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## THE YELLOW FEVER EPIDEMIC AT RIO DE JANEIRO<sup>1</sup>

By Dr. CLEMENTINO FRAGA, *Director General of Public Health of Brazil*

From 1908, when yellow fever was officially declared extinct in the capital of Brazil following the campaign by Oswaldo Cruz begun in 1903, very seldom did reports of cases appear in our vital statistics; and even some of those so reported were evidently based on erroneous diagnosis, while the others originated in the northern part of the country where the disease continued to prevail in endemic form in places where the Rockefeller Foundation has been recently conducting its work.

In the second quarter of 1928 the disease again appeared at Rio de Janeiro, in all probability imported from the northern States, the means of communication of which with the capital are all the time becoming more rapid because of the introduction of aerial navigation and because of the increased maritime intercourse carried on by new lines of fast steamers.

The first suspected case of yellow fever reported to the Department of Public Health, after necropsy (and with another cause of death given in the death certificate), was that in a soldier from the Campinho Barracks (located at Cascadura, a city suburb) who was taken ill on May 12, 1928, removed to the army hospital on May 14, and died on May 16.

In the same hospital another soldier died on May 20, and in this case the army medical officers also raised the question of the possibility of yellow fever. This man was taken sick on May 16 as he was returning to his corps, stationed at Santa Cruz, from the army hospital, in the skin infirmary of which he had spent more than 10 days.

On May 31 the Department of Public Health received the report of the first suspected case among the civilian population. This patient had been sick since May 27 and was the first in which the diagnosis of yellow fever was made before death. This case and the next five cases occurred in an old zone in the northern part of the city which has been badly ravaged by the disease on previous occasions when yellow fever was endemic in Rio de Janeiro. This district is very near the wharves and much visited by sailors. On

<sup>1</sup> As reported to the Pan American Sanitary Bureau, Washington, D. C. (Translation.)

another side it lies near the army general barracks where the recruits from the northern part of the country first arrive to be distributed among the different army posts in the capital. This fact, considered with the probable occurrence of the disease in army quarters, and the result of epidemiological inquiries, strengthens the belief that among the new soldiers recently arrived from the north there may have been some mild or masked cases of yellow fever which were overlooked by the army medical officers.

This focus, which was the largest, consisted of 31 clearly defined, confirmed cases, to which there might be added 42 others that were definitely or probably related to this same focus. In the early part of June another focus developed near the one just mentioned in the Catumby District, which lies nearer the center of the city. This district is also inhabited by working people and is as congested as the seat of the first focus. Thirteen cases developed there which were clearly related, and four others which were probably related, to the earlier ones.

At Villa Militar four cases were recorded, and four more in the San Cristobal District, it being possible that the latter focus originated from the former. In addition there were 10 scattered cases having no known epidemiological connection with the above-mentioned foci.

The 108 cases reported prior to September 10 may be grouped according to the date of reporting as follows: 1 in May, 55 in June, 40 in July, 8 in August, and 4 in September; and according to the date of the probable onset they may be grouped as follows: 4 in May, 52 in June, 40 in July, 9 in August, and 3 in September.

The incidence was much greater among men (82 per cent of cases), especially in the two age groups 15-24 and 25-34 years, which groups included 85 per cent of the cases. Barely 10 per cent of those attacked were under 15 years of age.

Foreigners were conspicuously more affected (78 per cent as against 22 per cent of Brazilians). This becomes all the more evident on recalling the fact that, according to the latest census, the population of Rio de Janeiro consists, roughly, of 21 per cent of foreigners and 79 per cent of Brazilians.

Of the 108 cases there were only 5 among colored people—3 mulattoes (one of them a Portuguese), and 2 negroes (both Brazilians).

It is interesting to note that, as regards residence in Rio de Janeiro, 31 per cent of those attacked had lived here less than one year, 71 per cent less than three years, and 85 per cent less than five years.

The case fatality rate was 55.5 per cent, distributed as follows: 33 and 62 per cent among Brazilians and foreigners, respectively;

58 and 42 per cent as among men and women; 36 and 58 per cent as among persons over and under 15 years of age.

Ninety cases were removed to isolation hospitals; the others remained at home.

As regards the clinical picture of the disease, observation of the patients removed to the Sao Sebastiao Hospital prompted the chief physician of the isolation pavilion, Dr. S. Lins, to make the following observations:

"The cases of yellow fever observed by me may be classed in three well-defined groups: (1) *Forme fruste* or renal type; (2) hepatorenal type (the hepatic or bilious type of early authors); and (3) hypertoxic type.

"After two or three days of symptoms of general systemic infection characterized by congestion of the eyes and restlessness caused by a vague discomfort, the local reaction begins. The kidneys are the first to react. Albuminuria develops early and rather abruptly on the second or third day and is usually pronounced and accompanied by numerous hyaline and granular casts. In cases of almost complete anuria these show the presence of a few red cells. Such occurrences are of course the rule in yellow fever. The disease may stop here; that is, the symptom complex may consist of moderate fever, a slight conjunctival jaundice, traces of bleeding in the lips, gums, and nostrils, together with a pronounced kidney involvement. This is the *fruste* or renal type.

"If the infection becomes more serious, the liver also reacts, but always secondarily, and then the hepatorenal, the most common type, develops. This type is characterized by nephrosis, jaundice, and hemorrhage. Jaundice is not very pronounced, never reaching the intensiveness of the catarrhal type of jaundice; that is, a mixture of yellow and deep red in the conjunctivæ. The skin assumes a tinge of ochre, and this is always accompanied by hemorrhages (nasal, labial, gingival, intestinal, and gastric, in the order of frequency as named) preceded and accompanied by an intensive nephrosis. All these symptoms are constant. This is the reason why I do not accept the existence of the hemorrhagic and anuric types. The anuria is merely a complication of the nephrosis, and the hemorrhages represent manifestations of the hepatorenal type of yellow fever. I prefer to represent these conditions in terms of degree and distinguish a mild hepatorenal type, a serious hepatorenal type, and a malignant type. This malignancy may be caused by the hemorrhages and the anuria. The pulse is always slow as compared with the rise in temperature; any divergence of the two curves is a bad sign.

"The third form, the hypertoxic, is the malignant hepatorenal type, in which death occurs before the generalization of the icterus. High temperature, extreme restlessness, intensive ocular congestion

(and in the following days a bright red and yellow tint), delirium, divergence between the pulse and the temperature curves, epigastric sensation of weight, oliguria or anuria, convulsions, intestinal hemorrhages, black vomit three or four days before death, associated with a most intensive nephrosis, is the symptom complex which one observes in patients classed in this group. If these patients survive these conditions more than one or two days, they pass into the malignant hepatorenal type.

"With regard to unaltered tissue elements and also to morbid changes, the following are the outstanding features: Blood nitrogen is normal and there is considerable nitrogenous matter in the urine, as high as 50 grams per thousand. There is abundance of mineral salts, except sodium chloride. Blood sugar is normal and there is no sugar in the urine. There is deep bilirubinemia (10 Van den Bergh units). The amount of cholesterol is normal; pH is normal, suggesting a rather high content of acids and bases without disturbance in balance; and there is pronounced decrease in calcium, with considerable increase in potassium. Tests of liver function are usually negative. White and red cell counts are normal and there is no thrombopenia. There is marked increase in cell resistance, very considerable delay in coagulation, and absence of clot retraction.

"Treatment was altogether symptomatic. I tried insulin, calcium, and glucose, the last two associated with heart tonics in the form of the rectal drip. Good results were thus secured in some cases. All this will be made the subject of subsequent papers."

Necropsy was performed in all fatal cases isolated in hospitals. Dr. A. Fialho, the pathologist of the department, points out that diagnosis was possible by gross examination in the majority of cases. In some, however, histological verification was needed; and this was done in all cases. The liver is the only organ which by itself affords the means of arriving at a positive diagnosis. Rocha Lima's lesion was present in all cases, but varied in intensity. Renal lesions were usually serious and constant, but none of them may be called characteristic. The theoretically empty bladder is not an invariable sign of the presence of serious kidney injury; in fact, in some cases in which necropsy was performed a large amount of urine was found. Gastrointestinal hemorrhages were not very frequent. Myocardiac steatosis was usually present, being diffuse and involving chiefly the right heart. Most of the changes in nerve tissue were microscopic and characterized by steatosis of nerve substance and also of the gliocytes, but not so intensive in the latter. There was found, not infrequently, hyperemia of the olivary bodies with apparent punctate hemorrhages.

Precisely 50 per cent of the cases were reported to the sanitary authorities in the first three days of the disease, thus permitting the

enforcement of isolation in that number of cases. Other known preventive measures were applied in full force from the beginning of the outbreak, and in all cases as soon as a suspicion of yellow fever developed. This was the practice since the middle of May, beginning in the above-mentioned districts of the city and in the army hospital.

Extending through an area of 220 to 275 yards from known or suspected cases, supervision was established and continued for periods of not less than 30 days. At the peak of the epidemic over 175,000 persons submitted daily to medical examination at the hands of 73 physicians, 31 visiting nurses, and 100 fourth and fifth year medical students.

The destruction of adult mosquitoes in houses where there were suspected or confirmed cases of yellow fever was accomplished by fumigation with sulphur or pyrethrum and by the spraying of insecticides. In the case of the latter method only those insecticides of proved efficiency, as shown by experiment performed both abroad and on a large scale in Rio, were used. The Department of Public Health in the beginning realized the need of supplementing, or of substituting in some eventualities, the practice of fumigation, by simpler, quicker, and equally efficient measures. Consequently an experimental station for the prosecution of such studies was at once established.

Of the various insecticide mixtures tried, preference was given to mixture of kerosene oil containing 3.5 per cent of pure carbon tetrachloride and 0.1 per cent of methyl salicylate. The amount used was 15-25 c. c. per cubic meter according to prevailing conditions. The cost per liter of this mixture is about 2 mil reis (24 cents). The liquid is sprayed with considerable force by the use of painters' spraying machines, operated by electric motors using compressed air. In this way whole blocks of the city were treated systematically, especially in districts where cases of yellow fever had occurred.

For the supervision of mosquito breeding places the city was divided at first into 27 districts. After August 1 certain districts were combined, forming 10 urban and 3 suburban districts altogether. Each district has a full-time physician in charge. These physicians are assisted in their supervisory operations by 40 medical students and 80 guards. In carrying out this preventive measure alone more than 1,800 men are employed, divided into squads of 2 men each, which cover the whole city in weekly house to house visits.

The data secured at the last inspection showed a *Culex* index of only 2 per cent. From these figures it may be inferred that the *Aedes* index is most reassuring and that the extermination of yellow fever in Rio de Janeiro will surely follow.<sup>1</sup>

<sup>1</sup> The last death reported in Rio from yellow fever occurred on Oct. 4. Up to that date, there had been reported a total of 119 cases with 66 deaths.—Editor's note.

## THE DISTRIBUTION OF ENDEMIC TYPHUS (BRILL'S DISEASE) IN THE UNITED STATES<sup>1</sup>

By KENNETH F. MAXCY, *Passed Assistant Surgeon, United States Public Health Service*

In the United States, typhus fever was first clearly recognized and differentiated from typhoid by Gerhard in 1836 as a result of his studies of a fever which prevailed in Philadelphia during the spring and summer of that year. Early medical writers agreed that this disease was exceedingly rare in this country except for the outbreaks occasionally occurring in the eastern seaports in connection with the arrival of immigrants from countries of Europe in which typhus fever was epidemic. Although notoriously a disease of armies, it was of no importance in the Civil War. The situation up to 1883 is thus summarized by Hirsch:

Typhus came to the United States and to British America much later than to Mexico, and in those countries it has never attained the same importance as in the latter or on the Continent of Europe. The proper era of typhus for the United States and Canada begins with the period when immigration from Ireland had set in on a large scale. We thus explain the fact that the ports on the east coast of North America have been the headquarters of the disease, and that the largest contingent of the sick has been supplied by the immigrants themselves, or their countrymen with whom they had come in contact. \* \* \* On the other hand, it is a noteworthy fact that the most careful search among the plentiful epidemiologic records in the literature of the United States fails to discover a single statement as to the occurrence of typhus in the Mississippi Valley or in the Western States; so that the greater part of the continent appears to enjoy absolute immunity from the disease, and in no part of the whole territory do endemic centers of typhus appear to have formed, notwithstanding importation on a large scale.

The last outbreak of any considerable size on the Atlantic seaboard was that in New York City, 1892-93, when some 434 cases were removed to the Reception Hospital from the poorer tenements and lodging houses (Doty, 1897). Since that time, although occasional cases of typhus fever have come in on ships from European ports, there has been little, if any, secondary spread after arrival.

A disease known as "tabardillo" has been endemic, and epidemic at times, among the Indians in the highlands of Mexico since the time of the Spanish Conquest. The work of Anderson and Goldberger, Ricketts and Wilder, and Gavino and Girard, 1910-1912, indicated that this disease was identical with typhus fever. From time to time, when the disease has been epidemic in Mexico, it has overrun our southwestern border. The last such epidemic occurred during the revolution of 1916-1918.

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<sup>1</sup> From the Hygienic Laboratory, United States Public Health Service.

Up to 1910, then, the United States was generally considered to be free from typhus fever except for the occasional case imported from Europe or Mexico. In that year, Dr. Nathan Brill called attention to a disease occurring endemically in New York City which was clinically indistinguishable from typhus fever, but presented certain epidemiological differences. The work of Anderson and Goldberger in the following two years, indicated that the virus of "Brill's disease" and that of "tabardillo" were identical, and similar in all respects to the published accounts of virus of European and African typhus fever. Following these publications a considerable interest was aroused. Reports of cases similar to those described by Brill were made from many of the eastern cities.<sup>2</sup>

These reports led Anderson, 1915, to the statement that "It is evident that typhus, instead of having disappeared from the United States, is present and has been present for years, at least in the large cities." The impression still prevailed, however, that these cases were attributable to imported infection although their association with recently arrived immigrants could seldom be demonstrated.

Since 1915 there has been a growing appreciation of the fact that cases resembling typhus fever and corresponding to Brill's disease clinically were occurring on the soil of the United States under circumstances where the chances of recent importation of the virus seemed rather remote. McNeill (1916) called attention to the endemic occurrence of cases of mild typhus in south Texas, I. C. Brill (1915), to a case occurring in San Francisco, Mayer to two cases in Detroit, Newell and Allan (1914) and Allan (1923) to a series of cases in Charlotte, N. C., Maxcy and Havens (1923) to a series of cases in Alabama, Sinclair and Maxcy (1925) to a similar disease endemic in the lower Rio Grande Valley, and Maxcy (1926) to the occurrence of the disease in the Southeastern States.

Though the information is somewhat fragmentary, sufficient data have now been accumulated to justify an attempt to outline the geographical limits of this disease in the United States.

#### ANALYSES

In order to make the picture as nearly complete as possible, information has been brought together from several sources. Because of the small numbers involved and the incompleteness of the information, no attempt has been made to calculate the degree of prevalence in rates based upon the population.

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<sup>2</sup> New York City (Ziegler, 1910) (Nicoll, Krumwiede, Pratt, and Bullowa, 1912); Brooklyn (Louria, 1911); Chicago (Strouse, 1913); Milwaukee (Pater, 1912); Washington, D. C. (Newman, H. H., 1913); Atlanta, Ga. (Paullin, 1913); Boston (Rodger Lee, 1913); Petersburg, Va. (Goldberger, 1912); Philadelphia (Lewis, 1911, Roussel, 1914); Memphis (Duncan, 1915); Toledo, Ohio (Charles, 1912).



TABLE 1.—Cases of endemic typhus, 1915–1927

State and city	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	Total
<b>California:</b>														
Los Angeles.....	0	0	0	0	0	1	4	4	9	21	0	2	0	41
San Francisco.....	1	0	0	0	1	0	0	0	0	0	0	0	0	2
<b>Connecticut:</b>														
Hartford.....	0	1	0	0	0	0	0	0	0	0	0	2	0	3
New Britain.....	0	2	0	0	0	0	0	0	0	0	0	0	0	3
Greenwich.....	0	0	0	1	0	0	0	0	0	0	0	0	0	1
New Haven.....	0	0	0	0	0	0	0	0	1	0	1	0	1	3
Waterbury.....	0	0	0	0	0	0	0	0	0	0	0	0	1	1
District of Columbia.....	0	0	0	0	0	0	0	0	1	0	0	0	0	1
<b>Illinois:</b>														
Chicago.....	0	0	0	0	0	0	0	0	0	0	0	2	0	2
<b>Indiana:</b>														
Fort Wayne.....	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<b>Maryland:</b>														
Baltimore city.....	3	0	0	1	1	3	3	0	2	3	5	9	-----	30
Baltimore County.....	0	0	0	1	0	0	0	0	2	0	0	2	-----	5
Carroll County.....	0	1	0	0	0	0	0	0	0	0	0	0	-----	1
Cecil County.....	0	0	0	3	0	0	1	0	0	0	0	0	-----	4
Queen Annes County.....	0	0	0	0	0	0	0	0	0	0	0	1	-----	1
Talbot County.....	0	0	0	0	0	0	0	0	0	0	1	0	-----	1
<b>Massachusetts:</b>														
Chelsea.....	0	0	0	2	0	0	0	0	0	0	0	0	0	2
Boston.....	0	0	0	0	0	0	1	0	1	0	1	0	0	3
Winthrop.....	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<b>Michigan:</b>														
Detroit.....	0	0	0	0	0	0	2	0	0	0	0	0	0	2
<b>Missouri:</b>														
St. Louis.....	0	0	0	0	0	1	0	0	0	0	1	0	2	4
<b>New Jersey:</b>														
Elizabeth City.....	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Fairview Borough.....	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Hillsdale Township.....	0	1	0	0	0	0	2	0	0	0	0	0	0	2
Jersey City.....	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Newark city.....	0	0	0	0	0	0	0	0	0	0	0	0	1	1
New Brunswick city.....	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Paterson city.....	0	0	0	0	0	1	1	1	0	0	0	0	0	3
Salem city.....	1	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>New York:</b>														
New York City.....	13	24	13	8	6	11	36	14	8	14	16	12	8	183
Brooklyn (Jewish Hospital) <sup>1</sup> .....	22	19	11	7	3	8	8	11	8	6	3	3	3	112
Rochester.....	0	0	1	0	0	0	0	0	0	0	0	0	0	1
<b>North Carolina:</b>														
Charlotte.....	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Wilmington.....	0	0	0	0	0	0	0	0	0	0	1	0	0	1
<b>Oklahoma:</b>														
Oklahoma City.....	0	0	0	0	0	0	0	0	0	0	0	1	1	2
<b>South Carolina:</b>														
Charleston.....	0	0	0	0	0	0	3	15	0	0	0	0	0	18
Beaufort.....	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Rock Hill.....	0	0	0	0	0	0	0	0	0	0	0	0	2	2
<b>Tennessee:</b>														
Chattanooga.....	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Memphis.....	0	0	0	0	0	0	0	0	0	0	0	1	0	1
<b>Texas:</b>														
Austin.....	1	4	0	0	0	0	0	0	0	0	0	0	0	5
Galveston.....	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Palestine.....	0	0	0	1	0	0	0	0	0	0	2	0	0	3
San Antonio.....	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Temple.....	0	0	0	0	0	0	6	0	0	0	0	0	0	6
Houston.....	0	0	0	0	0	0	0	1	0	1	1	0	1	4
Waco.....	0	0	0	0	0	0	0	0	0	4	1	0	0	5
Harris County.....	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Hidalgo County.....	0	0	0	0	0	0	0	0	0	0	0	0	4	12
Kleberg County.....	0	0	0	0	0	0	0	0	0	0	0	0	1	1

<sup>1</sup> From report of Blattels. (Brooklyn is part of Greater New York.)

The data in Table 1 have been derived from the reports in the literature, from the reports to the Surgeon General which have been subsequently confirmed by communication with the State and city health departments, and from personal investigations. The epidemic typhus fever which overflowed into the United States with refugees during the revolution in Mexico, 1916–1918, causing a number of

cases in El Paso, Tex., a few in Colorado, and a few in California, has been excluded from consideration. The outbreak on the Navajo Indian Reservation in New Mexico (1922), reported by Armstrong, and probably originating from Mexico, has also been omitted. Attention is here confined entirely to cases of clinical typhus which have arisen on the soil of the United States without traceable introduction from without.

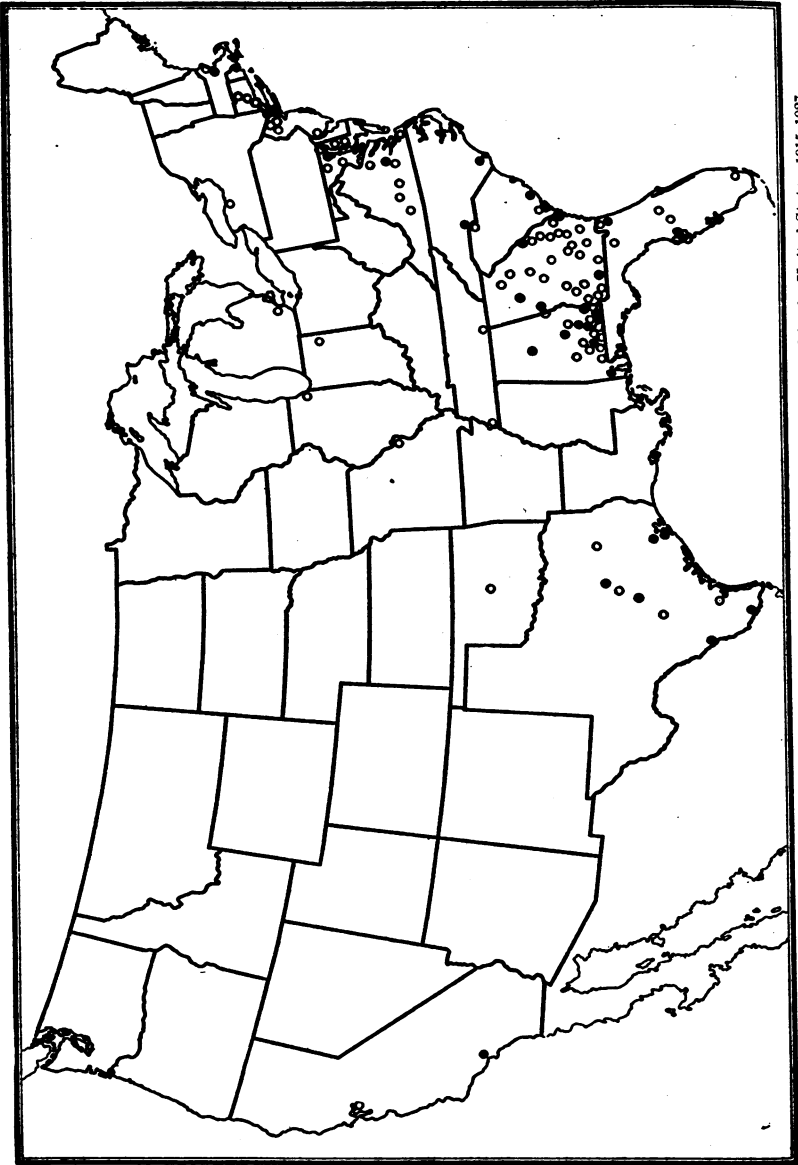
In Alabama, Georgia, Florida, and Virginia a particular interest has been taken in the disease and the information for these States is therefore somewhat more detailed and complete.<sup>3</sup> It is presented in Tables 2, 3, 4 and 5.

Map No. 1, based on all sources of information, shows the approximate location of cities and towns in the United States from which cases of endemic typhus have been reported since 1915. Effort has been made to distinguish between chance occurrence—sporadic cases—and endemic prevalence. Included in the latter are those cities and towns in which cases have occurred repeatedly from year to year.

On the Atlantic coast the disease has not been reported north of Boston. Roger Lee concluded from his study of the records of the Massachusetts General Hospital in 1913 that typhus fever in a mild and sporadic form had been present in Boston for some years and was frequently undiagnosed or called typhoid. In the past 12 years, however, there have been only six cases reported from Massachusetts.

From Connecticut southward there seems to be clear evidence of the endemic occurrence of a typhuslike disease. In New York City, where the late Dr. Nathan Brill in 1910 first described the disease with which his name has become associated, cases have since been reported every year. Blatteis (1928) has recently published an account based on 138 cases which have occurred in the medical services of the Brooklyn Jewish Hospital since 1913. A scattering number of cases are reported from near-by towns in New Jersey. The publications of Lewis (1911) and of Roussel (1914) leave no doubt that typhus was occurring in Philadelphia, but the official reports in recent years have given no indication of its continuance. In Baltimore and its vicinity, on the other hand, a number of cases have been reported almost every year since 1919. As shown in Table 5, some of the cities, towns, and rural districts in Virginia have had cases during the past three years and the disease seems to be endemic in the vicinity of Richmond—probably also in Norfolk, although the information from the latter city is indefinite. Allan (1923, 1926) has given a clear account of its continued occurrence

<sup>3</sup> The author is particularly indebted for these tabulations to Dr. D. C. Gill, State epidemiologist of Alabama, Dr. T. M. Sellers, director of laboratories, Atlanta, Ga., Dr. V. H. Bassett, city health officer Savannah, Ga., Dr. F. A. Brink, chief of the division of communicable diseases, Jacksonville, Fla., and Dr. H. G. Grant, State epidemiologist, Richmond, Va.



MAP No. 1.—Locations of cities and towns from which cases of endemic typhus were reported in the United States, 1915-1927

in the vicinity of Charlotte, N. C. It has also been endemic in Wilmington, N. C., for many years (personal communication, 1928, Dr. John H. Hamilton, health officer) and likewise in Charleston, S. C. (Maxey, 1925), with a scattering of cases from other towns in this State.

The oldest known focus in the southeastern United States is Atlanta, Ga. (Paullin, 1914.) Shortly after this focus was discovered the disease was recognized in Augusta and Savannah, Ga., still later in Montgomery and Mobile, Ala., and Jacksonville, Fla. During the five years 1922-1927 it has become apparent that it is widely distributed in these three States, as shown in Tables 2, 3, and 4.

TABLE 2.—Cases of endemic typhus reported in the State of Alabama, 1922-1927

City or town	Population 1920	Number of cases reported						Total
		1922	1923	1924	1925	1926	1927	
Birmingham.....	178,806	1	3	2	1	1	1	9
Montgomery.....	43,694	6	6	8	24	3	4	51
Mobile district <sup>1</sup> .....	60,777	2		2	17	10	17	48
Andalusia.....	4,022				5	3	5	13
Atmore.....	1,775				1			1
Brewton.....	2,682			1			1	2
Brundidge.....	941						1	1
Camden.....	700						1	1
Columbia.....	1,122					1		1
Cowarts.....							1	1
Dothan.....	10,034				6	9	8	23
Elba.....	1,681					6	1	7
Enterprise.....	3,013					1	2	3
Evergreen.....	1,813					1		1
Hartford.....	1,561		1					1
Headland.....	1,232	2			2	1	1	6
Kinston.....	163				1	1		2
Opp.....	1,556				1	4	5	10
New Brocton.....	467					1		1
Red Level.....	385				1		3	4
Sampson.....	1,645		1	1	2		2	6
Thompson.....	206						1	1
Troy.....	5,696		2	2	2	3	8	17
<b>Total</b> .....		<b>11</b>	<b>13</b>	<b>16</b>	<b>63</b>	<b>45</b>	<b>62</b>	<b>210</b>

<sup>1</sup> Suburbs included—Crichton, Touminville, Prichard.

Along the Gulf coast it occurs in Tampa, Pensacola, and Mobile. No reports have been received of its occurrence at Gulfport, Miss., or at New Orleans, La., nor indeed from any locality in these two States. Perhaps further investigation will show that the freedom of these two States is apparent rather than real.

Texas furnishes a quota of cases each year far larger than official returns indicate. As early as 1916 McNeil called attention to endemic typhus fever in south Texas, reporting cases from Houston and Galveston. They have continued to occur in these cities, in Waco, in Austin, and in some of the smaller towns. Sinclair and Maxey (1925) presented evidence of the endemic prevalence of mild typhus fever in the lower Rio Grande Valley, independent of importation from Mexico. Acting Assistant Surgeon King (personal report, 1928)

states that an unusual number of cases of this type have occurred in the vicinity of Laredo this year (1928). From Laredo north and west along the Mexican border this mild endemic form of typhus has not been reported.

TABLE 3.—Cases of endemic typhus reported in Georgia, 1922–1927

City or town	Population 1920	Number of cases reported						Total
		1922	1923	1924	1925	1926	1927	
Atlanta.....	200,616	8	9	3	3	6	13	42
Augusta.....	52,548		1		3		1	5
Macon.....	52,995						1	1
Savannah.....	83,252		38	14	41	42	73	208
Athens.....	16,748						1	1
Albany.....	11,555				1			2
Bainbridge.....	4,792						1	1
Baxley.....	1,142						6	6
Blakely.....	1,985				1			1
Claxton.....	1,265						1	1
Dawson.....	3,504						1	1
Dublin.....	7,707						3	3
Douglas.....	3,401						2	2
Eatonton.....	2,519							
Donalsonville.....	1,031						6	6
Glenville.....	1,069						1	1
Gainesville.....	6,272				1		1	2
Hazlehurst.....	1,383						1	1
Jesup.....	1,941						1	1
LaGrange.....	17,038			4	5	1	4	14
Millen.....	2,405			1				1
Plains.....	611						1	1
Pooler.....	443						1	1
Pulaski.....	249					1	1	2
Thomasville.....	8,196					1	3	4
Waynesboro.....	3,311				1			1
Waycross.....	13,068					1	1	2
West Point.....	2,138				1			1
Valdosta.....	10,738						1	1
Total.....		8	48	22	57	52	127	314

TABLE 4.—Cases of endemic typhus reported in Florida, 1924–1927

City or town	Population 1920	Number of cases reported					Total
		1924	1925	1926	1927		
Jacksonville.....	91,558	3	2	6	14	25	
Tampa.....	51,608			1	29	30	
Miami.....	29,571				1	1	
Callahan.....	511			2		2	
Dunedin.....	642			1		1	
Jensen.....				1		1	
Lake City.....	3,341				2	2	
Lakeland.....	7,062		1			1	
Orlando.....	9,282				1	1	
Pensacola.....	31,035				1	1	
St. Petersburg.....	14,237			2		2	
Total.....		3	3	13	48	67	

On the Pacific coast, aside from the occasional importation of "tabardillo" with Mexican laborers such as was reported by Cumming and Seuftner (1917), there has been in Los Angeles since 1923 a mild form of typhus fever independent of importation and prevalent among native-born white citizens of the better classes. Sporadic

cases of this type have also been reported from San Francisco. (I. C. Brill, 1917.)

Returning to a consideration of the disease in Alabama and Georgia, the locations of the cities and towns which have had cases in the past few years are shown in map No. 2.

TABLE 5.—Cases of endemic typhus reported in Virginia, 1925-1927

City or town	Popula- tion 1920	Number of cases reported			
		1925	1926	1927	Total
Richmond.....	171, 667	1		14	5
Norfolk.....	115, 777		1	1	2
Petersburg.....	31, 012	1			1
Lynchburg.....	30, 070			1	1
Bowling Green.....	468			1	1
Buffalo Springs.....				1	1
Farmville.....	2, 586			1	1
Rocky Mount.....	1, 076			1	1
Total.....		2	1	16	13

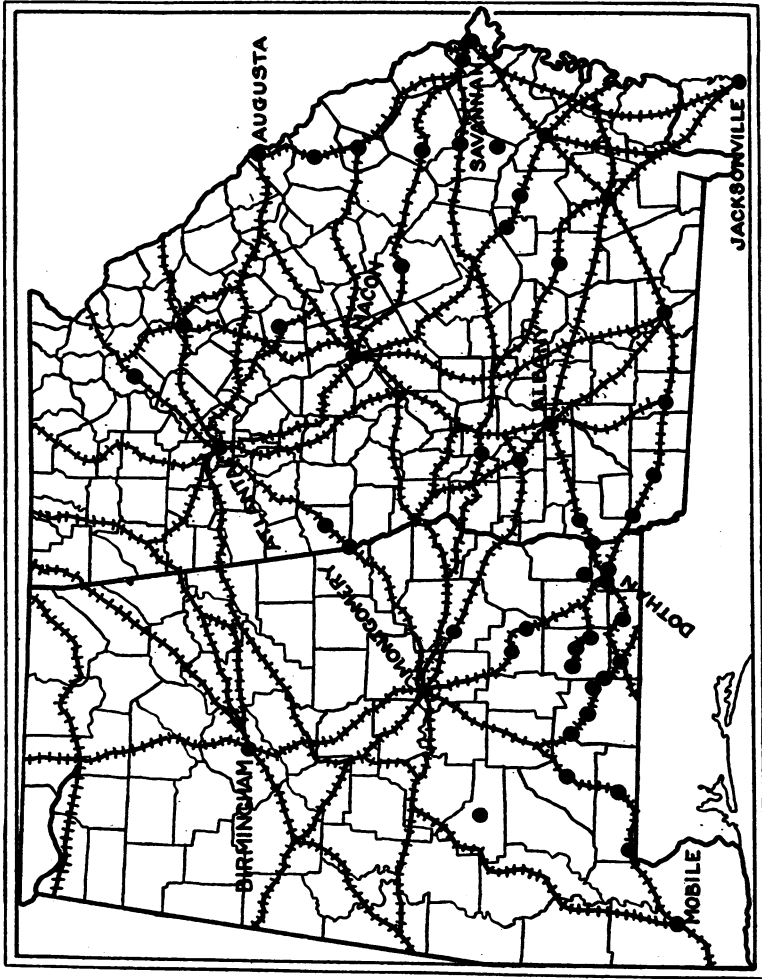
† Including 1 case from Buckingham County.

In Alabama it is significant that the disease is limited to the southeastern part of the State. While the disease is constantly present in Montgomery, the towns to the north and west of this city have remained free. To be sure, there have been occasional cases reported from the great industrial center of the State—the Birmingham district—but these have been few in number compared to the population involved. No cases have yet been discovered in the cities of the Tennessee Valley on the extreme north. In the meantime the disease is of common occurrence in the towns of the southeastern part of the State, particularly Troy, Brundidge, Headland, and Dothan.

The limitation of the disease in Alabama to the southeast section seems to be a well-established fact. The State has a well-organized system of branch public health laboratories, and for the past three years blood specimens from suspicious fever cases have been routinely run against the *Proteus X 19* for the Weil-Felix reaction. In addition, there is a well-coordinated system of full-time county health units reaching 50 to 60 per cent of the total population. The county health officers have been instructed regarding the disease and have been looking for it. The members of the medical profession of the State have been informed through papers before the State medical society and by special communications from the State board of health.

In Georgia a similar limited distribution of endemic typhus is seen. It will be noted that the disease has been prevalent chiefly in the southern and eastern sections of the State—piedmont and coastal plain—and absent from the northern or mountain section. This

distribution holds in spite of the fact that many of the cases were discovered by the State laboratory located at Atlanta in examining blood from typhoid suspects for the Weil-Felix reaction, and that this laboratory serves the mountain section of the State to the same degree that it does the piedmont and coastal sections.



MAP No. 2.—Locations of cities and towns in Alabama and Georgia in which cases of endemic typhus occurred, 1922-1927

### DISCUSSION

The data which are available from morbidity reports, from the literature, and from field investigations give only a bare outline of the occurrence of this typhuslike disease in the United States. So far as information is available, it seems to indicate that the disease is rather sharply limited to the Atlantic seaboard and the near-by

piedmont sections, going as far north as Boston. It is present in nearly all of the seaports from New York southward and has attained widest distribution in Alabama, Georgia, and Florida. On the Gulf coast, while it has been reported from Tampa, Pensacola, Mobile, Galveston, and Houston, there is at present no information regarding its occurrence in Mississippi or in Louisiana. The lower Rio Grande Valley from Laredo to Mercedes constitutes an important focus. On the Pacific coast only Los Angeles has reported a considerable number of cases. While an occasional case has been reported from the interior of the country, that section has been for the most part strikingly free.

This limited geographic distribution in the country at large is confirmed by the more intensive study of the disease in the State of Alabama during the past five years. In this State, as has been pointed out previously, the disease is endemic in the towns south and east of Montgomery, but not to the north and west, except for the few cases which have occurred in the Birmingham district. Considering Montgomery as a primary focus, if the disease were transmitted directly from person to person there is an approximately equal chance that during the past five years it would have spread along any of the six railroad lines or the many highways which enter that city. It would then have had a scattered occurrence and become established at random in the near-by cities and towns in all directions.

This has not occurred. The cases have been grouped almost entirely along the Atlantic Coast Line and its small branches running southeast from Montgomery to Savannah and Jacksonville, along the Louisville & Nashville Railroad running south and slightly west to Mobile, and a branch of this road running to Red Level, Andalusia, Opp, and into Florida. These cases have not been traceable to direct importation from Montgomery. Their origin is local. They may occur at considerable intervals of time, but there are one or two or more cases each year in these towns without traceable association with a previous case and without subsequent secondary or contact cases. The disease is dependent upon undetermined conditions which are present in these towns and absent from those farther north in the State. So far as the human host is concerned, racial composition, habits of life, sanitary, economic, and social status, there are no significant differences apparent in comparing these towns in the southeastern part of the State with towns farther north. Body lice are almost unknown in Alabama; head lice are found occasionally in school children. The infestation with this parasite is generally below 1 per cent, and the towns of the southeastern section are not different from those in the north and west in this respect. The popu-



lation is stable, and there is practically no immigration from Europe or from Mexico.

The limitation of this disease geographically does not seem to be explained satisfactorily on the basis of direct person to person transfer or through the intermediation of the louse. Some agency other than man and his own parasites would appear to be responsible for the preservation of the virus. This agency, be it insect alone, or an insect which feeds upon some host other than man, must be correspondingly limited in its distribution, or at least its capacity for acting as a vector to man must be so limited.

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## DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death, September, 1928, and Summary for the First Nine Months of 1928

The accompanying table is taken from the Statistical Bulletin for October, 1928, issued by the Metropolitan Life Insurance Co., and presents the mortality experience of the industrial insurance department of the company, by principal causes of death, for September, 1928, as compared with August, 1928, and with September, 1927. The rates are based on a strength of approximately 18,500,000 insured persons in the United States and Canada.

The Bulletin states:

The death rate of the industrial populations of the United States and Canada in September (7.7 per 1,000) was lower than that for the corresponding month of last year (8.1) and also showed improvement over the figure for August, 1928 (8.4).

The most important item, unquestionably, in the month's health record is the very low death rate for tuberculosis (78.1 per 100,000). This is the lowest figure ever recorded among the Metropolitan industrial policyholders during the month of September.

The principal epidemic diseases of childhood, with the single exception of measles, registered lower death rates than in September a year ago. The measles figure for each year is so low, however, that the small increase in September, 1928, is without significance. Almost every cause of death listed in the accompanying table showed a lower September death rate than that recorded in 1927. The exceptions are measles, influenza, and homicides. The death rate for automobile accidents was approximately 12 per cent lower than in September, 1927.

*Death rates (annual basis) per 100,000 for principal causes of death*

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death	Rate per 100,000 lives exposed <sup>1</sup>			
	September, 1928	August, 1928	September, 1927	Year 1927
Total, all causes.....	765.3	843.2	812.1	887.9
Typhoid fever.....	4.3	4.4	5.3	4.6
Measles.....	.7	2.2	.5	4.1
Scarlet fever.....	1.0	1.0	1.6	3.1
Whooping cough.....	4.8	5.4	6.4	6.4
Diphtheria.....	5.6	4.5	6.6	10.6
Influenza.....	6.6	5.6	5.3	17.8
Tuberculosis (all forms).....	78.1	90.9	81.8	93.6
Tuberculosis of respiratory system.....	67.8	79.1	71.3	81.9
Cancer.....	72.2	74.8	73.7	74.3
Diabetes mellitus.....	14.0	15.6	14.4	16.8
Cerebral hemorrhage.....	42.6	51.8	50.6	55.1
Organic diseases of heart.....	114.6	123.8	116.3	132.5
Pneumonia (all forms).....	36.4	37.9	37.8	77.7
Other respiratory diseases.....	12.0	11.7	13.0	11.7
Diarrhea and enteritis.....	47.1	46.9	47.6	24.6
Bright's disease (chronic nephritis).....	61.1	60.8	63.6	69.5
Puerperal state.....	12.6	14.4	12.7	15.5
Suicides.....	8.1	8.3	8.1	8.3
Homicides.....	7.0	6.7	5.4	7.3
Other external causes (excluding suicides and homicides).....	61.9	81.9	69.1	63.9
Traumatism by automobiles.....	19.8	22.8	22.4	18.4
All other causes.....	174.6	200.8	192.2	190.5

<sup>1</sup> All figures include infants insured under 1 year of age.

SUMMARY FOR FIRST NINE MONTHS OF 1928

The summary of the mortality record for the first nine months of 1928, presented in the Bulletin, indicates very satisfactory health conditions in this group of wage earners. The death rate for this period was 8.3 per 1,000, as compared with the minimum rate of 8.2 which was recorded for the first nine months of both 1927 and 1921.

The most notable item in the record for the first nine months of this year is the drop in the death rate for tuberculosis among the white policyholders to 72.1 per 100,000, representing a decline of 6.8 per cent in a single year, of 13.7 in two years, and of 42.3 per cent since 1920. A new low record is predicted for tuberculosis for 1928. Little improvement in the death rate for this disease has been shown for the colored policyholders during the past three years, but a comparison with earlier years shows marked progress in reducing mortality from tuberculosis among negroes.

Lower death rates than those for the corresponding period of 1927 were also shown for puerperal diseases among both white and colored, for typhoid fever, and for three of the principal communicable diseases of childhood—diphtheria, scarlet fever, and whooping cough. The measles death rate was well below the average, the rate for white persons being 6.6, as compared with 5.4 in 1927 and 13.4 in 1926.

On the other hand, influenza and pneumonia caused more deaths this year than last, but the rate is not above the average; cancer showed no improvement among the white policyholders and increased appreciably among the colored; mortality from diabetes is showing an increasing tendency among this group of industrial workers in both the United States and Canada; and there was a considerable rise in mortality from cardiac diseases among both white and colored and from chronic nephritis among the colored. An unusual number of deaths also occurred this year from meningococcus meningitis.

As compared with 1927, the death rate for alcoholism declined among the white policyholders but increased among the colored. The death rate for cirrhosis of the liver for the whole group increased from 6.4 to 6.5 per 100,000.

The rates for fatal accidents and homicides decreased among both white and colored; the suicide rate for whites declined, while there was no change among the colored; and the death rate for automobile accidents increased among the colored, but, for the first time in the records of the company, showed a decrease for the whites as compared with the preceding period. The decrease from the rate for this cause for the corresponding period last year amounts to 4 per cent.

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### **NATIONAL NEGRO HEALTH WEEK TO BE OBSERVED MARCH 31 TO APRIL 7, 1929**

The week of March 31 to April 7, 1929, has been set aside for the fifteenth observance of National Negro Health Week. State and municipal health departments, voluntary health organizations, and numerous other official and unofficial agencies interested in race welfare and advancement are cooperating with the United States Public Health Service in a determined effort to improve health and living conditions.

As an aid in this widespread health campaign the Public Health Service will issue at an early date the annual National Negro Health Week Bulletin. This publication outlines effective methods of instituting and successfully carrying out the program of the health week. It is designed primarily for churches, schools, fraternal organizations, welfare societies, and other groups interested in community progress and race betterment, and contains, in addition to methods for organ-

izing the programs for health week, information and sources of materials of value for Health Week work.

It is the plan of the campaign to set aside each day of the week for special observance of some phase of health work. Sunday, March 31, will be Mobilization Day; Monday, April 1, Home Health Day; Tuesday, April 2, Community Sanitation Day; Wednesday, April 3, School Health Day; Thursday, April 4, Adults' Health Day; Friday, April 5, Special Campaign Day; Saturday, April 6, General Clean-up Day; Sunday, April 7, Report and Follow-up Day.

In addition to the bulletin there is being distributed a specially prepared poster which gives in brief and interesting form the various rules of health and appropriate information and which has for a number of years contributed to the success of National Negro Health Week. This poster is a beautifully printed three-color illustration, and it is the aim of the committee in charge of this activity to have a copy placed in every home.

The poster is being issued in a very limited edition for free distribution. Single copies or quantities of the poster or bulletin may be purchased at nominal cost from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Health officials, race leaders, and others interested in the successful promotion of this Health Week observance can secure sample copies of the bulletin or additional information as to the proposed plan of the health week by writing the United States Public Health Service, Washington, D. C., or the National Negro Health Week Committee, Tuskegee Institute, Ala.

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### COURT DECISION RELATING TO PUBLIC HEALTH

*Sexual sterilization act upheld and interpreted.*—(Kansas Supreme Court; State ex rel. Smith, Atty. Gen., v. Schaffer, 270 P. 604; decided October 6, 1928.) In an action of mandamus to compel the surgeon of the State hospital for the insane at Topeka to perform a sterilizing operation, two questions were presented: First, the constitutionality of the sexual sterilization law; and, second, the regularity of proceedings under said law. Rejecting contentions that the statute exceeded the police power of the State, denied equal protection of the laws, and denied due process of law, the supreme court held that the statute did not violate the provisions of either the Federal or State constitution. Although there was confusion in some of the terms of the statute, the court stated that the legislative purpose was plain enough and that all provisions of the statute could be preserved by interpreting it as follows:

A sterilization proceeding is initiated by a certificate and recommendation of the institution officer to the governing board, to be acted on within 15 days; the

chairman of the governing board calls a meeting of the board for enforcement of sterilization; the inmate is given 30 days' notice of the meeting; and, at the meeting, a hearing is had upon the question whether a sterilization order shall be issued. So considered, the terms of the statute are consistent with themselves and with the legislative intention.

## PUBLIC HEALTH ENGINEERING ABSTRACTS

**Plague in the S. E. Soviet Republics.** Nikanoroff. Bull. Office Internat. d'Hyg. Publique, 1928, Apr., vol. 20, No. 4, pp. 537-564. Abstract by J. H. Tull Walsh in *Tropical Diseases Bulletin*, vol. 25, No. 9, September, 1928, p. 671.

"This is a report describing outbreaks of plague from 1898 to 1927. The localities and number of cases are given in a table. The usual source of infection is the *Spermophiles*: *Sp. musicus* and *Sp. mugosaricus* in the southeast and mice in the south. *Cynomys fulvus*, gerbilles, etc., are also found over the large area referred to, and these are known to suffer from plague. The fleas mentioned are *Ceratophyllus tesquorum*, *Neopsylla setosa*, and *Ctenophthalmus breviatus* n. sp. Much of the material in this report has appeared in previous papers (see this Bulletin, vol. 24, pp. 935-937 (Nikanoroff to Golov); p. 455 (Zabolotny)."

**Arrival of Plague in Sweden.** C. A. Kling. Bull. Office Internat. d'Hyg. Publique, 1928, Apr., vol. 20, No. 4, pp. 565-567. Abstract by J. H. Tull Walsh in *Tropical Diseases Bulletin*, vol. 25, No. 9, September, 1928, p. 671.

"The merchant ship *Ransholm* from Rufisque, in Senegal, had a case of plague shortly after leaving port. Just before the ship arrived at Rotterdam another sailor complained of inguinal pain and a third showed the same symptoms as the other two. When the ship arrived at Gefle, on the Baltic, the sanitary inspector was warned, and the cases were examined. Yersin's bacillus was found in pus from the first case. Of 21 men, 4 were attacked, but the infection was not very virulent. The ship was fumigated and the rats were destroyed."

**Moffat Tunnel Ventilation for Steam Locomotives.** Anon. *Engineering News-Record*, vol. 100, No. 26, June 28, 1928, pp. 994-995. (Abstract by Leonard Greenburg.)

The Moffat Tunnel, on the Denver and Salt Lake Railway, is approximately 6 miles long. It was found necessary to provide ventilation in order to reduce the temperature and smoke content of the tube while in use. Two fans are provided, one as a reserve unit. These are located in the east portal of the tunnel. The design provides for a current of air, moving at a velocity of 10 to 14 miles per hour in a direction opposite to that of the motion of the train. A unique portion of the equipment is the arrangement of dampers so as to yield an east or west bound air current as desired. This is accomplished by means of gates, 16 by 24 feet, operated by 3-horsepower motors, geared to an operating pinion which engages a curved rack on the gate frame. By the proper opening and closing of these gates it is possible to effect either an eastbound or westbound air current as desired. It is to be noted that with such a scheme as this the smoke is carried along the full length of the train instead of being blown or drawn ahead of the locomotive. With the present equipment it would, of course, be necessary to keep the train speed from 10 to 14 miles per hour in order to avoid this. Such a slow speed is undesirable. On the other hand, to increase the velocity of the air current to 20 miles per hour in order to permit a train speed of 15 to 18 miles per hour would require a power plant of more than 4,000 horsepower, which would be far from economical.

**Washing and Sterilizing Farm Milk Utensils.** R. J. Posson. U. S. Dept. of Agriculture *Farmers' Bulletin* No. 1473, 6 pages. (Abstract by R. E. Irwin.)

This bulletin is summarized as follows:

"All utensil surfaces with which milk comes in contact should be sterilized before being used. The word 'sterilized,' as used in this bulletin, means to destroy practically all bacteria, including those which may cause disease.

"All utensils, before being steamed, should be washed with warm water and an alkali or soda-ash washing powder and rinsed in clean, pure water; brushes and hot rags should be used. In dairies which have steam boilers, utensils may be sterilized simply and effectively by being put into a properly constructed cabinet, after which steam is turned in. Perforated coils on the floor of the cabinet distribute the steam evenly and increase the efficiency of the sterilizer.

"A galvanized-iron box sterilizer and water heater in which steam is generated by a fire underneath will serve satisfactorily for some dairies which do not have steam boilers. Sterilizers of this type are easy to operate and may be made at relatively low cost by any good tinsmith.

"A steam jet may be used for sterilizing such utensils as cans and pails; but in using it care must be taken to steam the utensils until they are thoroughly heated.

"Blue prints of different types of steam sterilizers may be procured by writing to the Bureau of Dairying, United States Department of Agriculture, Washington, D. C."

The bulletin treats in detail the subject of water supply, how to wash utensils, equipment for washing utensils, sterilizing by steam, construction of sterilizing cabinets, operation of sterilizing cabinets and galvanized-iron box sterilizers, and sterilizers of large equipment as well as sterilizing with a steam jet.

**Investigation of Soda Water for Lead.** H. W. Petherick. Queensland. Ann. Rep. Commissioner of Pub. Health to June 30, 1927, p. 22. Abstract by W. G. Savage in *Bulletin of Hygiene*, vol. 3, No. 5, May, 1928, p. 402.

"A series of 394 samples of soda water were collected and examined for lead from all cafes and refreshment rooms in Brisbane and South Brisbane. In addition, a large number of samples of tap water and water from supply cisterns were examined. Notice to discontinue sale pending action to remove sources of lead was given in every instance in which lead was in excess of 100 gr. per pint in any sample of soda water. The percentage of offending samples is not given, but a large number of soda fountains had to be dismantled. The sources of lead were found to be the interiors of carbonators which were jointed at the seams, at the end of agitator shafts, and elsewhere with solder which contained lead. This had to be replaced with lead-free material and often fresh, tin lining had to be provided. In every case this did not remove all the lead from the soda water, and in cases in which it did not do so recourse was had to the use of harmless chemical solution fed to the carbonator with the water. This at least reduced the lead to within the prescribed limit."

**Sanitary Engineering Aspects of Shellfish Pollution.** Carl Speer, jr. *Bulletin*, Maryland State Department of Health, vol. 1, No. 3, April, 1928, pp. 16-57. (Abstract by A. H. Wieters.)

This lengthy article sets forth a historical sketch of the relationship between oysters and public health. The author further discusses successively the biology of shellfish, the problem of pollution, both by domestic and industrial wastes, and the specific Chesapeake Bay problems. Domestic sewage is dangerous from the standpoint of infecting the oyster, and if present in sufficient quantities destroys the oyster by virtual depletion of oxygen. Certain industrial wastes, such as cannery wastes, destroy oysters in the same way, while other industrial wastes, such as oil, tannery wastes, etc., destroy oysters by virtue of toxicity.

Oysters may be contaminated and infected by growing in polluted waters and by improper handling. The floating of oysters for "fattening" is frowned upon by most authorities.

This article also contains a report of a survey by the Maryland Department of Health of the Chesapeake Bay problem, together with the laboratory findings.

**Notes on a Cheap Steam Sterilizer for Dairy Cans.** T. O. Thompson. *Journal of the Royal Army Medical Corps*, vol. 50, No. 4, April, 1928, pp. 286-287. (Abstract by D. W. Evans.)

A cheap sterilizer for milk cans is described as suitable for small dairies. It is made up as follows: A 5-gallon oil drum is fitted with two pipes, one of which is screwed into a brass collar on the side of the drum. This pipe is 3 feet long outside and extends inside to within  $1\frac{1}{2}$  inches of the other side of the can. This pipe acts as a filling pipe and safety valve. The second pipe is tapped on the same side of the drum, but does not extend within the drum. This line leads to a bench so that cans may be set on the bench over the end of the pipe. A valve or tap controls the rate of steaming. The can is merely placed on supports and a fire is built under the can. Water can be added to the can as needed through the filling pipe.

**Mussel Poisoning in California.** K. F. Meyer. *Weekly Bulletin*, California State Department of Health, vol. 7, No. 22, July 7, 1928, pp. 85-86. (Abstract by A. H. Fletcher.)

During the month of July, 1927, 102 people were seriously poisoned and 6 died following the eating of the large mussel, *Mytilus californianus*, Conrad, which had been freshly gathered at 14 different beds on the open shore line of the Pacific coast in the vicinity of San Francisco. The origin of the poison is not definitely established, but some of the points are discussed in this article. From the experiences thus far collected it is quite apparent that the use of mussels on the California coast during the summer months is always dangerous.

**An Outbreak of Infectious Diarrhea on Board the U. S. S. "Melville" Attributed to Contamination from Gatun Lake, Canal Zone.** Dallas G. Sutton. *United States Naval Medical Bulletin*, vol. 26, No. 3, July, 1928, pp. 727-732. (Abstract by O. C. Hopkins.)

At the time the U. S. S. *Melville* was in transit through the Panama Canal from Balboa, Canal Zone, to Colon, Panama, in March, 1927, about 6,000 gallons of water from Gatun Lake were taken on board for use in the boilers and stored in the ship's tanks after distillation. The cloudy appearance and unpleasant taste of the water attracted attention, so that samples of the water were collected and cultures made which indicated a heavy pollution of the water with *B. coli*. At the same time a number of the crew developed symptoms of mild enteritis.

Following the isolation of *B. coli* from the fresh-water supply of the ship and the appearance of acute cases of enteritis among the crew, the water was pumped overboard and all tanks were cleaned. They were then filled with freshly distilled water and disinfected by the addition of a solution of chlorinated lime. After this procedure no other cases of enteritis developed at the time. No water was taken on board during the return trip so that water in tank No. A2, to which a later outbreak of acute enteritis was attributed, must have been overlooked when the other tanks were emptied, cleaned, and disinfected.

On June 30 a junior dentist on board became ill with symptoms of severe gastroenteritis. On July 12 and 13 a number of patients were admitted to the sick list.

Cultures were made from the fresh fruits, vegetables, the scuttle butt, and each individual tank. Water from the scuttle butt was found to be heavily contaminated with *B. coli* and water from tank A2 gave a growth of a gram negative, motile bacillus later identified as *Bacillus fecalis alcaligines*. As a result of



the investigation to determine how the contamination of the water in tank No. A2 had taken place it is believed either that water from Gatun Lake found its way into this tank through a valve left open, or that infected water was delivered by the ship's evaporators to the tanks while in Gatun Lake.

**Filter Plant Loadings.** H. W. Streeter. Proceedings of the Tenth Texas Water Works Short School, January, 1928, pp. 85-88. (Abstract by Clyde R. Harvill.)

A survey showed that average well-designed and well-operated rapid sand filter plants in the Ohio River Basin could produce a final chlorinated water which would meet the requirements of the Treasury Department Standards, if the raw water *B. coli* index is not over 5,000 per 100 c. c., while in the Great Lake region, 2,000 per 100 c. c. is the limit for water to be purified to meet these standards. Raw water of the Ohio River type can not consistently be treated so as to produce an unchlorinated effluent meeting the standard if the *B. coli* content of the raw water exceeds 60 to 100 per c. c., while with lake waters the limit appears to fall somewhere less than 10 per 100 c. c.

To increase the bacterial efficiency of the plants a number of possibilities for plant elaboration are suggested: (a) Long-time preliminary storage prior to its delivery for treatment; (b) double-stage preliminary sedimentation, aided in some instances, by two-stage coagulation; (c) double filtration; and (d) double chlorination, including prechlorination of the raw water. Excess lime treatment is also suggested where feasible. Both (a) and (c) have been tried with satisfactory results. Tests at five Ohio River plants and at the Cincinnati experimental plant indicate that plants elaborated to include (b) with a *B. coli* index ranging as high as 50,000 per 100 c. c. in the raw water will produce a standard chlorinated effluent. Results from (d), although not so good as from (b), are sufficient to increase the permissible bacterial pollution of raw water twofold as measured in *B. coli* index. All observations were made in summer and autumn.

**Recent Developments in Standards and Railway Equipment for Providing Certified Water in Interstate Commerce.** J. H. Davidson. Proceedings of the Tenth Texas Water Works Short School, pp. 89-98. (Abstract by J. H. Davidson.)

The history of the development of Federal regulations governing drinking water supplied to railway coaches in interstate traffic is briefly outlined in this article. Present standards are discussed and attention is called to the fact that the proposed standards for chemical and physical characteristics, if rigidly enforced, would prohibit the use of many municipal supplies in Texas and other Southwestern States for drinking purposes on railway coaches.

Attention is called to the fact that only one railroad man was on the committee of 40 which prepared the latest standards for drinking water. The author is of the opinion that the railroads should have better representation on such committees.

Improved hydrant cocks and hydrant installations that have been found by experience to be satisfactory for railway use are described. Attention is called to the danger of pollution of drinking water by careless handling of hose and connections used to convey water from hydrant to coaches. Types of storage tanks and coolers for coaches are described.

**Chlorination for Algae Control.** Chester Cohen. *Journal of the American Water Works Association*, vol. 17, No. 4, April, 1927, pp. 444-455. (Abstract by I. W. Mendelsohn.)

Due to considerable difficulty with tastes and odors in surface-water supplies with small impounding reservoirs in Texas in 1926, tests were made with lime and chlorine to destroy algae growths in the reservoirs. The results at Mexia and Lufkin show that chlorine appears to possess merits worthy of greater con-

sideration in algæ control. A dosage of 1 p. p. m. killed the organisms in six hours, while a dosage of 1.5 p. m. m. was effective within three hours. Additional tests are necessary to establish this treatment as satisfactory under varying conditions.

**Phenol Pollution of Public Water Supplies in the Middle West.**—Herman N. Bundesen. *Water Works*, vol. 67, No. 6, June, 1928, pp. 240-246. (Abstract by C. M. Baker.)

This article discusses in some detail the development of control measures in connection with the pollution of public water supplies by phenol waste from by-product coke plants. Mention is first made in regard to pollution of the water supply of McKeesport, Pa., where the city secured a permanent injunction in 1918 against the Clairton by-product coke plant of the Carnegie Steel Co. to prohibit the discharge of their wastes into the stream. The company promptly developed a method of utilization of the waste in quenching the coke. Approximately \$1,000,000 was spent by the company to eliminate this nuisance. Mention is also made of the interstate conference arranged by the Surgeon General of the United States Public Health Service on May 18, 1923, and the conferences on January 24, 1924, and at Pittsburgh, Pa., on April 14, 1925. On November 17, 1924, an interstate stream conservation agreement was entered into by the States of Ohio, Pennsylvania, and West Virginia. Since that time the States of Kentucky, New York, Maryland, Illinois, Indiana, and Tennessee have joined the agreement which provides for a cooperative program to control the pollution and to notify the various plants of accidents or "spills."

Sources of phenol from by-product coke plants are given as follows:

Waste	Per cent phenol in plant waste	Approximate pounds phenol per ton of coal carbonized	Remarks
Ammonia still.....	70-80	0.2-0.5	Certain taste-producing light oils. Do.
Final cooling water.....	20-25	0.02-0.08	
Benzol plant wastes.....	2-5	-----	
Gas-condensate waste.....	(1)	-----	

<sup>1</sup> Variable.

Three methods of phenol elimination are mentioned: Coke quenching, extraction of the phenol, and biological absorption. Objections to the quenching process include discoloration of the coke by lime deposited from the ammonia-still wastes, disagreeable phenol odors, and deterioration of metallic equipment in the vicinity of the quenching tower by chloride from the lime waste, estimated at \$200,000 annually at one plant with 10 quenching towers. The extraction process was first developed at the National Tube Co., Lorain, Ohio, in 1924, with a recovery of 76 per cent of the phenol. Plants have since been installed at the Iroquois Gas Corporation, Buffalo, N. Y., 1925; at the Hudson Valley Coke Corporation, Troy, N. Y., 1926, and at the Domestic Coke Corporation, Fairmont, W. Va., 1927. These later plants have developed an efficiency of 97 per cent. The cost at Fairmont was \$25,000 for 1,000 tons of coal daily capacity, and at Troy \$60,000 for 3,750 tons of coal daily capacity. It is stated that the operation is self-sustaining. After tests at Rochester, N. Y., the gas-plant wastes were received in the public sewers with no deleterious effects to the Imhoff tank.

Rather detailed information is then given regarding the recovery installations installed at Cleveland, Ohio, in the American Steel & Wire Coke Works, and the Otis Steel Co., in the Ohio River Pittsburgh district of the Clairton Coke Co., and the Youngstown Steel and Tube Co.; at Troy, N. Y., the Hudson Valley Coke & By-Products Corporation; and at Fairmont, W. Va., the Domestic Coke Co.

The conclusion contains an application of the data to the Sanitary District of Chicago, with certain recommendations.

**Purification of Water by Filtration.** J. W. Wolff. Meded. v. h. Path. Lab. te Medan-Sumatra, 1927, No. 2, 15 pp. Abstract by H. Lwow in *Bulletin of Hygiene*, vol. 3, No. 4, April, 1928, pp. 277-278.

"This is a brief review of the development of the means for purification of water.

"For domestic use the author recommends the 'Noritfilter.' Norit is a special preparation of a finely divided charcoal. The advantage of this filter is that the whole of the pressed 'Norit,' which is not expensive, can be easily changed. The construction is very simple.

"Very dirty water from a river was purified through such a filter for 2½ months at the pathological laboratory in Medan and about 100 pints of sterile water were obtained daily. The author thinks it would be safe to change the filling of 'Norit' every two months only.

"(The apparatus was described and illustrated in this Bulletin, v. 2, p. 646, in a paper by L. K. Wolff. In that paper and in an earlier paper by L. K. Wolff (*Tropical Diseases Bulletin*, San. Suppl., 1925, p. 194) the 'Norit' is said to require changing every 14 days.)

"For chlorination of water the author recommends a preparation made by Bayre and called 'Caporit.' This is a composite preparation of chlorine and is said to contain more than 50 per cent available chlorine. It does not decompose in the Tropics and is easily soluble in water, the solution remaining efficient for quite a long time. The results of trials at Batavia were satisfactory, and the swimming bath there is now treated with 'Caporit.' The amount used is about 2 to 6 mg. per liter of water and is not expensive."

**The Chlorination of Water.** L. W. Hasse. Gas. u. Wasserfach 71, 385-90 (1928). Abstract by R. W. Ryan in *Chemical Abstracts*, vol. 22, No. 13, July 10, 1928, pp. 2421-2422.

"The effect of chlorination on the pH and temporary and permanent hardness of natural water and pure water to which organic matter,  $\text{CaCO}_3$ , etc., had been added was studied experimentally. The pH of the water was determined by the quinhydrone electrode, with special precautions such as igniting the Pt wire at frequent intervals and the use of sufficiently large volumes of solution. The total hardness was determined by adding an amount of  $\text{Na}_2\text{S}_2\text{O}_3$  equivalent to the Cl, or by electrotitration, which was also used for temporary hardness. In water containing carbonate or bicarbonate,  $\text{Cl}_2$  reacts in the usual way to give  $(\text{CaOCl})_2$  and  $\text{Ca}(\text{HCO}_3)_2$ . The presence of organic matter may act as a 'catalytic accelerator' by reacting with Cl, hydrolyzing, and the resulting HCl reacting with  $\text{CaCO}_3$  to give  $\text{Ca}(\text{HCO}_3)_2$ . A portion of the  $\text{Cl}_2$  will also react to form chlorides. The above reactions result in the pH of the water changing toward the acid side (pH 8-9 to 6-7), and may result in the increase of the permanent and temporary hardness, depending on the amount and nature of the organic matter and the amount of carbonate present. The addition of small quantities of  $\text{Ca}(\text{OH})_2$  is suggested as a means of avoiding corrosion where the quantity of carbonate is small."

## DEATHS DURING WEEK ENDED NOVEMBER 10, 1928

Summary of information received by telegraph from industrial insurance companies for the week ended November 10, 1928, and corresponding week of 1927. (From the Weekly Health Index November 15, 1928, issued by the Bureau of the Census, Department of Commerce)

	Week ended Nov. 10, 1928	Corresponding week, 1927
Policies in force.....	72, 180, 777	69, 366, 234
Number of death claims.....	11, 532	10, 233
Death claims per 1,000 policies in force, annual rate.....	8. 4	7. 7

Deaths from all causes in certain large cities of the United States during the week ended November 10, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927. (From the Weekly Health Index, November 15, 1928, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Nov. 10, 1928		Annual death rate per 1,000 corre- sponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended Nov. 10, 1928 <sup>1</sup>
	Total deaths	Death rate <sup>1</sup>		Week ended Nov. 10, 1928	Corre- sponding week, 1927	
Total (68 cities).....	7, 064	12. 2	11. 9	626	657	52
Akron.....	55			5	4	54
Albany.....	35	15. 2	12. 2	3	1	61
Atlanta.....	77	15. 8	11. 3	7	7	
White.....	40		8. 3	5	3	
Colored.....	37		18. 3	2	4	
Baltimore.....	215	(1) 13. 5	13. 6	20	19	64
White.....	166		11. 3	10	10	40
Colored.....	49	(1)	26. 8	10	9	157
Birmingham.....	65	15. 3	16. 3	8	7	68
White.....	33		8. 6	2	2	28
Colored.....	32	(1)	28. 3	6	5	135
Boston.....	216	14. 1	13. 6	21	15	58
Bridgeport.....	37			4	1	73
Buffalo.....	160	15. 1	14. 7	14	16	60
Cambridge.....	21	8. 7	10. 5	1	3	18
Camden.....	18	7. 0	10. 2	5	4	80
Canton.....	23	10. 3	10. 1	4	3	95
Chicago.....	661	11. 0	11. 5	49	72	42
Cincinnati.....	141	17. 8	18. 1	12	16	73
Cleveland.....	195	10. 1	10. 1	17	20	46
Columbus.....	87	15. 3	13. 6	15	9	140
Dallas.....	45	10. 8	10. 6	8	4	
White.....	29		10. 5	7	4	
Colored.....	16	(1)	11. 4	1	0	
Dayton.....	38	10. 8	11. 8	4	3	66
Denver.....	66	11. 7	16. 9	7	8	
Des Moines.....	30	10. 3	11. 9	0	3	0
Detroit.....	290	11. 0	11. 1	32	41	49
Duluth.....	15	6. 7	10. 0	2	0	47
El Paso.....	38	16. 9	16. 1	5	3	
Erie.....	18			1	2	17
Fall River.....	21	8. 2	10. 2	1	3	21
Flint.....	19	6. 7	5. 5	7	3	89
Fort Worth.....	30	9. 3	8. 2	4	5	
White.....	22		16. 0	1	0	
Colored.....	8	(1)	11. 9	5	4	
Grand Rapids.....	39	12. 4	11. 9	5	13	75
Houston.....	50			5	6	
White.....	33			3	7	
Colored.....	17	(1)		2	6	
Indianapolis.....	77	10. 5	13. 4	2	4	15
White.....	64		12. 2	1	2	9
Colored.....	13	(1)	22. 1	1	2	61
Jersey City.....	72	11. 6	10. 5	7	7	52
Kansas City, Kans.....	28	12. 4	13. 3	1	3	21
White.....	21		10. 3	1	1	25
Colored.....	7	(1)	27. 1	0	2	0
Kansas City, Mo.....	80	11. 9	12. 8	7	7	40

(Footnotes at end of table)

*Deaths from all causes in certain large cities of the United States during the week ended November 10, 1928, infant mortality, annual death rate, and comparison with corresponding week of 1927—Continued.*

City	Week ended Nov. 10, 1928		Annual death rate per 1,000 corresponding week, 1927	Deaths under 1 year		Infant mortality rate, week ended Nov. 10, 1928 <sup>2</sup>
	Total deaths	Death rate <sup>1</sup>		Week ended Nov. 10, 1928	Corresponding week, 1927	
Knoxville.....	26	12.9	13.8	4	2	87
White.....	20		12.2	3	2	73
Colored.....	6	( <sup>3</sup> )	25.6	1	0	213
Los Angeles.....	260			27	24	77
Louisville.....	90	4.3	13.7	11	7	92
White.....	72		11.9	9	3	86
Colored.....	18	( <sup>3</sup> )	23.5	2	4	138
Lowell.....	17	8.1	12.3	2	4	42
Lynn.....	38	18.8	7.0	2	1	50
Memphis.....	70	19.2	16.0	5	4	59
White.....	34		12.6	1	2	19
Colored.....	36	( <sup>3</sup> )	22.2	4	2	125
Milwaukee.....	122	11.7	9.0	17	18	76
Minneapolis.....	104	11.9	9.4	11	4	66
Nashville.....	46	17.4	15.9	9	7	142
White.....	29		14.2	5	6	107
Colored.....	17	( <sup>3</sup> )	20.1	4	1	240
New Bedford.....	21	9.2	6.5	0	3	0
New Haven.....	55	15.3	7.6	6	2	85
New Orleans.....	146	17.8	19.9	12	15	58
White.....	86		16.9	6	10	44
Colored.....	60	( <sup>3</sup> )	28.4	6	5	87
New York.....	1,367	11.9	11.2	118	111	48
Bronx Borough.....	178	9.8	8.6	12	11	36
Brooklyn Borough.....	476	10.8	9.8	47	40	47
Manhattan Borough.....	542	16.2	15.0	46	44	55
Queens Borough.....	128	7.8	9.1	11	13	44
Richmond Borough.....	42	14.6	14.9	2	3	56
Newark, N. J.....	83	9.2	11.1	5	9	26
Oakland.....	75	14.3	10.5	2	4	22
Oklahoma City.....	32			1	3	
Omaha.....	54	12.7	10.5	3	5	35
Paterson.....	33	11.9	11.6	1	2	17
Philadelphia.....	474	12.0	10.4	37	37	50
Pittsburgh.....	176	13.7	13.3	19	18	62
Portland, Oreg.....	69			2	4	21
Providence.....	55	10.0	11.9	5	9	44
Richmond.....	32	8.6	14.1	3	6	39
White.....	18		10.3	2	2	41
Colored.....	14	( <sup>3</sup> )	23.4	1	4	37
Rochester.....	65	10.4	11.7	10	5	61
St. Louis.....	198	12.2	14.2	8	23	27
St. Paul.....	50	10.4	8.8	3	5	29
Salt Lake City <sup>4</sup> .....	24	9.1	13.4	4	4	65
San Antonio.....	57	13.7	13.3	9	7	
San Diego.....	43	18.8	11.8	1	1	19
San Francisco.....	165	14.7	14.8	3	2	19
Schenectady.....	27	15.1	14.5	2	1	63
Somerville.....	16	8.1	8.2	4	2	138
Spokane.....	29	13.9	14.8	0	1	0
Springfield, Mass.....	30	10.5	11.0	5	5	79
Syracuse.....	56	14.7	10.6	4	5	49
Toledo.....	70	11.7	11.4	5	3	48
Trenton.....	37	13.9	13.0	5	6	85
Utica.....	30	15.1	10.1	1	2	23
Washington, D. C.....	144	13.6	12.7	7	7	40
White.....	99		10.7	3	5	25
Colored.....	45	( <sup>3</sup> )	18.8	4	2	87
Waterbury.....	13			3	2	
Wilmington, Del.....	24	9.8	11.1	3	4	79
Worcester.....	45	11.9	11.2	7	4	85
Yonkers.....	25	10.8	5.3	3	5	68
Youngstown.....	34	10.2	14.2	2	6	27

<sup>1</sup> Annual rate per 1,000 population.

<sup>2</sup> Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

<sup>3</sup> Deaths for week ended Friday, Nov. 9, 1928.

<sup>4</sup> In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 33; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

# 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

Reports for Weeks Ended November 10, 1928, and November 12, 1927

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 10, 1928, and November 12, 1927

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927
<b>New England States:</b>								
Maine.....	4	1	4	2	75	53	0	0
New Hampshire.....	1				12		0	
Vermont.....					1		0	
Massachusetts.....	67	109	6	6	232	203	2	3
Rhode Island.....	12	19			17	1	0	0
Connecticut.....	27	30	1	6	25	25	0	0
<b>Middle Atlantic States:</b>								
New York 1.....	41	318		13	243	156	1	5
New Jersey.....	129	142	8	6	65	42	0	1
Pennsylvania.....	169	307			320	414	3	2
<b>East North Central States:</b>								
Ohio.....	73	304	16	16		34	1	5
Indiana.....	102	54	23	26	51	6	0	0
Illinois.....	244	141	9	5	176	9	6	5
Michigan.....	81	99	3		21	116	7	4
Wisconsin.....	31	35	33	23	69	61	2	6
<b>West North Central States:</b>								
Minnesota.....	25	47		2	14	3	3	1
Iowa.....	14	26					0	1
Missouri 2.....	78	65	6	10	35	21	1	2
North Dakota.....	21	3			11	2	1	0
South Dakota.....	4	5	3	4	2	1	0	0
Nebraska.....	41	21	14	1	4	5	1	0
Kansas.....	39	32	1	5	3	30	0	2
<b>South Atlantic States:</b>								
Delaware.....	2	2		1	5	15	0	0
Maryland 4.....	34	46	10	18	37	25	0	0
District of Columbia.....	67	12			4	2	0	0
Virginia.....								
West Virginia.....	35	25	5	11	34	15	0	1
North Carolina.....	229	129			63	448	1	0
South Carolina.....	78	84	981	485		140	0	0
Georgia.....	43	46	153	68	12	12	0	0
Florida.....	14	33	6	3	2	3	1	2

1 Figures for 1928 are exclusive of New York City.

2 New York City only.

3 Figures for 1928 are exclusive of Kansas City.

4 Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 10, 1928, and November 12, 1927—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927
<b>East South Central States:</b>								
Kentucky.....	24						1	
Tennessee.....	32	48	25	38		58	0	0
Alabama.....	123	122	-91	41	22	15	0	0
Mississippi.....	44	61					1	0
<b>West South Central States:</b>								
Arkansas.....	36	30	29	59	2	4	0	0
Louisiana.....	27	64	16	8	17	10	0	0
Oklahoma <sup>1</sup> .....	89	92	51	45	3	29	1	2
Texas.....	70	121	26	47	5	6	0	0
<b>Mountain States:</b>								
Montana.....	6	1			1		0	1
Idaho.....		2					0	0
Wyoming.....	3	2		1	3		0	0
Colorado.....	17	30	2		2	11	4	0
New Mexico.....	3	1			2	8	0	0
Arizona.....	5	17				45	0	0
Utah <sup>4</sup> .....		16	3	4	2		2	1
<b>Pacific States:</b>								
Washington.....	18	16	4		21	111	2	4
Oregon.....	24	17	50	5	32	15	1	0
California.....	106	129	2,596	14	16	58	1	5

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927
<b>New England States:</b>								
Maine.....	2	7	24	70	14	0	1	6
New Hampshire.....	0		18		0		0	
Vermont.....	3		6		0			
Massachusetts.....	0	38	180	215	0	1	8	6
Rhode Island.....	2	2	14	14	0	0	0	1
Connecticut.....	1	3	24	45	0	0	2	3
<b>Middle Atlantic States:</b>								
New York <sup>1</sup> .....	10	18	148	258	0	6	50	56
New Jersey.....	0	3	85	88	1	0	7	5
Pennsylvania.....	11	27	147	313	0	0	34	35
<b>East North Central States:</b>								
Ohio.....	7	26	185	202	5	6	16	34
Indiana.....	6	7	125	121	12	65	16	10
Illinois.....	4	18	301	215	12	45	15	32
Michigan.....	2	8	159	171	5	21	5	20
Wisconsin.....	1	9	120	94	10	19	1	3
<b>West North Central States:</b>								
Minnesota.....	4	2	92	127	3	1	4	9
Iowa.....	1	7	90	65	7	54	1	8
Missouri <sup>2</sup> .....	1	6	96	82	11	52	5	12
North Dakota.....	3	1	44	40	4	6	15	6
South Dakota.....	4	6	18	20	4	3	2	0
Nebraska.....	1	5	44	22	18	6	0	4
Kansas.....	1	3	125	98	16	37	6	3
<b>South Atlantic States:</b>								
Delaware.....	1	0	7	1	0	0	5	0
Maryland <sup>4</sup> .....	2	2	56	56	0	0	13	22
District of Columbia.....	0	0	13	21	0	0	1	4
Virginia.....	1							
West Virginia.....	4	8	65	84	5	5	8	18
North Carolina.....	1	0	157	84	4	14	12	10
South Carolina.....	1	1	17	36	0	7	26	30
Georgia.....	0	0	52	32	0	0	14	30
Florida.....	0	2	4	3	0	5	2	5

<sup>1</sup> Figures for 1928 are exclusive of New York City.  
<sup>2</sup> Figures for 1928 are exclusive of Kansas City.

<sup>4</sup> Week ended Friday.  
<sup>4</sup> Exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended November 10, 1928, and November 12, 1927—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927	Week ended Nov. 10, 1928	Week ended Nov. 12, 1927
<b>East South Central States:</b>								
Kentucky.....	0		67		8		26	
Tennessee.....	0	5	59	37	0	1	29	25
Alabama.....	4	1	56	37	4	1	14	18
Mississippi.....	0	0	27	26	0	1	15	6
<b>West South Central States:</b>								
Arkansas.....	0	1	24	18	2	2	22	17
Louisiana.....	1	0	18	17	0	3	16	11
Oklahoma <sup>1</sup> .....	1	3	31	30	11	2	49	89
Texas.....	0	5	39	68	4	12	13	16
<b>Mountain States:</b>								
Montana.....	1	1	10	16	5	3	1	0
Idaho.....	0	11	8	16	8	1	0	1
Wyoming.....	0	1	32	7	6	0	1	1
Colorado.....	5	6	19	55	2	6	7	6
New Mexico.....	0	3	20	11	0	0	7	8
Ariz.....	2	0	3	2	2	0	4	5
Utah <sup>4</sup> .....	0	0	9	14	2	9	1	1
<b>Pacific States:</b>								
Washington.....	10	26	35	47	26	24	0	1
Oregon.....	3	22	34	19	32	5	3	11
California.....	2	23	198	109	30	6	6	9

<sup>4</sup> Week ended Friday.

<sup>1</sup> Exclusive of Oklahoma City and Tulsa.

### Report for Week Ended November 3, 1928

#### OHIO

Diphtheria.....	Cases 155	Scarlet fever.....	Cases 214
Influenza.....	12	Smallpox.....	4
Meningococcus meningitis.....	4	Typhoid fever.....	22
Poliomyelitis.....	5		

### SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
<i>June, 1928</i>										
Pennsylvania.....	32	537		1	7,554	1	6	940	1	58
<i>September, 1928</i>										
District of Columbia	0	53	4		8		0	18	0	8
<i>October, 1928</i>										
District of Columbia	0	250	3		11		7	49	0	11
Maine.....	0	17	4		234	1	9	105	12	10
Michigan.....		389	10	22	177		13	573	55	47
Nebraska.....	3	150	6		56		10	189	11	6
New Jersey.....	12	453	32	1	184		10	248	1	47
North Dakota.....	4	37	5		10		18	79	0	6
Vermont.....	0	26			22		5	25	3	0



*June, 1928*

<b>Pennsylvania:</b>	
Chicken pox.....	995
German measles.....	521
Lethargic encephalitis.....	7
Mumps.....	1, 235
Ophthalmia neonatorum.....	7
Puerperal fever.....	11
Tetanus.....	10
Trachoma.....	2
Trichinosis.....	1
Whooping cough.....	1, 034

*September, 1928*

<b>District of Columbia:</b>	
Chicken pox.....	1
Whooping cough.....	44

*October, 1928*

<b>Anthrax:</b>	
New Jersey.....	1
<b>Chicken pox:</b>	
District of Columbia.....	14
Maine.....	78
Michigan.....	743
Nebraska.....	33
New Jersey.....	408
North Dakota.....	28
Vermont.....	110
<b>German measles:</b>	
Nebraska.....	21
New Jersey.....	28
<b>Lead poisoning:</b>	
New Jersey.....	9
<b>Lethargic encephalitis:</b>	
District of Columbia.....	2
Maine.....	1

*October, 1928—Continued*

<b>Lethargic encephalitis—Continued.</b>	
Michigan.....	4
Nebraska.....	11
North Dakota.....	3
<b>Mumps:</b>	
Maine.....	49
Michigan.....	115
North Dakota.....	1
Vermont.....	96
<b>Ophthalmia neonatorum:</b>	
New Jersey.....	1
<b>Paratyphoid fever:</b>	
Maine.....	1
Nebraska.....	2
<b>Septic sore throat:</b>	
Maine.....	1
Michigan.....	28
Nebraska.....	1
<b>Trachoma:</b>	
New Jersey.....	3
North Dakota.....	1
<b>Undulant fever:</b>	
Maine.....	1
Michigan.....	5
<b>Vincent's angina:</b>	
Maine.....	7
<b>Whooping cough:</b>	
District of Columbia.....	32
Maine.....	92
Michigan.....	850
Nebraska.....	30
New Jersey.....	372
North Dakota.....	25
Vermont.....	118

**Number of Cases of Certain Communicable Diseases Reported for the Month of September, 1928, by State Health Officers**

State	Chicken pox	Diphtheria	Measles	Mumps	Scarlet fever	Small-pox	Tuberculosis	Typhoid fever	Whooping cough
Maine.....	15	14	86	32	72	0	25	32	60
New Hampshire.....		6			22	0		0	
Vermont.....	36	9	11	17	29	0	1 19	1	101
Massachusetts.....	97	157	157	74	316	0	405	43	264
Rhode Island.....	1	26	17	3	25	0	39	8	9
Connecticut.....	22	73	44	30	37	0	125	11	130
New York.....	159	375	351	196	308	1	1, 811	240	1, 070
New Jersey.....	50	241	54		104	0	377	85	408
Pennsylvania.....	192	508	448	266	430	1	640	315	1, 367
Ohio.....	129	213	143	62	383	16	641	203	683
Indiana.....	18	101	32	8	133	22	180	84	98
Illinois.....	152	323	107	84	339	28	1, 106	173	554
Michigan.....	84	230	74	45	295	34	233	58	879
Wisconsin.....	141	51	80	86	213	15	197	25	451
Minnesota.....	125	108	37		171	0	258	34	125
Iowa.....	13	36	4	36	96	9	29	22	46
Missouri.....	27	155	24	23	185	58	231	209	172
North Dakota.....	8	39	6		116	0	35	8	41
South Dakota.....	9	4	3	2	28	19	9	12	18
Nebraska.....	12	40	5	9	82	86	1 18	12	40
Kansas.....	65	54	17	50	231	20	217	64	118
Delaware <sup>1</sup> .....									
Maryland.....	12	91	38	17	44	0	245	213	343

<sup>1</sup> Pulmonary.

<sup>2</sup> Report not received at time of going to press.

**Number of Cases of Certain Communicable Diseases Reported for the Month of September, 1928, by State Health Officers—Continued**

State	Chick- en pox	Diph- theria	Meas- les	Mumps	Scar- let fever	Small- pox	Tuber- cu- losis	Ty- phoid fever	Whoop- ing cough
District of Columbia.....	1	53	8	-----	18	0	91	8	44
Virginia.....	31	220	152	-----	174	4	<sup>1</sup> 164	143	251
West Virginia.....	9	54	23	-----	144	4	53	130	34
North Carolina.....	17	430	56	-----	247	27	-----	164	229
South Carolina.....	30	320	14	4	49	2	206	319	166
Georgia.....	5	105	8	14	60	4	88	215	95
Florida.....	1	61	7	2	15	1	191	24	33
Kentucky <sup>2</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Tennessee.....	16	201	9	14	161	8	200	503	48
Alabama.....	6	261	104	8	103	9	596	260	56
Mississippi.....	145	139	111	149	87	1	241	196	497
Arkansas.....	7	47	22	51	43	3	<sup>1</sup> 118	154	27
Louisiana.....	1	66	10	-----	24	6	<sup>1</sup> 141	126	21
Oklahoma <sup>4</sup> .....	28	241	34	16	107	14	55	405	18
Texas <sup>3</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Montana.....	20	14	15	-----	30	29	22	38	8
Idaho.....	14	3	1	1	36	18	-----	12	10
Wyoming.....	17	15	2	12	63	4	5	3	9
Colorado <sup>1</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
New Mexico <sup>2</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Arizona.....	3	2	16	7	3	1	65	6	21
Utah <sup>2</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Nevada <sup>2</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Washington.....	158	44	66	49	76	59	133	52	52
Oregon.....	36	43	20	24	49	47	55	24	13
California.....	244	227	84	315	280	78	800	89	625

<sup>1</sup> Pulmonary.<sup>2</sup> Report not received at time of going to press.<sup>3</sup> Reports received weekly.<sup>4</sup> Exclusive of Oklahoma City and Tulsa.<sup>5</sup> Reports received annually.

**Case Rates per 1,000 Population (Annual Basis) for the Month of September, 1928**

State	Chick- en pox	Diph- theria	Meas- les	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Ty- phoid fever	Whoop- ing cough
Maine.....	0.23	0.21	1.32	0.49	1.10	0.00	0.38	0.49	1.23
New Hampshire.....	-----	.16	-----	-----	.59	.00	-----	.00	-----
Vermont.....	1.25	.31	.38	.59	1.00	.00	<sup>1</sup> .66	.03	3.50
Massachusetts.....	.28	.45	.45	.21	.90	.00	1.15	.12	.75
Rhode Island.....	.02	.44	.29	.05	.43	.00	.66	.14	.15
Connecticut.....	.16	.53	.32	.22	.27	.00	.91	.08	.95
New York.....	.17	.40	.37	.21	.33	.00	1.91	.25	1.13
New Jersey.....	.16	.77	.17	-----	.33	.00	1.20	.27	1.30
Pennsylvania.....	.24	.63	.65	.33	.53	.00	.79	.39	1.69
Ohio.....	.23	.38	.26	.11	.68	.03	1.15	.36	1.22
Indiana.....	.69	3.88	1.23	.31	5.11	.85	6.91	3.23	3.76
Illinois.....	.25	.53	.18	.14	.56	.05	1.32	.29	.91
Michigan.....	.22	.61	.20	.12	.73	.09	.62	.15	2.34
Wisconsin.....	.58	.21	.33	.36	.88	.06	.81	.10	1.86
Minnesota.....	.56	.48	.17	-----	.77	.00	1.16	.15	.56
Iowa.....	.07	.18	.02	.13	.48	.05	.15	.11	.23
Missouri.....	.09	.54	.08	.08	.64	.20	.80	.72	.60
North Dakota.....	.15	.74	.11	-----	2.21	.00	.67	.15	.78
South Dakota.....	.16	.07	.05	.03	.49	.33	.16	.21	.31
Nebraska.....	.10	.35	.04	.08	.71	.75	1.16	.10	.35
Kansas.....	4.32	3.59	1.13	3.32	15.36	1.33	14.43	4.26	7.85
Delaware <sup>2</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Maryland.....	.09	.69	.29	.13	.33	.00	1.85	1.61	2.59
District of Columbia.....	.02	1.17	.18	-----	.40	.00	2.01	.18	.97
Virginia.....	.15	1.04	.72	-----	.82	.02	1.78	.68	1.19

<sup>1</sup> Pulmonary.<sup>2</sup> Report not received at time of going to press.

**Case Rates per 1,000 Population (Annual Basis) for the Month of September,  
1928—Continued**

State	Chick- en pox	Diph- theria	Meas- les	Mumps	Scarlet fever	Small- pox	Tuber- culosis	Ty- phoid fever	Whoop- ing cough
West Virginia.....	0.06	0.38	0.16	-----	1.02	0.03	0.38	0.92	0.24
North Carolina.....	.07	1.79	.23	-----	1.03	.11	-----	.68	.95
South Carolina.....	.20	2.69	.06	0.08	.32	.01	1.35	2.09	1.09
Georgia.....	.19	4.00	.30	.53	2.29	.15	3.35	8.19	3.62
Florida.....	.01	.53	.06	.02	.13	.01	1.65	.21	.29
Kentucky <sup>1</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Tennessee.....	.08	.98	.04	.07	.79	.04	.98	2.45	.23
Alabama.....	.03	1.24	.49	.04	.49	.04	2.83	1.23	.27
Mississippi.....	.99	.95	.76	1.62	.59	.01	1.64	1.34	3.39
Arkansas.....	.04	.29	.14	.32	.27	.02	1.11	.97	.17
Louisiana.....	.01	.41	.06	-----	.15	.04	1.88	.79	.13
Oklahoma <sup>4</sup> .....	.16	1.37	.19	.09	.61	.08	.31	2.30	.10
Texas <sup>5</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Montana.....	.44	.31	.33	-----	.67	.64	.49	.84	.18
Idaho.....	.31	.07	.02	.02	.80	.40	-----	.27	.22
Wyoming.....	.84	.74	.10	.59	3.11	.20	.25	.15	.44
Colorado <sup>2</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
New Mexico <sup>3</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Arizona.....	.08	.05	.41	.18	.08	.03	1.67	.15	.54
Utah <sup>5</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Nevada <sup>5</sup> .....	-----	-----	-----	-----	-----	-----	-----	-----	-----
Washington.....	1.21	.34	.51	.38	.58	.45	1.02	.40	.40
Oregon.....	.49	.58	.27	.32	.66	.64	.74	.32	.18
California.....	.65	.61	.22	.84	.75	.21	2.14	.24	1.67

<sup>1</sup> Pulmonary.<sup>2</sup> Report not received at time of going to press.<sup>3</sup> Reports received weekly.<sup>4</sup> Exclusive of Oklahoma City and Tulsa.<sup>5</sup> Reports received annually.

**PLAGUE-INFECTED GROUND SQUIRRELS IN CALIFORNIA**

The director of the State Department of Public Health of California reports that the State bacteriological laboratory on November 9, 1928, demonstrated plague, by animal inoculation in a lot of two ground squirrels from a ranch 37 miles east of Monterey, Calif.

**ADMISSIONS TO HOSPITALS FOR THE INSANE, JUNE, 1928**

Reports for the month of June, 1928, showing new admissions to hospitals for the care and treatment of the insane, have been received by the Public Health Service from 106 institutions located in 36 States, the District of Columbia, and the Territory of Hawaii. These hospitals reported a total of 160,098 patients on June 30, 1928, including those on parole.

The following table shows the number of new admissions for the month of June, 1928, by psychoses:

*First admissions to 106 hospitals for the insane, June, 1928*

Psychoses	Number of first admissions		
	Male	Female	Total
1. Traumatic psychoses.....	8	1	9
2. Senile psychoses.....	151	93	244
3. Psychoses with cerebral arteriosclerosis.....	166	90	256
4. General paralysis.....	211	54	265
5. Psychoses with cerebral syphilis.....	40	11	51
6. Psychoses with Huntington's chorea.....	1	1	2
7. Psychoses with brain tumor.....	1	0	1
8. Psychoses with other brain or nervous disease.....	31	8	39
9. Alcoholic psychoses.....	166	14	180
10. Psychoses due to drugs and other exogenous toxins.....	14	5	19
11. Psychoses with pellagra.....	13	34	47
12. Psychoses with other somatic diseases.....	30	41	71
13. Manic-depressive psychoses.....	188	218	404
14. Involution melancholia.....	17	41	58
15. Dementia precox (schizophrenia).....	375	259	634
16. Paranoia and paranoid conditions.....	50	42	92
17. Epileptic psychoses.....	47	22	69
18. Psychoneuroses and neuroses.....	32	33	65
19. Psychoses with psychopathic personality.....	29	7	36
20. Psychoses with mental deficiency.....	66	51	117
21. Undiagnosed psychoses.....	149	99	248
22. Without psychosis.....	144	36	180
Total.....	1,927	1,160	3,087

Sixty-two and four-tenths per cent of the new admissions were males and 37.6 per cent were females, giving a ratio of 166 males per 100 females. The 106 institutions on June 30, 1928, had 85,086 male patients and 75,012 female patients, the ratio being 113 males per 100 females.

Cases of dementia precox constituted 20.5 per cent of the first admissions; manic-depressive psychoses, 13.1 per cent; general paralysis, 8.6 per cent; psychoses with cerebral arteriosclerosis, 8.3 per cent; senile psychoses, 7.9 per cent; undiagnosed psychoses, 8 per cent; and 5.8 per cent were recorded as without psychosis.

#### GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 99 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,560,000. The estimated population of the 93 cities reporting deaths is more than 30,860,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended November 3, 1928, and November 5, 1927

	1928	1927	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
41 States.....	2,416	2,971	
99 cities.....	848	1,269	1,259
Measles:			
40 States.....	1,927	2,090	
99 cities.....	352	456	
Poliomyelitis:			
42 States.....	85	398	
Scarlet fever:			
41 States.....	2,577	3,221	
99 cities.....	753	882	889
Smallpox:			
41 States.....	270	497	
99 cities.....	6	34	25
Typhoid fever:			
41 States.....	530	639	
99 cities.....	76	114	95
<i>Deaths reported</i>			
Influenza and pneumonia:			
93 cities.....	562	575	
Smallpox:			
93 cities.....	0	0	

City reports for week ended November 3, 1928

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1919 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1926, estimated	Chick- en pox, cases reported	Diphtheria		Influenza		Meas- les, cases reported	Mumps, cases reported	Pneu- monia, deaths reported
			Cases, esti- mated expect- ancy	Cases re- ported	Cases re- ported	Deaths re- ported			
<b>NEW ENGLAND</b>									
Maine:									
Portland.....	76,400	2	2	0	0	0	20	0	1
New Hampshire:									
Concord.....	122,546	0	0	0	0	0	0	0	0
Vermont:									
Barre.....	110,008	3	0	0	0	0	0	0	0
Massachusetts:									
Boston.....	787,000	21	47	11	1	0	3	8	17
Fall River.....	131,000	1	4	1	0	0	104	0	1
Springfield.....	145,000	12	4	10	0	0	10	2	3
Worcester.....	193,000	5	8	0	0	0	3	15	1
Rhode Island:									
Pawtucket.....	71,000	0	1	1	0	0	0	0	1
Providence.....	275,000	0	10	10	1	0	3	0	2
Connecticut:									
Bridgeport.....	(?)	0	8	3	0	0	3	0	2
Hartford.....	164,000	1	7	3	0	1	0	2	4
New Haven.....	182,000	0	2	0	0	0	1	0	7

† Estimated, July 1, 1925.

‡ No estimate made.

## City reports for week ended November 3, 1928—Continued

Division, State, and city	Population July 1, 1926, estimated	Chick-en pox, cases re-ported	Diphtheria		Influenza		Meas-les, cases re-ported	Mumps, cases re-ported	Pneu-monia, deaths re-ported
			Cases, esti-mated expec-tancy	Cases re-ported	Cases re-ported	Deaths re-ported			
<b>MIDDLE ATLANTIC</b>									
New York:									
Buffalo.....	544,000	31	18	18	1	0	1	2	8
New York.....	5,924,000	82	156	114	15	7	46	31	111
Rochester.....	321,000	13	10	4	1	0	2	3	3
Syracuse.....	185,000	11	7	1	-----	0	5	1	3
New Jersey:									
Camden.....	131,000	2	9	5	0	0	1	1	0
Newark.....	459,000	19	13	33	1	0	1	14	6
Trenton.....	134,000	6	3	1	0	0	1	0	2
Pennsylvania:									
Philadelphia.....	2,008,000	79	74	34	0	3	5	6	25
Pittsburgh.....	637,000	31	38	13	0	1	3	5	12
Reading.....	114,000	9	4	2	0	0	2	1	0
<b>EAST NORTH CENTRAL</b>									
Ohio:									
Cincinnati.....	411,000	7	17	11	0	0	1	0	10
Cleveland.....	960,000	49	65	23	6	4	4	5	12
Columbus.....	285,000	8	15	3	0	0	0	3	2
Toledo.....	295,000	81	15	4	5	4	1	0	5
Indiana:									
Fort Wayne.....	99,900	6	5	3	0	0	1	0	0
Indianapolis.....	367,000	27	14	6	0	1	0	1	6
South Bend.....	81,700	3	4	1	0	0	0	0	1
Terre Haute.....	71,900	0	3	7	0	1	0	0	2
Illinois:									
Chicago.....	3,048,000	89	91	152	7	4	28	9	54
Springfield.....	64,700	1	3	1	1	1	0	0	0
Michigan:									
Detroit.....	1,242,044	108	78	41	3	2	4	7	19
Flint.....	136,000	10	10	0	0	0	2	0	3
Grand Rapids.....	156,000	11	5	1	0	1	0	1	2
Wisconsin:									
Kenosha.....	52,700	3	2	0	0	0	1	0	0
Milwaukee.....	517,000	105	30	5	1	1	9	5	8
Racine.....	69,400	31	2	2	0	0	9	0	1
Superior.....	139,671	0	0	2	0	0	0	0	0
<b>WEST NORTH CENTRAL</b>									
Minnesota:									
Duluth.....	113,000	14	3	0	0	0	0	7	0
Minneapolis.....	434,000	145	34	18	0	0	25	12	8
St. Paul.....	248,000	56	18	5	0	1	1	12	11
Iowa:									
Davenport.....	152,469	3	2	0	0	-----	0	0	-----
Des Moines.....	146,000	0	6	2	0	-----	0	0	-----
Sioux City.....	78,000	1	3	0	0	-----	0	3	-----
Waterloo.....	36,900	4	1	1	0	-----	0	0	-----
Missouri:									
Kansas City.....	375,000	13	11	4	0	2	4	1	9
St. Joseph.....	78,400	-----	3	-----	-----	-----	-----	-----	-----
St. Louis.....	830,000	12	51	30	1	0	2	2	-----
North Dakota:									
Fargo.....	126,403	5	0	0	0	0	0	1	0
Grand Forks.....	14,811	0	1	0	0	-----	0	0	-----
South Dakota:									
Sioux Falls.....	130,127	0	1	0	0	-----	0	0	-----
Nebraska:									
Lincoln.....	62,000	4	3	0	0	0	0	0	0
Omaha.....	216,000	2	11	13	0	0	1	0	2
Kansas:									
Topeka.....	56,500	8	3	1	1	0	1	0	1
Wichita.....	92,500	0	7	0	0	0	0	0	2
<b>SOUTH ATLANTIC</b>									
Delaware:									
Wilmington.....	124,000	1	4	2	0	0	5	0	2
Maryland:									
Baltimore.....	808,000	34	34	12	4	2	1	10	15
Cumberland.....	133,741	0	1	0	0	0	0	0	1
Frederick.....	112,035	0	1	0	0	0	0	0	0

<sup>1</sup> Estimated, July 1, 1925.

<sup>1</sup> Special census.

## City reports for week ended November 3, 1928—Continued

Division, State, and city	Population, July 1, 1926, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
<b>SOUTH ATLANTIC—CON.</b>									
District of Columbia:									
Washington.....	528,000	6	22	36	1	1	2	0	15
Virginia:									
Lynchburg.....	<sup>1</sup> 38,493	1	5	7	0	0	0	16	0
Norfolk.....	174,000	11	5	3	0	0	2	0	1
Richmond.....	189,000	1	24	25	0	0	0	0	0
Roanoke.....	61,900	1	6	10	0	0	0	0	1
West Virginia:									
Charleston.....	50,709	5	3	2	0	0	0	0	0
Wheeling.....	<sup>1</sup> 56,208	1	4	0	0	0	16	1	0
North Carolina:									
Raleigh.....	<sup>1</sup> 30,371	0	3	5	0	0	0	0	0
Wilmington.....	37,700	0	1	3	0	0	0	0	2
Winston-Salem.....	71,900	1	6	6	0	0	0	0	2
South Carolina:									
Charleston.....	74,100	0	2	1	12	1	0	0	2
Columbia.....	41,900	2	2	2	0	1	0	4	2
Greenville.....	<sup>1</sup> 27,311	1	2	2	0	0	0	0	2
Georgia:									
Atlanta.....	(?)	1	12	4	13	0	0	0	6
Brunswick.....	<sup>1</sup> 16,809	0	0	0	0	0	0	0	0
Savannah.....	94,900	0	4	3	10	1	0	0	2
Florida:									
Miami.....	<sup>1</sup> 131,286	0	2	0	0	0	0	0	3
St. Petersburg.....	<sup>1</sup> 47,629	0	0	0	0	0	0	0	1
Tampa.....	102,000	2	2	3	0	0	0	0	0
<b>EAST SOUTH CENTRAL</b>									
Kentucky:									
Covington.....	58,500	0	3	0	0	0	0	0	1
Louisville.....	311,000	0	10	6	0	0	1	0	10
Tennessee:									
Memphis.....	177,000	2	13	3	0	1	0	1	3
Nashville.....	137,000	1	7	6	0	0	0	0	5
Alabama:									
Birmingham.....	211,000	5	9	4	12	1	1	2	6
Mobile.....	66,800	0	2	6	0	2	0	1	0
Montgomery.....	47,000	0	3	9	1	0	0	0	0
<b>WEST SOUTH CENTRAL</b>									
Arkansas:									
Fort Smith.....	<sup>1</sup> 31,643	0	2	7	0	0	0	0	0
Little Rock.....	75,900	0	4	0	0	0	1	0	2
Louisiana:									
New Orleans.....	419,000	0	13	11	1	2	0	0	14
Shreveport.....	59,500	0	3	1	0	0	1	0	2
Oklahoma:									
Oklahoma City.....	(?)	0	6	18	4	0	0	0	2
Tulsa.....	133,000	0	6	19	0	0	0	0	0
Texas:									
Dallas.....	203,000	0	17	22	7	1	0	0	0
Fort Worth.....	159,000	1	4	0	0	0	1	0	1
Galveston.....	49,100	0	0	7	0	0	0	0	2
Houston.....	<sup>1</sup> 164,954	0	6	13	0	0	0	0	6
San Antonio.....	205,000	0	4	0	1	3	0	0	3
<b>MOUNTAIN</b>									
Montana:									
Billings.....	<sup>1</sup> 17,971	6	0	0	0	0	0	0	1
Great Falls.....	<sup>1</sup> 29,883	49	1	0	0	0	6	0	0
Helena.....	<sup>1</sup> 12,037	9	0	0	0	0	0	0	0
Missoula.....	<sup>1</sup> 12,668	0	0	0	0	0	0	0	1
Idaho:									
Boise.....	<sup>1</sup> 23,042	2	0	0	0	0	0	0	0
Colorado:									
Denver.....	285,000	25	16	3	0	1	2	17	6
Pueblo.....	43,900	4	4	1	0	0	0	0	0
New Mexico:									
Albuquerque.....	<sup>1</sup> 21,000	0	1	1	0	0	0	0	1

<sup>1</sup> Estimated, July 1, 1925.<sup>2</sup> No estimate made.<sup>3</sup> Special census.

## City reports for week ended November 3, 1923—Continued

Division, State, and city	Population, July 1, 1923, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
<b>MOUNTAIN—continued</b>									
Utah:									
Salt Lake City.....	133,000	79	4	4	0	1	1	9	3
Nevada:									
Reno.....	112,665	0	1	0	7	0	0	0	0
<b>PACIFIC</b>									
Washington:									
Seattle.....	(?)	23	8	0	0	-----	0	1	-----
Spokane.....	109,000	3	3	0	0	-----	1	0	-----
Tacoma.....	106,000	1	4	0	0	0	0	31	1
Oregon:									
Portland.....	1282,383	57	12	11	0	0	12	1	4
California:									
Los Angeles.....	(?)	21	48	15	46	2	3	6	16
Sacramento.....	73,400	7	2	0	1	0	0	18	5
San Francisco.....	567,000	24	18	10	1,114	6	2	4	4

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
<b>NEW ENGLAND</b>											
Maine:											
Portland.....	1	7	0	0	0	1	1	0	0	0	20
New Hampshire:											
Concord.....	0	0	0	0	0	0	0	0	0	0	5
Vermont:											
Barre.....	0	1	0	0	0	0	0	0	0	0	1
Massachusetts:											
Boston.....	42	28	0	0	0	5	3	1	14	196	
Fall River.....	3	3	0	0	0	4	1	0	3	25	
Springfield.....	5	4	0	0	0	1	0	0	1	43	
Worcester.....	10	9	0	0	0	3	0	0	6	55	
Rhode Island:											
Pawtucket.....	0	0	0	0	0	0	0	0	0	-----	
Providence.....	6	3	0	0	0	6	0	0	6	57	
Connecticut:											
Bridgeport.....	7	0	0	0	0	2	0	0	0	1	30
Hartford.....	5	1	0	0	0	0	0	0	0	0	42
New Haven.....	6	1	0	0	0	1	1	1	4	43	
<b>MIDDLE ATLANTIC</b>											
New York:											
Buffalo.....	18	16	0	0	0	9	0	0	31	148	
New York.....	84	55	1	0	0	79	21	15	5	38	1,304
Rochester.....	6	1	0	0	0	3	1	1	0	9	58
Syracuse.....	8	1	0	0	0	0	0	0	24	53	
New Jersey:											
Camden.....	4	7	0	0	0	0	0	0	1	22	
Newark.....	12	2	0	0	0	9	1	0	20	86	
Trenton.....	0	0	0	0	0	3	2	2	1	28	
Pennsylvania:											
Philadelphia.....	59	27	1	0	0	20	7	1	63	416	
Pittsburgh.....	38	32	0	0	0	8	1	3	23	168	
Reading.....	2	1	0	0	0	2	0	0	3	21	
<b>EAST NORTH CENTRAL</b>											
Ohio:											
Cincinnati.....	12	22	0	0	0	5	1	2	0	13	124
Cleveland.....	25	12	0	0	0	11	2	1	0	61	184
Columbus.....	10	3	0	0	0	4	1	0	0	6	71
Toledo.....	12	6	0	0	0	5	1	0	1	13	80

<sup>1</sup> Estimated, July 1, 1925.

<sup>2</sup> No estimate made.





## City reports for week ended November 3, 1928—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
SOUTH ATLANTIC— continued											
Georgia:											
Atlanta.....	7	10	0	0	0	2	1	0	0	2	74
Brunswick.....	0		0	0	0		0	0	0		
Savannah.....	1	1	1	0	0	4	0	1	0	0	31
Florida:											
Miami.....	1	2	0	0	0	0	1	0	0	1	30
St. Petersburg.....	0		0	0	0	1	0	0	0	0	12
Tampa.....	0	0	0	0	0	4	0	0	0	0	32
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	7	0	0	0	3	0	0	0	0	15
Louisville.....	6	7	0	0	0	0	2	1	0	3	87
Tennessee:											
Memphis.....	6	6	0	0	0	8	2	0	0	0	56
Nashville.....	3	1	0	0	0	2	3	5	0	3	50
Alabama:											
Birmingham.....	4	3	0	1	0	5	1	0	0	2	58
Mobile.....	1	2	0	0	0	1	0	1	0	0	20
Montgomery.....	1	2	0	0			0	0		0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	0	0	0			0	0		0	
Little Rock.....	2	8	0	0	0	1	2	0	0	0	
Louisiana:											
New Orleans.....	5	7	0	0	0	11	3	1	0	0	157
Shreveport.....	1	5	0	0	0	0	0	1	0	0	29
Oklahoma:											
Oklahoma City.....	3	8	0	0	0	1	1	1	0	0	27
Tulsa.....	3	4	0	0			0	0		2	
Texas:											
Dallas.....	5	9	0	1	0	1	1	1	1	2	41
Fort Worth.....	2	10	0	1	0	4	0	0	0	3	24
Galveston.....	0	1	0	0	0	0	0	0	0	0	14
Houston.....	1	3	0	0	0	7	0	0	0	0	61
San Antonio.....	0	1	0	0	0	9	0	2	0	0	59
MOUNTAIN											
Montana:											
Billings.....	1	0	0	0	0	0	0	1	0	0	7
Great Falls.....	1	1	0	0	0	0	0	0	0	2	7
Helena.....	0	0	0	0	0	0	0	0	0	0	7
Missoula.....	0	0	0	0	0	0	0	0	0	0	0
Idaho:											
Boise.....	1	0	0	0	0	0	0	0	0	0	5
Colorado:											
Denver.....	9	3	1	0	0	1	1	1	0	3	76
Pueblo.....	1	0	0	0	0	0	1	0	0	0	3
New Mexico:											
Albuquerque.....	0	1	0	0	0	6	0	0	0	0	12
Utah:											
Salt Lake City.....	2	3	0	0	0	0	2	0	0	0	33
Nevada:											
Reno.....	0	0	0	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle.....	8	5	2	0			1	1		10	
Spokane.....	8	0	2	0			0	0		1	
Tacoma.....	2	3	1	2	0	0	0	1	0	1	15
Oregon:											
Portland.....	9	10	4	19	0	0	1	3	0	0	59
California:											
Los Angeles.....	18	15	3	0	0	26	2	0	0	53	213
Sacramento.....	2	21	0	0	0	4	1	0	1	1	32
San Francisco.....	10	14	0	0	0	9	1	0	0	18	168

## City reports for week ended November 3, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
<b>NEW ENGLAND<sup>1</sup></b>									
Massachusetts:									
Boston.....	0	0	0	0	1	1	2	1	0
<b>MIDDLE ATLANTIC</b>									
New York:									
Buffalo.....	0	1	0	0	0	0	1	0	1
New York.....	13	8	3	1	0	0	9	4	0
Rochester.....	0	0	0	0	0	0	0	2	0
New Jersey:									
Newark.....	2	0	0	0	0	0	0	0	0
Pennsylvania:									
Pittsburgh.....	0	1	0	0	0	0	0	0	0
<b>EAST NORTH CENTRAL</b>									
Ohio:									
Cincinnati.....	0	0	0	0	0	0	0	1	0
Cleveland.....	0	0	0	0	0	1	1	1	0
Columbus.....	0	0	0	0	0	0	0	1	0
Indiana:									
Fort Wayne.....	0	0	0	0	0	0	1	1	0
Illinois:									
Chicago.....	3	5	0	0	1	1	3	0	0
Springfield.....	0	0	0	0	0	0	0	1	1
Michigan:									
Detroit.....	4	0	1	1	0	0	1	1	1
Grand Rapids.....	1	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee.....	4	2	0	0	0	0	0	0	0
<b>WEST NORTH CENTRAL</b>									
Minnesota:									
Minneapolis.....	1	0	1	1	0	0	0	0	0
Missouri:									
Kansas City <sup>2</sup> .....	0	1	0	0	0	0	0	0	0
St. Louis.....	1	1	0	0	0	0	0	1	0
Nebraska:									
Omaha.....	1	0	0	0	0	0	1	0	0
<b>SOUTH ATLANTIC</b>									
Delaware:									
Wilmington.....	0	0	0	0	0	0	0	1	1
Maryland:									
Baltimore.....	0	0	0	0	0	0	1	1	0
District of Columbia:									
Washington.....	0	0	0	0	0	0	0	2	0
North Carolina:									
Raleigh.....	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston <sup>3</sup> .....	0	0	0	0	3	0	0	0	0
Columbia.....	0	0	0	0	0	2	0	0	0
Georgia:									
Atlanta.....	0	0	0	0	0	3	0	0	0
Savannah <sup>1,3</sup> .....	0	0	0	0	1	2	0	0	0

<sup>1</sup> Typhus fever: 5 cases; 1 case at New Haven, Conn., and 4 cases at Savannah, Ga.<sup>2</sup> Rabies (in man): 1 death at Kansas City, Mo.<sup>3</sup> Dengue: 4 cases; 3 cases at Charleston, S. C., and 1 case at Savannah, Ga.

## City reports for week ended November 3, 1928—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
<b>EAST SOUTH CENTRAL</b>									
Kentucky:									
Covington.....	0	0	0	0	0	0	0	1	0
Tennessee:									
Memphis.....	0	1	0	0	0	0	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	0	0	0	1	0
Mobile.....	0	0	0	0	0	2	0	0	0
Montgomery.....	0	0	0	0	1	0	0	0	0
Louisiana:									
Shreveport.....	0	0	0	0	0	1	0	0	0
Texas:									
Fort Worth.....	0	0	0	0	0	1	0	0	0
<b>MOUNTAIN</b>									
Montana:									
Billings.....	0	1	0	0	0	0	0	0	0
Missoula.....	1	0	0	0	0	0	0	0	0
Colorado:									
Denver.....	1	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City.....	2	0	0	0	0	0	0	0	0
<b>PACIFIC</b>									
Washington:									
Seattle.....	0	0	0	0	0	0	1	2	0
Oregon:									
Portland.....	1	0	0	0	0	0	1	3	0
California:									
Los Angeles.....	1	0	1	1	0	0	1	1	0

The following table gives the rates per 100,000 population for 101 cities for the 5-week period ended November 3, 1928, compared with those for a like period ended November 5, 1927. The population figures used in computing the rates are approximate estimates as of July 1, 1928 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 31,657,000 in 1928 and 31,050,000 in 1927. The 95 cities reporting deaths had nearly 30,961,000 estimated population in 1928 and nearly 30,370,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, September 30 to November 3, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927<sup>1</sup>

DIPHTHERIA CASE RATES

	Week ended—									
	Oct. 6, 1928	Oct. 8, 1927	Oct. 13, 1928	Oct. 15, 1927	Oct. 20, 1928	Oct. 22, 1927	Oct. 27, 1928	Oct. 29, 1927	Nov. 3, 1928	Nov. 5, 1927
101 cities.....	99	143	116	144	* 125	170	131	195	* 140	213
New England.....	103	133	124	128	145	123	156	135	90	114
Middle Atlantic.....	83	129	83	123	84	142	98	190	110	225
East North Central.....	92	157	111	138	* 133	199	154	232	169	261
West North Central.....	127	144	136	119	127	129	158	139	* 145	194
South Atlantic.....	135	170	196	202	* 232	193	179	191	* 228	184
East South Central.....	130	152	190	157	* 190	167	155	259	170	152
West South Central.....	172	194	208	252	196	265	172	294	220	318
Mountain.....	106	126	44	107	62	152	27	99	71	99
Pacific.....	64	99	79	154	72	219	66	151	64	141

MEASLES CASE RATES

101 cities.....	27	40	32	50	* 40	54	52	70	* 58	77
New England.....	85	119	69	133	179	186	244	191	338	212
Middle Atlantic.....	18	56	27	53	19	64	25	72	33	72
East North Central.....	23	11	31	17	* 24	21	41	18	39	29
West North Central.....	43	12	49	14	76	22	49	34	* 68	14
South Atlantic.....	21	31	37	69	* 32	45	63	106	* 74	132
East South Central.....	5	56	10	127	* 11	51	0	203	10	233
West South Central.....	4	8	0	54	0	37	8	21	8	21
Mountain.....	44	27	53	18	71	72	124	63	80	9
Pacific.....	41	44	18	57	41	50	43	91	15	78

SCARLET FEVER CASE RATES

101 cities.....	99	103	115	96	* 111	117	114	145	* 125	148
New England.....	90	140	138	130	152	151	117	212	131	200
Middle Atlantic.....	42	100	57	63	69	73	57	97	69	110
East North Central.....	132	102	153	108	* 137	127	151	166	172	173
West North Central.....	181	107	140	174	138	137	214	247	* 197	164
South Atlantic.....	112	123	135	90	* 115	161	107	168	* 116	159
East South Central.....	150	66	234	81	* 149	147	120	137	140	167
West South Central.....	148	66	96	87	72	79	76	124	136	149
Mountain.....	18	126	80	108	88	278	62	143	62	179
Pacific.....	112	76	97	97	151	136	179	97	148	141

SMALLPOX CASE RATES

101 cities.....	3	5	1	6	* 3	7	2	7	* 1	18
New England.....	0	0	0	0	0	0	2	9	0	0
Middle Atlantic.....	0	0	0	0	0	0	0	0	0	0
East North Central.....	5	1	2	5	* 3	0	3	0	0	6
West North Central.....	2	14	0	26	2	42	2	51	* 2	158
South Atlantic.....	0	4	0	2	* 0	7	0	0	* 2	14
East South Central.....	0	0	0	0	* 0	5	5	5	5	0
West South Central.....	0	4	4	4	0	0	4	0	4	4
Mountain.....	9	54	9	72	62	72	0	45	0	36
Pacific.....	18	31	5	16	10	21	15	16	5	18

<sup>1</sup> The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1928, and 1927, respectively.

\* South Bend, Ind., Greenville, S. C., and Nashville, Tenn., not included.

\* St. Joseph, Mo., and Brunswick, Ga., not included.

\* South Bend, Ind., not included.

\* St. Joseph, Mo., not included.

\* Greenville, S. C., not included.

\* Brunswick, Ga., not included.

\* Nashville, Tenn., not included.

Summary of weekly reports from cities, September 30 to November 3, 1928—Annual rates per 100,000 population compared with rates for the corresponding period of 1927—Continued

## TYPHOID FEVER CASE RATES

	Week ended—									
	Oct. 6, 1928	Oct. 8, 1927	Oct. 13, 1928	Oct. 15, 1927	Oct. 20, 1928	Oct. 22, 1927	Oct. 27, 1928	Oct. 29, 1927	Nov. 3, 1928	Nov. 5, 1927
101 cities.....	25	25	22	19	18	20	18	17	13	19
New England.....	16	23	16	16	7	16	16	19	7	16
Middle Atlantic.....	25	21	20	16	23	15	18	12	11	20
East North Central.....	13	17	11	18	7	16	10	13	5	7
West North Central.....	12	28	16	22	10	22	14	16	18	24
South Atlantic.....	36	47	35	27	41	32	40	22	32	31
East South Central.....	50	20	55	30	29	30	50	46	35	35
West South Central.....	52	70	28	29	8	29	24	37	20	58
Mountain.....	124	54	88	63	53	81	27	27	18	36
Pacific.....	28	8	26	8	13	16	13	16	5	5

## INFLUENZA DEATH RATES

	7	5	7	6	10	9	10	8	9	9
95 cities.....	7	5	7	6	10	9	10	8	9	9
New England.....	7	5	9	2	2	5	5	0	2	5
Middle Atlantic.....	7	6	4	8	7	7	8	4	5	8
East North Central.....	5	1	7	3	7	5	5	5	10	9
West North Central.....	2	4	2	2	8	12	8	6	6	10
South Atlantic.....	9	4	4	7	5	11	11	13	7	7
East South Central.....	16	11	10	11	30	27	5	43	21	16
West South Central.....	8	8	29	13	21	13	12	17	25	25
Mountain.....	18	45	9	9	62	18	44	27	18	18
Pacific.....	7	3	17	3	27	14	54	10	27	7

## PNEUMONIA DEATH RATES

	84	65	79	71	101	77	86	91	86	89
95 cities.....	84	65	79	71	101	77	86	91	86	89
New England.....	51	81	64	95	126	86	74	65	90	63
Middle Atlantic.....	106	71	94	72	124	75	92	92	83	87
East North Central.....	76	58	67	49	87	66	79	82	79	93
West North Central.....	59	41	43	60	51	64	41	68	59	62
South Atlantic.....	91	56	91	106	110	70	110	87	79	115
East South Central.....	94	85	105	48	73	133	131	117	131	117
West South Central.....	98	68	78	68	74	85	82	187	119	89
Mountain.....	62	72	115	117	62	143	124	143	97	117
Pacific.....	47	69	54	83	98	100	98	97	88	100

<sup>1</sup> South Bend, Ind., Greenville, S. C., and Nashville, Tenn., not included.

<sup>2</sup> St. Joseph, Mo., and Brunswick, Ga., not included.

<sup>3</sup> South Bend, Ind., not included.

<sup>4</sup> St. Joseph, Mo., not included.

<sup>5</sup> Greenville, S. C., not included.

<sup>6</sup> Brunswick, Ga., not included.

<sup>7</sup> Nashville, Tenn., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities of each group, approximated as of July 1, 1928 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1928	1927	1928	1927
Total.....	101	95	31,657,000	31,050,300	30,960,700	30,369,500
New England.....	12	12	2,274,400	2,242,700	2,274,400	2,242,700
Middle Atlantic.....	10	10	10,732,400	10,594,700	10,732,400	10,594,700
East North Central.....	16	16	7,991,400	7,820,700	7,991,400	7,820,700
West North Central.....	12	10	2,683,500	2,634,500	2,566,400	2,518,500
South Atlantic.....	21	21	2,981,900	2,890,700	2,981,900	2,890,700
East South Central.....	7	6	1,048,300	1,028,300	1,000,100	1,980,700
West South Central.....	8	7	1,307,600	1,260,700	1,274,100	1,227,800
Mountain.....	9	9	591,100	581,600	591,100	581,600
Pacific.....	6	4	2,046,400	1,996,400	1,548,900	1,512,100

## FOREIGN AND INSULAR

### THE FAR EAST

*Report for the week ended October 27, 1928.*—The following report for the week ended October 27, 1928, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva.

Plague, cholera, or smallpox was reported at the following ports:

PLAGUE	SMALLPOX
<p><i>India.</i>—Bombay. <i>Ceylon.</i>—Colombo.</p>	<p><i>India.</i>—Bombay, Madras, Negapatam. <i>French India.</i>—Pondicherry. <i>Dutch East Indies.</i>—Belawan Deli, Surabaya. <i>China.</i>—Hong Kong, Shanghai. <i>Indo-China.</i>—Pnompenh, Saigon. <i>Kwantung.</i>—Dairen.</p>
CHOLERA	
<p><i>India.</i>—Calcutta, Madras. <i>China.</i>—Canton.</p>	

### CANADA

*Provinces—Communicable diseases—Week ended November 3, 1928.*—The Department of Pensions and National Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended November 3, 1928, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever.....				1		1	3	5
Influenza.....	17			1	1			19
Poliomyelitis.....				5	4		3	12
Smallpox.....			9	5			1	15
Typhoid fever.....		3	9	6	1	3	1	23

*Quebec—Communicable diseases—Week ended November 3, 1928.*—The Bureau of Health reports cases of certain communicable diseases for the week ended November 3, 1928, as follows:

Disease	Cases	Disease	Cases
Chicken pox.....	64	Scarlet fever.....	99
Diphtheria.....	51	Smallpox.....	9
German measles.....	1	Tuberculosis.....	56
Influenza.....	7	Typhoid fever.....	9
Measles.....	24	Whooping cough.....	21
Mumps.....	17		

## CHINA

*Mongolia—Plague—October 15, 1928.*—According to a bulletin issued by the Plague Prevention Bureau of the Three Eastern Provinces, dated October 15, 409 deaths from plague had occurred since September 1. The Manchuria Daily News quotes Sanitary Superintendent Doctor Kanai of the South Manchuria Railway Co., who had just visited the Japanese Plague Prevention Office at Ssuningkai, as putting the total deaths to October 16 at about 700.

Chien Chia Tien continues to be the center of the epidemic, and the efforts of the authorities to keep the disease from spreading to other regions have apparently been successful. The Plague Prevention Bureau concentrated there, and isolation of contacts, inoculation, and other restrictive measures were adopted.

## DENMARK

*Communicable diseases—August, 1928.*—During the month of August, 1928, communicable diseases were reported in the Kingdom of Denmark as follows:

Disease	Cases	Diseases	Cases
Broncho-pneumonia	1,004	Paratyphoid fever	11
Cerebrospinal meningitis	5	Pneumonia	228
Chicken pox	10	Poliomyelitis	10
Diphtheria	312	Puerperal fever	14
Erysipelas	201	Scarlet fever	145
Influenza	2,467	Tetanus	10
Jaundice	107	Tuberculosis, pulmonary	209
Lethargic encephalitis	10	Typhoid fever	16
Measles	737	Undulant fever	36
Mumps	177	Whooping cough	1,971
Paratyphoid	14		

## ITALY

*Communicable diseases—July 16–29, 1928.*—During the two weeks ended July 29, 1928, communicable diseases were reported in the Kingdom of Italy as follows:

Disease	July 16–22		July 23–29	
	Cases	Communes affected	Cases	Communes affected
Anthrax	111	71	91	63
Cerebrospinal meningitis	14	13	9	9
Chicken pox	162	95	82	57
Diphtheria	222	127	195	136
Dysentery	47	23	48	15
Lethargic encephalitis	4	4	3	3
Measles	1,564	339	996	251
Poliomyelitis	27	19	10	10
Scarlet fever	270	118	244	109
Smallpox	2	2	1	1
Typhoid fever	803	391	601	385



## NIGERIA

*Lagos—Plague—September 29, 1928.*—During the two weeks ended September 29, 1928, the director of medical and sanitary service at Lagos reported 55 cases of plague. The following table shows the totals for 1928 to the above date, as compared with corresponding figures for 1927 and 1926.

*Plague in Lagos, Nigeria, nine months of 1926, 1927, and 1928*

Year	Cases	Deaths
1928	312	309
1927	98	95
1926	281	263

Preventive measures are being continued. During the two-week period, 7,888 rodents were caught and destroyed at Lagos, 3,196 examined, and 107 found positive; 291 inoculations were performed; and 1,099 passengers were examined at the port, but none were quarantined.

In the Province of Ijebu-Ode no case of plague was reported during the fortnight; 8,833 rodents were caught and destroyed, and 6,088 examined, but none found to be positive.

In the Province of Abeokuta 6,600 rodents were caught and destroyed, and 5,594 examined but none found positive; and in the Province of Ibadan 1,731 were caught and destroyed and 1,293 examined, but none found to be positive.

## SOCIETY ISLANDS -

*Tahiti—Influenza.*—Under date of November 8, 1928, about 600 cases of influenza, with at least 10 deaths, were reported at Tahiti, Society Islands.

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

From medical officers of the Public Health Service, American consuls, health section of the League of Nations, and other sources. The reports contained in the following table must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

**CHOLERA**

[C indicates cases; D, deaths; P, present]

Place	Week ended—																
	Mar. 11- Apr. 7, 1928	Apr. 8- May 5, 1928	May 6- June 2, 1928	June 3-30, 1928	July 1-28, 1928	July 29, Aug. 23, 1928	September, 1928					October, 1928			Nov. 3, 1928		
							1	8	15	22	29	6	13	20		27	
Ceylon: Colombo.....	C																
China:																	
Canton.....	D		1	2	8	4		1									
Kwantung—Darien.....	D	2	1	2	8	2		1									1
Shanghai.....	D								3								
Shanghai.....	D					3		1	1								
Shanghai.....	D							3	1	3							
Swatow.....	D			3	7								1			1	
Dutch East Indies: Java—Batavia.....	C																
India.....	C	21,279	32,564	30,177	31,346	44,240	52,786	9,449	9,032	7,617	4,272						
Bombay.....	D	11,877	20,432	20,162	20,114	23,216	26,967	5,046	4,895	6,189	3,518						
Bombay.....	D			40	8			3	2	1				9			
Bombay.....	D	3		1				6	2	2				3			
Bombay.....	D	3						2	2	2				2			
Calcutta.....	D	664	446	552	462	206	93	11	5	17	18			21			
Calcutta.....	D	442	428	410	323	133	51	7	7	10	13			10			
Madras.....	D	10	22	27	29	72	555	65	49	25	10			57			
Madras.....	D	4	18	16	21	31	271	34	33	15	6			23			
Madras Presidency.....	D	1,483	1,314	878										27			
Madras Presidency.....	D			1,675	460									25			
Moulmein.....	D			1													
Negapatam.....	D																
Negapatam.....	D		2		13	3								1			
Rangoon.....	D	22	23	7	14	1	13	1		5	1			1			
Rangoon.....	D	16	15	5	9	1	8			1				1			
Tuticorin.....	D	10	110														
Tuticorin.....	D	9	71														
Visagapatam.....	D					7	31	5									



	January- March, 1928	April- June, 1928	July, 1928	August, 1928	September, 1928	October, 1928
			1-10	11-20	21-31	1-10
Ilocos Norte Province.....						
Manila.....			1			
Pangasinan Province—Bayambang.....						
Surigao Province—Surigao.....			3			
Siam.....	291	202	2	1	7	4
	218	127	18	11	5	3
Ayudhya.....			2	9	5	3
			2	1	1	1
Bangkok.....	60	74	9	1	3	1
	33	35	4	1	2	1
Dhannapuri.....			3	3	1	1
Smaudsagara.....						
Trad.....						
Straits Settlements: Singapore.....	2	1				
	2	1				
On vessel:						
S. S. Glenapp, at Yokohama, from Shanghai.....						
S. S. Hawaii Maru at Singapore from Saigon, French Indo-China.....						P
S. S. Kambangan at Batavia from Jedidah via Sabang and Palembang.....	11					
S. S. Talrea at Penang from Madras via Naga- patam.....	7		1			

Place	July, 1928		August, 1928		September, 1928		October, 1928	
	1-10	11-20	1-10	11-20	1-10	11-20	1-10	11-20
Indo-China (French) (see also table above):								
Annam.....	8	5		4	7	2	4	5
Cambodia.....	92	25		19	19	15	6	19
Cochin-China.....	65	55		13	15	15	6	26
Laos.....								
Tonkin.....	43	1		2				
Kwangchow-Wan.....	16	1			1			



British East Africa (see also table below):												
Mombasa.....	C											1
Tanganyika.....	C				0	4						1
Uganda.....	C	10	84	103	29	13	4					4
Canary Islands:	C		70	83		13	23	61				23
Atreife.....	C						24	37				24
Lanzarote Village.....	C		1									
Las Palmas.....	C		1									
Palma Island.....	C	4										
Palma Island.....	C				7							1
Teueriffe.....	C				8							1
Teueriffe.....	C							6				2
Teueriffe.....	C							3				
Ceylon:	C											
Colombo.....	C	7	1	2		1	1	1				2
Colombo.....	C	5	1	2		1	1	1				1
Jafna.....	D											2
China:	C											
Amoy.....	C		5	1	P							
Hong Kong.....	D	2		1	1							
Mongolia—	C											
Chion Chia Tien.....	C											
Tungliao.....	C											
Urga.....	C											
Dutch East Indies:	C											
Celebes—Makassar.....	D											
Pisguc-infected rats.....	D											
Java—	C											
Batavia and West Java.....	C	80	47	65	32	46	2	17	15	15	12	
Batavia and West Java.....	D	80	47	65	32	46	2	17	15	15	12	
Plague-infected rats.....	C	3	7	9	4	2						
East Java and Madura.....	C	4	4	4	2	2						
East Java and Madura.....	D	4	4	4	1	2						
Kadoe Residency.....	C	4	4	4	1	2						
Kadoe Residency.....	D	4	4	4	P							
Surabaya Residency.....	C	1	1	1	1							1
Surabaya Residency.....	D	1	1	1	1							1
Ecuador (see also table below):	C											
Alausi.....	C											
Alexandria.....	C		1	1	2	1	1	1				
Alexandria.....	D		2									
Amueh District.....	C					28	4	1	1	5	1	
Amueh District.....	D						2			1		
Amueh District.....	D										P	1

1 Eleven plague-infected rats were reported at Buenos Aires, Argentina, from July 1 to Oct. 25, 1928.









Place	Janu-ary, March, 1928	April-June, 1928	July, 1928	August, 1928	September, 1928	October, 1928
Algeria (see also table above):						
Algeria.....	C					
British East Africa (see also table above):						
Kenya.....	C					
Uganda.....	C					
Ecuador: Guayaquil.....	D					
Plague-infected rats.....	8	6				
India: Chitra (see table above).....	75	5	7			10
Kwango (see table above).....	12	27	7			6
Madagascar (see also table above):	C					
Ambositra Province.....	940	169	45	65		19
Antsirabe Province.....	894	184	83	61		6
Itasy Province.....	202	68	4	3		9
Mejunga.....	191	38	11	3		21
Moramanga Province.....	231	68	11			13
Tamatave.....	279	67	11			
Tananarive Province.....	55	1				
Mejunga.....	49	1				1
Moramanga Province.....	66	4	2	2		
Tamatave.....	56	4	2	3		
Tananarive Province.....	23	10	9	5		
Tananarive Province.....	348	78	24	27		
Tananarive Province.....	262	82	23	27		
Nigeria (see also table above)						
Peru.....	C					
Limna.....	C					
Senegal (see also table above)						
Baol.....	D					
Cayor.....	D					
Fatick.....	D					
Rufisque.....	D					
Thies.....	D					
Tiessouane.....	D					
Syria: Beirut.....	C					

## PLAGUE RATS ON VESSELS

Steamship Sicily at Liverpool from Buenos Aires and Rosario, June 8, 1928, seven plague-infected rats.





**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

**SMALLPOX—Continued**

[C indicates cases; D, deaths; P, present]

Place	Mar. 11- Apr. 7, 1928	Apr. 8- May 5, 1928	May 6- June 2, 1928	June 3-30, 1928	July 1-28, 1928	July 29- Aug. 25, 1928	Week ended—															
							September, 1928					October, 1928					November, 1928					
							1	8	15	22	29	6	13	20	27	3	10					
Ecuador (see table below).																						
Egypt.....	52 33	12 7	1 1																			
Behera Province.....					1																	
France (see table below).																						
Gold Coast. (see table below).																						
Great Britain:																						
England and Wales.....	1,341	1,344	1,199	1,146	681	492	102	123	92	113	94	130	162	128	148							
Birmingham.....	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1							
Bristol.....	10	14	17	10	2																	
Cardiff.....	12	17	10	2	2																	
Castelford.....	5	3	2																			
Hull.....	30	69	24	18	14	10	1	2	1	4	1	1	1	2								
Leeds.....	1	1	1	1	24	15	6	4	1	3	2	3	1	1								
London.....	17	42	25	8	21	15	4	4	1	3	2	3	1	1								
Manchester.....	14	8	5	1	9	9	2	3	3	3	4	5	3	3								
Newcastle-on-Tyne.....	9	4	12	6	28	2	1	6	2	0	1	1	2	1								
Nottingham.....	13	17	20	3	6	10	1	1	1	2	1	1	1	1								
Plymouth.....																						
Sheffield.....	1	14	4	2	2	0																
Stoke-on-Trent.....	12	32	24	14	5	8																
Weymouth.....																						
Scotland—																						
Arbroath.....							4		1													
Dundee.....							1															
Greece (see table below).																						
Hedjaz.....																						
India:																						
Bassein.....	28,034	30,436	21,489	13,497	9,981	6,218	1,233	975	1,228	1,119												
Bombay.....	5,540	6,672	5,046	3,700	2,758	1,733	263	252	303	268												
.....	218	200	136	71	67	28	4	3	4	3	7	2	12	3	5							
.....	120	118	75	46	33	21	3	3	2	3	7	4	1	1	2							

C	Calcutta.....	134	171	130	61	52	22	4	5	3	1	4	3	3
D	Karachi.....	104	2	3	35	17	3	3	4	3	1	3	1	1
D	Madras.....	183	169	1	55	28	43	10	22	29	10	13	21	18
D	Moulmein.....	26	38	18	10	10	10	0	7	9	6	5	7	5
D	Nagasaki.....				1	6	4	4						2
D	Nepal.....		7	8	10	26	35	7	0	15	15	19	2	7
D	Rangoon.....	320	3	1	30	7	9	3	1	3	3	4	1	5
D	Tientsin.....	102	79	13	6	4	1							2
D	Yokohama.....	3	2	3	3	3	1		0	5	3	1		1
D	India (French):													
D	Chandernagor.....	5	5		1	1	2	4	5					2
D	Pondicherry Provinces.....	18	36	32	13	12	62	24	15	32	18	23	28	30
D	Indo-China (see also table below):	18	30	23	13	12	45	31	14	28	14	17	18	18
D	Prome.....					2	2	4	8	3	4	4	8	6
D	Saigon.....					2	3	3	6	3	1	1	1	2
D	Iraq:													
D	Baghdad.....	5	5	16	18	24	7	5	7	10	12	9	9	8
D	Basra.....	4	3	6	10	15	2	2	5	3	7	3	3	3
D	Bara.....	2	2	3	2	6	4		1			2	1	9
D	Italy.....	2	2	3	2	2	2		1			2	1	7
D	Leghorn.....	1		1	6									4
D	Palermo.....	5	10	6	10	4	0							10
D	Ivory Coast (see table below).	13	4	2	3	1	1	1	1	1	2			12
D	Jamaica (outside Kingston) (alastrim).....													8
D	Japan:													
D	Kobe.....			11										
D	Nagoya.....		6	2	4	1								
D	Osaka.....													
D	Tokyo City.....	15	8	2										
D	Tokyo Prefecture (outside city).....	24	1	1	1	1	1							
D	Yokohama.....	1	2	3										
D	Latvia (see table below).													
D	Malta: Valetta.....											1		
D	Mexico (see also table below):													
D	Acapulco.....													
D	Jalisco (State).....	P	P	13	21	9	7	1						1
D	Guadalajara.....	2	12	13	10					2				

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**

**SMALLPOX—Continued**

[C indicates cases; D, deaths; P, present]

Place	Mar. 11- Apr. 7, 1928	Apr. 8- May 5, 1928	May 6- June 2, 1928	June 3-30, 1928	July 1-28, 1928	July 29- Aug. 25, 1928	Week ended—															
							September, 1928			October, 1928				November, 1928								
							1	8	15	22	29	6	13	20	27	3	10					
Mexico (see also table below)—Continued.																						
Manzanillo.....	D		3	2																		
Mazatlan.....	D		2																			
Mexico City and surrounding territory	C	1	1	1	1				1													
Reynosa.....	C																					
Saltillo.....	D		2	2																		
San Luis Potosi.....	D																					
Torreón.....	D																					
Morocco (see table below).																						
Lagos.....	C	1		1	1																	
Nigeria (see also table below):																						
Southern Provinces.....	C	83		51																		
Persia (see table below).	D	35		12																		
Poland.....	D	1	9	1	3	2																
Portugal (see also table below):																						
Lisbon.....	C	5	6	7	7	8	1															
Oporto.....	D																					
Senegal (see also table below):																						
Dakar.....	C	29	16	29	8																	
Siam.....	D	20	8	7																		
Bangkok.....	D	28	10	8	3	1	3	1														
.....	D	4	3	1	1	2																
.....	D	1	1	1																		
Spain: Valencia.....	D	2																				
Straits Settlements: Singapore.....	C	1	3		1																	
Sudan (Anglo-Egyptian).....	C	332	160	168	206	144	252	56	85	10	51	30	19	38	2	37	14	4				
.....	D	100	32	20	37	35	34	7	6	3	18	6	6	7	6	5	7	1				







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

[C indicates cases; D, deaths; P, present]

Place	Mar. 11- Apr. 7, 1928	Apr. 8- May 5, 1928	May 6- June 2, 1928	June 3-30, 1928	July 1-26, 1928	July 29- Aug. 25, 1928	Week ended—												
							September, 1928			October, 1928									
							1	8	15	22	29	6	13	20	27				
Algeria:																			
Algiers.....	C	9	4	13	32	3	10	1											
Oran.....	D	2	4	4	6														
Bulgaria.....	D	4	11	4	7	16	4		2										
.....	D	1	26		16	P	8	2	2	2	5	1	1						
.....	D	2			2		2												
Sofia.....	D	20	1	20	14	1	2	3											
.....	D				6														
Chile:																			
Iquique.....	C					1													
Talcahuano.....	D	1				1													
Valparaiso.....	D					2													
.....	D					3													
.....	D					1													
China:																			
Manchuria—																			
Harbin.....	C	2	16	23	23														
Kwantung.....	C	17	293	539	431	60			1	2	2								
South Manchuria Railway Zone.....	C			10	6														
Tientsin.....	C		2	2	2		1												
Chosen (see table below).																			
Czechoslovakia (see table below).																			
Egypt.....																			
Alexandria.....	C	2	3	11	7	1	2												
.....	D	1	1	2	3					1									
Assout Province.....	D																		
Assouan Province.....	D																		
Behera Province.....	D																		
.....	D	20	32	43	7	2													
.....	D	7	7	7	2														
Cairo.....	D	2	4	7	2														
.....	D	1	4	4	1	1													
Dakaleh.....	C	1	4	4	1	1													



Monocco.....	748	591	280	214	153	44	2	2	3	3	4	1	1	2
Peru (see table below).....	7	6	4	8	9	14	2	2	3	3	4	5	1	2
Poland.....	382	144	228	134	96	55	17	19	10	19	12	8	4	
Portugal; Oporto.....	23	12	17	6	5	1	1	1	3	1	2	2		
Rumania.....	141	142	99	80	33	16	5	3	3	1	2			
Syria; Aleppo.....	11	12	8	11	1	1	1	1	1					
Tunisia.....	18	19	7	7		1	7							
Sfax.....										11				
Union of South Africa:														
Cape Province.....	C		P	P	P	P	P	P	P	P	P	P		
Natal.....	C		P	P	P	P	P	P	P	P	P	P		
Orange Free State.....	C		P	P	P	P	P	P	P	P	P	P		
Transvaal.....	C		P	P	P	P	P	P	P	P	P	P		
Union of Socialist Soviet Republics (see table below). Yugoslavia (see table below).														

Place	Jan- uary- March, 1928	April- June, 1928	July, 1928	Aug- ust, 1928	Sep- tem- ber, 1928	Octo- ber, 1928	Place	Jan- uary- March, 1928	April- June, 1928	July, 1928	Aug- ust, 1928	Sep- tem- ber, 1928	Octo- ber, 1928
Chosen.....	896	633	5	5			Mexico (see also table above).....	46					
C.....	85	75	2	2			Peru.....						
D.....	2	2					Arequipa.....	2	1	1			
C.....	1						La Oroya.....	P					
D.....	1						Turkey.....	17	15	0	4	0	
C.....	10	46	5	5			D.....	1	2	2			
U.....	1	0	2	2			Union of Socialist Soviet Republics:						
Czechoslovakia.....	U	1	0	2			Railways, etc.....	C					
Greece; Athens.....	U	33	6	6	1		Transcaucasus, Siberia, and Central	C					
D.....	4						Asiatic.....	C	199				
U.....							Ukraine.....	C	17				
Japan.....	C	21	1	1			Other territories in Europe.....	C	1,476				
C.....	27						C.....	C	5,167				
U.....	223	162	12	15			D.....	C	34	45	12	0	
Lithuania.....	U	7	4	2			D.....	C	3	5	3		

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued**  
**YELLOW FEVER**

[C Indicates cases; D, deaths; P, present]

Place	Mar. 11-Apr. 7, 1928	Apr. 8-May 5, 1928	May 6-June 2, 1928	June 3-30, 1928	July 1-28, 1928	Week ended—										Nov. 8, 1928				
						August, 1928				September, 1928				October, 1928						
						4	11	18	25	1	8	15	22	29	6		13	20	27	
Belgian Congo: Matadi.....	C	2	2																	
Brazil:																				
Aracaju.....	D		2	4																
Bahia.....	D																			
Fernambuco (Recife).....	C		2	1	48	40														
Río de Janeiro.....	C		2	10	10	21														
São Felix.....	C			P	3															
Dedonney: Grand Popo.....	C			2	2															
Gambia: Bathurst.....	D				2															
Gold Coast.....	C			2																
Ivory Coast.....	C				1															
Abidjan.....	D				1															
Pekesedougou.....	D				1															
On vessel: S. S. Barnini, at Santos, Brazil.	D				1															

X