Public Health Reports

Vol. 54 • MAY 5, 1939 • No. 18

TREND OF MORBIDITY AND MORTALITY DURING 1938 AND RECENT PRECEDING YEARS

MORBIDITY

The following data concerning the prevalence of eight communicable diseases are based on reports submitted by the health officers of the several States and the District of Columbia. Although cases of each of these diseases are reportable by law, there is considerable variation in the completeness of the reports. The number of cases reported is somewhat smaller than the number of cases which occur during any given year, but it is believed that the reports are sufficiently complete to reveal any unusual prevalence arising from an epidemic.

TABLE 1.—*Number of reported cases of certain communicable diseases in the United States in 1937 and 1938 and the median number of cases reported, 1933–37*

Disease	1938		1937		Median 1933-37	
	Cases	Number of States reporting	Cases	Number of States reporting	Cases	Number of States reporting
Diphtheria	30,566	48	28,536	48	39,226	48
Influenza [1]	127,791	42	446,239	42	269,002	42
Measles	819,765	48	321,510	48	400,894	48
Meningococcus meningitis [2]	2,907	44	5,484	44	5,484	44
Poliomyelitis	1,695	48	9,511	48	7,517	48
Scarlet fever	188,865	48	228,887	48	228,887	48
Smallpox	14,910	48	11,673	48	7,834	48
Typhoid and paratyphoid fever	14,763	48	16,033	48	18,355	48

Figures for 1938 are preliminary.

[1] New Hampshire, Massachusetts, New York, Pennsylvania, Michigan, and Colorado are omitted.
[2] New Hampshire, Vermont, South Carolina, and Nevada are omitted.

DISEASES ABOVE THE MEDIAN PREVALENCE

Only measles and smallpox were more prevalent than usual during 1938 (figs. 1 and 2). However, the number of reported cases of measles was the largest in recent years, being twice the median for the preceding 5 years and more than two and one-half times the number reported in 1937. The epidemic started late in 1937, but did not reach its peak until the last week in March 1938. The number of reported cases remained above average throughout the spring and early summer, and did not return to the usual expectancy until August. The incidence was especially high in the Middle Atlantic,

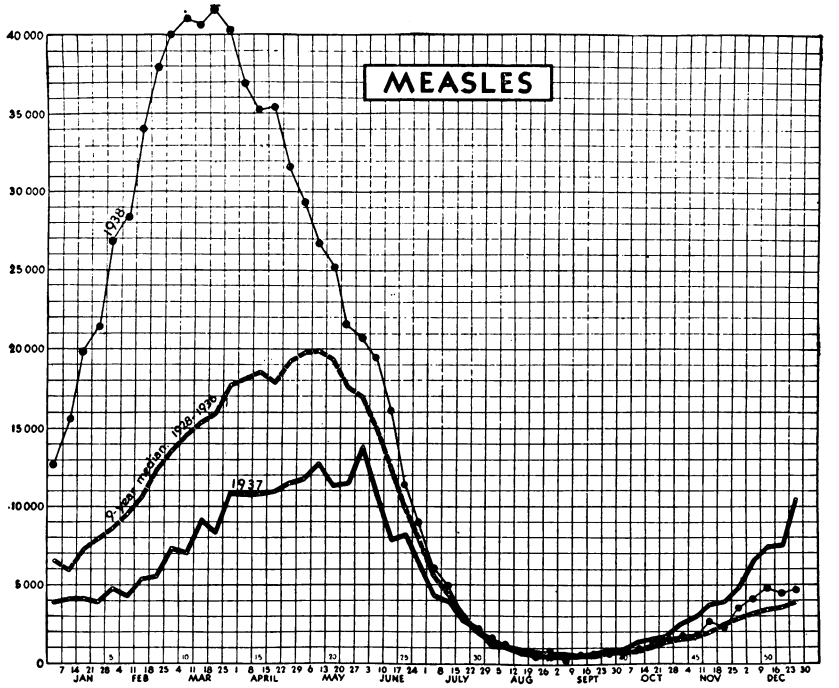

FIGURE 1.—Number of reported cases of measles plotted by weeks, 1938, 1937, and median, 1928–1936.

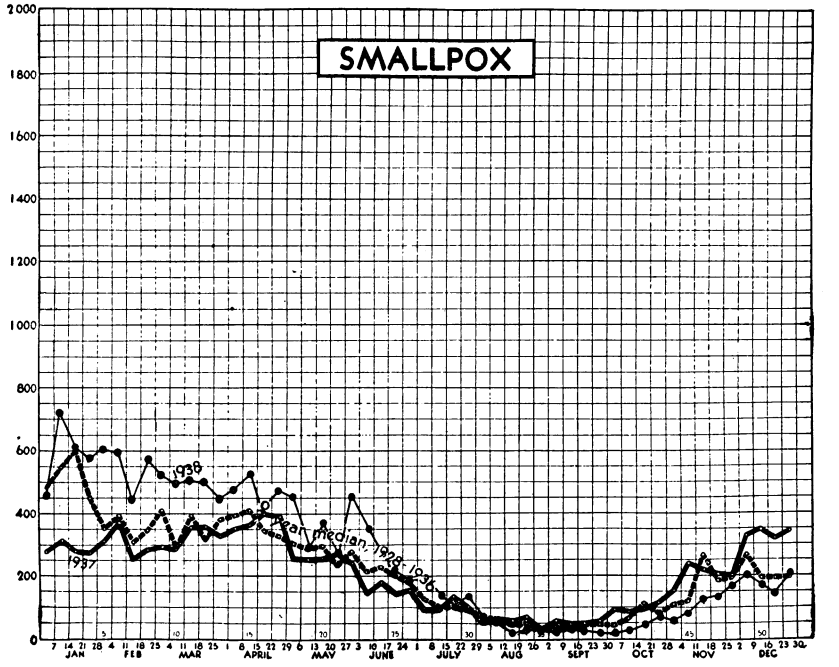

FIGURE 2.—Number of reported cases of smallpox plotted by weeks, 1938, 1937, and median, 1928–1936.

East North Central, South Atlantic, and East South Central regions. The New England and Pacific Coast States were unusually free from measles during the year.

The number of reported cases of smallpox was nearly twice the preceding 5-year median. The number of cases has been increasing since 1930, when slightly more than 5,000 cases were reported, and the incidence apparently reached its peak in 1938, when approximately three times as many cases were reported. With the possible exception of Mexico, the United States has one of the highest case rates of smallpox reported in North America and Europe. The incidence is unknown in most parts of South America, Africa, and Asia. In view of the success of other nations in practically stamping out smallpox, the situation prevailing in this country reveals a curious indifference to the existence of a disease which can be readily controlled by well-known methods.

The disease is relatively rare in all parts of the country except the Great Plains and Pacific Northwest States. The outbreak during 1938 started in the Northwest States and slowly spread until many States outside this area reported a higher case rate than usual. The incidence began to decrease during the last half of 1938, but it is still well above the average.

DISEASES BELOW THE MEDIAN PREVALENCE

The number of cases of diphtheria, influenza, meningococcus meningitis, poliomyelitis, scarlet fever, and typhoid and paratyphoid fever reported in 1938 was well below the median number of cases reported during the 5-year period 1933–37. The number of cases of diphtheria was about 7 percent greater than in 1937, but 22 percent less than the preceding 5-year median. The incidence of poliomyelitis was especially low during the year, the number of reported cases being about one-fifth the usual number.

MORTALITY

(Based on Provisional Data for All Years)

The mortality rates in this report are based on preliminary data for 41 States, the District of Columbia, Hawaii, and Alaska for the calendar year 1938. This area includes about 90 percent of the estimated total population of the country. Data are presented for each State except Arkansas, Arizona, Mississippi, New Hampshire, New Mexico, and Texas. Data for Louisiana did not arrive in time to be included in the summary for all States combined, but are included in the table giving rates for individual States.

This report is made possible through a cooperative arrangement with the respective States, which voluntarily furnish provisional

tabulations of current birth and death records to the United States Public Health Service which acts as a clearing house and provides for publication of the data received. Because of (*a*) lack of uniformity in the method of classifying deaths according to cause, (*b*) insufficient time to obtain additional information from the physician to aid in the classification of all doubtful cases, and (*c*) the impossibility of including a certain number of certificates that had not been filed when the records were tabulated, these data are preliminary and may differ in some instances from the final figures subsequently published by the

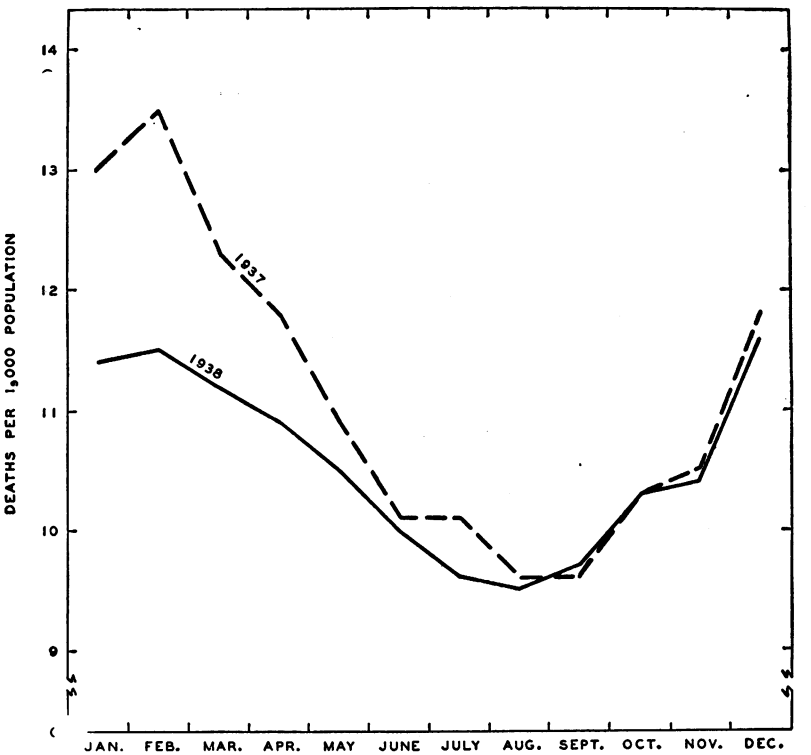

FIGURE 3.—Number of deaths per 1,000 total population for 42 States reporting to the United States Public Health Service, 1937 and 1938.

Bureau of the Census. The number of States included is considerably larger than the number used heretofore; several States began reporting for the first time during 1936 and 1937.

Preliminary data for preceding years from the same source, collected and tabulated in the same way as have been the current data, are included for comparative purposes. These figures are used in preference to the final figures published by the Bureau of the Census, because it is believed that they are more nearly comparable with the current provisional information and therefore will show the trend

more accurately. Comparative data for all of the preceding years for a few States were not available, and so it was necessary to substitute figures obtained from published State reports in certain instances.

In the past these preliminary reports have provided an early and accurate index of the trend in mortality for the country as a whole. Some deviation from the final figures for individual States is to be expected because of the provisional nature of the information. It is believed, however, that the trend of mortality within each State is correctly represented. Comparisons of specific causes of death among different States are subject to error because of differences in tabulation procedure and completeness of reporting. Comparisons of this nature should be made only from the final figures published by the Bureau of the Census.

Provisional data for these States indicate that the general death rate during 1938 will be the lowest on record. The lowest previous death rate, 10.7 per 1,000 total population, was recorded in 1933. Although final figures may slightly increase the provisional rate for 1938, 10.5 per 1,000 total population, the final rate will probably be less than, or at most equal to, the corresponding rate for 1933.

This very favorable mortality record results in large part from the unusually low death rates for the principal respiratory diseases, influenza and pneumonia. The decrease in the rates for these two diseases accounted for more than 50 percent of the decrease in the total death rate. This is clearly portrayed by figure 3, which shows that the reduction in mortality arose from the favorable record of the first half of the year. The reduction in mortality rates was widespread; only one of the States for which data are available reported a higher rate than in 1937.

DISEASES WITH NEW LOW DEATH RATES

For the following diseases or groups of diseases, the provisional mortality rates reported during 1938 were the lowest on record: Typhoid and paratyphoid fever, scarlet fever, diphtheria, poliomyelitis, epidemic cerebrospinal meningitis, tuberculosis, malaria, pellagra, diseases of the digestive system, nephritis, and diseases of pregnancy and childbirth. In addition, the mortality rates from influenza, pneumonia, and accidental causes were the lowest in recent years.

The decline in the maternal mortality rate which began in 1930 continued throughout 1938, making this the ninth consecutive year in which a decrease has been recorded. The provisional rate for 1938 is about 10 percent less than that for 1937, and 30 percent less than the 1933 rate.

For the first time since mortality statistics have been available for an appreciable number of States, the death rate from tuberculosis is less than 50 per 100,000 population. Although the rate of decline in the mortality from this disease has been slowing down, there is no reason to believe that the limit has been nearly reached, since more than one-half of the States already have rates less than 50 per 100,000 population, and several States have rates less than 30 per 100,000.

As was previously pointed out, mortality from influenza and pneumonia was the lowest recorded since the severe epidemics of 1918–20.

Judging from the decline in the mortality rate, the widespread safety campaign aimed especially at preventing fatal automobile accidents has achieved appreciable success. The mortality rate from automobile accidents decreased 20 percent during 1938, and the rate, 23.9 per 100,000 population, was the lowest since 1932. The death rate from all accidents decreased 12 percent as compared with the rate for 1937.

Two important diseases of childhood, diphtheria and scarlet fever, continued to decline in importance. The death rate from scarlet fever was only one-half the rate for 1934, while the rate for diphtheria was about 40 percent less than that for 1934.

DISEASES WITH LITTLE OR NO CHANGE

The death rates from whooping cough, encephalitis, cerebral hemorrhage, diabetes, and diarrhea and enteritis under 2 years of age were about the same as in immediately preceding years. The rates for the first 3 were slightly less than in 1937. Twenty States reported a higher death rate from whooping cough and cerebral hemorrhage than in 1937, and 24 States reported a higher death rate from diabetes.

DISEASES WITH INCREASED DEATH RATES

Cancer and heart disease were the only major causes of death for which a higher death rate was recorded in 1938. An increase in both of these diseases has been reported annually for several years, an increase which results, in part at least, from a general aging of the population.

As previously pointed out, the incidence of measles during 1938 was the highest in recent years. The fatality, although three times that for 1936 and 1937, was still well below the rate recorded in 1935. The epidemic of measles was widespread; 31 States reported an increased death rate, 10 States reported a lower rate, and 1 State reported no change.

BIRTH RATE AND INFANT MORTALITY

The infant mortality rate continued to decline and reached a new low of 48 deaths per 1,000 live births. The final rate for the entire country will be slightly higher than this, since the States for which data are not available have infant mortality rates higher than the average for the entire country.

The birth rate increased for the second consecutive year. Only 3 States reported a lower rate in 1938 than in 1937. The crude rate of natural increase is 6.5 per 1,000 population, but this will probably be increased slightly when final figures become available.

TABLE 1.—*Summary of mortality trends from certain causes in a group of 42 States 1934–38* [1] *(estimated population July 1, 1938, 116,400,000)* [2]

RATES PROVISIONAL FOR ALL YEARS

Diseases (numbers in parentheses are from the International List of Causes of Death, fourth revision, 1929)	1938	1937	1936	1935	1934
	Rate per 1,000 population				
Deaths, all causes	10.5	11.1	11.4	10.9	11.0
Births, exclusive of stillbirths	17.0	16.5	16.2	16.4	16.5
	Rate per 1,000 live births				
Infant mortality (live births, 1938, 1,983,449)	48	52	55	54	59
Maternal mortality	4.0	4.5	5.2	5.5	5.6
	Death rate per 100,000 population				
Typhoid and paratyphoid fever (1, 2)	1.4	1.6	2.0	2.2	2.7
Measles (7)	2.4	.8	.8	3.0	4.5
Scarlet fever (8)	1.0	1.4	2.0	2.2	2.0
Whooping cough (9)	3.3	3.5	1.9	3.7	5.2
Diphtheria (10)	1.7	1.8	2.0	2.6	2.9
Influenza (11)	11.0	26.8	22.7	21.3	16.3
Poliomyelitis and polioencephalitis (16)	.3	1.0	.5	.8	.7
Encephalitis, epidemic or lethargic (17)	.6	.7	.6	.6	.7
Epidemic cerebrospinal meningitis (18)	.8	1.6	2.3	2.2	.9
Tuberculosis, all forms (23–32)	46.1	50.5	52.8	52.5	53.9
Malaria (38)	1.1	1.2	2.1	2.0	2.1
Cancer, all forms (45–53)	117.5	114.0	114.0	111.2	109.3
Diabetes (59)	24.4	24.3	25.3	23.0	23.0
Pellagra (62)	1.7	1.8	2.0	2.1	2.2
Cerebral hemorrhage, apoplexy (82a, b)	84.9	86.1	90.2	85.8	82.9
Diseases of the heart (90–95)	272.3	269.5	270.4	248.9	243.3
Pneumonia, all forms (107–109)	65.5	83.6	90.3	81.7	79.8
Diseases of the digestive system (115–129)	61.8	64.0	69.2	67.4	72.6
Diarrhea and enteritis under 2 years (119)	9.0	8.9	10.2	8.5	11.5
Nephritis, all forms (130–132)	76.0	78.4	82.7	81.0	84.2
All accidents (176–195, 201–214)	70.0	79.5	85.5	78.7	80.7
Automobile accidents (206, 208, 210)	23.9	29.3	29.2	28.4	28.6

[1] The States included are those listed in table 3, with the exception of Louisiana and New Mexico. The District of Columbia is counted as a State.

[2] Populations used for the years 1934 to 1937, inclusive, are the official estimates as of July 1 of each year made by the Bureau of the Census. Estimates for 1938 are made by assuming the same actual increment between 1937 and 1938 as between 1936 and 1937 as given in the official estimates for those years. No official estimates for States are available for 1938.

TABLE 2.—*Trends of mortality from certain causes in each quarter of 1938 and 1937 in the 42* [1] *States with available data (estimated population July 1, 1938, 116,400,000)*

RATES PROVISIONAL FOR ALL YEARS

State and period	All causes, rate per 1,000 population (annual basis)	Births (exclusive of stillbirths) per 1,000 population (annual basis)	Rate per 1,000 live births		Death rate per 100,000 population (annual basis)																	
			Total infant mortality	Maternal mortality	Typhoid and paratyphoid fever (1, 2)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Acute poliomyelitis and polioencephalitis (16)	Encephalitis, epidemic or lethargic (17)	Epidemic cerebrospinal meningitis (18)	Tuberculosis, all forms (23–32)	Cancer, all forms (45–53)	Diabetes (59)	Cerebral hemorrhage, apoplexy (82a, b)	Diseases of the heart (90–95)	Pneumonia, all forms (107–109)	Diseases of the digestive system (115–129)	Diarrhea and enteritis (under 2 years (119))	Nephritis (130–132)	All accidents (176–194,[2] 201–214)	Automobile accidents (206, 208, 210)
January–December:																								
1938	10.5	17.0	48	4.0	1.4	2.4	1.0	3.3	1.7	11.0	0.3	0.6	0.8	46.1	117.5	24.4	84.9	272.3	65.5	61.8	9.0	76.0	70.0	23.9
1937	11.1	16.5	52	4.5	1.6	.8	1.4	3.5	1.8	26.8	1.0	.7	1.6	50.5	114.0	24.3	86.1	269.5	83.6	64.0	8.9	78.4	79.5	29.3
January–March:																								
1938	11.4	16.4	51	4.3	.7	4.0	1.7	3.3	1.9	21.0	.3	.6	1.2	48.1	116.1	26.7	90.2	294.7	102.6	55.8	4.1	82.6	64.7	20.8
1937	12.9	15.5	63	5.5	.8	.7	2.5	3.2	2.0	73.0	.3	.7	2.7	55.4	112.8	28.9	90.7	311.1	149.3	59.7	4.3	87.3	72.9	25.6
April–June:																								
1938	10.4	16.7	49	4.2	1.0	4.4	1.0	4.0	1.0	8.5	.3	.6	.8	49.3	117.1	24.0	77.3	269.7	59.8	64.2	9.7	78.0	65.0	20.3
1937	10.9	16.1	50	4.7	1.0	1.3	1.7	3.1	1.1	19.1	.3	.6	1.9	53.6	113.2	23.2	76.3	264.8	75.1	63.8	7.2	80.6	75.9	25.9
July–September:																								
1938	9.6	17.8	45	3.9	2.4	.7	.5	3.4	1.2	3.9	.4	.7	.5	44.2	116.8	21.5	83.4	238.8	32.9	69.5	14.9	68.1	76.8	25.3
1937	9.9	17.4	47	4.1	3.0	.5	.5	4.6	1.2	4.3	2.3	.6	.8	47.5	113.8	20.9	83.5	229.2	35.1	73.5	16.3	68.7	86.1	31.0
October–December:																								
1938	10.7	17.2	48	3.7	1.4	.4	.8	2.3	2.8	10.8	.3	.5	.6	42.8	119.9	25.4	88.9	286.4	67.2	57.8	7.2	75.5	73.5	29.3
1937	10.8	17.0	49	3.9	1.7	.5	1.1	3.0	2.9	11.9	.9	1.0	1.0	45.6	116.0	24.1	93.8	274.0	76.1	58.8	7.7	77.2	82.9	34.5
Metropolitan Life Insurance Co., industrial policyholders, ages 1 and over (January–December):[3]																								
1938	7.7	------	------	------	.9	1.6	1.1	2.0	1.7	7.5	------	------	------	46.9	97.8	24.5	58.4	[5]153.2	50.5	------	[4]5.3	[5]53.2	48.3	17.5
1937	8.2	------	------	------	.9	1.0	1.6	3.0	1.9	18.2	------	------	------	52.1	96.0	25.6	59.7	[5]159.7	66.9	------	[4]6.6	[5]55.7	53.9	21.0

[1] States included are those listed in table 3 with the exception of Louisiana and New Mexico. The District of Columbia is counted as a State.

[2] These data are taken from the Monthly Statistical Bulletin published by the Metropolitan Life Insurance Co. The figures are subject to correction, since they are based on provisional estimates of lives exposed to risk (17,700,000 persons in 1938). Data does not include all diseases reported to the Public Health Service.

[3] Excludes pericarditis, acute endocarditis, acute myocarditis, coronary artery diseases, and angina pectoris.

[4] Classified as diarrhea and enteritis, age not specified.

[5] Chronic nephritis (Bright s disease) only.

TABLE 3.—*Trend of death rates for all causes, of birth rates, and of infant and maternal mortality rates, 1934–38*

RATES PROVISIONAL FOR ALL YEARS

State	Deaths, all causes (rate per 1,000 population)					Births, exclusive of stillbirths (rate per 1,000 population)					Infant mortality (rate per 1,000 live births)					Maternal mortality (rate per 1,000 live births)				
	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934
Alabama	10.3	10.7	10.9	10.1	10.2	21.6	21.4	21.3	22.0	21.8	61	63	66	63	68	6.2	5.9	6.7	6.2	6.1
Alaska [1]	20.0	19.3				29.1	22.1				(2)	131				(2)	11.3			
California	12.2	13.0	12.5	12.1	11.5	15.5	15.3	13.9	13.3	13.2	46	54	53	50	52	3.5	4.2	4.7	4.7	4.4
Colorado	11.7	13.0	12.8	12.4	11.8	18.9	18.8	17.1	17.7	16.9	59	70	74	73	73	4.3	5.5	7.1	7.3	7.5
Connecticut	10.0	10.1	10.1	10.1	10.0	13.4	12.8	12.4	12.4	12.4	36	41	42	43	50	2.7	2.9	4.5	4.3	5.3
Delaware	12.0	13.8	12.8	12.5	13.2	16.7	16.4	15.1	15.8	15.8	51	66	64	66	61	5.7	4.4	7.1	6.4	5.8
District of Columbia	12.5	13.9	14.7	14.3	14.7	20.3	19.5	19.0	18.3	17.9	48	61	72	59	64	5.4	5.3	6.9	6.7	3.6
Florida	12.3	12.6	12.8	12.4	12.8	17.9	17.7	17.1	17.4	16.8	58	60	59	62	68	7.3	6.8	8.1	8.7	8.4
Georgia	10.5	10.8	11.9	11.0	11.4	20.1	19.9	19.4	19.9	20.8	68	62	70	69	80	6.6	7.4	7.9	7.2	7.4
Hawaii	7.0	7.9	7.8	7.8	8.3	19.7	21.0	19.7	21.7	22.4	59	69	73	67	75	3.8	4.7	4.5	4.3	5.4
Idaho	9.1	9.7	10.8	10.1	10.0	22.7	21.6	21.4	20.4	20.3	45	45	50	51	50	3.7	3.9	3.2	6.2	5.8
Illinois	10.7	11.1	11.8	10.9	11.2	15.4	14.6	14.3	14.3	14.1	41	43	47	46	53	3.3	3.8	4.2	4.7	4.8
Indiana	10.6	11.2	11.7	11.0	11.9	15.8	14.5	14.2	14.0	15.4	45	53	53	54	56	3.8	3.7	4.7	5.2	5.3
Iowa	9.4	9.7	9.9	10.3	10.5	16.9	16.5	16.7	15.8	15.9	38	44	42	47	53	3.1	4.0	4.1	5.4	5.6
Kansas	10.0	10.3	11.5	10.8	10.7	16.0	15.6	16.2	16.8	17.4	43	45	51	49	48	4.0	4.1	5.1	5.3	5.5
Kentucky	9.3	10.2	11.2	10.3	10.7	23.3	21.0	19.3	20.3	21.3	49	50	67	59	65	3.8	3.8	5.6	5.3	5.4
Louisiana	11.5	11.7	12.2	11.2	11.0	22.3	20.9	19.5	19.4	19.5	66	64	73	68	70	6.0	7.5	8.7	7.9	7.9
Maine	12.0	13.2	13.3	13.0	13.1	17.8	18.1	17.9	18.6	18.8	49	61	64	63	71	4.2	5.4	5.1	5.7	6.0
Maryland	12.4	13.2	13.1	12.7	12.6	17.4	16.4	16.0	16.4	16.6	55	62	68	62	69	3.4	4.1	4.3	5.0	5.1
Massachusetts	11.0	11.3	11.8	11.5	11.7	(2)	13.9	13.9	14.4	14.8	(2)	44	47	48	49	(2)	4.6	4.9	5.7	5.4
Michigan	10.4	11.1	11.4	10.8	10.7	19.9	19.0	18.5	18.5	17.7	45	48	50	47	52	3.5	3.6	4.7	4.9	5.3
Minnesota	9.7	10.0	10.7	9.9	10.0	17.6	17.6	16.9	16.4	16.3	40	42	46	46	49	2.8	3.1	4.4	4.9	4.8
Missouri	10.6	11.4	12.3	11.0	12.1	15.7	14.3	14.1	14.6	15.3	48	58	58	57	63	3.6	5.2	6.1	5.7	6.1
Montana	10.4	11.2	11.7	11.8	10.5	19.6	19.0	19.5	19.0	18.7	43	49	53	56	52	3.7	3.4	5.5	4.6	5.7
Nebraska	8.7	9.6	10.0	9.7	9.8	16.0	15.9	17.0	16.6	17.9	36	42	44	42	46	3.4	3.9	5.6	5.7	5.5
Nevada	12.3	12.6	14.4	13.3	13.2	18.0	15.8	14.2	14.4	14.6	45	49	70	71	59	1.6	6.9	5.6	7.7	6.3
New Jersey	10.0	10.1	10.3	10.1	10.3	13.0	12.6	12.3	12.7	12.8	39	39	44	47	49	3.5	3.4	3.8	4.5	5.4
New Mexico	13.4	15.2	14.8	14.9	14.5	35.2	32.8	30.6	31.3	30.2	100	124	122	129	126	4.6	5.0	7.4	6.9	7.4
New York	11.3	11.9	11.8	11.5	11.6	14.5	14.3	13.9	14.2	14.3	40	45	47	48	52	3.8	3.9	4.9	5.1	5.2
North Carolina	9.6	9.8	10.4	9.9	10.5	22.9	23.1	22.2	23.3	23.5	68	65	67	67	76	5.6	5.4	6.5	6.6	6.9
North Dakota	7.3	7.9	8.0	8.4	8.4	18.5	18.4	19.3	19.5	20.9	48	53	50	59	57	2.2	4.8	4.3	5.3	4.7
Ohio	11.0	11.8	12.1	11.5	11.5	16.7	15.8	15.4	15.1	14.9	42	50	51	50	54	3.8	4.6	4.9	6.2	6.0
Oklahoma	7.8	8.5	9.2	8.4	8.6	17.5	16.2	16.5	17.4	19.0	43	59	60	55	60	4.0	6.9	6.2	5.9	6.0
Oregon	11.3	12.0	12.2	11.3	10.6	15.7	15.1	13.7	13.1	13.1	38	42	44	41	40	3.1	3.5	5.4	5.4	6.1
Pennsylvania	10.4	11.1	11.0	10.6	10.8	16.2	15.8	15.7	15.8	15.8	46	50	50	50	54	3.5	4.0	4.6	4.9	5.2
Rhode Island	12.2	12.2	12.2	11.5	11.3	15.4	14.9	14.9	14.9	15.2	44	50	49	47	54	2.5	3.4	4.1	4.3	5.7
South Carolina	10.8	10.7	11.2	10.9	11.7	21.1	20.3	21.0	22.1	24.3	81	81	80	79	83	7.7	7.8	7.9	9.5	8.7
South Dakota	7.0	8.9	8.9	9.1	9.5	17.0	16.8	18.6	19.0	19.6	45	52	48	50	59	3.5	4.2	4.1	5.5	4.5
Tennessee	9.8	10.2	11.2	10.4	10.6	17.6	17.6	17.0	18.1	18.0	64	60	68	64	75	5.6	6.2	7.0	6.9	6.3
Utah	9.2	9.4	9.9	9.8	9.4	25.4	24.0	24.3	24.7	24.6	45	41	53	49	49	3.2	3.3	4.4	4.6	4.5
Vermont	10.8	11.4	13.0	12.7	13.0	14.6	14.2	17.0	17.5	17.6	43	45	58	49	53	3.0	8.1	5.0	6.8	3.9
Virginia	10.5	10.7	11.3	10.8	10.9	19.1	18.7	19.0	19.3	19.5	69	64	67	64	68	5.1	5.0	5.1	5.3	5.7
Washington	11.0	11.5	11.7	11.2	10.8	15.7	14.8	13.9	13.7	13.8	39	40	46	45	43	3.6	4.8	5.2	5.2	4.7
West Virginia	9.4	10.3	10.8	10.1	10.0	22.4	22.6	22.3	23.0	23.0	62	62	71	61	67	3.6	4.9	5.3	5.2	5.5
Wisconsin	10.3	10.9	11.3	10.5	10.4	18.3	17.9	17.7	17.6	17.2	42	44	47	47	50	2.9	3.5	4.0	3.7	4.2
Wyoming	9.4	10.6	10.3	9.8	9.1	20.2	19.6	20.4	18.8	19.8	53	53	58	51	53	3.5	3.5	5.0	4.1	6.1

[1] Data not available prior to 1937.

[2] Data not available.

TABLE 4.—*Trend of death rates for various causes per 100,000 population*

RATES PROVISIONAL FOR ALL YEARS

State	Typhoid and paratyphoid fever (1, 2)					Measles (7)					Scarlet fever (8)					Whooping cough (9)				
	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934
Alabama	2.0	1.9	2.7	2.9	4.6	5.8	0.1	0.7	5.2	11.3	0.6	0.4	0.4	0.5	0.5	5.8	6.5	2.6	4.8	11.9
Alaska [1]	1.6	1.7				1.6	5.0				1.6	1.7				60.3	36.7			
California	1.0	1.0	1.2	1.4	1.5	1.0	.5	2.4	1.1	1.3	.4	.8	1.6	1.1	1.3	2.2	.8	2.1	1.0	2.8
Colorado	2.1	3.0	3.1	3.5	4.9	2.8	.5	.7	9.9	8.3	1.1	2.0	7.1	11.8	4.0	4.3	4.7	4.1	4.1	11.7
Connecticut	.4	.3	.5	.8	.4	.1	.7	.4	1.9	.4	.2	.6	.6	1.3	.8	.7	1.4	1.8	1.2	.9
Delaware	1.5	2.2	2.7	2.3	4.0	.8	1.5	3.1	1.2	7.9	.8	.4	1.9	.4	2.0	5.3	6.5	5.0	2.0	9.1
District of Columbia	.9	1.9	1.6	2.7	1.4	.3	2.1	1.3	(3)	8.6	.5	.8	.3	1.3	1.4	.9	2.7	8.4	.5	7.0
Florida	2.7	2.9	2.5	3.8	3.0	1.6	.3	.4	1.9	7.0	.2	.1	.1	.1	.3	3.8	3.5	1.5	3.7	7.1
Georgia	3.8	4.3	6.2	8.3	10.3	4.8	.3	.2	.9	17.5	.4	.4	.5	.7	.5	7.2	4.6	2.0	4.9	10.8
Hawaii	2.2	1.6	2.0	2.4	3.1	.2	41.7	6.2	(3)	.2	.2	(3)	(3)	(3)	(3)	4.8	2.2	.4	2.6	13.3
Idaho	3.0	1.8	2.5	2.5	5.3	.8	2.8	2.3	2.1	3.4	1.0	1.8	10.3	6.1	2.7	2.8	3.2	1.6	6.9	3.2
Illinois	.7	.6	.9	1.2	1.7	2.6	.4	.1	3.7	2.7	1.7	2.0	3.0	5.2	3.9	2.1	1.9	1.9	2.7	4.0
Indiana	.7	1.1	1.7	1.5	3.1	3.0	.4	.1	2.6	6.6	1.9	2.7	3.3	3.4	3.6	1.3	4.6	1.6	3.9	5.6
Iowa	.7	.9	1.2	1.3	2.1	1.0	.2	.1	6.0	2.6	1.8	3.8	3.1	2.8	2.4	2.6	3.3	1.4	1.7	3.8
Kansas	.7	.9	1.7	1.6	1.4	1.2	.2	.2	12.0	1.9	1.4	3.5	4.1	2.4	1.8	2.7	2.4	.9	2.8	4.8
Kentucky	4.7	5.4	7.4	8.9	10.3	3.6	2.9	2.7	8.2	6.7	1.5	1.7	1.6	2.6	2.7	6.3	8.2	2.6	9.7	10.6
Louisiana	5.4	6.3	7.0	9.2	9.8	1.0	.8	2.4	6.0	7.8	.3	.6	.2	.4	.6	4.3	6.8	4.7	3.2	10.4
Maine	1.9	1.6	.8	2.0	2.4	2.1	.4	2.5	7.0	2.3	(3)	.5	.8	1.2	1.1	2.9	3.0	2.7	3.6	11.8
Maryland	1.9	1.8	1.7	2.7	2.5	.5	2.3	1.6	1.4	9.0	.5	.9	.7	1.7	1.6	3.0	5.8	5.1	2.6	7.5
Massachusetts	.3	.2	.2	.3	.3	.3	.6	.8	.8	2.1	.5	.8	1.0	1.4	1.8	.8	2.1	1.2	1.6	2.8
Michigan	.6	.6	.8	.7	1.5	2.1	.2	.3	3.9	.7	1.8	3.0	2.4	2.0	3.7	2.3	2.7	2.2	2.8	3.1
Minnesota	.3	.3	.5	.6	.5	.9	.3	.9	2.4	1.5	1.0	1.5	4.1	3.0	1.2	1.8	2.8	1.2	2.4	4.2
Missouri	2.8	4.2	5.2	3.7	5.7	4.9	.5	.4	3.8	8.5	1.8	2.6	2.2	1.7	2.4	4.3	4.7	1.7	4.4	6.6
Montana	.9	2.0	1.9	2.4	3.0	2.0	.7	.6	9.2	5.5	1.8	2.0	8.7	4.0	2.1	8.8	2.6	3.0	4.3	4.7
Nebraska	.5	1.0	.9	.4	1.2	.8	.3	.7	6.2	1.6	1.1	2.6	4.8	2.9	1.8	2.6	2.0	1.7	1.2	6.1
Nevada	2.9	(3)	2.0	3.0	6.1	(3)	(3)	(3)	3.0	6.1	(3)	2.0	8.0	1.0	(3)	2.9	2.0	4.0	3.0	2.0
New Jersey	.4	.6	.7	.6	.9	.7	1.2	.3	1.3	1.2	.3	.3	.7	.6	1.5	1.3	1.1	1.3	2.3	1.5
New Mexico	5.0	6.6	8.5	11.6	10.9	12.1	10.2	2.8	9.0	42.7	1.2	1.7	4.7	1.4	3.3	14.9	11.4	7.6	24.9	25.4
New York	.5	.5	.6	.5	.7	.7	.4	1.0	1.5	.6	.5	.8	1.4	1.5	1.2	1.4	1.3	1.1	2.5	1.8
North Carolina	2.0	2.3	2.2	2.3	2.6	7.0	1.1	.3	2.0	9.3	.6	.5	.7	.6	1.2	7.5	4.9	1.1	8.8	12.7
North Dakota	.3	.4	.6	1.3	2.0	2.7	(3)	.4	7.6	3.7	2.5	1.7	4.7	4.3	1.9	8.9	1.4	.6	6.1	5.9
Ohio	.8	1.5	1.8	1.5	2.0	2.6	1.5	.6	2.3	2.3	1.2	1.9	2.4	3.6	3.6	1.8	4.3	2.8	2.7	4.4
Oklahoma	3.8	5.3	5.2	7.5	8.4	2.2	.9	.6	1.8	15.3	.9	1.3	1.7	.9	1.0	7.2	3.3	1.6	6.2	7.4
Oregon	.5	.8	1.7	1.5	1.7	.5	.1	4.1	1.5	.6	1.0	1.0	1.8	2.1	2.4	2.0	2.1	2.0	1.7	3.1
Pennsylvania	.9	1.1	1.0	.8	1.1	2.3	.8	.3	2.2	2.6	1.2	1.5	1.6	1.9	2.3	1.6	2.6	1.5	2.0	3.2
Rhode Island	.4	.1	.4	.3	.7	(3)	.4	.7	1.0	.4	.4	1.6	1.9	.4	.6	1.2	3.1	1.0	1.2	3.2
South Carolina	6.4	6.4	10.0	10.3	11.7	7.6	.9	.4	1.3	9.7	.5	.3	.6	.4	.5	14.2	4.5	3.5	9.5	16.3
South Dakota	1.2	1.0	1.6	1.4	2.0	.7	(3)	.3	4.0	16.9	1.0	2.9	3.6	2.7	1.4	7.4	3.0	.6	4.0	7.9
Tennessee	3.7	4.8	5.0	6.4	7.4	6.8	1.1	.8	1.3	16.0	.7	.7	.8	1.0	1.5	6.9	4.7	2.5	13.4	9.2
Utah	.4	.8	1.6	.8	1.4	2.1	.8	1.2	6.2	11.5	1.0	1.7	8.5	12.0	1.6	2.9	2.7	4.3	7.8	5.3
Vermont	.3	1.0	1.6	1.1	2.1	3.1	(3)	5.8	1.6	.8	.3	.3	.8	2.1	1.6	2.8	.8	2.6	3.4	4.5
Virginia	2.0	1.9	2.7	2.8	3.1	3.3	2.4	1.1	5.1	5.8	.3	.2	.5	.9	1.7	6.8	7.8	4.4	7.5	7.8
Washington	.8	.7	1.1	1.0	1.7	.2	.8	2.0	1.5	.9	.5	1.0	1.5	1.5	1.6	2.0	1.9	.8	1.9	2.6
West Virginia	3.5	4.4	4.2	5.3	6.9	6.1	2.1	1.6	6.4	3.4	2.0	1.9	2.2	4.5	4.4	7.1	13.1	3.9	6.9	11.8
Wisconsin	.2	.4	.4	.3	.6	1.2	.2	.4	2.5	2.3	1.3	2.3	4.4	3.8	1.8	1.9	2.2	1.4	1.8	3.6
Wyoming	2.1	1.3	.4	2.6	2.2	(3)	.4	(3)	13.4	4.8	2.5	3.8	9.4	11.2	3.0	13.9	5.1	1.3	6.9	3.0

State	Diphtheria (10)					Acute poliomyelitis and polioencephalitis (16)					Encephalitis, epidemic or lethargic (17)					Epidemic cerebrospinal meningitis (18)				
	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934
Alabama	3.6	3.4	4.0	4.5	5.7	0.6	0.6	1.3	0.5	0.6	0.5	0.4	0.3	0.7	0.5	2.1	3.9	0.9	0.8	0.4
Alaska [1]	3.2	(2)				1.6	3.3				(2)	1.7				(2)	15.0			
California	1.6	1.7	2.1	2.2	1.8	.3	1.3	.6	1.1	1.8	.6	.8	.6	.4	.4	.8	1.6	2.1	2.1	.8
Colorado	3.3	3.2	3.4	4.0	3.3	.7	4.5	1.4	1.1	.4	1.6	1.0	1.0	.7	.8	.6	3.1	2.8	2.2	1.6
Connecticut	.7	1.4	.4	1.0	.4	(2)	.4	.1	1.3	.1	.1	.4	.2	.3	.3	.2	.7	.7	1.0	.4
Delaware	.8	.4	1.2	2.0	1.6	.4	.4	.4	.4	(2)	(2)	.4	.4	.4	1.6	.4	1.5	1.2	.8	.4
District of Columbia	1.1	2.2	4.5	4.7	2.7	.5	.6	.3	1.7	.5	.5	.8	.6	.8	.5	1.4	4.8	10.5	15.8	.9
Florida	2.0	3.2	3.5	3.7	5.5	.6	.3	.4	.4	.2	.5	(2)	.5	.1	.3	.9	4.0	3.7	.8	.5
Georgia	3.3	3.4	3.8	5.2	6.0	.6	.6	.9	.5	.7	.3	.2	.3	.1	.3	.6	1.2	2.1	1.0	.6
Hawaii	.4	2.4	1.6	.7	.5	.4	.4	.2	(2)	.2	.4	.2	.7	.2	.2	.4	.4	1.6	.7	1.9
Idaho	.6	1.2	.6	.6	2.7	.2	.4	1.0	.8	3.2	1.2	.8	1.2	2.5	1.9	1.8	1.0	6.0	4.6	2.7
Illinois	1.5	1.9	2.2	2.6	2.0	.2	1.1	.9	.5	.4	.4	.4	.4	.5	1.1	.3	1.2	2.2	2.6	1.5
Indiana	2.4	1.5	2.9	4.0	3.5	.3	.8	.4	.3	.6	.7	.5	.6	.7	1.0	.7	1.5	2.1	2.5	.6
Iowa	.9	.4	.9	2.1	1.6	.4	1.5	.5	.4	.3	1.0	.6	.5	.7	.8	.6	1.0	2.0	2.0	1.1
Kansas	1.0	1.3	2.3	2.1	2.2	(2)	1.9	.6	.5	.6	1.2	1.2	1.1	1.4	1.4	.3	1.3	1.1	2.2	1.1
Kentucky	3.8	4.6	5.1	8.3	11.5	.9	1.1	1.2	1.6	1.4	.3	.7	.8	.5	.7	2.1	2.9	6.2	2.6	1.6
Louisiana	3.5	3.3	4.4	5.2	4.5	.5	.9	.4	.6	.2	.4	.3	.2	.4	.4	.9	1.3	1.8	1.0	.7
Maine	2.0	.6	.8	1.1	.8	.5	1.8	.4	1.7	.6	.1	.2	.2	.5	.5	.1	1.1	.9	.5	.7
Maryland	1.1	1.3	1.6	1.3	1.4	.1	1.0	.1	.2	.4	1.0	1.5	1.1	.8	.8	.8	2.7	7.1	5.2	.2
Massachusetts	.4	.4	.6	.7	1.2	.2	.5	.2	1.4	.3	.2	.3	.3	.5	.6	.6	1.5	2.3	1.2	.6
Michigan	.9	1.5	1.1	1.2	.8	.2	1.0	.4	.7	.5	.2	.2	.4	.3	.3	.4	.8	1.2	.9	.6
Minnesota	.5	.5	.6	.6	.7	.3	1.9	.2	.4	.8	.7	.9	.6	.9	1.3	.4	.9	1.9	1.7	.8
Missouri	3.0	2.3	2.0	4.6	5.3	.4	1.9	.6	.4	.4	.5	3.7	.8	1.0	1.3	.5	1.2	2.0	2.9	1.4
Montana	1.7	1.5	2.1	2.8	1.9	.4	1.3	.6	.2	3.2	5.5	.9	.4	.9	.9	1.8	1.3	4.3	2.6	1.7
Nebraska	1.2	1.1	1.5	1.2	1.7	.5	3.2	.7	.7	.7	.8	.9	.4	.5	.3	.4	1.1	1.4	2.8	1.3
Nevada	2.9	(2)	1.0	(2)	1.0	(2)	(2)	(2)	(2)	1.0	(2)	(2)	1.0	1.0	1.0	(2)	1.0	4.0	2.0	(2)
New Jersey	.7	.7	.5	1.1	1.3	.2	.5	.2	.8	.3	.7	.6	.8	.6	.7	.5	1.1	1.8	.7	.5
New Mexico	4.0	4.3	3.8	5.7	6.2	.9	1.7	1.7	.9	1.4	(2)	(2)	.7	.2	.5	.9	1.2	3.3	5.5	3.6
New York	.3	.6	.5	.8	1.0	.2	.4	.1	1.1	.4	.7	.7	.5	.6	.5	.8	1.2	2.2	2.2	.7
North Carolina	5.1	4.8	5.5	4.6	6.2	.3	.6	.3	2.0	.4	.4	.4	.4	.4	.5	.9	1.2	1.6	.8	.4
North Dakota	.8	1.6	1.6	3.0	3.0	(2)	(2)	.4	.4	.6	3.8	.6	.7	1.1	.9	1.3	1.8	1.0	1.0	2.3
Ohio	1.4	1.6	1.6	2.7	2.9	.3	.8	.8	.5	.5	.4	1.0	.8	1.0	1.0	.7	1.4	2.4	3.3	1.2
Oklahoma	4.8	3.8	3.5	5.7	5.9	.9	2.3	1.4	.4	.8	.3	.3	.7	.3	.3	.9	1.9	3.7	2.7	1.2
Oregon	1.0	.8	.9	.5	.7	.6	.7	.9	1.6	.8	1.4	1.2	1.9	1.7	1.9	1.3	.7	1.5	2.8	.3
Pennsylvania	1.0	1.0	1.3	1.5	2.2	.1	.4	.2	.3	.3	.7	.6	.6	.7	.6	.6	1.3	1.2	1.2	.7
Rhode Island	.1	.4	.1	.7	.3	.1	(2)	(2)	3.5	.1	.6	.3	.3	.1	.1	.9	2.2	3.1	2.3	.7
South Carolina	2.8	3.5	4.0	3.7	4.4	.5	.7	.9	.7	.4	.4	.3	.2	.4	.6	.8	1.0	2.5	1.3	.4
South Dakota	1.4	.7	.7	1.7	1.0	.3	1.2	.1	1.0	1.4	1.0	1.2	.3	.6	.3	.3	1.0	.6	.4	.4
Tennessee	3.6	4.7	5.3	6.4	7.3	.7	1.2	1.5	.8	1.2	.4	.8	.9	.5	.9	1.7	2.4	3.6	3.8	1.4
Utah	1.2	1.2	1.0	1.4	.4	(2)	1.3	.2	.2	.6	.2	1.0	.6	.6	1.2	1.3	1.7	3.5	1.9	1.4
Vermont	3.4	.5	(2)	1.1	.5	1.0	.5	(2)	1.9	(2)	.3	(2)	.5	.5	(2)	(2)	2.3	1.6	2.1	.8
Virginia	4.2	3.1	3.8	4.3	5.6	.3	.5	.4	1.6	.7	.2	.6	.4	.5	.6	1.5	4.0	5.2	3.8	1.4
Washington	.6	.9	.4	.7	.5	.2	.5	1.0	.6	3.4	1.3	1.9	2.4	1.6	1.7	.7	1.3	1.5	2.1	1.0
West Virginia	3.5	4.8	7.1	8.7	9.4	.8	1.1	1.2	.6	.9	.5	.2	.5	.6	.5	1.7	4.4	5.8	3.6	2.1
Wisconsin	.5	.8	.5	.4	.9	.2	1.3	.1	.2	.6	.3	.5	.8	.8	.5	.3	.7	1.0	1.2	.7
Wyoming	3.0	(2)	3.9	.9	1.7	1.3	3.0	.4	.9	.9	.8	1.7	.8	1.3	1.7	.8	2.6	2.1	2.6	2.2

[1] Data not available prior to 1937.

[2] No deaths reported.

TABLE 4.—*Trend of death rates for various causes per 100,000 population*—Continued

State	Influenza (11)					Pneumonia, all forms (107-109)					Malaria (38)*					Pellagra (62)*				
	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934
Alabama	25.6	49.9	48.5	44.3	26.1	75.6	90.2	97.8	85.7	78.8	7.6	7.9	12.2	11.4	10.4	11.8	10.7	10.7	9.1	11.1
Alaska [1]	41.3	40.0	----	----	----	209.5	185.0	----	----	----	----	----	----	----	----	----	----	----	----	----
California	4.1	30.4	11.8	8.9	5.4	58.4	81.9	72.3	63.7	56.0	.1	.2	.1	.1	.1	1.1	1.2	1.4	1.5	.8
Colorado	13.8	49.2	32.5	32.5	25.5	104.5	167.3	131.3	113.2	107.3	----	----	----	.1	----	----	.2	.5	.5	.2
Connecticut	4.4	11.7	8.0	8.6	7.2	49.3	67.0	70.3	65.1	62.2	----	----	----	.1	----	.1	.3	.3	.1	.2
Delaware	10.7	22.6	10.8	15.6	15.8	68.7	96.2	84.6	91.8	94.9	----	----	----	----	----	.4	----	----	.4	.8
District of Columbia	5.2	15.6	7.6	11.4	6.8	86.1	121.4	138.9	127.3	116.8	----	----	----	.7	.2	.6	.8	.5	1.3	2.1
Florida	21.9	39.5	53.5	39.2	25.6	72.6	73.4	85.5	67.7	76.0	9.4	12.2	21.0	20.2	28.5	6.0	6.2	8.1	11.1	14.3
Georgia	24.7	44.6	58.9	43.0	31.9	84.4	93.7	120.3	95.8	97.2	4.8	6.9	20.0	12.6	13.6	11.5	11.7	12.6	12.1	11.6
Hawaii	4.8	8.2	11.9	13.2	13.7	67.2	83.5	68.0	69.4	110.4	----	----	----	----	----	----	.4	.3	----	----
Idaho	16.6	39.6	19.0	17.1	14.0	77.8	77.3	110.5	95.6	97.3	----	----	----	.4	----	----	----	.2	----	----
Illinois	5.6	16.9	14.5	15.7	10.8	58.2	70.0	80.4	77.9	75.8	.4	.5	.7	.8	.7	.2	.2	.2	.2	.3
Indiana	12.3	32.3	28.1	24.7	21.9	68.7	91.7	97.0	86.4	83.3	.3	.6	.1	.3	.5	.1	.5	.5	.2	.2
Iowa	12.5	32.2	19.9	21.0	17.6	60.4	64.4	71.2	76.2	75.8	(4)	.1	.1	(4)	(4)	----	.2	(4)	(4)	.1
Kansas	15.4	34.0	47.3	31.2	19.5	50.2	59.5	84.3	79.4	59.2	.2	.2	----	.3	.3	.3	.4	.7	.3	.2
Kentucky	24.2	48.2	43.3	28.8	22.8	72.3	89.2	104.4	83.9	84.8	1.1	1.3	1.8	2.5	2.2	2.1	2.6	3.1	2.6	2.2
Louisiana	25.1	53.6	49.5	24.2	20.5	98.3	105.7	120.0	87.2	74.3	8.6	8.4	11.7	17.0	17.1	6.9	4.6	5.5	6.3	6.7
Maine	14.9	37.5	24.9	20.2	18.9	73.9	93.5	96.4	84.3	83.1	----	----	----	.1	----	.2	.1	.1	.5	.5
Maryland	7.9	17.3	11.7	14.7	9.0	80.0	108.8	111.0	100.7	99.0	.2	.1	.1	.2	.1	.3	.4	.5	.8	.6
Massachusetts	3.5	9.5	6.3	7.3	6.3	71.9	92.6	88.1	89.5	82.3	(4)	(4)	----	(4)	(4)	.2	.3	.3	.4	.3
Michigan	6.5	17.7	12.0	15.1	11.4	58.9	84.9	85.4	80.4	73.8	(4)	----	.1	.2	.1	.1	(4)	.1	.2	.1
Minnesota	9.0	23.8	14.2	15.8	14.5	68.3	74.8	85.0	76.5	80.9	----	----	(4)	.1	----	.1	.1	.1	.2	.2
Missouri	14.1	34.4	38.7	24.0	19.2	82.7	110.1	116.7	98.8	100.1	1.9	2.3	2.6	4.2	4.8	.6	.5	.9	.4	.5
Montana	19.4	55.5	24.3	42.0	26.7	76.0	104.1	121.5	122.8	82.5	----	----	.2	----	.2	----	.2	.2	----	----
Nebraska	11.0	41.1	21.3	22.7	17.8	53.2	60.8	72.0	78.2	74.9	----	----	----	.2	.1	.1	.2	.1	.1	.1
Nevada	1.0	8.9	26.0	21.2	12.2	107.8	124.8	148.0	108.1	102.0	----	----	----	----	----	----	1.0	----	----	3.1
New Jersey	4.6	10.0	7.9	9.2	7.3	54.9	66.4	67.7	63.2	65.9	----	----	(4)	.2	----	.2	.2	.2	.1	.3
New Mexico	13.0	38.9	34.8	41.5	23.5	96.0	128.2	144.8	132.2	108.8	.2	----	.5	.9	.2	4.3	4.3	5.0	2.4	4.3
New York	3.6	10.1	6.5	6.8	7.0	63.0	87.6	88.9	85.4	87.9	.3	.2	.1	.1	.2	.2	.2	.2	.2	.2
North Carolina	14.0	25.1	32.2	28.3	21.1	77.6	84.3	100.7	90.4	99.8	2.2	2.7	4.3	2.7	2.0	7.3	9.4	10.2	11.2	13.0
North Dakota	10.7	27.5	12.7	23.9	20.8	49.9	67.1	55.6	93.3	79.5	----	----	----	.1	.1	----	----	----	----	.3
Ohio	11.3	30.1	20.0	24.5	17.5	61.7	86.0	87.1	79.0	77.4	(4)	----	.1	.1	.1	----	(4)	.4	.4	.4
Oklahoma	15.8	40.1	46.1	30.8	22.0	56.8	72.4	91.5	79.3	76.2	3.2	3.3	3.7	5.5	5.6	4.1	4.0	6.9	5.1	4.2
Oregon	8.7	28.7	19.8	16.8	12.6	52.9	62.8	93.3	60.9	47.3	----	.2	.1	----	----	----	.1	.2	.1	.2
Pennsylvania	9.7	26.6	16.1	18.1	15.1	58.2	76.5	82.5	80.0	80.0	(4)	.1	.1	(4)	(4)	.1	.1	.1	.1	.3
Rhode Island	4.8	11.0	9.1	8.5	7.9	81.4	94.7	95.9	79.4	74.9	----	----	----	----	----	----	.1	.1	.3	.1
South Carolina	28.4	42.5	49.8	44.2	41.1	85.2	91.9	87.4	89.7	95.1	11.8	14.0	23.4	23.4	19.4	12.1	14.4	14.8	16.2	18.8
South Dakota	13.9	38.7	20.2	31.6	29.6	52.5	70.1	66.2	96.1	85.1	----	----	----	----	----	----	----	.1	----	.1
Tennessee	25.4	44.9	54.4	39.9	34.2	78.9	93.3	117.3	95.4	89.2	3.5	3.6	5.4	7.8	9.5	7.0	6.9	8.5	7.6	8.2
Utah	9.8	24.1	21.5	22.7	16.3	65.8	63.8	95.7	92.9	98.6	----	----	----	.2	----	----	.2	----	.2	----
Vermont	13.2	30.0	31.1	35.0	23.0	73.6	97.1	111.8	99.4	81.6	----	----	----	----	----	----	.3	----	.8	----
Virginia	18.3	38.7	38.0	35.2	25.4	69.0	94.6	94.0	78.7	74.3	.1	.3	.6	.6	.4	4.1	3.8	4.9	5.3	4.8
Washington	10.4	24.2	26.0	16.2	13.7	66.9	69.7	76.9	56.8	54.2	----	----	----	----	.1	----	.2	.3	.1	.1
West Virginia	18.8	42.1	33.8	31.1	26.4	69.2	92.1	109.3	84.1	79.1	.1	.1	.1	.2	.1	.3	----	.5	.7	.7
Wisconsin	8.1	39.4	15.9	19.3	12.0	57.5	67.7	77.0	65.5	69.8	----	----	.1	(4)	----	.2	.1	.1	----	.1
Wyoming	13.1	46.0	24.0	26.7	16.9	65.0	115.3	113.3	91.8	55.0	----	----	----	.4	----	----	----	----	----	----

State	Tuberculosis, all forms (23-32)					Cancer, all forms (45-53)					Diabetes mellitus (59)					Cerebral hemorrhage, apoplexy (82a, b)				
	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934
Alabama	54.9	60.4	63.9	61.2	61.1	56.9	57.2	59.2	60.3	54.0	12.0	10.4	12.3	9.1	10.4	68.8	67.0	69.2	66.2	60.0
Alaska [1]	460.3	423.3	------	------	------	74.6	71.7	------	------	------	1.6	6.7	------	------	------	141.3	71.7	------	------	------
California	65.4	72.0	76.2	75.3	77.7	147.7	140.9	144.9	140.6	134.2	25.0	25.5	24.0	25.0	22.3	89.2	85.1	85.1	84.7	80.3
Colorado	59.3	65.9	76.2	76.8	77.5	116.6	113.9	116.7	112.2	110.1	17.6	16.5	18.4	16.1	13.8	88.4	85.6	84.5	80.6	82.0
Connecticut	35.6	36.5	38.6	41.9	41.4	138.5	125.8	125.1	126.4	124.7	29.2	30.6	28.3	29.8	25.2	85.3	85.4	83.3	84.3	83.3
Delaware	50.0	55.6	49.4	62.5	62.1	117.2	118.8	122.0	114.1	112.6	33.6	29.9	29.3	30.5	26.9	97.7	113.8	113.9	109.4	113.8
District of Columbia	71.3	88.5	106.6	102.2	108.7	136.9	139.1	136.7	131.0	135.3	25.8	28.7	26.7	26.1	33.6	83.3	95.2	100.6	99.5	95.5
Florida	57.7	57.5	54.6	55.5	60.0	89.3	97.3	88.4	87.9	83.5	19.2	17.7	18.6	19.5	17.0	101.7	113.7	112.5	104.8	109.7
Georgia	50.0	49.3	55.1	55.7	57.2	60.2	57.1	56.0	54.8	56.8	13.0	12.0	12.5	12.3	12.6	84.6	83.1	82.7	76.7	74.1
Hawaii	58.3	70.8	78.0	68.5	76.9	60.0	66.5	62.9	62.1	57.1	15.1	15.6	16.9	15.1	15.7	49.1	40.6	43.7	39.8	36.6
Idaho	19.8	20.7	24.5	24.6	27.3	84.8	83.4	79.6	66.8	71.5	11.0	12.6	13.6	14.2	12.5	62.6	70.0	73.6	66.2	68.1
Illinois	46.6	50.7	51.6	52.1	52.7	136.1	131.2	131.1	128.4	123.7	27.5	27.1	29.2	25.3	28.0	73.1	71.6	79.1	72.8	71.9
Indiana	38.3	45.4	47.0	46.2	51.4	110.7	106.7	108.0	109.9	112.2	15.6	14.5	16.4	15.5	18.2	119.9	118.7	127.4	121.8	123.3
Iowa	18.1	20.2	22.2	25.7	24.5	126.7	124.3	120.8	126.2	123.9	21.6	21.4	23.2	21.5	24.6	98.3	103.4	105.2	105.7	108.6
Kansas	23.1	26.6	29.0	28.8	27.4	121.4	115.6	117.2	111.2	115.1	24.1	23.3	22.9	22.2	24.1	100.2	97.8	102.7	98.9	98.6
Kentucky	66.1	68.8	71.6	69.7	74.4	70.0	68.1	74.6	71.0	73.6	12.6	10.5	15.1	14.5	15.2	94.9	87.3	83.9	78.4	78.6
Louisiana	66.7	71.0	72.6	72.2	76.2	87.6	81.9	80.7	80.3	73.3	17.6	18.0	17.4	15.8	13.5	69.7	68.2	72.1	63.9	58.1
Maine	29.5	31.5	39.8	35.4	36.2	147.4	142.3	151.3	148.5	140.6	26.8	23.4	28.1	27.7	28.4	112.8	127.2	126.2	123.6	129.3
Maryland	78.9	83.4	82.9	81.1	80.2	136.4	134.4	128.7	130.3	127.6	28.7	26.3	27.5	26.8	23.9	102.4	108.1	110.6	112.3	104.8
Massachusetts	37.2	41.2	43.8	46.3	48.8	156.8	147.9	153.0	147.7	153.6	32.6	33.4	31.4	29.7	30.3	95.8	95.1	96.2	95.3	95.9
Michigan	38.4	43.9	43.9	43.2	46.9	118.6	114.4	115.7	109.6	109.9	26.3	25.9	26.5	26.0	23.5	89.8	86.9	94.8	89.1	91.5
Minnesota	29.1	33.9	35.6	34.6	34.7	140.0	140.6	133.5	131.1	130.0	25.6	23.8	25.8	22.1	22.5	86.0	86.4	86.5	82.7	81.9
Missouri	48.0	54.5	58.2	55.2	57.2	123.6	117.8	118.0	117.5	118.6	21.6	21.4	22.6	20.7	23.0	84.8	90.6	91.2	78.2	86.1
Montana	43.3	43.6	41.2	46.9	49.7	100.0	107.2	106.0	97.4	88.5	18.0	20.2	22.4	19.8	20.0	93.8	85.7	92.1	93.6	76.3
Nebraska	15.9	19.1	18.0	22.4	22.2	118.8	112.2	113.0	108.5	111.5	24.7	26.0	24.8	20.5	20.3	82.9	88.3	89.4	99.3	97.9
Nevada	60.8	85.1	88.0	108.1	90.9	106.9	70.3	95.0	89.9	98.0	12.7	13.9	13.0	13.1	17.3	80.4	74.2	69.0	80.8	69.4
New Jersey	43.8	46.4	50.2	50.1	52.6	127.5	124.8	127.4	123.8	122.7	29.2	30.3	30.6	28.6	27.3	80.3	76.3	80.8	75.9	80.5
New Mexico	93.1	126.3	122.0	121.1	132.5	64.0	57.1	55.7	54.0	57.9	8.8	8.1	8.8	8.5	9.2	52.1	51.4	49.8	48.1	42.2
New York	50.0	57.1	58.4	57.3	58.7	155.4	156.5	147.3	143.3	136.7	36.4	37.0	36.3	32.7	32.2	64.9	74.6	78.7	77.3	68.2
North Carolina	53.2	54.1	60.6	56.6	61.9	54.1	54.1	51.8	50.6	49.9	10.8	10.9	11.6	10.1	11.1	81.2	79.2	91.2	80.7	80.5
North Dakota	19.8	25.9	24.9	25.1	24.6	86.7	80.7	83.5	79.7	83.8	19.2	17.6	18.8	18.6	19.7	63.1	67.4	67.6	58.3	62.2
Ohio	45.8	49.4	52.9	53.8	52.5	129.5	121.3	126.4	123.3	120.4	27.4	26.4	27.4	25.9	25.1	105.7	107.8	113.8	109.2	109.8
Oklahoma	44.7	48.3	51.2	46.1	46.6	68.8	71.8	67.6	60.5	63.0	12.6	12.8	14.6	12.3	12.0	62.1	62.2	63.9	60.3	59.6
Oregon	29.0	33.9	36.5	34.5	35.7	137.2	121.5	135.1	122.9	130.2	24.0	25.0	23.3	25.0	20.5	102.3	101.9	108.4	108.0	100.3
Pennsylvania	40.7	45.3	44.4	44.4	47.2	116.5	115.0	112.0	107.0	107.0	30.0	30.8	27.4	27.2	26.9	80.1	79.4	86.5	81.9	81.3
Rhode Island	40.7	46.8	47.9	51.0	46.3	159.2	156.2	145.2	147.3	137.3	41.6	42.1	33.8	33.3	33.6	96.9	98.4	98.4	96.2	92.7
South Carolina	48.5	50.4	53.2	54.3	61.0	53.8	50.3	49.4	49.1	52.7	12.0	11.5	11.0	12.2	11.9	92.6	93.5	106.2	84.3	88.8
South Dakota	34.4	37.3	34.4	39.2	34.4	86.1	84.0	88.4	89.7	85.8	18.5	19.6	21.4	19.6	22.5	67.2	69.4	81.9	78.9	74.1
Tennessee	74.7	83.0	87.5	84.3	86.7	71.5	67.3	65.8	64.6	63.0	10.9	11.2	11.3	11.5	10.6	79.5	78.8	80.3	77.4	76.8
Utah	19.0	20.4	21.5	17.5	21.4	88.5	91.3	81.2	85.2	79.6	20.8	19.1	20.3	17.9	17.5	54.3	60.3	50.0	52.8	49.2
Vermont	34.5	47.2	42.6	42.6	50.8	123.6	137.6	137.6	139.5	125.1	28.5	18.8	25.5	30.8	37.2	103.1	96.9	115.2	120.1	127.8
Virginia	63.9	60.5	66.6	69.1	68.4	77.4	70.9	71.1	72.1	70.0	15.9	16.0	15.4	15.2	16.2	93.4	88.8	95.7	95.1	90.1
Washington	42.8	46.3	49.8	51.6	47.4	135.4	132.0	133.3	132.2	128.5	24.7	23.5	25.3	23.3	21.5	108.1	102.2	103.8	98.7	94.9
West Virginia	49.1	52.5	54.4	57.3	53.7	73.6	73.6	70.6	70.9	67.0	16.0	15.1	14.6	13.4	11.3	71.7	74.0	78.6	71.2	78.6
Wisconsin	31.1	34.8	36.2	36.5	38.4	137.2	133.2	132.8	128.7	126.2	29.6	26.5	29.7	25.8	24.8	89.0	91.1	98.0	88.4	88.1
Wyoming	24.1	18.7	18.0	25.0	18.6	86.5	76.6	73.8	67.2	74.9	14.3	11.1	15.4	17.2	10.4	59.5	84.2	74.2	65.9	64.1

* Leaders indicate no deaths reported.

[1] Data not available prior to 1937.

[4] Less than 1/10 of 1 per 100,000 population.

TABLE 4.—*Trend of death rates for various causes per 100,000 population*—Continued

State	Diseases of the heart (90–95)					Nephritis, all forms (130–132)					Diseases of the digestive system (115–129)					Diarrhea and enteritis under 2 years (119)				
	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934
Alabama	166.1	161.9	147.4	135.8	142.2	76.4	78.0	79.3	79.9	77.6	66.1	64.1	68.0	61.8	72.9	17.8	15.5	17.5	15.2	19.9
Alaska [1]	273.0	323.3	------	------	------	19.0	18.3	------	------	------	42.9	65.0	------	------	------	(2)	10.0	------	------	------
California	353.3	363.2	333.6	320.5	293.8	80.0	82.6	83.4	82.6	78.9	77.2	84.8	84.2	77.8	75.4	8.3	12.5	10.4	7.4	9.4
Colorado	243.2	210.0	250.0	240.1	211.4	86.0	79.5	84.3	78.8	83.3	73.3	83.1	101.7	100.5	101.7	14.2	26.6	23.6	17.2	20.7
Connecticut	246.5	234.6	238.4	221.7	213.8	78.2	77.5	84.8	86.8	85.6	48.1	47.6	51.3	56.1	56.0	3.3	3.0	2.6	1.7	5.0
Delaware	364.9	363.6	346.3	331.3	354.5	105.0	136.0	119.3	111.4	119.0	65.3	72.0	68.3	69.9	75.1	12.2	9.6	15.4	19.1	13.8
District of Columbia	339.8	327.1	338.4	330.6	347.8	101.4	98.2	96.9	100.7	111.6	76.2	79.9	84.2	90.2	93.2	11.3	11.6	15.0	9.9	12.7
Florida	256.2	241.3	238.4	214.7	222.9	96.0	100.3	104.4	104.8	118.3	87.7	98.5	85.4	93.2	93.9	12.9	11.0	9.5	12.8	13.6
Georgia	164.6	167.3	180.1	163.7	161.8	109.3	107.7	108.3	100.8	105.5	69.2	67.2	72.6	72.5	80.3	21.8	15.2	17.5	15.8	21.3
Hawaii	113.3	107.1	119.4	100.5	92.8	56.1	64.5	62.2	67.3	61.7	49.1	59.2	64.8	64.2	74.9	11.1	17.0	20.1	18.6	27.2
Idaho	207.4	150.7	186.4	159.1	149.9	45.4	37.5	25.2	34.9	34.2	55.6	71.8	64.7	60.5	74.8	5.0	9.1	7.2	4.4	11.0
Illinois	314.0	301.5	317.6	276.7	270.0	91.5	95.4	102.0	96.8	104.7	64.5	68.9	72.6	69.1	75.9	5.5	4.5	6.5	4.4	8.4
Indiana	231.8	243.9	265.5	254.2	264.4	63.2	63.4	74.3	64.7	75.1	(2)	(2)	(2)	(2)	(2)	8.4	8.5	8.9	6.3	12.0
Iowa	242.1	220.5	231.7	225.7	206.4	56.3	58.3	59.9	62.3	65.6	54.7	54.8	56.9	61.0	65.4	3.4	3.8	4.4	3.9	6.8
Kansas	242.0	224.8	241.8	217.0	207.4	93.8	87.2	97.1	92.4	96.5	60.6	62.5	72.2	70.7	79.3	5.0	6.1	6.8	6.5	8.3
Kentucky	178.2	165.2	207.1	185.3	183.5	68.4	66.0	76.2	72.8	80.1	73.3	71.9	84.0	74.9	87.5	28.8	22.2	30.0	21.7	29.4
Louisiana	217.1	211.6	198.9	183.6	186.7	101.1	104.3	107.7	108.1	110.4	77.0	74.8	81.8	81.5	78.4	17.7	16.5	17.4	17.5	21.6
Maine	335.4	359.5	344.4	326.4	308.5	81.8	81.3	87.1	87.1	96.6	57.7	59.0	66.2	78.3	73.4	7.6	14.0	6.0	12.9	11.8
Maryland	327.2	313.8	304.6	273.5	270.7	152.1	138.6	142.4	137.4	141.1	62.9	69.0	70.3	70.8	71.1	11.9	13.8	16.1	14.0	17.7
Massachusetts	364.3	359.2	358.7	337.1	331.8	67.2	69.0	73.5	76.3	78.7	54.9	59.2	61.5	61.1	65.1	2.7	2.7	3.5	5.2	4.7
Michigan	284.2	272.8	278.9	262.8	251.0	56.8	60.6	63.5	62.9	66.1	62.3	65.6	75.2	67.3	74.6	6.4	5.8	9.8	4.5	8.2
Minnesota	248.7	232.4	244.0	213.9	213.0	42.7	45.4	48.1	48.4	51.7	54.3	56.0	62.2	63.2	68.3	3.4	2.8	4.6	3.8	4.0
Missouri	252.4	254.2	230.3	229.7	240.3	100.9	99.3	115.6	111.4	116.3	63.6	62.2	84.6	73.0	89.6	10.7	10.9	15.1	11.6	16.4
Montana	212.3	220.8	193.8	205.5	179.3	46.6	58.1	65.3	66.8	65.9	68.1	73.5	88.5	94.0	84.2	5.9	7.0	11.5	8.1	13.4
Nebraska	216.9	219.9	220.6	189.7	184.6	58.7	63.1	69.6	51.5	60.6	50.9	61.4	74.6	65.6	72.7	2.3	4.0	4.8	3.7	5.6
Nevada	279.4	255.4	290.0	218.2	249.0	39.2	46.5	84.0	100.0	83.7	66.7	72.3	104.0	104.1	103.2	4.9	5.0	7.0	7.1	18.4
New Jersey	322.2	308.8	301.9	285.1	284.6	69.7	70.3	75.6	79.0	82.6	56.2	57.2	58.2	57.0	59.3	3.0	3.2	3.4	3.4	5.2
New Mexico	137.7	135.8	128.2	114.2	105.5	61.6	54.3	67.1	67.8	54.5	116.8	151.2	127.1	134.8	130.8	52.6	88.4	74.4	79.1	76.1
New York	364.7	360.9	349.8	318.4	322.6	70.9	75.5	78.7	80.3	84.5	61.9	67.6	68.3	67.0	69.4	4.7	5.9	6.1	6.2	6.8
North Carolina	162.7	158.3	175.1	155.7	161.2	87.4	84.5	98.1	90.5	98.5	75.9	71.0	64.9	63.9	73.3	29.2	24.6	23.5	22.0	26.6
North Dakota	146.8	163.7	160.6	146.0	154.4	40.3	35.6	41.7	47.4	41.0	48.6	54.8	67.5	65.5	74.7	6.9	10.0	12.2	10.4	14.8
Ohio	280.9	284.9	282.8	262.8	255.4	76.7	78.8	84.4	81.5	81.9	58.6	67.6	73.2	69.2	74.8	6.9	8.2	8.3	6.0	8.0
Oklahoma	128.1	129.5	136.9	121.4	112.0	56.3	61.8	58.0	52.6	49.1	55.8	65.1	70.7	67.0	77.8	9.4	13.0	15.3	13.1	18.3
Oregon	273.8	273.3	277.4	277.5	254.0	109.2	106.6	104.3	103.7	91.6	49.4	52.3	66.2	63.0	59.7	2.0	1.6	2.3	1.8	1.7
Pennsylvania	301.5	301.9	292.8	271.7	263.3	80.0	84.5	82.0	83.1	88.7	53.6	55.5	53.7	55.7	60.7	5.2	6.0	5.8	5.5	8.3
Rhode Island	362.6	368.0	355.1	328.3	312.3	105.3	108.5	107.2	103.8	111.7	62.4	60.6	61.2	66.2	62.7	5.3	5.1	3.8	5.3	4.3
South Carolina	187.1	185.2	177.8	178.4	168.0	90.0	92.0	93.8	93.5	108.0	39.0	29.8	41.6	63.2	75.2	11.0	9.8	16.2	22.1	27.8
South Dakota	163.0	167.0	153.6	139.6	146.0	38.4	44.1	60.5	61.1	63.0	52.0	54.5	60.4	59.0	66.2	5.3	4.6	10.1	7.8	9.4
Tennessee	159.3	158.0	161.3	142.6	144.0	62.5	65.2	67.9	63.1	62.0	74.3	75.2	80.3	77.9	87.8	21.6	17.6	20.4	18.9	25.4
Utah	233.8	227.9	218.4	202.5	193.8	54.4	57.2	58.5	58.3	58.8	66.0	67.8	78.0	80.6	80.4	5.6	3.8	9.9	4.9	9.3
Vermont	280.3	311.2	356.3	313.0	330.2	75.6	72.6	88.2	88.3	101.6	49.7	47.8	69.2	63.9	71.3	2.6	2.6	5.3	3.4	5.6
Virginia	227.6	219.2	231.4	208.0	205.8	80.5	83.5	91.5	86.3	87.3	57.7	51.7	57.8	55.4	62.1	15.6	12.3	13.3	10.8	16.3
Washington	281.4	301.9	277.0	264.6	244.3	67.8	75.3	74.3	79.2	75.2	59.5	57.8	66.3	65.3	63.1	3.2	3.2	3.3	3.7	2.8
West Virginia	164.5	166.2	170.5	150.2	124.3	69.3	66.4	67.3	69.5	64.9	70.3	71.6	92.1	76.8	79.8	25.9	21.3	34.3	20.1	28.0
Wisconsin	289.6	282.5	290.8	256.4	239.9	62.7	68.9	68.8	70.0	69.8	(2)	(2)	(2)	(2)	(2)	5.1	4.7	6.2	4.6	6.8
Wyoming	214.8	254.0	207.3	184.9	163.6	56.5	46.8	53.2	55.2	59.7	70.0	73.6	80.7	75.9	74.4	9.3	14.0	11.6	3.9	7.8

State	All accidents (176–195, 201–204)					Automobile accidents (206, 208, 210)				
	1938	1937	1936	1935	1934	1938	1937	1936	1935	1934
Alabama	66.8	72.7	70.2	63.6	61.5	20.3	23.4	24.1	21.0	18.4
Alaska [1]	196.8	206.7				[3]	1.7			
California	96.8	107.0	108.5	98.0	95.1	43.9	50.9	50.8	46.0	46.8
Colorado	91.2	94.5	103.1	94.3	89.6	31.5	35.9	36.3	31.2	32.4
Connecticut	69.9	68.4	69.7	72.7	76.0	19.1	24.0	25.7	28.1	28.2
Delaware	80.2	106.5	93.4	96.1	94.1	26.7	42.9	33.6	28.1	34.4
District of Columbia	64.3	82.3	82.0	83.8	93.4	20.6	27.8	33.6	27.8	35.4
Florida	98.2	105.1	102.3	119.2	99.7	41.8	42.8	41.6	39.1	39.3
Georgia	66.8	75.3	90.5	79.3	74.8	24.7	29.6	32.3	30.8	26.8
Hawaii	52.6	51.1	59.4	65.0	65.4	16.4	15.0	20.4	18.4	22.7
Idaho	90.0	104.5	111.4	92.1	88.8	34.2	36.7	38.4	34.0	33.0
Illinois	74.1	80.8	99.9	73.5	83.4	27.5	33.1	32.2	29.1	31.8
Indiana	72.3	86.8	105.1	84.5	92.1	30.7	39.3	39.5	35.1	37.0
Iowa	64.9	75.1	87.1	74.9	78.8	18.9	23.9	22.1	24.5	22.7
Kansas	104.3	114.2	95.0	85.9	93.9	24.1	26.9	30.6	31.5	27.9
Kentucky	62.1	71.6	85.8	77.2	78.6	20.8	26.1	23.8	23.7	23.1
Louisiana	71.4	69.4	78.2	73.6	69.4	22.4	22.6	27.2	24.5	23.0
Maine	67.4	74.2	83.5	82.2	83.0	21.7	18.6	24.3	24.8	25.1
Maryland	72.7	92.2	84.9	85.1	83.6	23.0	32.2	27.6	28.0	30.1
Massachusetts	60.0	63.9	69.0	68.7	70.3	15.0	18.9	20.2	19.3	23.4
Michigan	73.5	92.2	99.7	82.7	82.1	28.5	41.0	40.1	35.2	32.5
Minnesota	69.9	75.0	97.8	75.2	74.8	24.1	24.8	26.8	23.7	25.2
Missouri	67.3	79.2	95.4	74.2	98.8	21.9	27.7	25.6	24.7	26.0
Montana	103.5	108.0	124.3	104.0	108.5	24.6	33.2	32.4	30.0	39.0
Nebraska	57.3	66.5	77.9	82.3	79.1	16.9	24.0	22.8	25.6	23.6
Nevada	141.2	157.3	184.0	177.8	180.6	58.8	59.4	74.0	80.8	73.5
New Jersey	58.4	72.1	72.4	69.0	74.1	20.2	26.6	25.8	27.6	28.6
New Mexico	97.6	125.5	108.2	93.1	94.8	35.1	49.2	49.0	37.2	35.1
New York	65.0	72.6	71.4	70.7	73.1	18.7	22.6	20.4	22.3	23.4
North Carolina	62.6	72.0	71.4	70.6	69.4	24.9	29.9	28.1	29.4	27.4
North Dakota	51.0	58.9	64.1	55.7	56.6	17.4	19.3	19.2	15.7	18.6
Ohio	68.4	94.6	103.2	91.9	95.1	27.9	36.9	35.8	35.5	34.5
Oklahoma	66.9	61.5	76.2	68.9	65.0	21.8	24.2	25.8	26.5	24.5
Oregon	93.9	89.7	109.6	95.9	88.5	31.9	33.2	35.7	28.8	31.8
Pennsylvania	57.3	66.1	76.6	72.2	75.0	16.9	21.6	24.0	23.4	25.4
Rhode Island	94.0	55.9	58.3	60.4	56.4	11.6	18.1	16.5	15.8	15.1
South Carolina	62.9	70.1	75.2	71.9	70.0	24.6	27.9	31.4	27.7	26.2
South Dakota	62.7	60.3	70.5	63.9	62.1	20.2	15.9	18.5	21.4	17.6
Tennessee	60.8	68.3	77.2	72.5	73.0	19.4	24.5	27.2	25.3	25.0
Utah	97.7	98.4	92.1	91.9	85.4	41.5	38.9	35.9	36.5	37.9
Vermont	64.0	65.5	82.3	92.9	92.7	19.2	17.0	26.3	22.6	26.2
Virginia	68.0	70.8	83.4	82.1	83.5	24.2	28.0	31.2	32.2	29.8
Washington	84.3	99.0	111.4	99.4	98.3	29.0	33.0	38.5	34.6	37.3
West Virginia	79.1	95.1	104.0	99.2	98.2	19.8	24.8	28.0	28.2	23.4
Wisconsin	72.1	83.6	91.2	77.1	75.6	23.5	29.9	26.6	28.6	25.3
Wyoming	113.5	128.9	131.3	124.6	127.7	40.9	53.2	48.9	43.5	47.6

[1] Data not available prior to 1937.

[2] Data not available.

[3] No deaths reported.

AQUATIC LIFE IN WATERS POLLUTED BY ACID MINE WASTE*

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A visitor to coal mining regions for the first time usually remarks the colored water of the streams or strip pits there. Clear red or copper colored, they are much more attractive, from an aesthetic viewpoint, than the black or milky waters produced by industrial or domestic pollution in densely populated areas.

Such copper colored waters, however, represent an extreme of industrial pollution. Coal seams contain sulfur, which, when exposed to air, oxidizes in the presence of water, and so the streams or strip pits have a very high sulfuric acid content; pH values as low as 1.8, representing 35,000 p. p. m. of acid, have been noted. Such acidities are very damaging; water works superintendents or industrial engineers needing boiler water find mine water almost useless; cattle will not drink it, and fish and most plants are quickly killed by it.

These mine runs and pits also represent an environmental extreme. Extreme environments, however, often have their inhabitants, and such is the case with the acid mine waters. One of the higher plants, the cattail, *Typha latifolia*, grows well in the most acid waters; and several insects, such as *Chironomous*, the bloodworm, caddis flies, mosquitoes, and a few beetles thrive therein. The most abundant population, however, consists of protozoa and algae, unless the bacteria, insufficiently investigated, might be more abundant.

In the past year more than 200 mine runs or pits have been personally visited and samples taken therefrom to determine their microscopic flora and fauna. The general features were noted of each location visited, the pH was determined, and, if the water was acid, a sampling station was selected which showed some pooling, if in a stream, and with an accumulation of debris in which small organisms might find lodgment. Early samples showed that suspended forms were extremely rare, and an effort was thereafter made to get those forms which might crawl or burrow into debris and bottom films. Samples taken from such situations also tended to include swimming forms, because they had been taken in still water. In April and October 1938, West Virginia mine streams and Indiana strip pits were sampled. In general, the temperatures of mine streams tend to approximate 21° C. on issuing from the mines, for mine temperatures are fairly uniform throughout the year. Strip pits, of course, tend to conform to atmospheric temperatures. Frequently, two samples were taken—one as close to the mine mouth as possible, yet at a sufficient distance to have been seeded by surface run-off, and another

*Presented at meeting of the Limnological Society of America, Richmond, Va., December 27-31, 1938.

from the same stream or the stream system several miles below. These two samples thus afforded opportunity to show whether animals and plants gradually invaded the stream or strip pits as acidity decreased, and also tended to show how extensive a seeding was necessary to establish life in such waters. The pH of nearby pools, streams, and swamps, not polluted by mine wastes, was determined and their flora and fauna were listed for comparison. By examining widely separated points, it was ascertained that the paucity of living species was not a local condition, but was general for acid mine waters.

Field examination of mine streams in the spring (*1*) indicated abundant growths of some algae. Most usual was a green coating along banks, on debris, on rocks in the swiftest currents, and even on vertical moist rock faces. A thin brown coating was also evident at times. A heavy white growth which was common usually proved to be bacterial zooglea. Fungi were scarce, rarely forming extensive growths.

Nonbacterial microscopic organisms were composed principally of protozoa, algae, and rotifers. Table 1 shows the distribution in the plant and animal kingdoms of species found in the samples within the pH range 1.8 to 3.9. All of the commonly occurring ones were identified, but perhaps an additional 10 percent of rarely occurring species could not be recognized. Some identifications may be questionable, especially of very small forms such as the smaller chlamydomonads, which might be zoospores of *Stichococcus* or *Ulothrix*. Species definitions had to be based on rather hurried determination of morphological characters, but were usually satisfactory.

TABLE 1.—*Distribution of recognized genera and species of plants and animals occurring at or below pH 3.9*

Plants	Number of species	Animals	Number of species
Thallophyta:		Protozoa:	
Fungi	2	Mastigophora:	
Algae:		Euglenidae	7
Myxophyceae	3	Protomastigina	7
Chrysophyceae:		Sarcodina:	
Chrysomonadales	3	Rhizopoda	15
Chrysotrichales	1	Heliozoa	2
Bacillarieae:		Infusoria:	
Pennales	5	Ciliata	19
Chlorophyceae:		Trochelminthes:	
Volvocales	1	Rotatoria	6
Ulotrichales	2	Gastrotricha	1
Chlorococcales	1	Nemathelminthes:	
Zynematales	6	Nematoda	1
Dinophyceae	2	Arthropoda:	
Bryophyta	1	Crustacea:	
Pteridophyta	1	Isopoda	1
Spermatophyta	1	Copepoda	1
		Arachnida:	
		Tardigrada	1
		Insecta	8
		Amphibia	1

A total of 99 species of plants and animals was found living at or below pH 3.9, 85 of which were microscopic types, 76 being algae or protozoa; but the list of commonly occurring microscopic forms included only 17 species. Figure 1 shows the percentage of occurrence in all samples in which these 17 species were found. An organism was arbitrarily termed "common" if it appeared in 15 percent of the samples, "tolerant" if it appeared in 5 percent of the samples, and "adventitious" if it appeared in less than that number. This arbitrary classification is, of course, open to criticism, but it serves as a working basis. One of its worst features is that occasionally an organism might be found in but a single sample, yet occur in such

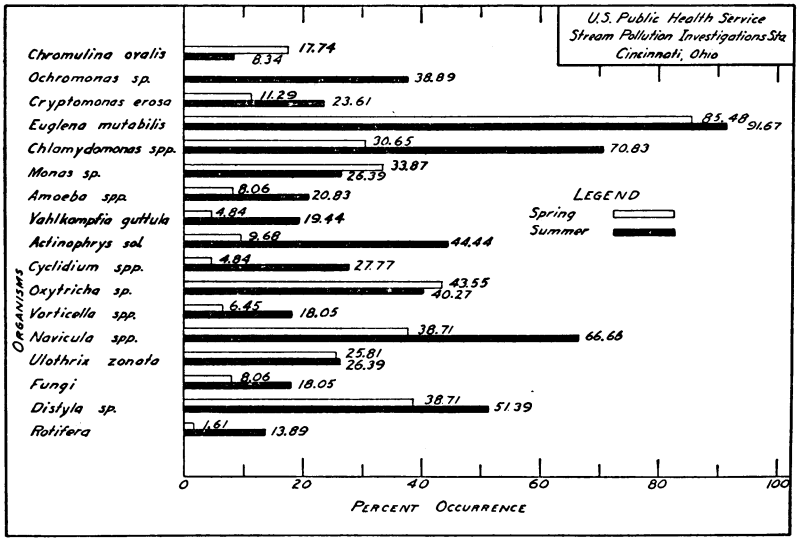


FIGURE 1.—Percentage of occurrence of the 17 most common organisms in all samples.

large numbers in that sample as to leave no doubt of its tolerance for that particular environmental niche. As an example of this might be mentioned the large numbers of *Lepocinclis ovum* which were present in Crab Orchard Creek (pH 2.5), where it was the dominant one of six species of microorganisms; or the large number of *Raphidiophrys pallida* in Riverdale (pH 3.0). Both of these would normally be listed as adventitious forms, but in the particular samples under consideration they were decidedly not. *Amoeba radiosa* is also listed as an adventitious form, but in laboratory cultures of this mine water it may attain large numbers.

Because of the seasonal differences between the first and last sampling periods (early spring and late summer, respectively), considerable differences in the flora and fauna were anticipated. Actually, very little difference was found. *Ochromonas* sp., common in later

summer, was not found in spring, and the same is true for the small amoeba, *Vahlkampfia guttula*. *Chromulina ovalis*, common in spring, was found in 11 of the early samples and in only 6 of the later ones. Frequently, however, it was found impossible to distinguish between this creature and *Ochromonas*, and it seems probable that some of those listed as *Chromulina* in the spring samples were *Ochromonas*. The 17 varieties of common forms appeared in more samples in the late summer, except for *Pleuromonas jaculans* and *Urotricha farcta*. Even for the adventitious species the two sets of samples showed

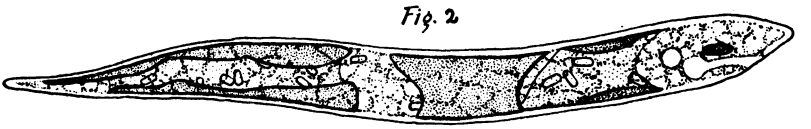
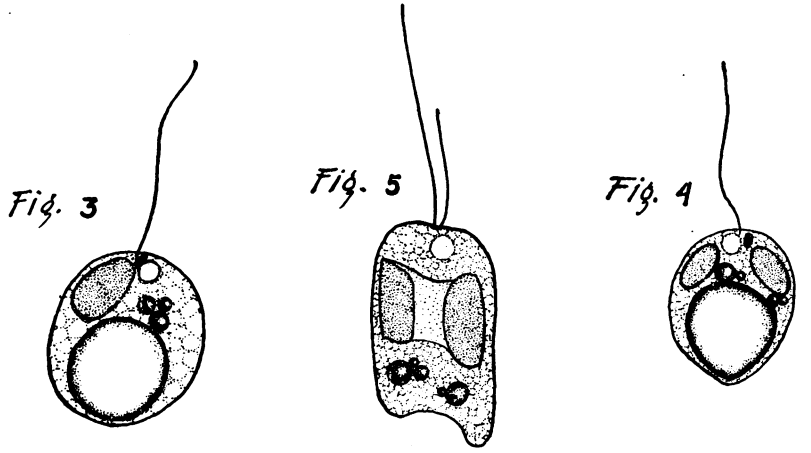


FIGURE 2.—*Euglena mutabilis*, showing two or three heavy chloroplastids, conspicuous stigma, small rod-like paramylum bodies, and apparent absence of flagellum.



FIGURES 3 and 4.—*Chromulina* sp., showing one or two chromatophores, stigma, and large posterior granula.
FIGURE 5.—*Ochromonas* sp., showing band-like chromatophore and absence of stigma.

largely the same forms, the greatest difference being among the ciliates and rhizopods.

Nor can the species which were encountered be termed rare. *Euglena mutabilis* (fig. 2) is far from common unless in an acid situation, but has been recorded by the writer (*2*) 11 times in 165 samples over a period of several years, while Prof. W. J. Kostir (*3*), of Ohio State University, has maintained a pure culture of it over a long period. Neither the *Chromulina* (figs. 3, 4) nor the *Ochromonas* (fig. 5) fit exactly into those species given by Pascher and Lemmermann (*4*), but they hardly exhibit sufficient differences to be called new species. Three of the ciliates, *Chilodonella*, *Cinetochilum*, and *Glaucoma*, have been shown elsewhere (*2*) to tolerate wide differences

of environment. Probably it is just such species, i. e., those with a wide tolerance, which we might expect to find in these acid waters. The condition has been created largely by man and is, therefore, relatively recent; such species as could occupy the environment have done so, but few, if any, new ones have developed. The absence of acid-tolerant forms is marked for the desmids and shelled rhizopods of bog habitats; but we are dealing here with higher acidities than those of bogs and with a mineral acidity rather than organic acidity.

There is a very large difference between the total number of species found in one of these highly acid samples and in a sample from a stream or stagnant pool or strip pit immediately adjacent to the mine water sample, but whose pH is near neutrality. Any mine

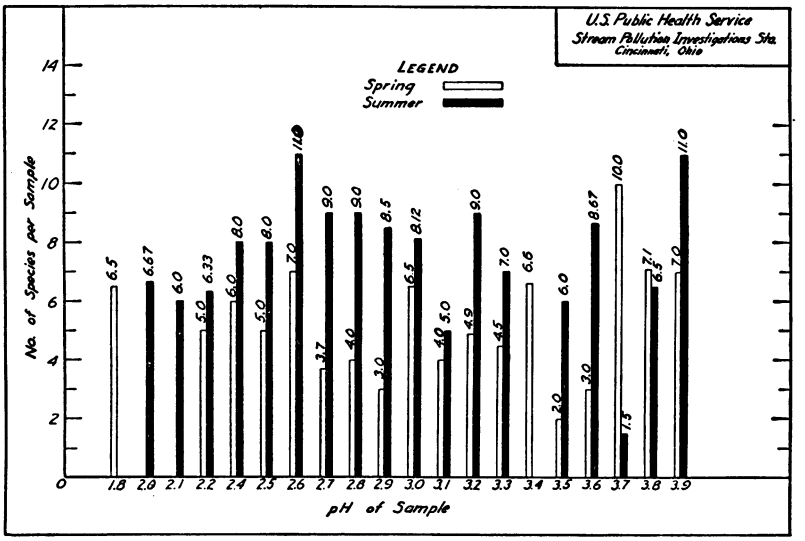


FIGURE 6.—Average number of species per sample within the pH range 1.8 to 3.9.

water sample could be repeatedly examined with great care day after day and never show more than a few species of microorganisms. Figure 6 shows the average number of species per sample at observed pH values up to and including 3.9. Between pH 3.9 and 4.8 very few samples were obtained; but at 4.8 and above, the number of species which could be counted increased greatly. Thus, 15 samples from pH 4.8 to 7.2, secured for comparison in the early spring trip to the mine fields, showed an average number of 23 microscopic species per sample, and the notation was made for each of these samples: "A complete list * * * not compiled * * *." Almost any 100-ml sample of Scioto River (Ohio) water, taken at the same time of year, will show from 60 to 120 plankton species alone. It is an inevitable conclusion that the highly acid waters greatly diminish the number of possible inhabitants therein.

A number of Indiana and Illinois strip pits have been dammed at various times, raising the water above the exposed coal seams and creating long and often deep and beautiful lakes. Here there is little or no chance for the oxidation of sulfur to sulfuric acid. The result is a very slow decrease in acidity and a subsequent slow repopulation of the lake by microorganisms, then by fish and other animals. The Tygart River at Phillipi, W. Va., gave a sample whose pH was 6.0 and which yielded 44 microscopic species on an incomplete examination. The river was clear and green at that point because of algae growing on submerged objects, yet a few years ago, before the sealing of mines in this region, it was a highly acid stream, "red and nothing would grow in it." No data were available on the succession of forms reinvading gradually improving streams or lakes, but copepod Crustacea were found in enormous numbers in two lakes, one with a pH of 6.6, and in the Tygart River. Because the strip pit lake is usually surrounded by high, steep banks and its total watershed area is hardly greater than the lake area, it must depend on photosynthetic protozoa and algae for fertility. The high, steep banks can contribute no humus for feeding the organisms initiating food chains, and either there are no shallow areas for growth of higher plants, or else the acid tolerant *Typha* preempts such areas and is, apparently, a poor "fertilizing" plant. The general impression is that recovery of a highly acid strip pit to a productive body of water is a slow process if left to nature.

SUMMARY

Two coal mining regions, shaft mining areas in West Virginia, and strip mining areas in Indiana and Illinois, were visited and biological surveys twice made of their highly acid streams and strip pit lakes. A few adjacent almost neutral streams and lakes were surveyed for comparison.

A total of 86 species of microscopic forms was recognized. Besides Thallophyta, Protozoa, and Trochelminthes, only one of the remaining phyla of plants and animals, the Arthropoda, was represented by more than one commonly occurring species in these acid waters.

At or below pH 3.9, the number of species found in any given habitat was very small. The largest number was 11 at pH 2.6 and several samples showed no life on examination.

Practically the same forms were common in April and October, but there was quite a difference in the species termed adventitious which were found at the two different times.

Seventeen species occurred in 15 percent or more of the samples and are termed "common." The most frequently occurring ones were as follows: *Euglena mutabilis, Naviculoid diatoms, Chlamydomonas* spp., *Distyla* sp., *Actinophrys sol., Oxytricha* sp., *Ochromonas* sp., and *Ulothrix zonata.*

Because the most sharply definitive factor, sulfuric acid acidity, remains relatively constant, the relative constancy of species occurrence indicates that this one factor outweighs all others.

After the strip pit lakes have been sealed to reduce acid production there appears to be little chance for them to become productive except by the initial development of a large flora and fauna of chlorophyll-bearing organisms. Inasmuch as seven of the 17 organisms most common in this environment belong to this category, this initial process is apparently already under way.

REFERENCES

(1) Lackey, James B.: The flora and fauna of surface waters polluted by acid mine drainage. Pub. Health Rep., 53:1499–1507 (August 26, 1938). Reprint No. 1976.
(2) Idem: A study of some ecologic factors affecting the distribution of protozoa. Ecologic Monographs, 8 (4): 501–527 (October 1938).
(3) Kostir, W. J.: Personal communication to the writer. 1938.
(4) Pascher, A., and Lemmermann, E.: Die Susswasser-flora Deutschlands, Osterreichs und der Schweiz. Gustave Fischer, Jena, 1913.

BIOLOGICAL PRODUCTS

Establishments Licensed for the Propagation and Sale of Viruses, Serums, Toxins, and Analogous Products

There is presented herewith a list of the establishments holding licenses issued by the Treasury Department in accordance with the act of Congress approved July 1, 1902, entitled "An act to regulate the sale of viruses, serums, toxins, and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes."

The licenses granted to these establishments for the products mentioned do not imply an endorsement of the claims made by the manufacturers for their respective preparations. The granting of a license means that inspection of the establishment concerned and laboratory examinations of samples of its products are made regularly to insure the observance of safe methods of manufacture, to ascertain freedom from contamination, and to determine the potency or safety, or both, of botulinus antitoxin, diphtheria antitoxin, histolyticus antitoxin, odematiens antitoxin, perfringens antitoxin, scarlet fever streptococcus antitoxin, staphylococcus antitoxin, tetanus antitoxin, vibrion septique antitoxin, antidysenteric serum, antimeningococcic serum, antipneumococcic serum, pneumococcus typing serum, bacterial vaccines made from typhoid bacillus, paratyphoid bacillus A, and paratyphoid bacillus B, diphtheria toxin-antitoxin mixture, diphtheria toxoid, tetanus toxoid, diphtheria toxin

for Schick test, scarlet fever streptococcus toxin for Dick test, scarlet fever streptococcus toxin for immunization, and the arsphenamines, the only products for which potency standards or tests have been established.

The enumeration of the products is as follows: Serums are placed first, the antitoxins, being more important, heading the list. The other products are arranged generally in the order of their origin.

Establishments Licensed and Products for Which Licenses Have Been Issued

AMERICAN ESTABLISHMENTS

Parke, Davis & Co., Detroit, Mich.—License No. 1:

Diphtheria antitoxin; gonococcus antitoxin; meningococcus antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; staphylococcus antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antidysenteric serum; antigonococcic serum; anti-influenza bacillus serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; hemostatic serum (Lapenta); normal horse serum; thyroidectomized horse serum; pneumococcus typing serum; smallpox vaccine; rabies vaccine (Cumming); tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, acne diplococcus, Brucella melitensis, colon bacillus, dysentery bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, prodigiosus bacillus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus and typhoid bacillus, diphtheria toxin-antitoxin mixture; diphtheria toxoid-antitoxin mixture, diphthera toxoid, staphylococcus toxoid: diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; animal epidermal extracts; animal food extracts; vegetable food extracts; poison ivy extract; pollen extracts; modified bacterial derivatives made from colon bacillus, gonococcus, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, and streptococcus.

Mulford Biological Laboratories, Sharp & Dohme, Broad and Wallace Streets, Philadelphia, Pa.—License No. 2:

Botulinus antitoxin; diphtheria antitoxin; erysipelas streptococcus antitoxin; B. histolyticus antitoxin; B. odematiens antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; B. sordelli antitoxin; staphylococcus antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antidysenteric serum; antierysipeloid serum; antigonococcic serum; anti-influenza bacillus serum: antimelitensis serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum, antitularemic serum, antivenin (Nearctic crotalidae); antivenin Bothropic; antivenin (Crotalus terrificus); antivenin (Latrodectus mactans); acute anterior poliomyelitis immune serum (human); measles immune serum (human); scarlet fever immune serum (human); normal human serum; immune globulin (human); normal horse serum; pneumococcus typing serum; smallpox vaccine; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, dysentery bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, Brucella melitensis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, bacterium tularense, and typhoid bacillus; sensitized bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin,antitoxin mixture; diphtheria toxoid; staphylococcus toxoid; tetanus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts; animal epidermal extracts; animal food extracts; vegetable food extracts; poison ivy extract; poison oak extract; miscellaneous allergenic extracts; pneumococcus antibody solution; bacterial antigens made from acne bucillus, colon bacillus, dysentery bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, proteus bacillus, pyocyaneus bacillus, staphylococcus aureus, streptococcus, typhoid bacillus; bee venom; snake venom solution.

The Cutter Laboratory, Berkeley, Calif.—License No. 8:

Diphtheria antitoxin; B. odematiens antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; B. sordelli antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antimeningococcic serum; antistreptococcic serum; normal horse serum; smallpox vaccine; rabies vaccine (killed virus); tuberculin old; tuberculin B. F.; bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from colon bacillus, staphylococcus aureus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test; pollen extracts; poison ivy extract; poison oak extract.

Bureau of Laboratories, Department of Health, Foot East Sixteenth Street, New York City.—License No. 14:

Smallpox vaccine.

Lederle Laboratories, Inc., Pearl River, N. Y.—License No. 17:

Diphtheria antitoxin; erysipelas streptococcus antitoxin; B. histolyticus antitoxin; B. odematiens antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; staphylococcus antitoxin; B. sordelli antitoxin; tetanus antitoxin; vibrion septique antitoxin; antianthrax serum; antidysenteric serum; antigonococcic serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; measles immune serum; immune globulin (human); normal horse serum; pneumococcus typing serum; smallpox vaccine; rabies vaccine (killed virus); tuberculin old; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, Brucella melitensis, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus; bacterial antigen made from pertussis bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; tetanus toxoid; staphylococcus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts; poison ivy extract; poison oak extract; animal epidermal extracts; animal food extracts; vegetable food extracts; animal oil extracts; vegetable oil extracts; fungus extracts; miscellaneous allergenic extracts; snake venom solution.

G. H. Sherman, M. D., Inc., 14600 East Jefferson Avenue, Detroit, Mich.—License No. 30:

Bacterial vaccines made from acne bacillus, Brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; pollen extracts; bacterial antigens made from colon bacillus, gonococcus, micrococcus catarrhalis, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, and streptococcus.

The Abbott Laboratories, Fourteenth Street and C.-W. Interurban Railroad Tracks, North Chicago, Ill.—License No. 43:

Bacterial vaccines made from acne bacillus, Brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, micrococcus tetragenus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, micrococcus catarrhalis, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus; poison ivy extract; pollen extracts; animal epidermal extracts; animal food extracts; vegetable food extracts; fungus extracts; miscellaneous allergenic extracts.

The Upjohn Co., Kalamazoo, Mich.—License No. 51:

Bacterial vaccines made from colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from colon bacillus, staphylococcus aureus, streptococcus.

E. R. Squibb & Sons' Research and Biological Laboratories, New Brunswick, N. J.—License No. 52:

Diphtheria antitoxin, erysipelas streptococcus antitoxin, perfringens antitoxin, scarlet fever streptococcus antitoxin, staphylococcus antitoxin; tetanus antitoxin; vibrion septique antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; immune globulin (human); normal horse serum; antivenin (Latrodectus mactans); pneumococcus typing serum; smallpox vaccine; rabies vaccine (Pasteur); rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus; staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus; bacterial antigen made from staphylococcus aureus; leucocytic extract from the horse; diphtheria toxin-antitoxin mixture; diphtheria toxoid; staphylococcus toxoid; tetanus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts; poison ivy extract; poison oak extract; arsphenamine, neoarsphenamine, sulfarsphenamine.

Eli Lilly & Co., Indianapolis, Ind.—License No. 56:
Diphtheria antitoxin; erysipelas streptococcus antitoxin; perfringens antitoxin; tetanus antitoxin; vibrion septique antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; hemostatic serum (Lilly); heterophile antibody; smallpox vaccine; rabies vaccine (Harris); tuberculin old; bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial vaccine made from partially autolized pneumococci; diphtheria toxin-antitoxin mixture; diphtheria toxoid; tetanus toxoid; diphtheria toxin for Schick test; bacterial antigens made from acne bacillus, colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, and streptococcus.

Gilliland Laboratories, Marietta, Pa.—License No. 63:
Diphtheria antitoxin; perfringens antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; vibrion septique antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; immune globulin (human); normal horse serum; pneumococcus typing serum; smallpox vaccine; rabies vaccine (Pasteur); rabies vaccine (killed virus); tuberculin old; tuberculin B. E.; tuberculin, B. F.; bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus; gonococcus, influenza bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus; pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid, tetanus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization.

Antitoxin and Vaccine Laboratory, Department of Public Health, Commonwealth of Massachusetts, 375 South Street, Jamaica Plain, Boston 30, Mass.—License No. 64:
Diphtheria antitoxin; scarlet fever streptococcus antitoxin; antiinfluenza bacillus serum; antimeningococcic serum; antipneumococcic serum; pneumococcus typing serum; smallpox vaccine; tuberculin old; bacterial vaccines made from paratyphoid bacillus A, paratyphoid bacillus B, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; diphtheria toxin for Schick test.

United States Standard Products Co., Woodworth, Wis.—License No. 65:
Diphtheria antitoxin; erysipelas streptococcus antitoxin; perfringens antitoxin; tetanus antitoxin; vibrion septique antitoxin; antimeningococcic serum; normal horse serum; smallpox vaccine; rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from staphylococcus albus, staphylococcus aureus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; tetanus toxoid; diphtheria toxin for Shick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts; poison ivy extract.

D. L. Harris Laboratories, Metropolitan Building, St. Louis, Mo.—License No. 66:
Rabies vaccine (Harris).

The Arlington Chemical Co., Yonkers, N. Y.—License No. 67:
Bacterial vaccines made from colon bacillus, Friedländer bacillus, micrococcus catarrhalis, micrococcus tetragenus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, and streptococcus; fungus extracts; pollen extracts; animal epidermal extracts; animal food extracts; vegetable food extracts; miscellaneous allergenic extracts.

Dermatological Research Laboratories, 1720 Lombard Street, Philadelphia, Pa.—License No. 68:
Arsphenamine; silver arsphenamine; neoarsphenamine; sulfarsphenamine; bismuth arsphenamine sulfonate; neosilver arsphenamine; trisodium sulfarsphenamine.

The Winthrop Chemical Co., Inc., 33 Riverside Avenue, Rensselaer, N. Y.—License No. 69:
Arsphenamine; arsphenamine diglucoside; neoarsphenamine; sodium arsphenamine; silver arsphenamine; neosilver arsphenamine, sulfarsphenamine.

Diarsenol Co., Inc., 72 Kingsley Street, Buffalo, N. Y.—License No. 70:
Arsphenamine; neoarsphenamine; sodium arsphenamine; sulfarsphenamine.

Mallinckrodt Chemical Works, St. Louis, Mo.—License No. 77:
Arsphenamine; neoarsphenamine; sulfarsphenamine.

Merck & Co., Inc., Rahway, N. J.—License No. 82:
Arsphenamine; neoarsphenamine; sulfarsphenamine.

Terrell Laboratories, Texas National Bank Building, Fort Worth, Tex.—License No. 84:
Rabies vaccine (killed virus).

Jensen-Salsbery Laboratories, Twenty-first and Penn Streets, Kansas City, Mo.—License No. 85:
Botulinus antitoxin; antianthrax serum, antierysipeloid serum; rabies vaccine (killed virus); bacterial vaccine made from Brucella melitensis; diphtheria toxin for Schick test; diphtheria toxoid.

Hollister-Stier Laboratories, Paulson Medical and Dental Building, Spokane, Wash.—License No. 91:
Acute anterior poliomyelitis immune serum (human); bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and xerosis bacillus; pollen extracts; poison ivy extract; poison oak extract; animal epidermal extracts, vegetable food extracts.

Medical Arts Laboratory, Medical Arts Building, Oklahoma City, Okla.—License No. 98:
Rabies vaccine (killed virus).

Bureau of Laboratories, Michigan State Department of Health, Lansing, Mich.—License No. 99:
Diphtheria antitoxin; scarlet fever streptococcus antitoxin; tetanus antitoxin; antimeningococcic serum; antipneumococcic serum; smallpox vaccine; rabies vaccine (Cumming); tuberculin old; bacterial vaccines made from pertussis bacillus and typhoid bacillus; diphtheria toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization.

National Drug Co., 5109 Germantown Avenue, Philadelphia, Pa.—License No. 101:
Diphtheria antitoxin, erysipelas streptococcus antitoxin; scarlet fever streptococcus antitoxin; perfringens antitoxin; tetanus antitoxin; vibrion septique antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; immune globulin (human); normal horse serum; tuerculin old; pneumococcus typing serum; smallpox vaccine; rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, Brucella melitensis, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; staphylococcus toxoid; tetanus toxoid; diphtheria toxin for Schick test; scarlet fever streptococcus toxin for Dick test; scarlet fever streptococcus toxin for immunization; pollen extracts.

Mulford Colloid Laboratories, Thirty-eighth and Ludlow Streets, Philadelphia, Pa.—License No. 102:
Poison ivy extract; poison oak extract.

Allergy Laboratories, 1200 North Walker Street, Oklahoma City, Okla.—License No. 103:
Pollen extracts; vegetable food extracts; animal epidermal extracts; miscellaneous allergenic extracts.

Hixson Laboratories (Inc.), Johnstown, Ohio.—License No. 104:
Diphtheria antitoxin; tetanus antitoxin; antimeningococcic serum; normal horse serum; rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus and typhoid bacillus; diphtheria toxin-antitoxin mixture; diphtheria toxoid; tetanus toxoid; diphtheria toxin for Schick test.

C. F. Kirk Co., New York, N. Y.—License No. 105:
Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus and typhoid bacillus; pollen extracts.

Knapp & Knapp, 2921 So. Olive Avenue, Burbank, Calif.—License No. 106:
Pollen extracts.

The Porro Biological Laboratories, 718 Medical Arts Building, Tacoma, Wash.—License No. 107:
Bacterial vaccines made from micrococcus catarrhalis, pneumococcus, staphylococcus aureus, and streptococcus; pollen extracts; animal epidermal extracts; vegetable food extracts; miscellaneous allergenic extracts.

Central Pharmacal Co., Seymour, Ind.—License No. 109:
Bacterial antigens made from colon bacillus, Friedländer bacillus, gonococcus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, pyocyaneus bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus.

Pitman-Moore Co., Zionsville, Ind.—License No. 110:
Diphtheria antitoxin; perfringins antitoxin; tetanus antitoxin; vibrion septique antitoxin; antierysipeloid serum; immune globulin (human); rabies vaccine (killed virus); bacterial vaccines made from acne bacillus, colon bacillus, Brucella melitensis, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, micrococcus tetragenus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; bacterial antigens made from colon bacillus, gonococcus, staphylococcus albus, staphylococcus aureus, streptococcus; diphtheria toxoid; tetanus toxoid; diphtheria toxin for Schick test; pollen extracts.

The Wm. S. Merrell Co., Cincinnati, Ohio.—License No. 111:
Bacterial vaccines made from colon bacillus, Friedländer bacillus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, typhoid bacillus.

Wyatt Clinic Laboratories, Tucson, Ariz.—License No. 112:
Bacterial antigen made from streptococcus.

Michael Reese Hospital, Twenty-ninth Street and Ellis Avenue, Chicago, Ill.—License No. 113:
Acute anterior poliomyelitis immune serum (human); measles immune serum (human); scarlet fever immune serum (human); normal human serum.

The Milwaukee Serum Center, Columbia Hospital, Milwaukee, Wis.—License No. 117:
Acute anterior poliomyelitis immune serum (human); measles immune serum (human); scarlet fever immune serum (human); normal human serum.

Barry Allergy Laboratory, Michigan Theater Building, Detroit, Mich.—License No. 119:
Pollen extracts.

Biological Laboratory, Illinois Department of Health, Springfield, Ill.—License No. 120:
Rabies vaccine (killed virus); bacterial vaccine made from typhoid bacillus; diphtheria toxoid; diphtheria toxin for Schick test.

State Department of Health, Austin, Tex.—License No. 121:
Rabies vaccine (killed virus); bacterial vaccines made from paratyphoid bacillus A, paratyphoid bacillus B, typhoid bacillus; diphtheria toxin for Schick test, diphtheria toxoid.

Turner's Clinical and X-ray Laboratories, El Paso, Tex.—License No. 122:
Rabies vaccine (killed virus).

Manhattan Convalescent Serum Laboratory, Health Research Fund, Inc., Fifteenth Street and East River, New York, N. Y.—License No. 123:
Measles immune serum (human); scarlet fever immune serum (human); normal human serum.

Childrens' Hospital Convalescent Serum Center, Los Angeles, Calif.—License No. 124:
Measles immune serum (human); acute anterior poliomyelitis immune serum (human); scarlet fever immune serum (human), normal human serum.

Hynson, Westcott and Dunning, Baltimore, Md.—License No. 125:
Snake venom solution.

R. J. Strasenburgh Co., Rochester, N. Y.—License No. 127:
Bee venom ointment.

Research Foundation of Toledo Hospital, Inc., Toledo, Ohio.—License No. 128:
Bacterial antigen made from colon bacillus.

A. W. Kretschmar, Inc., 396 Broadway, New York, N. Y.—License No. 132:
Bee venom solution.

Michigan State College, East Lansing, Mich.—License No. 133:
Bacterial antigen made from Brucella melitensis.

Bio-Therapeutic Laboratories, 22 Halsted Street, East Orange, N. J.—License No. 135:
Bacterial antigens made from pyocyaneus bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, and streptococcus.

Hoffmann-La Roche, Inc., Roche Park, Nutley, N. J.—License No. 136:
Bee venom.

FOREIGN ESTABLISHMENTS

Institut Pasteur de Paris, 36 rue du Dr. Roux, Paris, France.—License No. 11. Selling agents for the United States, Mr. A. Charklian, Pasteur Vaccine Laboratories of France, 516 Fifth Avenue, New York, N. Y.:
Diphtheria antitoxin; tetanus antitoxin; antianthrax serum; antidysenteric serum; antiplague serum; antistreptococci serum; bacterial vaccines made from cholera vibrio, plague bacillus, staphylococcus albus, and staphylococcus aureus.

Interessen Gesellschaft Farbenindustrie Aktiengesellschaft, Hoechst am Main, Germany.—License No. 24. Selling agents for the United States, The Winthrop Chemical Co., 170 Varick Street, New York, N. Y.:
Tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from cholera vibrio, gonococcus, staphylococcus albus, staphylococcus aureus, and staphylococcus citreus; typhoid bacillus; sensitized bacterial vaccine made from typhoid bacillus; fungus extracts; arsphenamine; neoarsphenamine; sodium arsphenamine; silver arsphenamine; neosilver arsphenamine; sulfarsphenamine; sulfoxylarsphenamine.

Connaught Antitoxin Laboratory, University of Toronto, Toronto, Canada.—License No. 73:
Diphtheria antitoxin; staphylococcus antitoxin; tetanus antitoxin; diphtheria toxoid; staphylococcus toxoid.

Laboratoire de Biochimie Medicale, 19–21 rue Van-Loo, Paris, France.—License No. 83. Selling agents for the United States, Anglo-French Drug Co., 1270 Broadway, New York, N. Y., selling agents for Puerto Rico, Chas. Vere, box 216, San Juan, P. R.:
Sulpharsphenamine.

Instituto Sieroterapico Milanese, Via Darwin 20, Milan, Italy.—License No. 87. Selling agents for the United States, Italian Drugs Importing Co., 225 Lafayette Street, New York, N. Y.; selling agent for Puerto Rico, Mr. Braulio Caballero, San Juan, P. R.
Antianthrax serum; bacterial vaccines made from colon bacillus, gonococcus, pneumococcus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, and streptococcus; neoarsphenamine; acetyl-gluco-arsphenamine.

Boots Pure Drug Co., Ltd., Nottingham, England.—License No. 92. Selling agents for the United States, The United Drug Co., 43 Leon Street, Boston, Mass.:
Arsphenamine diglucoside.

Sero-Bacteriological Department, Bayer-Meister-Lucius, Behringswerke, I. G. Farbenindustrie, A. G. Section, Marburg-Lahn, Germany.—License No. 97. Selling agents for the United States, The Winthrop Chemical Co., 170 Varick Street, New York, N. Y.:
Diphtheria antitoxin; tetanus antitoxin; antistreptococcic serum; normal horse serum; bacterial vaccines made from colon bacillus, gonococcus, pneumococcus, pyocyaneus bacillus, staphylococcus albus, staphylococcus aureus, and streptococcus.

Laboratoire de Bacteriophage, 75 rue Olivier de Serres, Paris, France.—License No. 108. Selling agents for the United States, Anglo-French Drug Co., 1270 Broadway, New York, N. Y.; selling agents for Puerto Rico, Mr. Joaquin Belendez, San Juan, P. R.

Bacterial antigens made from colon bacillus, dysentery bacillus, enterococcus, Friedländer bacillus, paradysentery bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, proteus bacillus, pyocyaneus bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus.

Dr. Kade, Elisabeth Ufer 35, Berlin SO, 36, Germany.—License No. 114:

Bacterial vaccine made from colon bacillus.

La Biotherapie, 5, rue Paul-Barruel, Paris, France.—License No. 115:

Bacterial vaccines made from cholera vibrio, colon bacillus, dysentery bacillus, paratyphoid bacillus A, paratyphoid bacillus B, and typhoid bacillus; bacterial antigens made from pneumococcus, staphylococcus albus, staphylococcus aureus, and streptococcus.

Laboratorio Brasileiro de Chimiotherapia, Rua General Roca No. 28, Rio de Janeiro, Brazil.—License No. 116. Selling agents for the United States and Hawaii, Ernst Bischoff Co., Inc., 135 Hudson Street, New York, N. Y.; selling agents for Puerto Rico, Cesar A. Toro, Apartado 3854, Santurce, P. R.:

Fungus extracts.

Wellcome Physiological Research Laboratories, Beckenham, Kent, England.—License No. 129:

Russell viper venom.

Schering, A. G., Charlottenburg, 1, Berlin, Germany.—License No. 130:

Bacterial vaccine made from pertussis bacillus.

Heinrich Mack Nachf, Illertissen, nr. Ulm, Germany.—License No. 131:

Bee venom solution.

Ayerst, McKenna, and Harrison, Montreal, Canada.—License No. 134:

Staphylococcus toxoid.

DEATHS DURING WEEK ENDED APRIL 15, 1939

[From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce]

	Week ended Apr. 15, 1939	Corresponding week, 1933
Data from 88 large cities of the United States:		
Total deaths	8,852	8,668
Average for 3 prior years	[1] 9,059	
Total deaths, first 15 weeks of year	140,995	133,672
Deaths under 1 year of age	518	[1] 519
Average for 3 prior years	[2] 558	
Deaths under 1 year of age, first 15 weeks of year	8,236	8,177
Data from industrial insurance companies:		
Policies in force	67,549,043	69,653,205
Number of death claims	17,483	12,072
Death claims per 1,000 policies in force, annual rate	13.5	9.0
Death claims per 1,000 policies, first 15 weeks of year, annual rate	11.5	10.0

[1] Data for 87 cities.

[2] Data for 86 cities.

PREVALENCE OF DISEASE

No health department, State, or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

In these and the following tables, a zero (0) indicates a positive report and has the same significance as any other figure, while leaders (----) represent no report, with the implication that cases or deaths may have occurred but were not reported to the State health officer.

Cases of certain diseases reported by telegraph by State health officers for the week ended Apr. 22, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median

Division and State	Diphtheria				Influenza				Measles			
	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median
NEW ENG.												
Maine	24	4	3	2	241	40	4	4	260	43	222	109
New Hampshire	0	0	0	0	----	----	----	----	10	1	37	26
Vermont	0	0	0	0	----	----	----	----	777	58	141	53
Massachusetts	1	1	5	5	----	----	----	----	1,040	884	344	621
Rhode Island	0	0	0	0	----	----	----	----	374	49	2	78
Connecticut	3	1	6	2	45	15	5	5	2,953	995	38	104
MID. ATL.												
New York	8	19	31	43	[1] 19	[1] 28	[1] 9	[1] 10	713	1,782	4,095	2,653
New Jersey	18	15	11	12	10	8	4	15	62	52	1,834	1,244
Pennsylvania [2]	13	26	45	38	----	----	----	----	32	63	5,507	3,044
E. NO. CEN.												
Ohio	15	19	11	21	----	----	----	19	13	17	2,013	1,207
Indiana	13	9	15	15	79	53	8	14	28	19	1,306	400
Illinois	18	27	37	35	42	64	6	46	16	25	2,906	1,813
Michigan [3]	4	4	13	13	18	17	2	2	521	493	4,588	251
Wisconsin	0	0	0	1	218	124	17	24	1,320	751	2,730	1,555
W. NO. CEN.												
Minnesota	6	3	4	3	8	4	2	1	857	442	292	292
Iowa	6	3	2	4	71	35	1	4	397	196	228	228
Missouri	6	5	7	25	----	----	45	92	10	8	386	386
North Dakota	0	0	1	4	226	31	3	7	175	24	240	31
South Dakota	8	1	1	1	60	8	----	----	2,021	269	----	15
Nebraska	8	2	1	1	164	43	----	----	1,279	335	154	154
Kansas	6	2	3	3	87	31	7	7	131	47	770	510
SO. ATL.												
Delaware	20	1	1	1	----	----	----	----	20	1	40	40
Maryland [3]	0	0	1	5	31	10	6	8	1,412	458	101	255
Dist. of Col	16	2	4	7	32	4	----	1	2,886	357	23	96
Virginia	26	14	9	11	947	505	----	----	1,278	682	457	617
West Virginia	11	4	3	8	320	119	22	37	27	10	371	108
North Carolina [2]	31	21	15	12	63	43	8	17	1,112	761	2,412	226
South Carolina [2]	16	6	4	5	1,702	623	154	299	87	32	243	64
Georgia [2]	12	7	4	4	789	475	----	----	151	91	597	0
Florida [2]	6	2	5	5	21	7	2	2	699	232	368	81

See footnotes at end of table.

Cases of certain diseases reported by telegraph by States health officers for the week ended Apr. 22, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Diphtheria				Influenza				Measles			
	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median
E. SO. CEN.												
Kentucky	16	9	6	7	101	58	9	15	38	22	403	375
Tennessee [2]	4	2	2	5	356	202	25	40	150	85	260	63
Alabama [3]	9	5	3	9	1,110	631	45	73	232	132	600	214
Mississippi [3]	18	7	2	2	------	------	------	------	------	------	------	------
W. SO. CEN.												
Arkansas	10	4	12	4	752	303	44	44	144	58	322	65
Louisiana	27	11	9	15	36	15	6	6	498	206	15	35
Oklahoma [4]	10	5	4	10	557	277	41	58	700	348	123	91
Texas [2]	15	18	29	36	753	909	233	301	259	313	208	418
MOUNTAIN												
Montana	0	0	0	1	318	34	------	27	1,189	127	23	23
Idaho [5]	0	0	0	0	276	27	3	3	2,296	225	14	19
Wyoming [5]	0	0	0	0	------	------	------	------	218	10	58	58
Colorado [6]	58	12	13	5	87	18	------	------	1,762	366	352	233
New Mexico [3]	37	3	1	3	235	19	1	2	334	27	70	70
Arizona	0	0	1	3	1,828	149	51	29	123	10	29	58
Utah [3]	0	0	0	0	745	75	------	------	1,450	146	265	31
PACIFIC												
Washington [5]	0	0	5	1	------	------	------	------	2,640	856	7	196
Oregon [5]	5	1	2	1	348	70	28	33	477	96	62	87
California	11	13	24	30	57	69	15	62	2,759	3,364	685	942
Total	11	288	355	447	243	5,143	806	1,161	629	15,568	35,941	30,943
16 weeks	19	7,530	8,902	9,317	397	134,670	38,103	96,179	535	211,902	523,973	408,54

Division and State	Meningitis, meningococcus				Poliomyelitis				Scarlet fever			
	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median
NEW ENG.												
Maine	0	0	0	0	0	0	0	0	139	23	35	22
New Hampshire	0	0	0	0	0	0	0	0	142	14	7	7
Vermont	0	0	0	0	0	0	0	0	174	13	6	9
Massachusetts	2.4	2	1	3	0	0	0	0	213	181	369	245
Rhode Island	0	0	1	1	0	0	0	0	145	19	17	22
Connecticut	0	0	1	1	0	0	0	0	279	94	119	110
MID. ATL.												
New York	3	8	5	8	2.4	6	0	0	208	519	822	965
New Jersey	1.2	1	0	2	0	0	2	0	186	156	149	205
Pennsylvania [2]	2	4	8	8	0	0	2	0	166	327	692	692
E. NO. CEN.												
Ohio	0	0	2	4	7	9	2	1	308	401	214	473
Indiana	0	0	1	1	0	0	0	0	331	223	88	168
Illinois	2.6	4	0	15	0	0	2	0	319	487	458	705
Michigan [3]	2.1	2	3	3	0	0	0	0	480	454	455	455
Wisconsin	1.8	1	0	2	0	0	0	0	297	169	167	305

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended Apr. 22, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Meningitis, meningococcus				Poliomyelitis				Scarlet fever			
	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median
W. NO. CEN.												
Minnesota	0	0	1	1	0	0	0	0	174	90	102	158
Iowa	2	1	1	1	2	1	0	0	217	107	179	179
Missouri	1.3	1	1	6	0	0	0	0	91	71	86	95
North Dakota	0	0	1	0	0	0	0	0	51	7	30	32
South Dakota	0	0	0	0	0	0	0	0	150	20	13	13
Nebraska	0	0	1	0	0	0	0	0	61	16	21	57
Kansas	0	0	0	0	0	0	1	0	271	97	111	111
SO. ATL.												
Delaware	0	0	0	0	0	0	0	0	197	10	16	7
Maryland [3]	6	2	1	4	0	0	0	0	114	37	69	69
Dist. of Col	0	0	2	2	0	0	0	0	121	15	27	18
Virginia	4	2	2	7	1.9	1	0	0	62	33	31	29
West Virginia	5	2	7	7	0	0	1	1	70	26	36	57
North Carolina [2]	2.9	2	2	2	1.5	1	1	0	39	27	24	23
South Carolina [2]	5	2	0	1	16	6	0	0	11	4	3	3
Georgia [2]	0	0	0	1	0	0	1	0	25	15	2	6
Florida [2]	0	0	0	0	3	1	0	0	15	5	5	5
E. SO. CEN.												
Kentucky	3	2	4	4	3	2	2	0	92	53	51	51
Tennessee [2]	4	2	5	5	0	0	0	0	90	51	22	25
Alabama [2]	4	2	6	2	0	0	0	0	18	10	5	8
Mississippi [3]	2.5	1	1	1	2.5	1	1	0	0	0	3	3
W. SO. CEN.												
Arkansas	2.5	1	0	1	0	0	0	0	17	7	5	5
Louisiana	0	0	3	3	0	0	0	0	39	16	9	9
Oklahoma [4]	0	0	0	1	4	2	1	0	0	0	23	23
Texas [2]	0.8	1	0	4	1.7	2	2	0	29	35	183	81
MOUNTAIN												
Montana	0	0	0	0	0	0	0	0	206	22	12	12
Idaho [5]	0	0	0	0	0	0	0	0	31	3	6	6
Wyoming [5]	0	0	0	0	0	0	0	0	153	7	3	8
Colorado [6]	0	0	3	1	0	0	1	0	226	47	47	47
New Mexico [3]	12	1	0	0	0	0	0	0	198	16	11	22
Arizona	12	1	0	0	12	1	0	0	61	5	7	16
Utah [3]	0	0	1	0	0	0	0	0	179	18	60	60
PACIFIC												
Washington [5]	3	1	0	2	0	0	0	0	120	39	35	35
Oregon [5]	0	0	0	1	0	0	0	0	89	18	53	53
California	1.6	2	0	4	0.8	1	0	2	142	173	154	205
Total	1.9	48	64	154	1.4	34	19	16	166	4,180	5,042	7,018
16 weeks	2	814	1,359	2,138	0.7	264	326	328	204	81,915	95,816	110,251

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended Apr. 22, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Smallpox				Typhoid and paratyphoid fever				Whooping cough		
	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases
NEW ENG.											
Maine	0	0	0	0	0	0	0	1	320	53	33
New Hampshire	0	0	0	0	0	0	0	0	10	1	0
Vermont	0	0	0	0	0	0	0	0	496	37	25
Massachusetts	0	0	0	0	1	1	1	3	183	156	95
Rhode Island	0	0	0	0	0	0	0	0	573	75	0
Connecticut	0	0	0	0	3	1	1	0	217	73	57
MID. ATL.											
New York	-------	1	0	0	4	9	1	7	148	369	389
New Jersey	0	0	0	0	4	3	5	4	389	327	202
Pennsylvania [2]	0	0	0	0	2	3	11	7	139	273	256
E. NO. CEN.											
Ohio	10	13	7	2	2	2	6	6	95	123	109
Indiana	126	85	67	7	0	0	9	2	85	57	30
Illinois	11	17	20	5	3	4	3	4	162	247	136
Michigan [3]	16	15	6	1	0	0	2	2	156	148	312
Wisconsin	9	5	9	9	0	0	1	2	271	154	174
W. NO. CEN.											
Minnesota	17	9	14	10	2	1	0	0	93	48	16
Iowa	85	42	47	26	0	0	0	0	18	9	19
Missouri	54	42	27	9	3	2	2	3	17	13	18
North Dakota	88	12	5	5	0	0	1	0	44	6	18
South Dakota	60	8	17	7	8	1	0	0	23	3	6
Nebraska	4	1	9	11	0	0	0	0	38	10	11
Kansas	14	5	24	20	6	2	4	2	87	31	118
SO. ATL.											
Delaware	0	0	0	0	0	0	0	0	197	10	11
Maryland [3]	0	0	0	0	12	4	1	4	59	19	48
Dist. of Columbia	0	0	0	0	0	0	0	0	234	29	13
Virginia	0	0	0	0	2	1	2	3	96	51	61
West Virginia	0	0	0	0	8	3	0	3	24	9	86
North Carolina [2]	1	1	0	1	4	3	1	1	316	216	355
South Carolina [2]	0	0	0	0	11	4	0	1	169	62	65
Georgia [2]	0	0	0	0	7	4	7	7	48	29	92
Florida [2]	0	0	0	0	12	4	3	6	136	45	25
E. SO. CEN.											
Kentucky	12	7	16	0	7	4	3	4	17	10	52
Tennessee [2]	14	8	0	0	4	2	0	1	28	16	41
Alabama [2]	0	0	0	0	7	4	0	1	58	33	33
Mississippi [3]	5	2	1	1	0	0	3	1	-------	-------	-------
W. SO. CEN.											
Arkansas	2	1	6	1	12	5	6	1	27	11	35
Louisiana	0	0	0	0	31	13	16	16	87	36	34
Oklahoma [4]	89	44	3	3	2	1	0	4	8	4	51
Texas [2]	10	12	8	8	6	7	15	7	83	100	244
MOUNTAIN											
Montana	19	2	4	5	0	0	0	0	56	6	26
Idaho [5]	31	3	12	3	0	0	1	0	122	12	5
Wyoming [5]	0	0	0	2	0	0	0	0	22	1	10
Colorado [6]	29	6	4	2	5	1	1	1	250	52	46
New Mexico [3]	0	0	0	0	12	1	2	3	247	20	42
Arizona	25	2	15	0	0	0	1	1	294	24	46
Utah [3]	10	1	2	2	0	0	0	0	507	51	82

See footnotes at end of table.

Cases of certain diseases reported by telegraph by State health officers for the week ended Apr. 22, 1939, rates per 100,000 population (annual basis), and comparison with corresponding week of 1938 and 5-year median—Continued

Division and State	Smallpox				Typhoid and paratyphoid fever				Whooping cough		
	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases	1934–38, median	Apr. 22, 1939, rate	Apr. 22, 1939, cases	Apr. 23, 1938, cases
PACIFIC											
Washington [5]	0	0	32	14	0	0	0	1	19	6	167
Oregon [5]	55	11	10	10	5	1	0	1	149	30	28
California	9	11	52	6	6	7	9	6	198	241	619
Total	15	366	417	204	4	98	118	118	135	3,336	4,341
16 weeks	14	5,787	8,588	3,486	5	1,839	1,895	1,895	165	65,233	66,701

[1] New York city only.
[2] Typhus fever, week ended Apr. 22, 1939, 27 cases as follows: Pennsylvania, 1; North Carolina, 6; South Carolina, 2; Georgia, 5; Florida, 1; Tennessee, 1; Alabama, 7; Texas, 4.
[3] Period ended earlier than Saturday.
[4] Psittacosis, week ended Apr. 22, 1939, Oklahoma, 1 fatal case.
[5] Rocky Mountain spotted fever, week ended Apr. 22, 1939, 13 cases as follows: Idaho, 3; Wyoming, 1; Washington, 2; Oregon, 7.
[6] Colorado tick fever, week ended Apr. 22, 1939, Colorado, 1 case.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of cases reported monthly by States is published weekly and covers only those States from which reports are received during the current week.

State	Meningitis, meningococcus	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid and paratyphoid fever
March 1939										
Alabama	10	38	5,738	140	1,026	12	2	88	4	6
California	13	155	1,065	6	21,792	8	3	1,375	160	11
Illinois	9	136	2,562	11	105	1	4	2,240	51	22
Indiana	3	55	1,287	1	56	----	3	817	198	4
Iowa	1	24	2,664	----	815	----	0	650	125	2
Kentucky	8	37	4,371	----	296	4	1	385	17	16
Michigan	5	48	1,520	----	1,455	----	0	2,370	69	4
Minnesota	2	19	123	1	3,905	----	0	493	48	1
Mississippi	5	34	26,690	1,146	3,402	314	4	23	0	19
New Mexico	17	15	1,660	1	181	1	1	121	3	0
North Dakota	1	4	1,822	----	386	----	0	73	7	2
Rhode Island	0	3	4	----	78	----	0	87	0	1
South Dakota	1	10	663	1	835	----	0	105	41	2
Tennessee	7	22	1,551	16	300	11	0	198	12	3
Wyoming	0	11	12	----	462	----	0	32	1	3

Summary of monthly reports from States—Continued

March 1939

	Cases
Actinomycosis:	
California	1
Illinois	2
Botulism:	
California	2
Chickenpox:	
Alabama	222
California	5,920
Illinois	1,741
Indiana	406
Iowa	375
Kentucky	568
Michigan	1,653
Minnesota	401
Mississippi	901
New Mexico	140
North Dakota	47
Rhode Island	312
South Dakota	86
Tennessee	348
Wyoming	54
Colorado tick fever:	
Wyoming	1
Conjunctivitis, infectious:	
New Mexico	3
Wyoming	4
Dengue:	
Mississippi	9
Dysentery:	
California (amoebic)	13
California (bacillary)	18
Illinois (amoebic)	3
Illinois (amoebic carriers)	18
Illinois (bacillary)	9
Kentucky (bacillary)	2
Michigan (amoebic)	1
Michigan (bacillary)	1
Minnesota (amoebic)	1
Minnesota (bacillary)	1
Mississippi (amoebic)	139
Mississippi (bacillary)	293
New Mexico (amoebic)	1
New Mexico (bacillary)	1
Rhode Island (bacillary)	1
Tennessee (bacillary)	7
Encephalitis, epidemic or lethargic:	
Alabama	4
California	4
Illinois	2
Kentucky	1
Michigan	1
Minnesota	1
Tennessee	3
Wyoming	1
Food poisoning:	
California	47
German measles:	
Alabama	39
California	211
Illinois	31
Michigan	52
New Mexico	1

March 1939—Continued

	Cases
German measles—Contd.	
North Dakota	4
Rhode Island	8
Tennessee	3
Wyoming	3
Granuloma, coccidioidal:	
California	10
Hookworm disease:	
Mississippi	548
Impetigo contagiosa:	
Tennessee	3
Jaundice, epidemic:	
California	3
Michigan	2
Leprosy:	
California	1
Mumps:	
Alabama	131
California	5,579
Illinois	747
Indiana	247
Iowa	223
Kentucky	284
Michigan	308
Mississippi	423
New Mexico	24
North Dakota	6
Rhode Island	530
South Dakota	53
Tennessee	87
Wyoming	176
Ophthalmia neonatorum:	
California	1
Indiana	1
Minnesota	1
Mississippi	7
Tennessee	3
Puerperal septicemia:	
Mississippi	23
New Mexico	1
Tennessee	2
Rabies in animals:	
Alabama	34
California	152
Illinois	27
Indiana	30
Iowa	1
Michigan	3
Minnesota	4
Mississippi	19
New Mexico	15
Rabies in man:	
California	1
Michigan	1
Relapsing fever:	
California	1
Rocky Mountain spotted fever:	
Wyoming	1
Septic sore throat:	
California	17
Illinois	13
Iowa	11
Kentucky	209
Michigan	44

March 1939—Continued

	Cases
Septic sore throat—Contd.	
Minnesota	13
New Mexico	4
Rhode Island	28
South Dakota	8
Tennessee	11
Wyoming	1
Tetanus:	
Alabama	5
California	2
Illinois	1
Michigan	1
Tennessee	3
Trachoma:	
California	40
Illinois	16
Indiana	1
Michigan	1
Mississippi	5
New Mexico	2
South Dakota	1
Tennessee	4
Trichinosis:	
California	4
Tularaemia:	
Alabama	2
California	2
Illinois	7
Kentucky	1
Michigan	1
Mississippi	4
Tennessee	1
Typhus fever:	
Alabama	17
California	2
Undulant fever:	
Alabama	6
California	29
Illinois	28
Indiana	3
Iowa	4
Michigan	15
Minnesota	8
Mississippi	6
New Mexico	1
Rhode Island	4
Vincent's infection:	
Illinois	16
Michigan	12
Tennessee	24
Whooping cough:	
Alabama	183
California	866
Illinois	1,300
Indiana	128
Iowa	52
Kentucky	65
Michigan	791
Minnesota	221
Mississippi	1,080
New Mexico	77
North Dakota	40
Rhode Island	430
South Dakota	32
Tennessee	144
Wyoming	4

WEEKLY REPORTS FROM CITIES

City reports for week ended Apr. 15, 1939

This table summarizes the reports received weekly from a selected list of 140 cities for the purpose of showing a cross section of the current urban incidence of the communicable diseases listed in the table.

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Data of 90 cities:											
5-year average	167	230	80	8,041	819	2,454	24	416	23	1,432	----
Current week [1]	111	318	64	4,556	519	1,368	17	383	21	967	----
Maine:											
Portland	1	1	0	0	3	0	0	1	2	27	23
New Hampshire:											
Concord	0	----	1	0	0	1	0	1	0	0	14
Manchester	0	----	5	0	4	0	0	0	0	0	22
Nashua	0	----	2	0	2	0	0	0	0	0	12
Vermont:											
Barre	0	----	0	0	0	0	0	0	0	2	3
Burlington	0	----	0	0	0	0	0	0	0	6	10
Rutland	0	----	0	0	2	0	0	0	0	0	9
Massachusetts:											
Boston	1	----	0	155	16	59	0	12	0	16	270
Fall River	0	----	1	0	4	1	0	3	0	2	33
Springfield	0	----	0	60	1	3	0	1	1	5	46
Worcester	0	----	0	1	5	11	0	2	0	24	46
Rhode Island:											
Pawtucket	0	----	0	26	4	0	0	0	0	0	21
Providence	0	----	1	6	2	4	0	2	0	56	63
Connecticut:											
Bridgeport	0	1	2	1	4	7	0	2	0	0	43
Hartford	0	----	0	90	3	10	0	2	0	17	50
New Haven	0	1	0	285	4	4	0	0	0	7	46
New York:											
Buffalo	0	----	3	243	6	29	0	4	3	36	142
New York	30	27	5	91	120	242	0	65	1	76	1,595
Rochester	0	1	0	115	8	24	0	2	0	6	77
Syracuse	0	----	0	122	3	11	0	1	0	18	39
New Jersey:											
Camden	1	----	0	0	0	8	0	0	0	1	24
Newark	0	----	0	9	3	30	0	5	0	35	105
Trenton	0	----	0	0	5	8	0	1	0	3	53
Pennsylvania:											
Philadelphia	6	6	1	32	34	60	0	25	0	77	520
Pittsburgh	2	2	1	3	10	19	0	13	0	15	176
Reading	0	----	0	0	2	1	0	3	0	0	45
Scranton	0	----	----	1	----		0	----	0	7	----
Ohio:											
Cincinnati	4	----	4	0	9	15	0	7	0	2	154
Cleveland	2	47	3	2	16	60	1	19	0	31	238
Columbus	3	3	3	0	8	4	0	2	0	3	89
Toledo	0	2	2	2	3	15	2	5	0	17	70
Indiana:											
Anderson	0	----	0	4	0	2	0	0	0	2	7
Fort Wayne	0	----	0	0	2	2	0	3	0	0	29
Indianapolis	2	----	0	4	16	39	2	1	0	45	108
Muncie	0	----	0	0	3	5	0	0	0	0	17
South Bend	----	----	----	----	----	----	----	----	----	----	----
Terre Haute	0	----	0	1	0	1	1	0	0	0	25
Illinois:											
Alton	0	----	0	0	0	0	0	1	0	0	5
Chicago	12	6	2	5	30	246	0	36	0	92	747
Elgin	0	----	0	0	0	2	0	0	0	5	7
Moline	0	----	0	1	3	0	0	0	0	0	11
Springfield	0	----	0	1	2	4	0	0	0	4	37
Michigan:											
Detroit	6	----	0	11	16	86	0	20	0	42	248
Flint	0	----	0	59	5	16	0	0	0	0	28
Grand Rapids	0	----	0	2	1	22	0	0	0	0	40
Wisconsin:											
Kenosha	0	----	0	1	0	8	0	0	0	0	9
Madison	0	----	0	4	0	4	0	0	0	7	9
Milwaukee	0	2	2	2	6	45	0	2	0	49	98
Racine	0	----	0	0	0	4	0	0	0	1	12
Superior	0	----	0	2	0	2	0	0	0	0	9

[1] Figures for South Bend, Little Rock, and Boise estimated; reports not received.

City reports for week ended Apr. 15, 1939—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Minnesota:											
Duluth	0	------	1	3	0	1	0	3	0	2	23
Minneapolis	0	------	2	213	5	11	1	3	0	27	128
St. Paul	0	1	1	159	2	12	0	0	0	18	59
Iowa:											
Cedar Rapids	0	------	------	0	------	2	0	------	0	0	------
Des Moines	0	------	0	2	0	24	0	0	0	0	29
Sioux City	0	------	------	2	------	1	0	------	0	4	------
Waterloo	2	------	------	0	------	6	1	------	0	10	------
Missouri:											
Kansas City	0	------	2	4	7	13	0	2	0	0	74
St. Joseph	0	------	0	0	3	2	0	0	0	0	33
St. Louis	3	------	0	2	13	26	2	10	1	9	190
North Dakota:											
Fargo	0	------	0	0	1	2	0	0	0	0	9
Grand Forks	0	------	------	0	------	0	0	------	0	0	------
Minot	0	------	0	0	0	0	0	0	0	0	10
South Dakota:											
Aberdeen	0	------	------	36	------	0	11	------	0	0	------
Sioux Falls	2	------	0	0	0	4	0	0	0	0	12
Nebraska:											
Lincoln	0	------	------	279	------	0	0	------	0	7	------
Omaha	0	------	0	6	1	0	6	2	0	0	53
Kansas:											
Lawrence	0	3	0	1	0	0	0	0	0	0	2
Topeka	0	1	1	0	1	3	0	0	0	4	9
Wichita	0	------	0	1	4	1	0	1	0	0	29
Delaware:											
Wilmington	0	------	0	3	2	4	0	1	0	0	29
Maryland:											
Baltimore	2	4	1	319	13	19	0	14	0	8	231
Cumberland	0	------	0	0	0	2	0	0	0	0	10
Frederick	0	------	0	0	1	0	0	0	0	0	5
Dist. of Columbia:											
Washington	4	3	1	200	7	28	0	3	1	27	152
Virginia:											
Lynchburg	0	------	0	116	1	2	0	0	0	22	9
Norfolk	0	11	0	10	2	1	0	1	0	8	32
Richmond	0	------	0	124	3	2	0	3	0	2	50
Roanoke	0	------	0	4	0	1	0	0	0	0	25
West Virginia:											
Charleston	0	6	1	0	3	0	0	0	0	0	13
Huntington	0	------	------	0	------	1	0	------	0	0	------
Wheeling	0	------	0	2	1	1	0	2	0	6	
North Carolina:											
Gastonia	0	------	------	0	------	0	0	------	0	0	------
Raleigh	0	------	0	0	1	2	0	0	0	0	14
Wilmington	0	------	0	6	0	0	0	0	3	4	16
Winston-Salem	0	------	0	72	0	0	0	2	0	0	11
South Carolina:											
Charleston	0	30	0	0	0	3	0	1	0	13	13
Florence	0	------	0	2	0	0	0	0	0	0	11
Greenville	0	------	0	0	2	0	0	0	0	0	10
Georgia:											
Atlanta	0	85	5	1	5	2	0	7	1	0	94
Brunswick	0	------	0	32	0	0	0	0	0	0	4
Savannah	0	28	1	1	1	1	0	2	0	10	24
Florida:											
Miami	2	3	0	1	2	0	0	2	0	2	40
Tampa	1	1	1	87	0	3	0	0	1	0	19
Kentucky:											
Ashland	0	7	0	0	1	1	0	0	0	0	7
Covington	0	------	0	6	3	8	0	3	0	0	22
Lexington	0	------	0	1	4	7	0	2	0	0	17
Louisville	0	3	2	3	4	19	0	3	0	2	69
Tennessee:											
Knoxville	0	------	0	0	3	3	0	1	0	0	20
Memphis	0	1	5	1	1	17	0	3	0	17	70
Nashville	0	------	1	1	4	14	0	2	0	1	53
Alabama:											
Birmingham	1	15	3	1	6	4	0	1	2	0	58
Mobile	0	------	0	1	2	0	0	2	0	0	23
Montgomery	0	2	------	0	------	0	0	------	0	2	------

City reports for week ended Apr. 15, 1939—Continued

State and city	Diphtheria cases	Influenza		Measles cases	Pneumonia deaths	Scarlet fever cases	Smallpox cases	Tuberculosis deaths	Typhoid fever cases	Whooping cough cases	Deaths, all causes
		Cases	Deaths								
Arkansas:											
Fort Smith	1			6		0	0		0	0	
Little Rock											
Louisiana:											
Lake Charles	0		0	37	0	0	0	0	0	2	6
New Orleans	10	4	1	37	11	5	0	15	5	5	137
Shreveport	0		0	2	4	4	0	2	0	0	32
Oklahoma:											
Oklahoma City	0	24	2	0	1	4	2	2	0	0	42
Tulsa	0			45		4	0		0	0	
Texas:											
Dallas	1	2	2	15	2	2	2	3	0	0	65
Fort Worth	1	15	0	7	1	2	0	2	0	3	38
Galveston	1		0	0	3	0	0	0	0	0	21
Houston	1		0	31	11	0	0	6	0	1	90
San Antonio	0		0	1	5	0	0	9	0	0	61
Montana:											
Billings	0		0	0	0	1	0	0	0	0	9
Great Falls	0		0	11	0	0	0	1	0	0	3
Helena	0		0	8	0	0	0	0	0	0	5
Missoula	0		0	13	2	0	0	0	0	0	9
Idaho:											
Boise											
Colorado:											
Colorado Springs	0		0	78	1	6	0	0	0	0	9
Denver	8		0	86	6	4	0	4	0	27	83
Pueblo	0		0	236	0	0	0	0	0	28	8
New Mexico:											
Albuquerque	0		0	1	1	0	0	3	0	1	8
Utah:											
Salt Lake City	0		0	7	3	6	0	0	0	5	36
Washington:											
Seattle	0		3	249	2	7	0	9	0	3	103
Spokane	0		0	182	2	0	0	1	0	0	37
Tacoma	0		0	1	2	6	0	0	0	0	34
Oregon:											
Portland	0	3	2	6	2	3	0	0	0	1	69
Salem	0			0		1	0		0	0	
California:											
Los Angeles	8	30	0	675	19	46	1	23	0	19	323
Sacramento	0		0	243	1	2	1	3	0	0	21
San Francisco	0	10	1	95	5	20	0	6	0	11	160

State and city	Meningitis, meningococcus		Poliomyelitis cases	State and city	Meningitis, meningococcus		Poliomyelitis cases
	Cases	Deaths			Cases	Deaths	
New York:				Colorado:			
New York	2	2	0	Denver	1	1	0
Pennsylvania:				New Mexico:			
Philadelphia	3	0	0	Albuquerque	1	0	0
Indiana:				Utah:			
Indianapolis	1	0	0	Salt Lake City	1	0	0
Maryland:				Washington:			
Baltimore	1	0	0	Spokane	1	0	0
South Carolina:				California:			
Charleston	0	0	4	Los Angeles	1	0	0
Louisiana:				San Francisco	1	0	1
Shreveport	0	2	0				

Encephalitis, epidemic or lethargic.—Cases: New York, 1; Grand Forks, 1.
Pellagra.—Cases: Charleston, S. C., 1; Atlanta, 1; Memphis, 1; Mobile, 1; Los Angeles, 1.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended April 1, 1939.—During the week ended April 1, 1939, cases of certain communicable diseases were reported by the Department of Pensions and National Health of Canada as follows:

Disease	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Cerebrospinal meningitis					2	1				3
Chickenpox		1		95	139	9	61	7	76	388
Diphtheria				49	3	3	4		1	60
Dysentery					1					1
Influenza		694	1	3	667	28	28		8	1,429
Lethargic encephalitis									1	1
Measles		29	1	306	950	26	6	8	2	1,328
Mumps				41	89	32	11	12	2	187
Pneumonia		20			54				7	81
Scarlet fever		7	19	80	140	42	20	30	12	350
Trachoma									2	2
Tuberculosis	1	16	13	75	51	2	8	1	8	175
Typhoid fever and paratyphoid fever			1	10	5				1	17
Whooping cough			1	129	159	11	18		92	410

FINLAND

Communicable diseases—February 1939.—During the month of February 1939, cases of certain communicable diseases were reported in Finland as follows:

Disease	Cases	Disease	Cases
Diphtheria	254	Poliomyelitis	8
Dysentery	1	Scarlet fever	709
Influenza	5,031	Typhoid fever	14
Paratyphoid fever	28		

ITALY

Communicable diseases—4 weeks ended January 29, 1939.—During the 4 weeks ended January 29, 1939, cases of certain communicable diseases were reported in Italy as follows:

Disease	Cases	Disease	Cases
Anthrax	60	Mumps	879
Cerebrospinal meningitis	80	Paratyphoid fever	197
Chickenpox	1,223	Pellagra	7
Diphtheria	2,332	Poliomyelitis	96
Dysentery (amoebic)	42	Puerperal fever	136
Dysentery (bacillary)	3	Scarlet fever	906
Hookworm disease	37	Typhoid fever	1,383
Lethargic encephalitis	6	Undulant fever	249
Measles	4,265	Whooping cough	1,141

JAMAICA

Communicable diseases—4 weeks ended April 15, 1939.—During the 4 weeks ended April 15, 1939, cases of certain communicable diseases were reported in Kingston, Jamaica, and in the island outside of Kingston, as follows:

Disease	Kingston	Other localities	Disease	Kingston	Other localities
Cerebrospinal meningitis		1	Leprosy		2
Chickenpox	1	21	Puerperal septicemia		2
Diphtheria	3	5	Scarlet fever		1
Dysentery	3	2	Tuberculosis	24	83
Erysipelas		2	Typhoid fever	7	40

UNION OF SOUTH AFRICA

Transvaal—Malaria.—According to information dated March 15, 1939, a severe epidemic of malaria stated to be the result of heavy floods was reported in Northern and Eastern Transvaal, Union of South Africa. The disease is largely confined to the low-veldt regions and to rural districts. The mortality is said to be very high.

VIRGIN ISLANDS

Notifiable diseases—January–March 1939.—During the months of January, February, and March, 1939, cases of certain notifiable diseases were reported in the Virgin Islands as follows:

Disease	January	February	March	Disease	January	February	March
Chickenpox	4	2	2	Pellagra	4	2	2
Filariasis	1		3	Pneumonia	1	2	
Gonorrhea	4	3	15	Syphilis	4	3	11
Hookworm disease	1		1	Tuberculosis	3	3	1
Leprosy	1			Whooping cough	3		
Malaria	1	9	3				

YUGOSLAVIA

Notifiable diseases—4 weeks ended March 26, 1939.—During the 4 weeks ended March 26, 1939, certain notifiable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	11	1	Paratyphoid fever	10	--
Cerebrospinal meningitis	120	17	Poliomyelitis	2	--
Diphtheria and croup	594	38	Scarlet fever	216	1
Dysentery	16	--	Sepsis	10	3
Epidemic encephalitis	4	3	Tetanus	17	5
Erysipelas	117	2	Typhoid fever	156	17
Favus	11	--	Typhus fever	49	4

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

NOTE.—A table giving current information of the world prevalence of quarantinable diseases appeared in the PUBLIC HEALTH REPORTS for April 28, 1939, pages 711-723. A similar cumulative table will appear in future issues of the PUBLIC HEALTH REPORTS for the last Friday of each month.

Plague

Egypt—Asyut Province.—During the week ended April 15, 1939, 10 cases of plague were reported in Asyut Province, Egypt.

Hawaii Territory—Island of Hawaii—Hamakua District—Paauhau.—Four rats, 2 of which were found on March 24, and 2 on March 25, 1939, in Paauhau, Hamakua District, Island of Hawaii, Hawaii Territory, have been proved positive for plague.

Tunisia—Tunis.—During the week ended April 15, 1939, 1 case of plague was reported in Tunis, Tunisia.

Typhus Fever

Portuguese East Africa—Lourenço Marques.—During the week ended March 18, 1939, 2 cases of typhus fever were reported in Lourenço Marques, Portuguese East Africa.

Syria—Lebanese Republic—Zahle.—During the week ended April 1, 1939, 1 case of typhus fever was reported in Zahle, Lebanese Republic, Syria.

Yellow Fever

Brazil.—Deaths from yellow fever have been reported in Brazil as follows: Espirito Santo State—Afonso Claudio, March 26, 1; Cachoeiro de Itapemirim, March 22, 1; Cafe, March 15–18, 2; Celina, March 22, 1; Lambari, March 20–29, 4; Muniz Freire, March 27, 1; Muquy, March 28–30, 2; Sabino Pessoa, March 21, 1; Siqueira Campos, March 23, 1; Minas Geraes State—Ipanema, March 15, 1.

Gold Coast—Axim.—During the week ended April 15, 1939, 1 case of yellow fever was reported in Axim, Gold Coast.

Ivory Coast.—On April 17, 1939, 1 case of yellow fever was reported near Dabou; on April 8, 1 suspected case of yellow fever and on April 13, 1 suspected case of yellow fever with 1 death were reported at Saigne Plantation, all in Ivory Coast.

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