

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