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AN EPIDEMIOLOGICAL STUDY OF ENDEMIC TYPHUS (BRILL'S DISEASE) IN THE SOUTHEASTERN UNITED STATES

WITH SPECIAL REFERENCE TO ITS MODE OF TRANSMISSION

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At the beginning of this century it was generally held that typhus fever had disappeared from the United States except for an occasional case imported from Europe or from Mexico.[1]

In 1910 Dr. Nathan E. Brill (1898, 1910, 1911), of New York, called attention to a typhuslike disease occurring endemically in that city. He hesitated to identify it as typhus because of its generally milder course and its occurrence under circumstances different from those usually associated with that disease. He accordingly believed that he was dealing with a new clinical entity, "an infectious disease of unknown etiology." Cases of this type have since been known in the United States as Brill's disease.

In 1912 Anderson and Goldberger, who had previously reported on the experimental transmission of Mexican typhus ("tabardillo") to monkeys, were similarly successful in the inoculation of a Rhesus monkey with blood from a case of Brill's disease in New York. They found that, as in "tabardillo," one infection rendered monkeys immune to subsequent inoculations of the same passage virus. Furthermore, monkeys previously infected with Mexican typhus were thereafter found immune to Brill's disease, and vice versa. From these observations they concluded that Brill's disease was, in fact, identical with typhus fever, and this conclusion seems to have been quite promptly and generally accepted.

[1] August Hirsch, in his "Geographical and Historical Pathology" (Pub. by the New Sydenham Society, London, 1883), states that:

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 importations on a large scale.

Besides the Irish, immigrants from other countries of Europe were from time to time responsible for small outbreaks in the cities of the eastern United States.

The endemic center of typhus (tabardillo) in Mexico has in like manner from time to time supplied the States of the southwest with infected immigrants, who have given rise to small outbreaks.

During the year or two following, stimulated by these publications, a considerable number of reports of the occurrence of cases similar to those described by Brill appeared in medical literature. In addition to these and since that time cases of clinical typhus have continued to be reported to the Surgeon General of the United States Public Health Service each year from various parts of the United States, but particularly from the Atlantic seaboard and the States near the Mexican border.

A certain portion of these have been imported, or traceable to infection recently imported from foreign sources. When this has been the case the epidemiological picture has been such as is usually associated with typhus as known in the Old World. For instance, in the fairly numerous instances when typhus has been introduced from Mexico in the last 10 years (Pierce, 1917; Boyd, 1917; Cumming and Senfter, 1917; Armstrong, 1922; Tappan, 1926) the disease has been virulent, the mortality high, and the cases have been in persons obviously lousy or those in contact with them.

On the other hand, there remain a large number of sporadic cases of mild typhus which could not be traced to recent importation and occurring under circumstances which strongly suggested local origin of the infection. In regard to this so-called endemic typhus, Brill originally noted that the epidemiology presented points of difference from that which is generally assigned to typhus. He pointed out that the cases occurred sporadically, without traceable connection with each other, that they seldom, if ever, gave rise to new cases among those in contact with the sick person, that no localized outbreaks occurred, and finally, that their seasonal distribution differed from that of typhus. Later, accepting the identity of the virus with typhus as indicated by the work of Anderson and Goldberger, Brill (1920) was led to raise the question whether some vector other than the louse might not be concerned in the transmission. The same question is raised by Allan (1923) as a result of his observations upon a series of cases occurring in Charlotte, N. C.

In 1922, while detailed as acting State epidemiologist to the State Board of Health of Alabama, the writer had occasion to observe with Havens (Maxcy and Havens, 1923) a number of cases which were identified clinically as the endemic form of typhus described by Brill and which gave a positive Weil-Felix reaction. As the same question with regard to the mode of transmission arose in these cases, an epidemiological study was undertaken under instructions from the Surgeon General in cooperation with local health authorities, and has been continued up to the present. The opportunity for study has been especially favorable, since this section of the United States is little subject to immigration either from Europe or from Mexico; and with cases occurring in the smaller cities and towns one

could exclude more surely the possibility of constant reintroduction of the virus from exotic sources and trace association between cases, if it existed.

EVIDENCE OF PREVALENCE IN SOUTHEASTERN UNITED STATES

Aside from the group of cases occurring in Alabama and in Savannah, Ga., which form the basis of this report, evidence has been collected of the existence of mild typhus in other cities and towns in North and South Carolina, Georgia, and Florida.

The first report from this section of the country was that by Paullin in 1913, in which he described the clinical course of six cases seen by him in Atlanta, Ga.

In 1914 Newell and Allan reported 4 cases from Charlotte, N. C. In a later report Allan (1923) gave a detailed account of 24 cases which had occurred in that city, and no contact could be traced with recent arrivals, or, indeed, between any two cases.

In a personal communication (1925) Dr. William A. Smith, chairman of the City Board of Health and Welfare of Charleston, S. C., informed the author that cases of Brill's disease occurred in that city from time to time; that a considerable number, about 15 in all, had been reported within a short space of time two or three years previously. A rapid examination of the records of one of the city hospitals for 1923–1925 by the author revealed three typical clinical cases. Dr. H. Clay Foster (1925) submitted a typical clinical history of a case with a positive Weil-Felix reaction in a woman apparently infected in Beaufort, S. C. Dr. T. P. Waring (1925), of Savannah, made a similar clinical diagnosis on a little girl brought to him from Estill, S. C.

Since the report of Paullin (1913) cases have continued to occur in Atlanta, Ga. Thus there were reported to the city health department in 1920, 1 case; in 1922, 8 cases; and in 1923, 6 cases of typhus. Dr. T. F. Sellers informs me that in the State laboratory from August, 1923, up to November, 1925, 11 blood specimens from patients resident in Atlanta had been found positive by the Weil-Felix reaction. Sydenstricker (1926) has reported 6 cases which have come under his observation at the university hospital, Augusta, and Dr. E. B. Murphey, 1925 (personal communication), of that city is authority for the statement that from 1 to 5 cases have occurred in that city each year since the disease was first recognized in 1915, and that he can recall having seen similar cases as far back as 1906. Information was also obtained through the State department of health of cases of mild typhus occurring during 1924 and 1925 at Waynesboro, Millen, Lagrange, West Point, Gainesville, and Albany, Ga.

For some years an occasional case of typhus has been reported from Jacksonville, Fla.; thus in 1924, 3 cases; in 1925, 2 cases; in 1926 (up to December), 10 cases. The disease has also been reported in Tampa, Dunedin, Jensen, St. Petersburg, Callahan, and Lakeland, Fla.

DATA AVAILABLE FOR PRESENT STUDY

The cases which form the basis of this report are (1) those reported in the State of Alabama, 1922 to 1925, (2) those reported in the city of Savannah, Ga., 1923 to 1925.

A special effort was made by the author and associates in the Alabama State Board of Health to secure full information of the

occurrence of the disease in that State. The matter was given some publicity through the medium of the full-time county health officers, having jurisdiction over 50 per cent of the population, through papers read before the State medical society and through the press. It is thought, therefore, that so far as the disease was recognized, fairly complete information of its occurrence was obtained. This applies especially to the city of Montgomery, where, with the cooperation of the local physicians, the disease was intensively studied.

During the period of observation a total of 104 cases of clinical typhus were reported in Alabama, 62 of which were confirmed by the Weil-Felix reaction performed in the State laboratories. Forty-four of these cases, 28 of which were confirmed by the Weil-Felix, were in Montgomery. An epidemiological case history was made out for each case. Of the 44 Montgomery cases the author investigated personally 28; 7 were investigated by Dr. C. H. Leach, acting State epidemiologist, and 2 by Dr. L. C. Havens, director of the State laboratories. The history form of the remaining 7 was made out from information supplied by the attending physician. Of the 60 cases distributed in other cities and towns of the State only 7 were personally investigated by the author, 1 by Doctor Leach, and 1 by Doctor Havens, information for the remaining 51 being obtained from the local health officer or the physician in attendance.

In Savannah Brill's disease had first been brought to the attention of the medical profession by the report of a case before the local medical society in 1915 by Dr. Lawrence Lee. Beginning in 1923, an epidemiological study of the disease has been conducted by the author in collaboration with Dr. Victor C. Bassett, city health officer. The matter has been brought to the attention of the medical society, and cordial cooperation in the study given by the medical profession of the city.

Of the total of 93 cases reported, 32 have been confirmed by the Weil-Felix reaction. A history form has not been kept, as in the Alabama cases, but attempt has been made to secure certain items of information in each instance; viz, identification, including place of residence and place of business, occupation, recent travel, date of onset, clinical course, contact with preceding cases, secondary cases, presence of lice or other vermin. A majority of the cases have been seen personally by Doctor Bassett during the acute illness. When this was not done the information desired was obtained either by a personal visit to the patient himself after convalescence or from the physician in attendance, or a combination of these. The author has accompanied Doctor Bassett on many of these visits.

IDENTIFICATION AS TYPHUS

It has been tentatively accepted that the disease with which we are dealing in the southeastern United States is typhus, because of:

(1) Its clinical identification with Brill's disease (Maxcy, 1926).

(2) The Weil-Felix reaction.

(3) The work of Anderson and Goldberger (1912), identifying the virus of Brill's disease with that of Mexican "tabardillo."

(4) The successful transmission of the disease to Rhesus monkeys and to guinea pigs from cases in Savannah and Montgomery by the author, and the character of the reaction in these animals. (Unpublished report.) Further studies of the activity of this virus in experimental animals and its relation to the European virus are in progress.

However, granting that the identification of this disease with typhus may be questioned, it may at least be said that the cases here referred to form a clinical group as distinct and as homologous as measles; that they resemble typhus fever much more closely than they resemble any other recognized specific infection, and that as yet they have not been differentiated from that disease. It is in this sense, then, that the designation "endemic typhus" is used in this paper.

EPIDEMIOLOGICAL CHARACTERISTICS

(*a*) *Distribution in Alabama.*—The distribution of the Alabama cases by cities and towns for each of the four years of observation is given in Table I. A majority of these cases occurred in the large cities, Birmingham, Mobile, and Montgomery, the remainder in the small towns. None have so far been reported from isolated country districts, although three of the cases from Covington County during the past year lived on farms.[2]

The disease appears to be largely if not entirely confined to the southern part of the State. The city of Birmingham has three times the population of Mobile and four times that of Montgomery, and yet it has reported only 7 cases as compared with 21 for Mobile and 44 for Montgomery. Inasmuch as the disease has been brought to the attention of the medical profession in Birmingham, and the reporting of communicable diseases is as good in this city as in the others, it is considered unlikely that the difference in incidence is attributable to undiscovered cases. Furthermore, diligent inquiry among physicians and health officers practicing in that part of the State which lies north of Birmingham has failed to reveal a single case during the four-year period.

[2] Dr. H. P. Rankin, county health officer, reports that during 1926 in Coffee County, adjoining Covington, there have been diagnosed 15 cases of Brill's disease. These cases were widely distributed in the rural areas of the county and without traceable association.

TABLE I.—*Distribution of cases of endemic typhus in Alabama during four years of observation*

City or town	Population 1920	1922	1923	1924	1925	Total	Confirmed by Weil-Felix
Birmingham	178,806	1	3	2	1	7	4
Montgomery	43,464	6	6	8	24	44	28
Mobile	60,777	2		2	17	21	12
Atmore	1,775				1	1	1
Brewton	2,682			1		1	1
Red Level	385				1	1	1
Andalusia	4,023		1		5	6	6
Opp	1,556				1	1	1
Troy	5,696		2	2	2	6	2
Sampson	1,646		1	1	2	4	2
Hartford	1,561		1			1	1
Dothan	10,034				6	6	1
Headland	1,252	2			2	4	1
Kinston	163				1	1	1
Total		11	14	16	63	104	62

The intermittent occurrence of cases in the small towns is notable. For example, in Troy, Ala., a town of 5,696 population, case T2 became ill on November 18, 1923, case T3 on December 6, 1923, case T5 on March 25, and case T6 on March 26, 1924. No further cases occurred in this town so far as could be ascertained until November, 1925, a year and a half later, when a woman living next door to the house in which case T3 had resided came down with the disease. In Sampson, population 1,646, there was a case in 1923; after a period of 14 months another case occurred. In Headland, population 1,252, there were 2 cases in 1922, and no more recognized or reported until 1925. The same characteristic is evident in the time distribution of the Montgomery cases, shown in Table II. A period of 3 to 6 months sometimes elapsed before a new case was reported.

From the information available, therefore, the disease is not uniformly distributed in Alabama. It occurs in certain cities and towns of the southern part of the State. Its occurrence is scattered as regards place and time.

(*b*) *Age.*—The series of cases is not sufficiently large to permit of a detailed analysis of the age distribution in comparison with that of Old World typhus. By reference to the ages of the Montgomery and Savannah cases, given in Tables III and IV, however, it will be seen that only 3 of 137 cases here recorded were in children under 10 years of age. In the first 255 cases recorded by Brill his youngest case was 10 years of age, and there were relatively few under 20.

The mildness of typhus in children is a phenomenon well known to European observers. The consequently greater difficulty of clinical recognition may account in part for the low incidence recorded in this age group. It is also possible that differences in exposure may play a rôle.

(*c*) *Sex.*—As indicated by Tables V and VI, *the incidence is almost twice as high in the male* as in the female in both the Montgomery and Savannah cases, taken as a whole. Of the 24 cases reported by Allan (1923) in Charlotte, N. C., 19 were men. Of 50 cases selected for analysis by Brill (1910) 34 were males. The disproportionately high incidence of the endemic typhus of the United States among men may be due either to greater exposure to infection or to greater susceptibility.

(*d*) *Race.*—In the eastern cities, Boston, New York, and Philadelphia, a large proportion of the cases of Brill's disease have been in persons born in Russia, and in southern Texas and California cases were chiefly among Mexicans; *but in the Southeastern States all the cases, with one or two possible exceptions, have occurred in native-born white Americans.* The negro for some unknown reason is almost exempt. For example, in Savannah, where negroes in 1920 constituted 47 per cent of the population, only 2 of the 93 cases recorded were in this race; in Alabama, where the population of the State is approximately one-third negro, only 2 of the 104 cases recorded were in negroes. Allan remarked upon the absence of cases among this race in Charlotte, N. C.

The question arises whether this apparent freedom of the colored race from the disease is a fact or whether it is simply due to lack of recognition and reporting of the disease in this race. The single case in a negro which I personally observed was typical in all respects, very severe, with a well-developed and plainly evident eruption as easily recognizable as in a white person. Practically all the physicians who recognized and reported cases among white people see in their routine practice a certain number of negroes. In Alabama a large proportion of the cases of continued fever, particularly where typhoid is suspected, are seen by the whole-time health officers. At Savannah, at Montgomery, and at Mobile a large number of the blood specimens which were submitted to the public health laboratories for the Widal test, as well as a considerable number of sera submitted for the Wassermann tests, were run against the Weil-Felix organism, with negative results so far as negroes are concerned, although by the same procedure a number of unrecognized cases among white persons were uncovered. With the available evidence, therefore, while the low incidence among the colored race may be in part accounted for by lack of recognition and reporting, this factor would seem not to account for all of the discrepancy. *The relative freedom of the negro from the disease is a fact which remains to be explained.*

(e) *Seasonal distribution.*—

TABLE II.—*Seasonal distribution of cases*

	Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Savannah, Ga.	1923							7	8	6	11	5	1	38
	1924			1		2	1	1		4	2	2	1	14
	1925	2		1	3	3	0	9	7	1	8	4	3	41
		2		2	3	5	1	17	15	11	21	11	5	93
Montgmery, Ala.	1922						1				1	3	1	6
	1923	1	1							1		2	1	6
	1924				1				3			2	2	8
	1925		1	1	1	1	1	3	5	7	2	1	1	24
		1	2	1	2	1	2	3	8	8	3	8	5	44
Other cities and towns in Alabama	1922							4	1					5
	1923		1							2	1	2	2	8
	1924			2			1		2		1	1	1	8
	1925	2				3	2	5	7	4	4	6	6	39
		2	1	2		3	3	9	10	6	6	9	9	60
Grand total		5	3	5	5	9	6	29	33	25	30	28	19	197

A tabulation of the cases reported by months (see Table II) shows that although the disease occurs in all months of the year, it reaches maximum incidence in the summer and fall. This characteristic has been constant through the four years of observation.

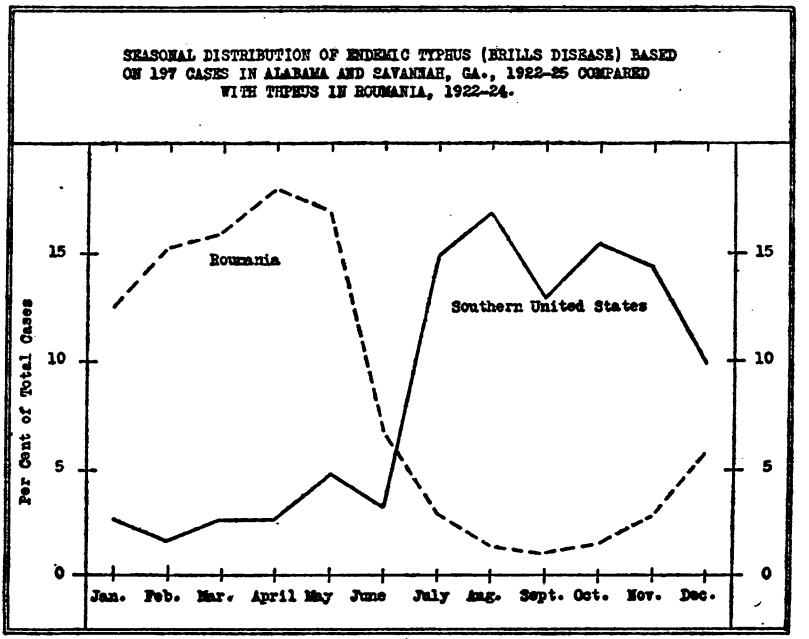
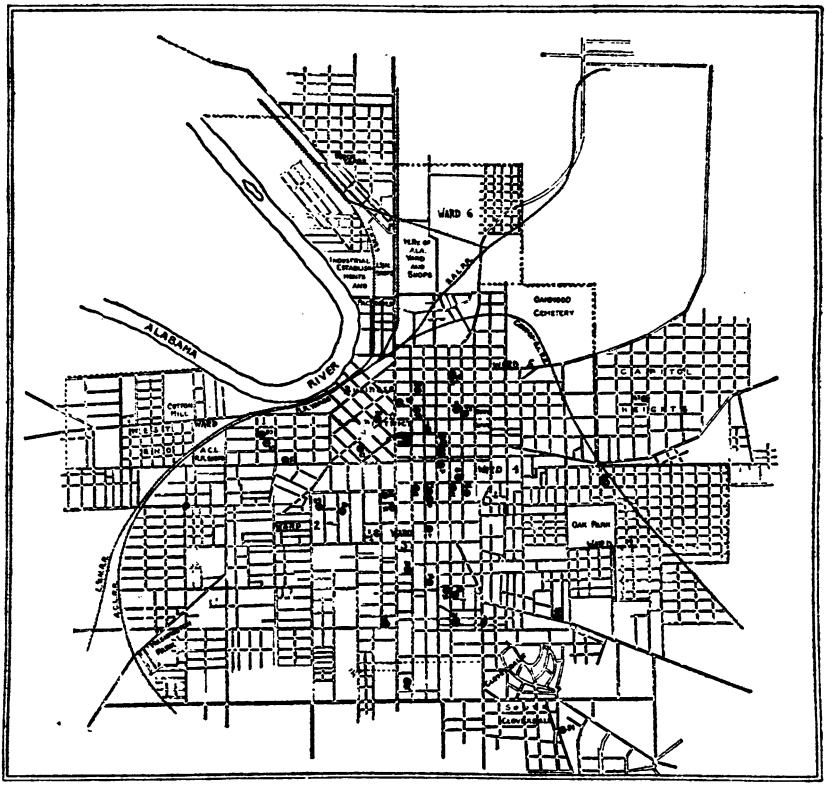


Fig. 1.

A similar seasonal distribution was found in New York City by Brill, who in his last report (1920), based upon an experience of 500 cases over a period of some twenty-odd years, stated that 70 per cent occurred from June to November.

The summer and fall maximum of the endemic typhus of the United States is in direct contrast with the high winter and spring incidence of typhus in the Old World. This is shown in the accompanying graph, in which the curve given by seasonal distribution of the 197 cases of endemic typhus which are analyzed in this report is compared with the curve for typhus in Rumania, 1922–1924 (League of Nations, 1925). The seasonal distribution of the disease in Russia, 1920–1924, and in Poland, 1922–1924, is similar to that of Rumania. Typhus is



MAP NO. 1.—Cases of mild typhus (Brill's disease) in Montgomery, Ala., 1922–1925, spotted according to residence

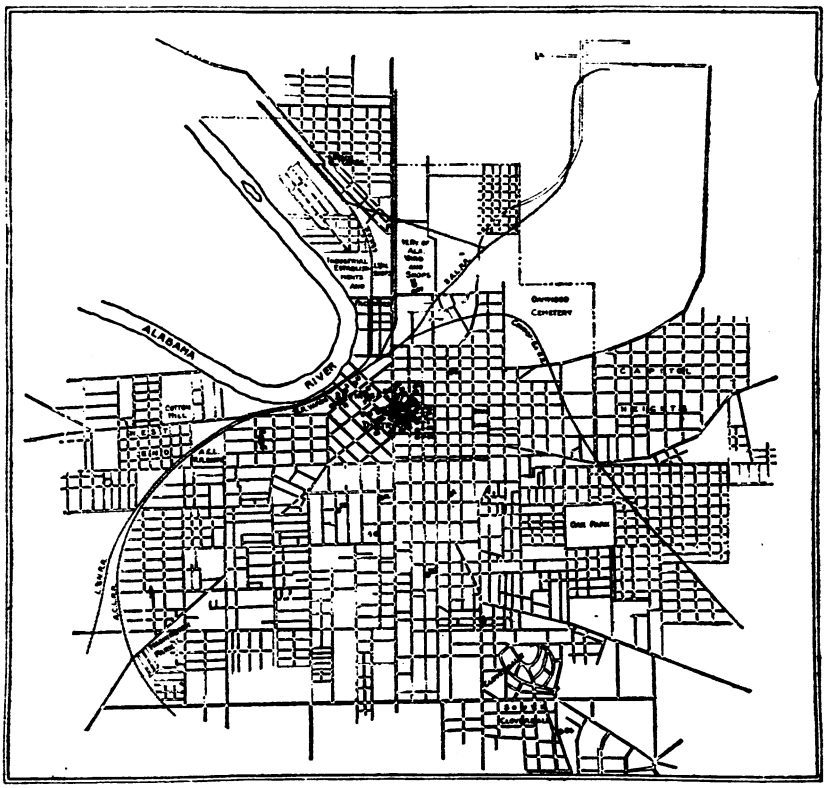
generally accepted to be a disease of the colder months; but the endemic disease of the United States is at a minimum during the colder months.

(*f*) *Location by residence.*—A study of the cases which occurred in Montgomery, located according to place of residence, as shown in map No. 1, suggests a tendency toward focalization in the central portion of the city in and near the business district. The question arises whether this apparent concentration is merely the result of a greater density of population in that part of the city. The 39 cases

living within the city limits were distributed among the seven city wards as follows:

Ward	Population, United States census 1920	Number of cases	Case rate per 1,000 population	Ward	Population, United States census 1920	Number of cases	Case rate per 1,000 population
1	5,636	4	0.71	5	5,044	4	0.74
2	9,405	4	.43	6	4,075	4	.98
3	4,147	8	1.98	7	8,122	5	.62
4	7,035	10	1.42				

This division of the city is peculiarly unfavorable for the purposes in mind, inasmuch as the wards are arranged radially in such manner that all except one (ward 7) include portions of the central part of



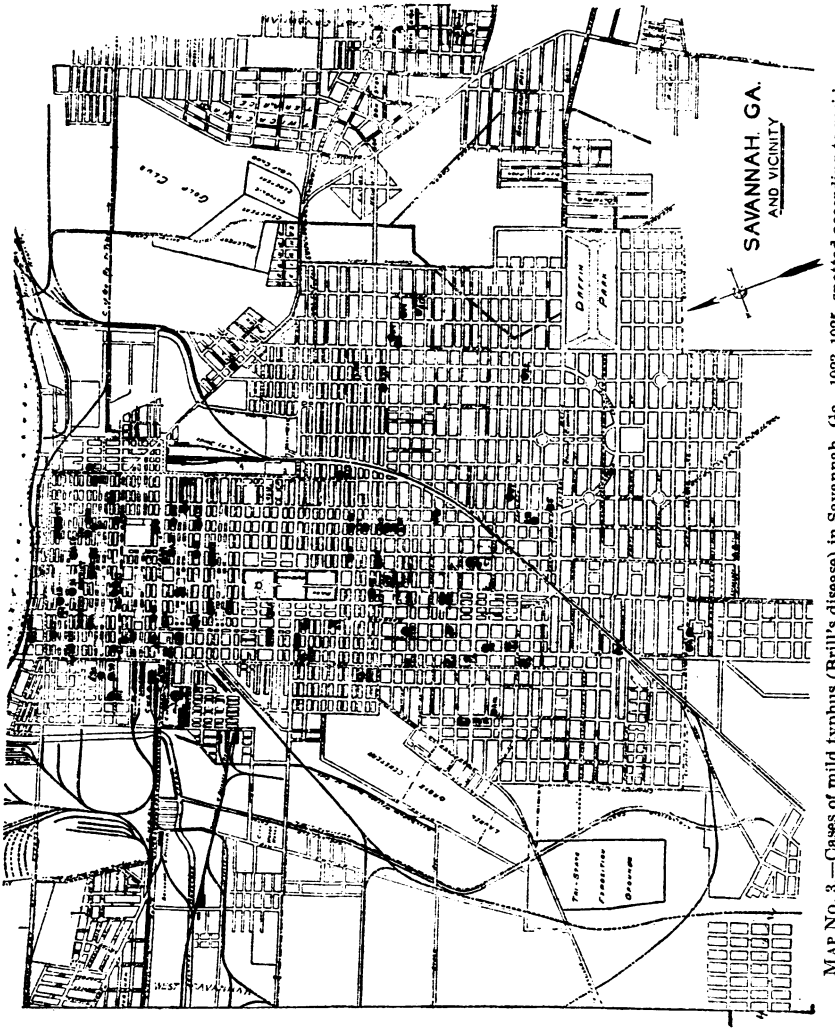
MAP NO. 2.—Cases of mild typhus (Brill's disease) in Montgomery, Ala., 1922–1925, spotted according to place of employment, or if unemployed according to place of residence

the city. Even though this be true, the tabulation indicates a slight excess of cases in wards 3 and 4, which include a large portion of the older residential section bordering upon the business district.

In map No. 3 the Savannah cases have in like manner been shown according to their places of residence. The distribution appears to

be rather general, except perhaps for the newer residential portions and the outlying districts, where the incidence is apparently light. Population figures by wards for this city are not available in the United States census, and it is therefore not possible to compare rates for the different sections.

Summing up the data on location of cases by residence in both cities, one is impressed with the fact that the cases are scattered in

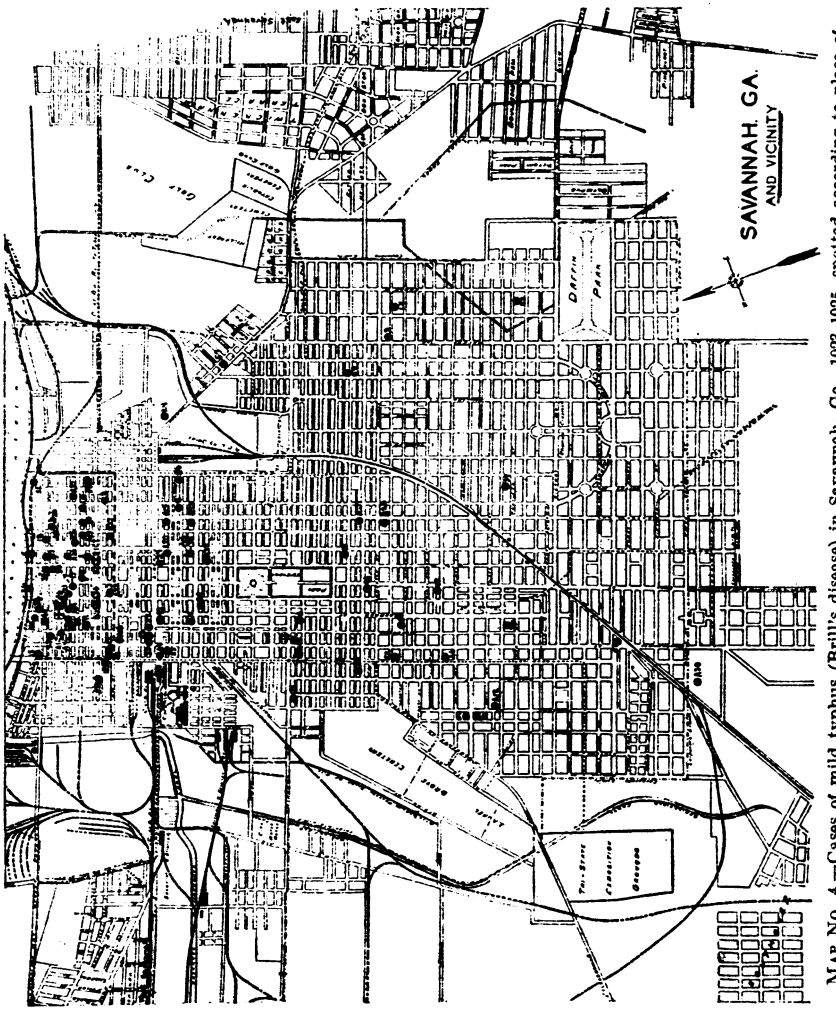


MAP NO. 3.—Cases of mild typhus (Brill's disease) in Savannah, Ga., 1923-1925, spotted according to residence

the sense that *there are no sharply localized neighborhood outbreaks.* However, there seems to be a tendency for the cases to occur more frequently in the older, more centrally located residential districts.

(*g*) *Location by place of business.*—Since an employed person is exposed to an even greater number of contacts at the place of business than in his home, the grouping of cases on this basis was also exam-

ined. In map No. 3 the Montgomery cases have been indicated according to place where employed, or if unemployed according to residence. *This map suggests a focal center of the disease in the heart of the business district.* A large proportion of the cases were employed (or lived, if unemployed) within four city squares of the corner of North Court and Monroe Streets. This section of the



MAP No. 4.—Cases of mild typhus (Brill's disease) in Savannah, Ga., 1923-1925, spotted according to place of employment, or if not employed within the city limits, according to residence

business district is largely made up of retail stores and markets, clothing stores, drug stores, grocery stores, butcher shops, fruit stands, seed and grain stores, etc.

In map No. 4 the Savannah cases have been spotted in like manner according to place where employed, or if unemployed within the city, according to residence. There is a similar grouping in the retail business section, but the disease is not so sharply focalized as in

Montgomery. Attention is called particularly to the point marked by a cross, the location of the food-marketing center of the city.

(*h*) *Occupation.*—The apparent focalization of the disease in the business district may be due to a concentration of employed persons in this area, or to a greater risk in certain occupations which are located in this part of the city. Evidence on this point has been obtained by an analysis of the cases according to the broad occupational groupings afforded by the United States census and presented in Tables V and VI.

In Montgomery 18 of the 29 cases in males (62 per cent) were engaged in "trade" (clerks, proprietors, managers, salesmen, dealers, etc.), although only 23 per cent of the total number of occupied males over 10 years of age are so engaged. Only 1 case occurred among the 4,114 men employed in "manufacturing and mechanical industries"; 3 among the 2,608 men in "transportation." The 3 cases charged to "domestic and personal service" were employed in restaurants.

Similarly, in Savannah 23 of the 52 males (44 per cent) were in "trade," although only 17 per cent of the total number of occupied males are so engaged. The rates in "manufacturing and mechanical industries" and in "transportation" are comparatively low. In "agriculture, forestry, and animal husbandry" the cases consisted of 4 employed by dairies and 2 retired farmers; in "domestic and personal service" 4 employed in restaurants, 1 barber, and 1 hotel keeper.

Among employed females the distribution is much the same in both cities, though the groups are small. In both instances the highest incidence is found in "trade," the rate being approximately the same as for males in this group alone.

Using a different basis of classification, and the occupations as given in Tables III and IV, it is notable that in Montgomery 10 of the 32 employed persons (31 per cent) who had typhus were engaged in handling foods, groceries, meat, produce, feed, flour, or were employed in feed stores and restaurants. In Savannah 20 of 59 employed persons (34 per cent) having the disease were so engaged. The apparent excess of cases among food handlers is strikingly similar in the two cities, as are the rates for both males and females in "trade."

These analyses of the occupations of persons attacked by endemic typhus suggest very strongly that as compared with the rest of the population those engaged in "trade," and especially those employed in food depots, groceries, feed stores, and restaurants, are exposed to a distinctly increased risk of infection.

(*i*) *Social status.*—The occupational analysis also brings out the fact that the disease attacked, for the most part, persons earning a

reasonably good livelihood. There is a notable absence of cases among unskilled laborers and unemployed males.

From personal observation of the cases and their surroundings the author and his collaborators are convinced that the disease did not select the poor and uncleanly. It occurred among all classes. The cases so far as they were discovered present a fair cross section of the social strata of the average American community. This implies that a great majority of the cases were in persons cleanly in their homes and in their personal habits.

There were no cases among the inmates of jails, prisons, or asylums. There was no particular association of the disease with cheap boarding or rooming houses. The time-honored characteristics of Old World typhus were entirely lacking in this respect.

(*j*) *Contact between cases.*—One of the items of information on the case history form used in the Alabama series was, "History of Contact with Antecedent Case." In only one instance among the 44 cases in Montgomery was the patient or the physician in attendance or the investigator able to state that there was definite close association within three weeks prior to onset with a case of the same disease or a suspected case. The one exception was case No. 4, who came down eight days after her husband.

Of the 60 cases occurring in other parts of Alabama for whom a case history form was filed, in no instance was the patient or his physician aware of contact of the type described with a preceding case.

The same statement holds true for the Savannah cases with the following exceptions:

Case 32 came down about seven days after his wife and two children had become ill with the same disease.

Case 27, onset July 5; case 35, onset July 27; and case 39, onset August 7, were employed in a large wholesale grocery store. They were thus in casual contact at their place of business.

Case 28, onset June 25; case 32, onset July 9; and case 36 (fatal), onset August 12, worked on the same dairy farm and were in contact in their work. It will be noted that these cases occurred about the same time as those in the wholesale grocery store noted above. The dairy purchased feed from this store during the period involved, but personal contact of the men on the dairy farm with the men in the store could not be demonstrated. There were no known cases of typhus among the 100 or more patrons of the dairy.

It is thus seen that known contact with a preceding case is a very rare finding. It must be admitted, of course, that close contacts may have existed but were undiscovered, particularly in those cases in which dependence was placed entirely upon information supplied by the attending physician and his patient. On the other hand,

it seems quite unlikely that any considerable number of actually traceable contacts with sick persons or convalescents should have been overlooked.

Moreover, there is evidence from another angle that the disease as observed in this study was not readily communicable from person to person. For each case that occurred there were a number of persons in intimate contact with the patient, including other members of the family, physicians, nurses, and visitors. Notwithstanding the absence of prophylactic measures, infections among these known intimate contacts were rare.

Among the 197 cases on which this report is based there were only two instances, noted above, in which more than one case occurred in a family in such sequence as to suggest the possibility that the earlier case might have infected the later one.

Eighteen of the 93 Savannah cases and 6 of the 44 Montgomery cases were hospitalized. No effort was made to delouse the patient upon admission to the hospital; no precautions whatever were taken with regard to lice. Not a single case has occurred among nurses attendants, physicians, or fellow patients. One physician had the disease in Montgomery, but he stated positively that he had not attended a case of known or suspected typhus for at least one month before the onset of his illness.

Brill (1920) states that in over 500 cases of endemic typhus observed by him in New York City there have been only two instances in which more than one member of a family has been infected with the disease at the same time or nearly the same time. Many of the New York cases have been hospitalized, from 15 to 30 being reported in that city each year since 1912, but no contact cases among patients, nurses, or doctors have been reported.

Allan (1923) was unable to trace any contact from case to case at Charlotte, N. C. In this connection mention should also be made of the numerous other cases reported in the literature and to the Surgeon General which have been sporadic and without secondary spread.

By way of contrast attention is called to Boyd's report (1917) of a small outbreak of Mexican typhus ("tabardillo") in Iowa. During 1915–1918 a considerable epidemic of "tabardillo" raged in Mexico, and as a consequence sporadic outbreaks were originated in American territory by imported laborers. A Mexican laborer was admitted to the Santa Fe Railroad hospital, Fort Madison, Iowa. It was later discovered that he had typhus, and lice were found upon his clothes. Following the diagnosis of his case, the physician who examined him on admission, the nurse who took charge of his clothing, two male nurses who attended him, and two other hospital patients came down with the disease within 30 days.

The lack of traceable relationship between cases and the extremely low secondary familial attack rate is a striking and constant characteristic of the endemic typhus of the United States.

Multiple cases on the same premises.—Although cases have so rarely been observed in the same family in such close sequence as to suggest communication of the disease during its acute febrile stage, several instances have been noted in which cases recurred on the same premises separated by intervals of six months or more.

In Montgomery Mrs. R., living at ——— Columbus Street, had a typical attack of Brill's disease in December, 1922. Three years later, in September, 1925, while living at the same address, her husband had the disease.

In Savannah, at ——— Abercorn Street, there is an old frame building with a store on the first floor and a housekeeping flat on the second. In August, 1923, a butcher who operated a meat market in the rear of the store had typhus. Eighteen months later, in January, 1925, his father-in-law, who lived with him and also assisted him in the meat shop, had the disease. In the flat above the store lived a family of nine persons; they had occupied these premises for eight years with the exception of six months in 1924. One of this family, Mrs. M., had the disease in August, 1925, seven months after the preceding case. Although treated at home, there were no other cases in the family, nor was it possible to obtain a history of any previous cases in this family.[3]

Louse infestation.—In view of the evidence that the disease is typhus, and that typhus, as known in the Old World, is transmitted from man to man by the louse, as careful inquiry as possible was made in each case to detect lice or any evidence suggesting prior infestation with them. This inqury consisted in asking the physician in attendance and the patient, in all cases investigated, whether louse infestation had been noticed, or, indeed, whether the patient had noticed insect bites of any kind. In all cases investigated by the author in Alabama and in the few seen in Savannah search was made for nits or live insects on the hair of the head and body and on the bedclothes, and for scratch marks on the skin which might suggest infestation; at the same time other members of the family who were present were inspected and the environment was surveyed with the same purpose in view. Doctor Bassett has made the same search in all patients sick with this disease which he has seen in Savannah;

[3] In addition to these instances, two more have been noted in 1926. In the large wholesale grocery and feed store to which reference has been made under "Contact," in which three cases occurred during the summer of 1925, the manager became ill with the disease in August, 1926, no cases having occurred among other employees, so far as could be ascertained, in the meantime. A lunch room near by, in which case No. 1 (July, 1923) was employed, recently changed owners, and the new owner, case 848, came down with the disease in August, 1926. In the same neighborhood D. K., a dealer in hides, furs, and chickens, was taken ill in June, 1926, followed by another worker in the same establishment six weeks later. There were no cases among the famiiy contacts of either.

in addition, in some few instances, he has carefully searched the clothing worn by the patient prior to his illness. Every physician who has attended a case of Brill's disease which came to the author's attention has been questioned with regard to the presence of lice on his patient.

In Alabama such inquiry has been uniformly negative, except that in 1 out of 104 cases there was a history of a young girl living in the same house with the patient having had head lice three months previous to the onset.

The inquiry in the 93 cases in Savannah was similarly negative with two exceptions: In case S12, 1923, proprietor of a cheap clothing store, a Jew, the attending physician made a positive statement that he had seen lice on the person and bed of the patient; in case S15, a negro, clinically positive for typhus, a health department inspector who had been sent to clean up the premises of the patient after his removal to the hospital stated that he had seen vermin on the bedclothes. In neither instance were there secondary cases in the household or among the known contacts of the patient.

While this evidence does not in any single case exclude the possibility that the patient may have been bitten by one or more lice prior to the onset of the disease, or may have had a light infestation which was not discovered, it does suffice to definitely establish that *the disease was not associated with lousiness.* This much is, indeed, sufficiently well established by the geographic and social distribution of the disease, a considerable proportion of the cases having occurred in persons of such habits and living in such an environment that the harboring of lice is not to be suspected.

DISCUSSION

The evidence thus far adduced indicates that there is endemic in the southeastern United States a disease which is as yet indistinguishable from Old World typhus, clinically and serologically, except with regard to its relatively mild clinical course and low fatality rate. It appears to be identical with the disease described by Brill as endemic in New York City. On the other hand, the epidemiological characteristics of this disease present certain points of difference with Old World typhus which appear to be significant. They relate principally to the mode of transmission.

The louse (*P. humanus* var. *corporis* and *P. humanus* var. *capitis*) has been satisfactorily proven to be the usual—not necessarily the only—vector of Old World epidemic typhus. Transmission of the virus from man to man is accomplished by the agency of this insect. Reviewing the observations which have thus far been made upon the endemic typhus of the southeastern United States, consideration may

be given to the evidence for and against transmission from man to man by the louse.

As regards positive evidence which would suggest association of this disease with lice, not a single circumstance has been discovered which suggests such a mode of transmission. In other words, if this disease had been considered as one of altogether unknown etiology, with no prior assumption as to its mode of transmission, the facts which have been brought out with respect to the cases observed in Alabama and Savannah, Ga., would not even give rise to the suspicion that infection was transmitted by the louse. Of positive evidence tending to incriminate the louse, then, this study yields none.

Moreover, there are certain facts which weigh distinctly against the supposition that the disease, as observed in these areas, has been transmitted by lice. These are:

I. The seasonal distribution of the disease, reaching its maximum in the warm weather of summer and autumn, is the reverse of the seasonal distribution of diseases known to be louse-borne—Old World typhus, relapsing fever, trench fever, which characteristically reach their highest prevalence in the colder months of winter and spring.

II. The social and environmental distribution of the disease is not such as would be expected, and in a vast majority of cases (all but 2 in a series of 197) absolutely no evidence of louse infestation was discovered. It is in accordance with experience that cleanly persons upon whom lice can not establish themselves may occasionally be bitten by lice accidentally picked up, and that people of this class may consequently become infected with a louse-borne disease, especially such as are in close contact with louse-infested patients. It is, however, contrary to all experience of Old World typhus and relapsing fever, known louse-borne diseases, that infection should be almost *exclusively confined* to persons who are not demonstrably infested, as has been the case here. It seems, indeed, almost inconceivable that in a louse-borne infection there should be such *absence* of association with lice.

III. As a corollary of the preceding, the lack of evidence of direct communicability, after a considerable period of observation, is not in accord with common experience in louse-borne diseases. The fact that contacts of the observed cases have rarely been infected is not by itself evidence against louse-borne infection, since these patients, being not lousy, would not be expected to spread the disease. On the other hand, it is a remarkable circumstance that the undiscovered cases which must have existed, if the disease be transmitted in this way, did not cause here and there small localized outbreaks in a labor gang, boarding house, or some equivalent group.

IV. Finally, reviewing the distribution of this disease and the circumstances existing in the communities studied, the facts seem

to be incompatible with the assumption that the infection has been conveyed by lice under the conditions which are generally accepted as governing the transmission of Old World typhus (Arkwright, 1920), based upon the present status of epidemiological and experimental evidence in that disease. These conditions may be briefly summarized as follows:

(1) That the virus exists in nature only (*a*) in the blood and tissues of infected human beings, and (*b*), in the bodies of lice which have fed upon such persons.

(2) That man is infective for the louse only for a brief period, namely, from the onset of the disease until defervescence has been established, a matter of two or three weeks.

(3) That one attack in man confers a definite, high, and durable immunity.

(4) That the louse, having bitten an infective man, after a period of five or six days is capable of conveying the infection to other persons by its bite.

(5) That the louse remains infective during the remainder of its life, a matter at most of two or three months (Nuttall, 1917).

(6) Almost all attempts to demonstrate the inheritance of infectivity in the louse have failed.[4]

To maintain the disease under these conditions of transmission, therefore, there must be available a supply of infective lice, renewed at frequent intervals by the occurrence of cases in lousy persons, either infected locally or imported. For *sustained endemic* prevalence, not tending to decline, the louse infestation of the population must be sufficient to establish on the average at least one new human infection for every one that is terminated by death or recovery. Otherwise the prevalence will decline. To meet these conditions a certain proportion of the cases, probably a majority of them, must occur in persons sufficiently infested with lice to serve as foci for the infection of others, since the cases which may occur in uninfested persons bitten casually by stray lice and living in a clean environment would not contribute to the further spread of the infection.

As to the communities considered in this study, it seems doubtful that the louse infestation of their population is sufficient to sustain an infection subject to these conditions of transmission. Obvious lousiness—heavy infestation with body lice—is an exceedingly rare

[4] The above are given as the conditions of transmission which seem to be generally accepted for Old World typhus. It can not be said that all these conditions have been rigidly proven. For instance the possibility has not been excluded that the virus of typhus may have some mammalian host other than man, and in fact the existence of such a reservoir is suggested by the susceptibility of certain of the lower animals to experimental infection. Nor has it been proven that the louse is the only actual or potential insect vector, or that the infection is never transmitted to the progeny of infected lice. Likewise, while there is no positive evidence of long continued infectivity of man, the possibility of occasional prolonged latent infection has not been excluded.

condition in the southern United States. The climate is mild; the winters are short; even the poorer population are relatively cleanly in person and surroundings. Lice are looked upon as a disgrace, and strenuous efforts are made to destroy them when they are found. They are occasionally encountered on beggars, vagabonds, or destitute and debilitated persons. Jails, institutions caring for the poor, and cheap lodging houses sometimes become infested. No outbreaks of this disease have been traced to such places.

Allan (1923), commenting upon the absence of lice in the cases which he reported, stated that in 15 years of dispensary and office practice in Charlotte, N. C., he has never seen body lice on a patient. His experience in this regard is not different from that of a great many other physicians in this section of the country who have been questioned.

Head lice are not so very uncommon in school children; inspections sometimes reveal as high as 4 or 5 per cent infestation in the poorer sections. In Montgomery head lice were found on a few children in three schools during 1924–25, but less than 1 per cent of the school population was affected. No relationship could be traced between these schools and the occurrence of cases.

With these observations in mind as regards the cases and the communities in which they have occurred, in order to account for the existence of a louse-borne person to person transmission in this disease in the southeastern United States one must assume the existence during at least three years of a *concealed* reservoir of infection in lousy persons, either (*a*) in the form of clinically recognizable cases which have somehow remained undiscovered by the investigation, or else (*b*) in a clinically unrecognizable form as larval cases (the "typhus exanthematique inapparent" of Charles Nicolle, 1925) or as passive carriers of the virus.

With regard to the first of these assumptions, it seems most improbable that clinically recognizable infections in louse-infested individuals should have been overlooked while such numbers of cases in vermin-free persons were discovered. Such a circumstance is the more unlikely because the cases in lousy individuals would, as has been pointed out already, give rise to household epidemics, which would attract attention.

Regarding the alternative assumption that the infection may have been spread from clinically unrecognizable cases which have occurred in lousy persons, it is undoubtedly true that mild atypical cases occur and that these may escape diagnosis, especially if the eruption is not well developed. As a result of having done a large number of Weil-Felix reactions on blood specimens from febrile cases suspected of being typhoid or typhus, it seems unlikely that abortive infections form a very appreciable proportion of the total number,

and there is no particular reason why they should be more common in the lousy than in the nonlousy.

Concerning the existence among human beings of a large number of "inapparent infections" in the sense of Nicolle, there is little evidence to support his hypothesis. Nicolle reasons that they do exist by analogy with what occurs when certain rodents are inoculated with virus in the laboratory. The response of human beings to infection naturally acquired can hardly be compared with that of rodents artificially inoculated.

Human carriers of typhus virus have never been demonstrated, and from present knowledge it seems quite unlikely that they exist. The disease is apparently a blood-stream infection with localization in certain organs of the body, chiefly brain, spleen, and liver. It has been repeatedly shown experimentally that the virus disappears from the blood at the time of convalescence, or within a day or two after the temperature returns to normal. The virus has not yet been demonstrated in the discharges of the body. Upon recovery a sharp immunity is established.

In order to account for the transmission of the disease from man to man by the louse under the conditions which exist in the southeastern United States, it seems necessary to assume an entirely altered conception of this disease, a conception which does not appear to be in harmony with the established facts, experimental and epidemiological, so far as they have been ascertained. In fact, whatever the means of transmission from man to man, if it be assumed that it is an exclusively human infection, then it must exist largely in unrecognized form, since it is evident that the recognized cases do not link together. These considerations have led to a tentative rejection of the human louse as the principal vector and of man as the principal reservoir of the disease in this part of the United States and the search for some other mode of transmission.

It is generally accepted that typhus—and hence the disease with which we are dealing—belongs to that group of diseases known as the "rickettsiæ." In addition to typhus, this group includes Rocky Mountain spotted fever, trench fever, Tsutsugamushi disease (including the variety described by Schuffner (1910) and by Walch and Keukenschrijver (1925) in Sumatra), and heartwater, a disease of sheep, goats, and cattle in South Africa described by Cowdry (1925). These five diseases possess certain features in common. They are acute infections transmitted by blood-feeding insects or arachnids; they exhibit a fairly high fever, running a relatively definite short course; a single attack confers upon the survivors a comparatively high degree of immunity for a period of months or years, or even for life. There is invariably more or less involvement

of the nervous system and there is a characteristic exanthem in all, with the single exception of heartwater. It seems reasonably well established that the etiologic agent of each belongs to the rickettsiæ defined by Cowdry (1925) as follows:

"Gram-negative, bacteriumlike organisms of small size, usually less than half a micron in diameter, which are found intracellularly in arthropods, which may be more or less pleomorphic and stain rather lightly with aniline dyes, but which resemble in most of their properties the type species, *R. prowazeki*."

While the rickettsiæ which have been described in these diseases typically inhabit arthropod tissues, it is questionable whether an arthropod reservoir of the parasites can exist indefinitely. In Rocky Mountain spotted fever, although hereditary transmission in the tick has been demonstrated, it is not yet known through how many generations the virus can be continued in its arthropod host. Wild rodents, such as rabbits and ground squirrels, probably play a rôle in maintaining the reservoir of the virus from which man becomes infected accidentally. In Japanese river fever the vector is a mite, *T. akamushi*, found in great numbers within the ears of the field mouse (*Microtus montebelli*), which probably acts as a reservoir of the virus. Walch has brought evidence to indicate that in Sumatra *T. deliensis*, likewise a parasite of the field rat, is responsible for the transmission of the pseudotyphus of Deli. Little is known of trench fever beyond its transmission from man to man by the louse. In heartwater Cowdry has found that hereditary transmission of the virus in ticks does not occur, hence some other reservoir of the virus is necessary for its maintenance; presumably the sheep, goats, and cattle sick with heartwater afford this, though the possibility of a reservoir existing among small rodents has not been excluded.

In typhus fever it has been shown by Nicolle and others that beside the chimpanzee and the monkey certain small rodents are susceptible to the virus; i. e., guinea pigs, rabbits, rats (white and gray), mice (white), the gerbille. In a recent publication Nicolle (1926) reports a second series of passages of typhus virus through 12 generations of white rats.

In view of these considerations the question arises whether in the endemic typhus of the southeastern United States a reservoir of the disease may not exist other than in man, a rodent reservoir with accidental transmission to man through the bite of some parasitic blood-sucking insect or arachnid. Such a hypothesis is compatible with the epidemiological characteristics which have been presented, namely, (1) the uneven focal distribution of the disease; (2) its sporadic occurrence; (3) its apparent lack of direct communicability from an infected person; (4) its association with the place of business

rather than with the home, particularly with those premises upon which foodstuffs are handled or stored; (5) the recurrence of cases on the same premises after considerable intervals of time; and (6) its seasonal incidence.

Obviously the rodents upon which suspicion immediately falls are rats and mice, and the parasitic intermediaries which are first suspected are fleas, mites, or possibly ticks.

Without desiring to emphasize the analogy, there is similarity between the epidemiology of this disease and that of plague as observed in the southern United States.

It is interesting to note also that the observations with regard to this typhuslike disease in the southeastern United States are not peculiar to this country. Many reports of a similar nature have appeared in medical literature in recent years from various parts of the world. Attention is called particularly to those from Australia and from the Federated Malay States.

Hone (1922), in a series of papers, has described a situation in and around Adelaide strikingly similar to the one here reported for Savannah or Montgomery. The first 13 cases studied were in men who handled wheat, and later cases showed an apparent relationship to the handling of foodstuffs. More recently Wheatland (1926) has reported a small epidemic of cases of mild typhus, giving a positive Weil-Felix, from a district surrounding Toowoomba, Australia. The occurrence of these cases seemed to be associated with a migration of mice, accompanied by an epizootic, and were at first called "mouse fever."

According to Fletcher and Lesslar (1925) typhus was never recognized in the Federated Malay States until 1924. Between August, 1924, and January, 1925, a diagnosis of typhus was made in 18 cases, 7 of which were in Europeans. The disease was sporadic in occurrence; there was no evidence of the direct infection from man to man, and apparently there was an association of the disease with cattle keepers and with a camping ground that was notorious for its rats.

In summary, despite the clinical, serological, and experimental evidence as to the identity of these cases in the southeastern United States with Old World typhus and "tabardillo," there are significant divergencies in the epidemiology. These lead to a tentative rejection of transmission from human to human through the louse as explaining the distribution of this endemic disease, and suggest the existence of some other mechanism for the propagation of the virus. From a consideration of what is known of this group of diseases, the "rickettsias," and specifically with regard to the susceptibility of rodents to typhus virus, it seems probable that a

reservoir may exist apart from man. A reservoir in rats or mice, with accidental transmission to man through the bite of some parasitic blood-sucking arthropod, is compatible with the epidemiological characteristics which have been revealed by this study of the disease in Alabama and Savannah, Ga. Some experimental studies designed to test the theory of the existence of a rodent reservoir of the infection are now in progress in the hygienic laboratory of the Public Health Service, but have not yet progressed far enough for a report.

CONCLUSIONS

1. A disease giving a positive Weil-Felix reaction, and clinically indistinguishable from typhus fever except with regard to its relative mildness and low fatality rate, is endemic in the southeastern United States.

2. The epidemiology of this disease appears to differ significantly from that of Old World typhus.

3. The epidemiological characteristics afford no evidence suggesting louse transmission and are interpreted as being at variance with man-to-man transfer by lice, unless it be assumed at the same time that the disease occurs mostly in unrecognizable form.

4. It is suggested as an hypothesis which seems to afford a more probable explanation of the mode of transmission that a reservoir exists other than in man, and that this reservoir is in rodents, probably rats or mice, from which the disease is occasionally transmitted to man.[5]

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[5] This theory of the source and transmission of the "endemic typhus" referred to in this paper does not necessarily deny the identity of that disease with Old World typhus; for while it is satisfactorily proven that in its epidemic form typhus is transmitted from man to man by the agency of the louse, there remains the possibility—unsupported by positive evidence but not yet excluded—that the disease may exist also in rodents, and that in the intervals between epidemics the infection may be carried over in this reservoir.

TABLE III.—*Cases of Brill's disease occurring in Montgomery, Ala., 1922–1925*

Case No.	Race	Sex	Age	Occupation	Date of onset	Weil-Felix day after onset	Reaction result	Remarks
					1922			
1	W	M	28	Waiter in cafeteria	June 5	5th	Neg.	
						8th	Pos. 1-800	
2	W	F	35	Housewife	Oct. 8	14th	Pos. 1-640	
3	W	M	50	Proprietor bottling works	Nov. 12	25th	Pos. 1-320	
4	W	F	38	Housewife	Nov. 20	16th	Pos. 1-160	Wife of No. 3.
5	W	M	35	Clerk in pool room and lunch counter.	Nov. 25	15th	Pos. 1-1, 280	
6	W	F	60	Housewife	Dec. 19	8th	Neg. 1-80	
					1923			
7	W	M	38	Manager clothing store	Jan. 7	8th	Neg.	
8	W	M	35	Stockyard employee	Feb. 15	6th	Neg. 1-80	
11	W	M	34	Machinist	Sept. 22	5th	Neg. 1-20	
						14th	Pos. 1-2, 560	
12	W	F	45	Housewife	Dec. 1	14th	Pos. 1-1, 280	Wife of No. 77.
13	W	M	22	Employee wholesale shoe store	Nov. 30	9th	Pos. 1-320	
14	W	M	26	Employee railroad yards	Dec. 10	19th	Pos. 1-1, 280	
					1924			
50	W	F	34	Housewife	Apr. 28	10th	Pos. 1-160	
51	W	M	15	Clerk, Wholesale grocery	Aug. 6	5th	Neg.	
						14th	Pos. 1-5, 000	
52	W	M	45	Clerk, drug and seed store	Aug. 9	10th	Pos. 1-160	
53	W	M	54	Proprietor clothing store	Aug. 24			Contact with No. 52.
57	W	M	44	Manager wholesale hardware store.	Nov. 9	6th	Pos. 1-160	
58	W	F	38	Saleswoman, milliinery store	Nov. 16	5th	Neg.	Guinea pigs.
						17th	Neg.	Positive.
59	W	F	11	Schoolgirl	Dec. 6	13th	Pos. 1-320	
60	W	F	36	Housewife	Dec. 7	8th	Neg.	
					1925			
61	W	M	52	Proprietor furniture store	Mar. 20	11th	Pos. 1-320	
62	W	M	38	Sheriff	Feb. 28	7th	Neg. 1-20	
63	W	M	22	Clerk, drug store	Apr. 19	11th	Pos. 1-320	
64	W	F	24	Housewife	May 15	10th	Neg.	Typical clinically.
65	W	F	20	Cashier, moving-picture theater	June 13	8th	Neg. 1-80	
66	W	M	25	Shoe salesman	July 7	10th	Neg.	
67	W	M	37	Butcher, meat market	July 28	9th	Pos. 1-320	
68	W	M	45	Probate judge	do	11th	Pos.	
69	W	M	46	Physician	Aug. 8			
70	W	M	56	Proprietor furniture store	Aug. 12			
71	W	M	17	Clerk, grocery store	Aug. 13	12th	Pos. 1-160	
72	W	M	43	Lawyer	Aug. 17	7th	Neg.	
						14th	Pos. 1-320	
73	W	F	45	Clerk, department store	Aug. 23	8th	Pos.	
74	W	M	32	Manager wholesale flour store	Sept. 12	14th	Pos. 1-640	
75	W	F	17	Schoolgirl	Sept. 17	7th	Pos. 1-160	
76	W	F	30	Housewife	Sept. 9	10th	Pos. 1-640	
77	W	M	63	Railroad engineer	Sept. 15	14th	Pos. 1-640	Husband of No. 12.
78	W	F	11	Schoolgirl	Sept. 20	4th	Neg.	
						10th	Pos. 1-160	
79	W	M	22	Bank clerk	Sept. 30	12th	Pos. 1-1, 280	
80	W	M	35	Taxi driver	Sept. 27			
81	W	M	24	Produce salesman	Oct. 19	9th	Pos. 1-640	
82	Col.	M	58	Employee of restaurant	Oct. 30	3d	Neg.	
						15th	Pos. 1-1, 280	
83	W	M	31	Proprietor wholesale flour and feed store.	Nov. 4	9th	Pos. 1-640	
84	W	F	5	Child	Dec. 2	5th	Pos. 1-100	

TABLE IV.—*Cases of Brill's disease occurring in Savannah, Ga., 1923–1925*

Case No.	Race	Sex	Age	Occupation	Date of onset	Weil-Felix day after onset	Reaction result	Remarks
					1923			
1	W	M	23	Employee of restaurant	July 13			
2	W	M	45	Dealer in hay and grain	July 14			
3	W	F	30	Housewife	July 16			
4	W	M	52	Employee of restaurant	July 19			
5	W	M	38	Watchman, Salvation Army Industrial Home.	July 21			
6	W	F	19	Housewife	July 27			
7	W	M	31	Salesman, meat packer	July 28			
9	W	M	60	Salesman, ship chandler	Aug. 3			
10	W	M	31	Salesman, tobacco warehouse	Aug. 4			
11	W	M	52	Salesman, wholesale candy	Aug. 6			
12	W	M	40	Tailor	Aug. 14			
13	W	M	49	Grocer	Aug. 16			
14	W	M	28	Butcher, store "H"	Aug. 27			
17	Col.	M	21	Dairy worker	Aug. 29			
8	W	M	21	Unemployed	Aug. 25			
16	W	F	51	Housewife	Sept. 1			
17	W	M	37	Clerk, wholesale warehouse	Sept. 2			
18	W	M	30	Clerk, grocery store	Sept. 17			
19	W	M	21	Employee, restaurant	Sept. 23			
20	W	F	35	Housewife	Sept. 24	7th	Pos. 1-160	
21	W	M	28	Fire department employee	Sept. 25	46th	Neg.	
22	W	F	32	Housewife	Oct. 1	11th	do	
23	W	F	25	do	Oct. 2	8th	do	
24	W	M	30	Clerk, grocery store	do	12th	Pos. 1-160	
25	W	F	17	Unemployed	Oct. 7	6th	Neg.	
26	W	F	35	Housewife, boarding house	Oct. 9			
27	W	F	14	Schoolgirl	Oct. 15			
28	W	F	40	Clerk, grocery store	Oct. 21	8th	Neg.	
						17th	Pos. 1-160	
28	Col.	M	38	Painter	Nov. —			
29	W	M	38	Mechanic	Oct. 24	14th	Pos. 1-320	
29	W	F	38	Housewife	Oct. 25	10th	Neg.	
30	W	M	10	Child	do	do	Neg. 1-80	Son of No. 29.
31	W	F	5	do	do	do	Neg.	Daughter of No. 29.
32	W	M	32		Nov. 2			Husband of No. 29.
33	W	F	44	Housewife	Nov. 8	15th	Pos. 1-320	
34	W	F	26	do	Nov. 11	12th	do	
37	W	F	43	do	Nov. 14	do	do	
40	W	M	52	Convict guard	Dec. 10	9th	Neg.	
						25th	Pos. 1-320	
					1924			
1	W	F	51	Housewife	Mar. 7	14th	Neg.	Guinea pigs.
2	W	F	40	do	May 1	8th	Neg. 1-80	
3	W	M	44	Railroad engineer	May 12			
4	W	F	14	Schoolgirl	June 11			
5	W	M	35	Shipping agent	July 9	14th	Neg.	
6	W	M	50	Foreman, railroad yards	Sept. 1			
7	W	M	48	Turpentine broker	Sept. 6			
8	W	F	57	Housewife	Sept. 20			
9	W	F	19	Clerk, department store	do			
11	W	M	62	Farmer	Oct. 21			
13	W	M	19	Barber	do	15th	Pos. 1-60	
14	W	F	62	Housewife	Nov. 25		Pos. 1-160	
15	W	M	28	Employee, filling station	Nov. 18	14th	do	
16	W	F	50	Housewife, living over store	Dec. 18			
					1925			
17	W	F	18	Clerk, office	Jan. 30			
18	W	M	36	Foreman, transfer company	Mar. 28			
19	W	F	48	Housewife	Apr. 4	10th	Neg. 1-80	
						17th	Pos. 1-1280	
20	W	M	34	Proprietor, furniture store	Apr. 30	6th	Neg.	
21	W	M	56	Proprietor, hotel and taxi service	Apr. 18			
22	W	M	36	Superintendent, chemical works	May 16		Pos. 1-320	
38b	W	M	65	Butcher, store "A"	Jan. —			
23	W	F	35	Housewife, living next to bakery	May 7			
24	W	M	47	Mechanic	May 30			
25	W	F	52	Saleswoman, handicraft shop	July 9	16th	Pos. 1-640	
26	W	M	23	Printer, shop on water front	July 15	10th	Pos. 1-100	
27	W	M	29	Salesman, feed store "S"	July 5			
28	W	M	17	Employee, "X" dairy	June 25	22d	Pos. 1-320	
29	W	M	60	Farmer	July 22	10th	Neg. 1-40	

TABLE IV.—*Cases of Brill's disease occurring in Savannah, Ga., 1923–1925*—Con.

Case No.	Race	Sex	Age	Occupation	Date of onset	Weil-Felix day after onset	Reaction result	Remarks
					1925			
30	W	F	30	Unemployed	July 28		Pos. 1-160	
31	W	M	30	Clerk, grocery	do	14th	do	
32	W	M	25	Employee, "X" dairy	July 9	12th	Neg.	
33	W	M	35	Employee, restaurant	Aug. 15	15th	Pos. 1-1280	
34	W	F	73	Housewife	July 27		Pos. 1-320	
35	W	M	28	Clerk, feed store "S"	Aug. 12	8th	Neg.	
36	W	M	17	Employee, "X" dairy	Aug. 16			
38	W	F	33	Telephone operator, living over grocery store "A."	Aug. 7			
39	W	M	54	Clerk, feed store "S"	Aug. 26			
40	W	M	41	Carpenter	do			
41	W	F	19	Schoolgirl	Sept. 17			
42	W	M	16	Schoolboy	Oct. 1		Pos. 1-160 [1]	
43	W	F	60	Housewife	do	7th	do.[1]	
44	W	M	10	Schoolboy	Oct. 2	11th	do.[1]	
45	W	M	27	Clerk, wholesale grocery	Oct. 5		Pos. 1-320	
46	W	M	22	Clerk, wholesale tobacco warehouse.	Oct. 1	15th	do	
47	W	F	20	Clerk, grocery store	Oct. 11	17th	Neg.	
48	W	F	56	Housewife	Oct. 19	8th	Pos. 1-160 [1]	
50	W	F	7	School child	Oct. 16	20th	Pos. 1-320	
51	W	M	50	Molder, living on water front	Nov. 4	10th	Pos. 1-160	
52	W	M	30	Manager, ice plant	Nov. 9	5th	Pos. 1-320	
53	W	M	57	Engineer	Nov. 7	10th	Pos. 1-160 [1]	
54	W	F	30	Clerk, physician's office	Nov. 22	9th	Pos. 1-640	
55	W	M	52	Merchandise broker	Dec. 13	8th	do	
56	W	M	14	School child	Dec. 14	8th	Pos. 1-1280	
57	W	M	26	Pipe fitter, railroad shop	Dec. 15		Pos. 1-160	
58	W	M	40	Painter				

[1] Microscopic agglutination with approximate dilution of dried blood.

TABLE V.—*Number of cases and case rate of endemic typhus according to broad occupational groups in Montgomery, Ala., 1922–1925*

[Population figures from U. S. census, 1920]

Group	Total persons in group		Number of cases in group		Case rate per 1,000 exposed	
	Male	Female	Male	Female	Male	Female
Population 10 years of age and over	16,428	19,498	29	14	1.77	0.72
All occupations	13,242	7,620	29	3	2.20	.39
Not gainfully employed	3,186	11,878	0	11	0	.93
Agriculture, forestry, and animal husbandry	215	26	0	0	0	0
Extraction of minerals	24	1	0	0	0	0
Manufacturing and mechanical industries	4,114	768	1	0	.250	0
Transportation	2,608	131	3	0	1.15	0
Trade	3,048	530	18	3	5.90	5.67
Public service	402	10	1	0	2.49	0
Professional service	650	571	3	0	4.62	0
Domestic and personal service	1,702	4,915	3	0	2.73	0
Clerical occupations	1,079	668	0	0	0	0

TABLE VI.—*Number of cases and case rate of endemic typhus according to broad occupational groups in Savannah, Ga., 1923–1925*

[Population figures from U. S. census, 1920]

Group	Total persons in group		Number of cases in group		Case rate per 1,000 exposed	
	Male	Female	Male	Female	Male	Female
Population 10 years of age and over	33,676	35,463	57	34	1.69	0.96
All occupations	28,986	12,880	52	7	1.79	.54
Not gainfully employed	4,690	22,583	5	27	1.07	1.19
Agriculture, forestry, and animal husbandry	273	24	6	0	21.98	0
Extraction of minerals	13	0	0	0	0	0
Manufacturing and mechanical industries	10,816	1,753	10	0	.92	0
Transportation	6,573	245	5	1	.76	4.08
Trade	4,810	878	23	4	4.78	4.56
Public service	940	9	2	0	2.13	0
Professional service	977	864	0	0	0	0
Domestic and personal service	1,800	7,710	6	0	3.33	0
Clerical occupations	2,784	1,397	0	2	0	1.43

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CHANGES IN TYPE OF CONTAGIOUS DISEASES

The above was the title given by Dr. Charles V. Chapin, superintendent of health, Providence, R. I., to the fourth Sedgwick Memorial lecture. Doctor Chapin's lecture was printed in full in the Journal of Preventive Medicine of September, 1926. Doctor Chapin discussed especially the changes in type of contagious diseases that have occurred in smallpox and scarlet fever. This lecture might well be read with profit by every health officer and sanitarian. In order to invite attention to this lecture, the following quotations therefrom are repeated:

"Forms of life well adapted to their environment survive. Those ill adapted perish. It is as true of smallpox and scarlet fever germs as it is of Norway rats, or the common daisy. Any quality tending to restrict the increase in numbers of these germs, or to restrict the opportunities for transference to another host, would seem to be hostile to the maintenance of the species. A germ which promptly kills its host has little time for reproduction and little opportunity for transference. If the germ puts the host to bed, even if recovery ensues, it is also inimical to the dispersion of the germ, though, in a lesser degree. The discovery of bacteria came soon after the discovery of the action of natural selection, and many bacteriologists and epidemiologists were quick to see that natural selection is hostile to the virulence of the pathogens. There are some who have doubted this and have claimed that the funeral of a dead man, and the constant calls of friends at the bedside of the sick man, favor the distribution of the infecting germs, but I doubt if there is a single practicing health officer who does not feel certain that there is far less chance of a person spreading disease germs if he is dead, or in bed, than if he is going about his daily work. If the diphtheria bacillus invariably put its victim to bed, there would be a very good chance that we could control the disease. The reason why the diphtheria bacillus is able to maintain itself so well is because it so frequently lives in the human throat without causing symptoms sufficient to come to the attention of the health officer.

"The mild type of smallpox has by no means driven out the classical form. In many places they have existed together. Although in the United States the mild type has been the prevailing one, there has been a very respectable amount of the classical form, and nowhere has the relationship of the two been more carefully studied. Practically all American health officers who have had experience with the two types believe that they are distinct and breed true. A large proportion of the classical outbreaks have been traced to foreign lands. Many others, particularly in the Southwest, were so situated that importation from Mexico was probable.

"The most important question is, Does the mild type *ever* revert to the old classical form? Many have noted the occurrence of a severe and perhaps fatal case of smallpox clearly derived from the mild strain. Rarely a second or a third case develops. I know of no certain record of an outbreak of the classical form derived from the mild in the United States. The nearest approach to such a change in type is described by Doctor Davies, of Bristol, England. He records an outbreak in Wales of 15 cases, of which 4 were confluent, and 1 of which died, which was very clearly traced to a series of typically mild cases in Bristol.

"Just how thoroughly the mild strain has become established, it would, however, be unsafe at present to say.

"That vaccinia is derived from smallpox by animal passage we know. That varicella is another offshoot from smallpox is highly probable. That the mild type of smallpox sometimes called alastrim, or amaas, is another cleavage seems clear. That the two strains are closely related is shown by complement fixation tests, by animal inoculation, and by the immunity against both produced by vaccinia. Nevertheless the two types differ clinically in a marked degree and to some extent in immunity relations and in animal reactions.

"The history of the appearance and dispersion of the mild type of smallpox shows that it is not to be explained by changes in the host caused by vaccination, or otherwise. It is not possible that it is due to climate or any telluric, or cosmic, or mystic epidemic influence. The theory that the disease is mild because the smallpox germ has parted company with a virulent streptococcus seems highly improbable. The simple and wholly adequate theory is that in Florida or in Africa the smallpox germ some thirty years ago suddenly underwent a change, or mutation, just as many other species of plants and animals, high and low, are constantly doing."

In speaking of scarlet fever, Doctor Chapin stated:

"It was a natural suggestion that the variation in virulence shown by scarlet fever might be explained in a similar way. I have, however, found little or nothing to support this view.

"Efforts to trace the spread of either mild or severe scarlet fever from country to country, or even from one city to another, have, with very few exceptions, proved unavailing. Doubtless too much importance ought not to be attached to this, for the tracing of scarlet fever is very much more difficult than the tracing of smallpox. There may well be considerable transference of scarlet fever from place to place without our being able to discover it.

"There are, however, other reasons than inability to trace dispersion, which render it improbable that the mild type of scarlet fever is, like smallpox, derived from a sudden mutation. In the first place there do not seem to be any clearly defined types of scarlet

fever, such as we see in smallpox. I have found no instance where one type of smallpox has slowly changed to another type, although there are instances where this has been simulated, as when a severe strain was imported into Detroit during an epidemic of the mild form. With scarlet fever it is very different. The loss of virulence has nowhere been sudden. Wherever scarlet fever has been growing milder the change has been gradual; for the most part very gradual. A slow process of evolution seems much more probable than a sudden mutation.

"The occasional appearance of increased virulence might simply mean the occasional natural variation, or reversion, to the ancestral severe strain.

"The facts here gathered indicate, with a considerable degree of probability, that the present mild character of scarlet fever is due to the selective force of isolation eliminating the severe strains. It is far from a demonstration, but it is hoped that some one will give further study to the problem, for its solution seems to me to be a matter of very great moment."

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for October, 1926

The accompanying table is taken from the Statistical Bulletin for November, 1926, published by the Metropolitan Life Insurance Co., and presents the mortality experience of the industrial insurance department of the company for October, 1926, as compared with September, 1926, October, 1925, and the year 1925.

The bulletin says:

The health situation in the industrial populations of the United States and Canada showed improvement in October as compared both with the same month of 1925 and with the preceding month of 1926. The recorded death rate (7.9 per 1,000) shares with October, 1921 and 1922, the distinction of being the lowest ever recorded for October. In 1925 the rate was 8.1; in 1924, 8.5; and in 1923, 8.8.

At this season of the year special interest always attaches to what is happening with respect to influenza and the respiratory diseases. This interest is somewhat accentuated at present by reports from different sections of the country which show, beyond question, that cases of influenza are increasing. Obviously, there is much concern as to the extent that this increased sickness is being reflected in the death rate. We are able to report that up to November 13 the records of the industrial department of the Metropolitan show nothing more than the expected seasonal rise in the death rate from influenza and pneumonia. Among more than 17,000,000 persons exposed to risk there were recorded, in October, 105 deaths from influenza and 740 from pneumonia. The death rate in October for these two diseases combined was 55.6 per 100,000. This actually shows improvement over October of last year, when the rate was 60.1. Furthermore, in both the first and second weeks of November the combined mortality from influenza and pneumonia was lower than in the corresponding weeks of 1925,

at a time when no particular anxiety was being manifested about any impending outbreak of influenza. Current low rates for heart disease, Bright's disease, and cerebral hemorrhage also indicate that the kind of influenza now prevailing is not the virulent type.

The mortality from each of the principal epidemic diseases of childhood is low, although the diphtheria death rate rose rather sharply from 6.5 per 100,000 in September to 10.5 in October; in October a year ago it was 9.7. Tuberculosis, diarrheal diseases, and puerperal conditions show improvement over October, 1925.

In the field of deaths due to violence, suicides continue to be reported in unusual numbers, and if there is no slackening during November and December in the suicide rate the figure recorded for the year 1926 will be higher than for any year since 1921; it may even exceed the rate for that year, in which event it will be the highest recorded since 1917. The homicide rate, in October, was a little lower than in September, and in October, 1925. Automobile fatalities were fewer than in October, 1925.

Death rates (annual basis) for principal causes per 100,000 lives exposed, September and October, 1926, October, 1925, and year 1925

[Industrial department, Metropolitan Life Insurance Co.]

Causes of death	Rate per 100,000 lives exposed [1]			
	October, 1926	September, 1926	October, 1925	Year 1925
Total, all causes	785.8	814.2	813.3	907.5
Typhoid fever	6.2	8.4	7.1	4.6
Measles	1.3	1.9	.8	3.3
Scarlet fever	2.0	1.1	2.1	3.5
Whooping cough	6.1	9.0	7.2	7.7
Diphtheria	10.5	6.5	9.7	10.6
Influenza	6.9	4.6	6.7	22.0
Tuberculosis (all forms)	78.1	89.6	82.6	98.1
Tuberculosis of respiratory system	68.9	79.1	72.5	85.9
Cancer	69.7	72.8	66.0	70.5
Diabetes mellitus	13.9	15.1	14.0	15.2
Cerebral hemorrhage	46.4	46.1	44.0	53.6
Organic diseases of heart	106.7	105.1	105.8	126.6
Pneumonia (all forms)	48.7	36.3	53.4	86.5
Other respiratory diseases	11.0	9.0	10.3	13.2
Diarrhea and enteritis	49.3	63.6	61.9	36.7
Bright's disease (chronic nephritis)	62.0	60.4	62.8	69.8
Puerperal state	11.8	11.5	12.6	16.5
Suicides	7.9	9.0	6.9	6.9
Homicides	6.3	6.5	6.8	7.2
Other external causes (excluding suicides and homicides)	58.0	68.5	64.7	64.3
Traumatism by automobiles	19.5	20.5	21.2	16.6
All other causes	183.0	189.1	187.8	190.7

[1] All figures include infants insured under one year of age.

PUBLIC HEALTH ENGINEERING ABSTRACTS

A Note on the Rearing of Anopheline Larvæ. Mark F. Boyd. *Bulletin of Entomological Research*, vol. 16, part 4, March, 1926, p. 308. (Abstract by L. D. Fricks.)

This article describes a successful method of rearing adult Anopheles from eggs deposited by captive females. The author states that the chief difficulty in rearing Anopheles in the laboratory arises from a lack of vitamines in their algæ food. He overcomes this

difficulty by feeding Fleischmann's Yeast and by this method of feeding attained a high degree of success, 100 per cent development from eggs to adults in 13 days.

A small amount of yeast was daily rubbed into the superficial layer of water in the culture pans. Marble dust was kept in the pans to conserve alkalinity, and the water was changed frequently.

The Mosquitoes of the Lower Fraser Valley, British Columbia, and their Control. Eric Hearle, B. Sc. Report No. 17, Canadian National Research Council, Ottawa, 1926. 91 pages. (Abstract by W. H. W. Komp.)

A very complete study of the mosquitoes of the region, with keys to the species found, illustrations of the most common species, observations on the breeding habits, and excellent photographs of typical breeding places, including some fine airplane views. The lower Fraser Valley is the richest agricultural area in British Columbia, small-fruit growing, livestock breeding and dairying, and lumbering being the principal industries. The lower valley is flat, interlaced with numerous slow, winding creeks and sloughs. During the greater part of the year the river is at low stage, but during the late spring and early summer freshets from melting snow flood the lowlands, causing extensive temporary swamps. These give rise to a mosquito pest that seriously interferes with the proper development of the country. At high water about 14,000 acres are affected. The report recommends as a temporary measure the use of oil and of oil-soaked sawdust for small areas, and the diking and draining of the larger areas. Stress is laid on the necessity for cooperation among the various political divisions in financing these projects. Evidence of the migration of mosquitoes for 10 to 15 miles from their breeding grounds has been found; these nullify the best-intentioned local operations, and make it imperative that some central board direct the mosquito-control measures.

The Effect of Turbulent Air Motion and of Humidity on the Stability of Dust, Fumes, and Smoke Clouds. Philip Drinker, R. M. Thomson, and Jane L. Finn. *The Journal of Industrial Hygiene*, vol. 8, No. 7, July, 1926, pp. 307–313. (Abstract by Leonard Greenburg.)

In this very interesting contribution Mr. Drinker and his associates report on a series of studies made in the gassing chamber at the Harvard School of Public Health. In these studies suspensions of dusts of various kinds (silica, zinc oxide, and tobacco smoke) were set up and the rate of sedimentation curve was determined by means of a Tyndall meter attached to one side of the chamber. The influence of air motion was found by determining the change in the sedimentation curve affected by the use of electric fans, and the effect of moisture was found by the changes produced in the shape of the

curve when steam was blown into the chamber. In some cases the humidity of the cabinet was raised to the saturation point by blowing steam into the chamber, then slowly allowing the saturation to fall to 95 per cent prior to the introduction of the dust.

As a result of these studies turbulent air motion was found to have no effect on the subsidence of silica dust but a marked effect on zinc oxide and a considerable effect on tobacco smoke. Local humidification has a marked effect on silica dust and on zinc oxide. General humidification of the cabinet failed to affect the settling rate of silica dust and tobacco smoke but hastened the settlement of zinc oxide both as a powder and as a fume.

How to Get a Smokeless Atmosphere and Make it Pay. Councillor W. Brownhill Smith. *The Journal of State Medicine*, vol. 34, No. 7, July, 1926, pp. 422–427. (Abstract by Leonard Greenburg.)

In this paper the author points out that smoke exerts a harmful effect on health either directly by affecting the organs of respiration or indirectly by cutting down the normal quantity of sunshine which is now known to be so essential to health. According to the 1920 Report of the Departmental Committee on Smoke and Noxious Vapors Abatement, "the number of deaths from pulmonary and cardiac diseases is shown to increase in direct proportion to an increase in the intensity and duration of smoke fogs." In the cities of Great Britain particularly, and to a large extent in the rural districts, the effect of fog is generally admitted to be a pernicious one.

The fog of the cities of Great Britain is in a large measure due to the use of coal in individual grates for heating purposes, central heating being employed only to a very minor degree.

The duty of the medical men is to preach against the evils of the smoke-laden atmosphere, according to the author of this paper.

The use of gas affords a method of heating and cooking which is free of smoke production, and in those areas of the country where gas is relatively cheap this method should find wide favor. And according to the author, Prof. Parker Smith, of Glasgow, has shown that in certain large towns where electricity is supplied at a low price it is cheaper to heat cottages and villas by this means than with coal. But for the majority of towns (where these conditions do not obtain) it is necessary to resort to other means in order to keep the atmosphere smoke free. This can only be done by the provision of a smokeless fuel that can not burn in the types of grates and cookers now in use.

The writer then reviews the steps taken by the Glasgow Gas Committee in its search for a fuel which would burn satisfactorily in ordinary domestic grates.

Experimentally, small-size plants and finally large-size plants were constructed, using the process of Robert Maclaurin for coal carboni-

zation, all of which have come to a very satisfactory termination. The carbonized fuel known as "Kincole" has 45 per cent more heating power than an equal weight of raw coal and burns smokelessly in the ordinary domestic grate. By this method a highly satisfactory smokeless fuel is obtained and the cost of gas manufacture is at the same time lowered. The author urges the use of this smokeless fuel.

Do Water Supplies Disfigure Teeth of Children? (Comments in response to an article entitled "Water Supplies Charged with Disfiguring Teeth" which appeared in *Water Works Engineering* January 15, 1926). *Water Works Engineering*, vol. 79, No. 15, August 1, 1926, p. 995. (Abstract by Frank Raab.)

Richard Messer, Richmond, Va., quoted several dentists, some of whom blame the trouble of mottled enamel to water. Another, who is himself affected, does not blame it to the water. According to Doctor McKay, there are two localities on the Atlantic seaboard where the trouble of mottled enamel appears, and in each case it is blamed to artesian water.

M. H. McCrady, of Montreal, Canada, writes that the trouble of mottled enamel is new in his experience, but admits that it might exist in some parts of the country, H. E. Moses, Harrisburg, Pa., believes that the above trouble is found very rarely in Pennsylvania. He offers no suggestion as to the cause.

Raising the Standard of Water Supplies. A. L. Dopmeyer, Associate Sanitary Engineer, United States Public Health Service. Proceedings of Eighth Texas Water Works Short School, January 18–23, 1926, pp. 18–22. (Abstract by V. M. Ellers.)

In this paper a plea is made for a sanitary engineering organization representing the State, with adequate personnel and appropriations to give the advice and assistance to communities on sanitary engineering problems, which they need and have a right to expect.

Many communities which do not as yet realize the value of a water supply of high sanitary quality should be properly educated by engineers representing the State, according to the author, and the raising of the general standard of water supplies in the State is said to be dependent on such education.

The routine activities recommended by the Conference of State Sanitary Engineers for effective control of water supplies by State health departments are set forth as an indication of the magnitude of the work involved in this task alone, which is but one of the manifold duties a State sanitary engineer is expected to perform.

The development of State supervision and control over water supplies is also briefly outlined in this paper, depicting the active part which the United States Public Health Service has played in organizing and developing State sanitary engineering divisions.

Some Aspects of the Housing Problem. C. A. Clews. *Journal of the Royal Sanitary Institute*, Vol. 46, No. 12, May, 1926, pp. 581–583. (Abstract by R. E. Tarbett.)

This article covers the problem of providing housing accommodations in Derby since the war. Under the 1919 act the corporation built 724 houses at a cost of 20s. 6d. to 22s. 8d. per super foot for the parlor type, and 18s. 2d. to 20s. for the nonparlor type. Construction material is not given.

Under the 1923–24 act the corporation is building 1,850 houses. Brickwork was found to be the cheapest form of construction. The cost of these houses of the nonparlor type with three bedrooms is £461 10s. or 11s. 3d. and of the same type with two bedrooms £339 or 10s. per super foot of floor space, exclusive of land and street works. The parlor type with three bedrooms cost £530 or 11s. 2d. The greater part of the houses are semidetached and built with a density of 12 per acre.

As building was not progressing rapidly enough, it was decided to erect 250 cast-iron houses. These houses cost about the same as the other type but could be quickly erected and would not draw on the skilled labor already employed. A detailed description of these houses is given. These houses appear comparable with the small five-room house in the United States, having two floors with three bedrooms and bath on the upper floor. The foundations are of concrete carried 6 inches above ground. The outer walls are of cast plates 3 feet square and 3/8 inch thick with flanges 2⅝ inches wide. The plates are covered with special cement and the flanges are slightly recessed to allow for a nailing strip. Studding 2 by 3 inches is used, and walls are lined with asbestos sheeting. Roof is of timber, covered with tile; windows and door casings of wood; floor of living and bedrooms of wood and of other rooms concrete. Houses are equipped with grate and back boiler, hot and cold water, and electricity. A few other types of houses have been built. Rent for the nonparlor, three-bedroom type of house is 12s. 3d. per week, and for the two-bedroom 10s. per week.

The writer concludes that in view of the still serious shortage the aim should be to construct as cheaply as possible, without sacrifice of health or durability, a type which may be erected quickly and the rental of which would come within reach of the ordinary artisan, say not more than one-sixth of his income.

Automobiles and Public Health. W. J. McConnell, Medical Secretary, Philadelphia Health Council and Tuberculosis Committee. *American Public Health Journal*, vol. 16, No. 9, September, 1926, pp. 884–886. (Abstract by H. N. Old.)

There is mentioned in this article the possible factor of accidents and the industrial hazard in the manufacture and addition of certain compounds tending to increase the efficiency of motor fuels, but the greater part is devoted to the hazard of carbon-monoxide poisoning resulting from combustion of the fuels.

The danger by reason of a running motor in a closed or a poorly ventilated inclosure is referred to at some length, but more space is devoted to the subject of excessive concentration of CO in the atmosphere of localities where motor-car traffic is heavy or in tunnels and similar covered passageways subjected to exhaust gas, 7 per cent of which is said to be carbon monoxide, while an atmosphere containing 1 per cent is known to be sufficient to cause death in a very short time.

Reference is made to the research work in connection with the Hudson tubes, which lead to a permissible maximum CO concentration of 4 parts per 10,000 for a period of an hour, determinations being on basis of physiological tests. It is stated that other workers have found frequently 0.01 per cent in the atmosphere of parts of Fifth Avenue, New York City, and state that 0.02 per cent and even more was not unusual in limited areas and for short periods. This concentration is not considered serious.

Brief reference is also made to some of the symptoms of carbon-monoxide poisoning and to emergency treatment. Methods and apparatus for CO determinations are discussed very briefly, but a list of related publications for reference purposes is included.

DEATHS DURING WEEK ENDED DECEMBER 11, 1926

Summary of information received by telegraph from industrial insurance companies for week ended December 11, 1926, and corresponding week of 1925. (From the Weekly Health Index, December 16, 1926, issued by the Bureau of the Census, Department of Commerce)

	Week ended Dec. 11, 1926	Corresponding week, 1925
Policies in force	66, 332, 374	62, 333, 156
Number of death claims	12, 486	12, 102
Death claims per 1,000 policies in force, annual rate	9. 8	10. 1

Deaths from all causes in certain large cities of the United States during the week ended December 11, 1926, infant mortality, annual death rate, and comparison with corresponding week of 1925. (From the Weekly Health Index, December 16, 1926, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Dec. 11, 1926		Annual death rate per 1,000 corresponding week, 1925	Deaths under 1 year		Infant mortality rate, week ended Dec. 11, 1926 [2]
	Total deaths	Death rate [1]		Week ended Dec. 11, 1926	Corresponding week, 1925	
Total (66 cities)	7, 106	12. 8	12. 8	721	722	[3] 62
Akron	32			4	9	43
Albany [4]	34	14. 9	15. 9	4	5	83
Atlanta	65			9	7	
White	34			5	2	
Colored	31	([5])		4	5	
Baltimore [4]	216	13. 9	13. 8	18	22	55
White	172			10	17	38
Colored	44	([5])		8	5	127
Birmingham	52	12. 9	17. 5	4	6	
White	18			2	3	
Colored	34	([5])		2	3	
Boston	226	15. 0	14. 9	31	30	87
Bridgeport	29			4	3	68
Buffalo	119	11. 4	14. 1	12	20	50
Cambridge	26	11. 1	9. 2	3	0	53
Camden	34	13. 5	18. 2	5	8	84
Canton	13	6. 2	15. 2	0	4	0
Chicago [4]	657	11. 2	11. 2	69	62	60
Cincinnati	152	19. 3	18. 6	15	12	94
Cleveland	180	9. 8	10. 9	19	25	49
Columbus	82	15. 0	14. 9	8	7	75
Dallas	43	11. 0	11. 8	7	6	
White	29			5	6	
Colored	14	([5])		2	0	
Dayton	36	10. 6	13. 9	4	5	66
Denver	83	15. 2	14. 8	7	6	
Des Moines	30	10. 7	11. 1	2	2	33
Detroit	290	11. 7	10. 9	38	40	62
Duluth	21	9. 7	9. 4	1	1	23
El Paso	27	12. 9	17. 4	4	6	
Fall River [4]	26	10. 3	10. 5	4	3	63
Flint	30	11. 5	6. 4	4	1	68
Fort Worth	33	10. 8	8. 1	1	3	
White	25			1	3	
Colored	8	([5])		0	0	
Grand Rapids	42	14. 0	11. 2	6	5	86
Houston	63			4	4	
White	45			4	4	
Colored	18	([5])		0	0	
Indianapolis	107	15. 2	13. 5	8	7	61
White	96			8		70
Colored	11	([5])		0		0

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in registration area for births.
[3] Data for 63 cities.
[4] Deaths for week ended Friday, Dec. 10, 1926.
[5] 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; Louisville, 17; Memphis, 38; New Orleans, 26; Norfolk, 38; Richmond, 32; and Washington, D. C., 25.

Deaths from all causes in certain large cities of the United States during the week ended December 11, 1926, infant mortality, annual death rate, and comparison with corresponding week of 1925—Continued

City	Week ended Dec. 11, 1926		Annual death rate per 1,000 corresponding week, 1925	Deaths under 1 year		Infant mortality rate, week ended Dec. 11, 1926
	Total deaths	Death rate		Week ended Dec. 11, 1926	Corresponding week, 1925	
Jersey City	69	11.3	13.1	6	4	45
Kansas City, Kans	26	11.6	19.8	4	6	78
White	20			3	5	67
Colored	6	(3)		1	1	152
Kansas City, Mo	97	13.5	13.9	9	14	
Los Angeles	257			22	13	61
Louisville	92	15.4	11.6	4	5	34
White	69			3	5	29
Colored	23	(3)		1	0	70
Lowell	22			7	6	135
Lynn	27	13.5	12.6	4	6	106
Memphis	53	15.6	20.3	4	8	
White	26			3	5	
Colored	27	(3)		1	3	
Milwaukee	121	12.2	11.2	16	17	75
Minneapolis	99	11.9	10.7	10	8	55
Nashville	42	16.0	19.2	5	4	
New Bedford	27			5	7	87
New Haven	37	10.6	13.7	4	2	55
New Orleans	119	14.8	19.0	11	16	
White	66			6	7	
Colored	53	(3)		5	9	
New York	1,484	13.1	11.4	127	116	52
Bronx Borough	167	9.7	9.0	14	12	47
Brooklyn Borough	491	11.4	9.1	39	35	40
Manhattan Borough	650	18.1	15.8	56	59	62
Queens Borough	129	8.8	8.2	16	8	73
Richmond Borough	47	18.1	17.1	2	2	35
Newark, N. J	106	12.0	13.0	13	7	62
Norfolk	41	12.3	11.7	5	9	101
White	22			2	5	65
Colored	19	(3)		3	4	159
Oakland	61	12.2	11.1	9	4	104
Oklahoma City	27			3	1	
Omaha	49	11.8	12.8	3	4	32
Paterson	31	11.3	15.1	5	6	84
Philadelphia	521	13.5	13.4	62	59	83
Pittsburgh	148	12.1	15.0	25	16	83
Portland, Oreg	87			6	3	60
Providence	57	10.8	13.2	12	6	100
Richmond	58	16.0	13.2	6	6	75
White	31			3	3	58
Colored	27	(3)		3	3	104
Rochester	96	15.6	12.5	9	5	71
St. Louis	237	14.9	13.7	17	7	
St. Paul	54	11.4	13.8	5	3	44
Salt Lake City [4]	34	13.3	7.2	6	3	91
San Antonio	55	14.0	19.0	7	12	
San Diego	27	12.8	10.3	3	1	64
San Francisco	156	14.3	16.5	7	10	42
Schenectady	23	12.9	13.5	1	4	29
Seattle	65			7	9	67
Somerville	22	11.5	11.1	2	3	57
Spokane	26	12.4	10.5	4	3	93
Springfield, Mass	22	7.9	11.7	3	5	46
Syracuse	44	12.4	10.0	4	5	51
Tacoma	27	13.3	10.5	2	0	47
Toledo	65	11.5	12.4	7	10	67
Trenton	35	13.6	15.8	4	6	68
Utica	37	18.7	14.9	1	2	23
Washington, D. C	136	13.4	14.7	15	10	86
White	84			12	7	100
Colored	52	(3)		3	3	55
Waterbury	18			1	5	24
Wilmington, Del	30	12.6	15.4	0	5	0
Worcester	42	11.3	13.9	4	8	48
Yonkers	11	4.9	11.5	0	5	0
Youngstown	30	9.5	13.0	2	6	25

[4] Deaths for week ended Friday, Dec. 10, 1926.

[3] 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; Louisville, 17; Memphis, 38; New Orleans, 26; Norfolk, 38; 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 Week Ended December 18, 1926

ALABAMA

	Cases
Cerebrospinal meningitis	2
Chicken pox	35
Diphtheria	49
Influenza	49
Malaria	13
Measles	8
Mumps	6
Ophthalmia neonatorum	1
Pellagra	5
Pneumonia	56
Scarlet fever	25
Smallpox	17
Tuberculosis	23
Typhoid fever	22
Typhus fever	6
Whooping cough	24

ARIZONA

Cerebrospinal meningitis	1
Chicken pox	6
Diphtheria	7
Measles	16
Mumps	1
Pneumonia	1
Scarlet fever	6
Tuberculosis	22
Typhoid fever	1

ARKANSAS

Chicken pox	30
Diphtheria	13
Hookworm disease	1
Influenza	87
Malaria	18
Measles	2
Mumps	11
Pellagra	5
Scarlet fever	19
Smallpox	3
Tuberculosis	7
Typhoid fever	12
Whooping cough	25

CALIFORNIA

	Cases
Cerebrospinal meningitis—Los Angeles	1
Chicken pox	250
Diphtheria	163
Influenza	25
Leprosy—Los Angeles	1
Measles	824
Mumps	128
Poliomyelitis:	
Long Beach	1
Los Angeles	1
San Joaquin County	1
Scarlet fever	262
Smallpox	4
Tuberculosis	140
Typhoid fever	13
Whooping cough	40

COLORADO

Cerebrospinal meningitis	1
Chicken pox	33
Diphtheria	21
German measles	2
Influenza	2
Measles	28
Mumps	6
Pneumonia	4
Scabies	1
Scarlet fever	110
Smallpox	13
Tuberculosis	9
Typhoid fever	1
Whooping cough	2

CONNECTICUT

Cerebrospinal meningitis	2
Chicken pox	153
Diphtheria	28
Influenza	17
Measles	67
Mumps	18
Pneumonia (broncho)	28
Pneumonia (lobar)	37

CONNECTICUT—continued

	Cases
Poliomyelitis	1
Scarlet fever	77
Septic sore throat	3
Tuberculosis (all forms)	24
Typhoid fever	1
Whooping cough	35

DELAWARE

	Cases
Chicken pox	1
Diphtheria	2
Pneumonia	5
Scarlet fever	15
Tuberculosis	2
Whooping cough	1

FLORIDA

	Cases
Chicken pox	14
Diphtheria	42
Influenza	1
Malaria	9
Measles	9
Pneumonia	3
Scarlet fever	13
Smallpox	49
Tetanus	1
Tuberculosis	6
Typhoid fever	10
Whooping cough	4

GEORGIA

	Cases
Chicken pox	29
Diphtheria	31
Dysentery	3
Hookworm disease	6
Influenza	61
Malaria	12
Measles	21
Mumps	8
Pneumonia	24
Scarlet fever	20
Septic sore throat	4
Smallpox	61
Tetanus	1
Tuberculosis	14
Typhoid fever	7
Typhus fever	2
Whooping cough	32

IDAHO

	Cases
Cerebrospinal meningitis:	
St. Maries	1
Winchester	1
Chicken pox	8
Diphtheria	1
Measles	35
Mumps	1
Pneumonia	1
Poliomyelitis—Mountain Home	1
Scarlet fever	41
Streptococcic sore throat	1
Tuberculosis	3
Whooping cough	1

ILLINOIS

	Cases
Cerebrospinal meningitis:	
Madison County	1
Peoria County	1
Chicken pox	463
Diphtheria	115
Influenza	22
Lethargic encephalitis:	
Cook County	1
Fayette County	1
Macoupin County	1
Measles	625
Mumps	130
Pneumonia	285
Scarlet fever	323
Smallpox	9
Tuberculosis	248
Typhoid fever	19
Whooping cough	181

INDIANA

	Cases
Chicken pox	195
Diphtheria	67
Influenza	60
Measles	48
Pneumonia	10
Poliomyelitis	1
Scarlet fever	186
Smallpox	176
Tuberculosis	35
Typhoid fever	7
Whooping cough	102

IOWA

	Cases
Chicken pox	81
Diphtheria	26
Measles	48
Mumps	7
Pneumonia	1
Scarlet fever	64
Smallpox	11
Tuberculosis	11
Whooping cough	5

KANSAS

	Cases
Cerebrospinal meningitis:	
Easton	1
Manhattan	1
Chicken pox	157
Diphtheria	13
German measles	4
Influenza	6
Lethargic encephalitis	1
Measles	67
Mumps	1
Pneumonia	40
Scarlet fever	79
Smallpox:	
Topeka	14
Scattering	11
Tuberculosis	84
Typhoid fever	5
Whooping cough	52

LOUISIANA

	Cases
Diphtheria	25
Influenza	13
Malaria	11
Pneumonia	36
Scarlet fever	31
Smallpox	1
Tuberculosis	48
Typhoid fever	13

MAINE

Chicken pox	93
Diphtheria	5
German measles	4
Influenza	3
Measles	193
Mumps	5
Pneumonia	21
Scarlet fever	47
Tuberculosis	5
Typhoid fever	3
Vincent's angina	4
Whooping cough	53

MARYLAND [1]

Cerebrospinal meningitis	1
Chicken pox	155
Diphtheria	58
German measles	1
Influenza	25
Measles	22
Mumps	27
Ophthalmia neonatorum	1
Pneumonia (broncho)	23
Pneumonia (lobar)	33
Poliomyelitis	1
Scarlet fever	61
Septic sore throat	5
Tetanus	1
Tuberculosis	40
Typhoid fever	13
Whooping cough	109

MASSACHUSETTS

Anthrax	2
Cerebrospinal meningitis	2
Chicken pox	391
Conjunctivitis (suppurative)	3
Diphtheria	108
German measles	13
Influenza	8
Measles	88
Mumps	165
Ophthalmia neonatorum	17
Pneumonia (lobar)	91
Poliomyelitis	4
Scarlet fever	327
Septic sore throat	3
Tuberculosis (pulmonary)	111
Tuberculosis (other forms)	18
Typhoid fever	35
Whooping cough	142

MICHIGAN

Diphtheria	143
Measles	114

MICHIGAN--continued

	Cases
Pneumonia	153
Scarlet fever	310
Smallpox	13
Tuberculosis	22
Typhoid fever	8
Whooping cough	90

MINNESOTA

Chicken pox	311
Diphtheria	33
Dysentery	2
Influenza	1
Measles	151
Pneumonia	2
Scarlet fever	247
Smallpox	4
Tuberculosis	40
Typhoid fever	2
Whooping cough	16

MISSISSIPPI

Diphtheria	22
Scarlet fever	29
Smallpox	6
Typhoid fever	5

MISSOURI

(Exclusive of Kansas City)

Cerebrospinal meningitis	1
Chicken pox	54
Diphtheria	63
Epidemic sore throat	6
Influenza	22
Measles	113
Ophthalmia neonatorum	1
Scarlet fever	102
Trachoma	1
Tuberculosis	30
Typhoid fever	17
Whooping cough	44

MONTANA

Chicken pox	13
Diphtheria	7
Measles	265
Mumps	2
Scarlet fever	53
Smallpox	55
Tuberculosis	1
Typhoid fever	3
Whooping cough	9

NEBRASKA

Chicken pox	28
Diphtheria	7
German measles	8
Measles	8
Mumps	8
Pneumonia	2
Poliomyelitis	1
Scarlet fever	47
Smallpox	13
Tuberculosis	2
Typhoid fever	5
Whooping cough	4

[1] Week ended Friday.

NEW JERSEY

	Cases
Cerebrospinal meningitis	3
Chicken pox	286
Diphtheria	117
Influenza	25
Measles	30
Paratyphoid fever	1
Pneumonia	152
Rabies	1
Scarlet fever	150
Typhoid fever	10
Whooping cough	187

NEW MEXICO

Chicken pox	19
Conjunctivitis	1
Diphtheria	7
Dysentery	4
German measles	5
Measles	21
Mumps	6
Pneumonia	7
Scarlet fever	37
Tuberculosis	22
Typhoid fever	4
Whooping cough	5

NEW YORK

(Exclusive of New York City)

Cerebrospinal meningitis	4
Chicken pox	512
Diphtheria	100
German measles	99
Influenza	7
Measles	917
Mumps	177
Pneumonia	249
Poliomyelitis	4
Scarlet fever	202
Septic sore throat	1
Smallpox	14
Typhoid fever	33
Vincent's angina	6
Whooping cough	256

NORTH CAROLINA

Chicken pox	146
Diphtheria	79
German measles	3
Malaria	1
Measles	91
Scarlet fever	51
Septic sore throat	1
Small pox	73
Typhoid fever	6
Whooping cough	283

OKLAHOMA

(Exclusive of Oklahoma City and Tulsa)

Cerebrospinal meningitis:	
Caddo County	1
McClain County	1
Chicken pox	25
Diphtheria	23
Influenza	106

OKLAHOMA—continued

	Cases
Malaria	8
Measles	34
Pneumonia	59
Poliomyelitis—Cherokee County	1
Scarlet fever	25
Smallpox:	
McCurtain County	10
Scattering	6
Typhoid fever	16
Whooping cough	24

OREGON

Botulism	1
Cerebrospinal meningitis	1
Chicken pox	30
Diphtheria	35
Influenza	22
Lethargic encephalitis	1
Measles	41
Mumps	9
Pneumonia	[2] 10
Puerperal septicemia	1
Scarlet fever	46
Septic sore throat	3
Smallpox	18
Typhoid fever	3
Whooping cough	5

PENNSYLVANIA

Anthrax—Philadelphia	1
Cerebrospinal meningitis	1
Chicken pox	731
Diphtheria	160
German measles	12
Impetigo contagiosa	13
Measles	573
Mumps	90
Ophthalmia neonatorum:	
Mifflin County	1
Philadelphia	5
Pneumonia	26
Poliomyelitis—Armstrong County	1
Scabies	14
Scarlet fever	411
Trachoma—Philadelphia	1
Tuberculosis	93
Typhoid fever	23
Whooping cough	272

RHODE ISLAND

Chicken pox	6
Diphtheria	8
Measles	1
Mumps	1
Pneumonia	1
Scarlet fever	13
Tuberculosis	4
Whooping cough	7

SOUTH CAROLINA

Chicken pox	51
Diphtheria	33
Hookworm disease	21
Influenza	544

[2] Deaths.

SOUTH CAROLINA—continued

	Cases
Malaria	139
Measles	3
Pellagra	16
Poliomyelitis	1
Scarlet fever	11
Smallpox	7
Tuberculosis	27
Typhoid fever	16
Whooping cough	43

SOUTH DAKOTA

Cerebrospinal meningitis	2
Chicken pox	29
Diphtheria	1
Measles	61
Pneumonia	5
Scarlet fever	41
Smallpox	5
Typhoid fever	2
Whooping cough	11

TENNESSEE

Chicken pox	61
Diphtheria	24
Influenza	55
Malaria	7
Measles	26
Ophthalmia neonatorum	1
Pellagra	2
Pneumonia	34
Scarlet fever	34
Smallpox	16
Trachoma	1
Tuberculosis	9
Typhoid fever	24
Whooping cough	65

TEXAS

Chicken pox	20
Diphtheria	45
Influenza	269
Mumps	11
Pellagra	3
Pneumonia	15
Scarlet fever	29
Smallpox	24
Trachoma	2
Tuberculosis	6
Typhoid fever	4
Whooping cough	18

UTAH

Chicken pox	43
Diphtheria	5
Measles	303
Mumps	26
Pneumonia	13
Scarlet fever	17
Tuberculosis	1
Typhoid fever	1
Whooping cough	1

VERMONT

Chicken pox	53
Measles	111
Mumps	20

VERMONT—continued

	Cases
Scarlet fever	15
Typhoid fever	1
Whooping cough	31

WASHINGTON

Cerebrospinal meningitis	1
Chicken pox	143
Diphtheria	33
German measles	37
Measles	117
Mumps	35
Scarlet fever	82
Smallpox	24
Tuberculosis	22
Typhoid fever	3
Whooping cough	2

WEST VIRGINIA

Chicken pox	169
Diphtheria	55
Influenza	59
Measles	75
Scarlet fever	73
Smallpox	6
Tuberculosis	15
Typhoid fever	9
Whooping cough	54

WISCONSIN

Milwaukee:	
Cerebrospinal meningitis	2
Chicken pox	91
Diphtheria	15
German measles	4
Influenza	1
Measles	32
Mumps	27
Pneumonia	18
Scarlet fever	13
Tuberculosis	15
Typhoid fever	1
Whooping cough	54
Scattering:	
Cerebrospinal meningitis	1
Chicken pox	283
Diphtheria	21
German measles	25
Influenza	56
Lethargic encephalitis	1
Measles	496
Mumps	66
Ophthalmia neonatorum	1
Pneumonia	19
Scarlet fever	190
Smallpox	13
Tuberculosis	24
Whooping cough	114

WYOMING

Chicken pox	19
Diphtheria	6
Measles	28
Pneumonia	3
Scarlet fever	29
Typhoid fever	2
Whooping cough	4

Reports for Week Ended December 11, 1926

DISTRICT OF COLUMBIA

	Cases
Chicken pox	52
Diphtheria	23
Pneumonia	25
Scarlet fever	8
Tuberculosis	20
Typhoid fever	1
Whooping cough	8

NORTH DAKOTA

	Cases
Chicken pox	25
Diphtheria	5
German measles	4
Measles	181
Pneumonia	7
Scarlet fever	35
Smallpox	28
Tuberculosis	1
Whooping cough	6

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	Cerebrospinal meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
October, 1926										
Arkansas	0	45	150	396	7	23	4	32	3	125
New Hampshire	2	22					2	39	0	2
November, 1926										
Arizona	0	14	0		55		0	66	0	6
Georgia	1	367	285	125	11	10	4	86	48	89
Massachusetts	3	418	46	1	161	1	26	1,191	0	44
New Hampshire	0	33	3					55	0	
New Jersey	4	516	51	1	120		11	568	0	94
Tennessee	1	457	211	66	55	22	0	339	11	267

October, 1926

	Cases
Chicken pox:	
Arkansas	32
Hookworm disease:	
Arkansas	2
Mumps:	
Arkansas	15
Paratyphoid fever:	
Arkansas	3
Whooping cough:	
Arkansas	70

November, 1926

	Cases
Anthrax:	
Massachusetts	2
Chicken pox:	
Arizona	8
Georgia	45
Massachusetts	1,232
New Jersey	753
Tennessee	82
Conjunctivitis (infectious):	
Georgia	3
Dengue:	
Georgia	1
Dysentery:	
Georgia	17
Tennessee	8
German measles:	
Georgia	5
Massachusetts	36
New Jersey	37
Hookworm disease:	
Georgia	4
Lead poisoning:	
Massachusetts	6
New Jersey	3
Lethargic encephalitis:	
Massachusetts	3
Tennessee	3
Mumps:	
Arizona	26
Georgia	15
Massachusetts	599
Tennessee	1
Ophthalmia neonatorum:	
Massachusetts	148
New Jersey	3
Paratyphoid fever:	
Georgia	2
New Jersey	1
Tennessee	1

Rabies (in man):	Cases
Tennessee	3
Septic sore throat:	
Georgia	38
Massachusetts	10
Trachoma:	
Arizona	11
Massachusetts	7
New Jersey	3
Trichinosis:	Cases
Massachusetts	1
Typhus fever:	
Georgia	2
Whooping cough:	
Arizona	10
Georgia	83
Massachusetts	442
New Jersey	607
Tennessee	259

Number of Cases of Certain Communicable Diseases Reported for the Month of October, 1926, by State Health Officers

	Chicken pox	Diphtheria	Measles	Mumps	Paratyphoid fever	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	7	366	42	20		130	8	394	360	120
Arizona	1	14	72	10		35	0	70	11	4
Arkansas	32	45	7	15	3	32	3	26	125	70
California	567	526	1,952	467	3	709	63	700	72	225
Colorado	59	84	22	6		161	3	113	29	23
Connecticut	164	108	62	14	2	139	0	116	18	134
Delaware	8	15	3			51	0	[1] 5	24	4
Dist. of Columbia	10	107	3			48	0	101	9	33
Florida	3	181	5	9	3	33	22	68	52	20
Georgia	31	393	15	30	9	92	30	7	296	56
Idaho	65	28	31	9		127	1	4	16	10
Illinois	652	493	615	120	4	816	5	1,399	386	773
Indiana	218	470	100	4		448	53	185	232	188
Iowa	98	114	28	11		177	12	51	33	30
Kansas	197	134	256	25	1	266	15	137	77	106
Kentucky [2]										
Louisiana	1	158	1	2		53	4	[1] 180	111	9
Maine	148	21	255	23		120	0	37	29	171
Maryland	114	137	23	40		166	0	215	204	220
Massachusetts	420	291	120	269		729	0	490	87	322
Michigan	410	787	111	34		669	34	554	93	438
Minnesota	388	346	320			949	13	196	38	119
Mississippi	132	229	220	191		103	18	278	292	782
Missouri	124	308	72	16		435	9	180	221	171
Montana	129	9	308	2		254	35	54	19	24
Nebraska [3]										
Nevada [4]										
New Hampshire		22				39			2	
New Jersey	269	405	48		1	330	0	436	105	427
New Mexico	4	17	5	3		52	1	97	101	18
New York	866	868	761	353	4	625	17	1,527	340	1,065
North Carolina	63	810	81			388	55		209	617
North Dakota	53	14	215	49	3	191	24	15	27	85
Ohio	751	875	87	70	4	880	44	604	296	645
Oklahoma [5]	22	179	22	5		118	38	80	453	54
Oregon	91	72	53	42		218	79	73	37	27
Pennsylvania [3]										
Rhode Island	17	41	6	1		21	0	30	4	19
South Carolina	44	676	46		17	114	14	177	356	202
South Dakota	33	37	315	1		180	4	6	18	76
Tennessee	30	524	20	5		328	16	167	725	346
Texas [3]										
Utah [2]										
Vermont	64	9	386	37		12	0	[1] 20	6	334
Virginia	118	689	127			393	11	[1] 224	220	723
Washington	370	191	80	93	2	293	90	146	55	37
West Virginia	124	264	78			352	4	117	344	314
Wisconsin	362	172	562	115		296	29	131	28	597
Wyoming	39	6	21	2		59	0	2	6	29

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

Case Rates per 1,000 Population (Annual Basis) for the Month of October, 1926

	Chicken pox	Diphtheria	Measles	Mumps	Paratyphoid fever	Scarlet fever	Smallpox	Tuberculosis	Typhoid fever	Whooping cough
Alabama	0.03	1.73	0.20	0.09		0.62	0.04	1.86	1.70	0.57
Arizona	.03	.39	2.01	.28		.98	.00	1.96	.31	.11
Arkansas	.20	.28	.04	.09	0.02	.20	.02	.16	.79	.44
California	1.62	1.50	5.57	1.33	.01	2.02	.18	2.00	.21	.64
Colorado	.67	.96	.25	.07		1.83	.03	1.29	.33	.26
Connecticut	1.24	.82	.47	.11	.02	1.05	.00	.88	.14	1.01
Delaware	.40	.75	.15			2.54	.00	[1] 1.25	1.19	.20
District of Columbia	.23	2.48	.07			1.11	.00	2.34	.21	.76
Florida	.03	1.91	.05	.10	.03	.35	.23	.72	.55	.21
Georgia	.12	1.50	.06	.11	.03	.35	.11	.27	1.13	.21
Idaho [2]	1.52	.66	.73	.21		2.97	.02	.09	.37	.23
Illinois	1.09	.82	1.03	.20	.01	1.36	.01	2.34	.64	1.29
Indiana	.83	1.79	.38	.02		1.71	.20	.71	.89	.72
Iowa	.46	.53	.13	.05		.83	.06	.24	.15	.14
Kansas	1.27	.87	1.65	.16	.01	1.72	.10	.89	.50	.69
Kentucky [2]										
Louisiana	.01	.98	.01	.01		.33	.02	[1] 1.12	.69	.06
Maine	2.22	.31	3.82	.34		1.80	.00	.55	.43	2.56
Maryland	.86	1.04	.17	.30		1.26	.00	1.63	1.55	1.67
Massachusetts	1.18	.82	.34	.76		2.05	.00	1.38	.25	.91
Michigan	1.14	2.18	.31	.09		1.86	.09	1.54	.26	1.22
Minnesota	1.76	1.57	1.45			4.30	.06	.89	.17	.54
Mississippi	.87	1.51	1.45	1.26		.68	.12	1.83	1.92	5.14
Missouri	.42	1.04	.24	.05		1.47	.03	.61	.75	.58
Montana	2.29	.16	5.46	.04		4.50	.62	.96	.34	.43
Nebraska [3]										
Nevada [4]										
New Hampshire		.57				1.02				.05
New Jersey	.89	1.34	.16		.00	1.09	.00	1.44	.35	1.41
New Mexico	.12	.52	.15	.09		1.60	.03	2.99	3.11	.55
New York	.91	.91	.80	.37	.00	.66	.02	1.60	.36	1.12
North Carolina	.27	3.41	.34			1.63	.23		.88	2.60
North Dakota	.90	.24	3.65	.83	.05	3.24	.41	.25	.46	1.44
Ohio	1.38	1.60	.16	.13	.01	1.61	.08	1.11	.54	1.18
Oklahoma [5]	.13	1.04	.13	.03		.68	.22	.46	2.63	.31
Oregon	1.25	.99	.73	.58		2.99	1.08	1.00	.51	.37
Pennsylvania [3]										
Rhode Island	.31	.75	.11	.02		.38	.00	.55	.07	.35
South Carolina	.29	4.43	.30		.11	.75	.09	1.16	2.33	1.32
South Dakota	.58	.65	5.52	.02		3.15	.07	.11	.32	1.33
Tennessee	.14	2.53	.10	.02		1.58	.08	.81	3.50	1.67
Texas [3]										
Utah [2]										
Vermont	2.14	.30	12.90	1.24		.40	.00	[1] .67	.20	11.16
Virginia	.56	3.28	.60			1.87	.05	[1] 1.07	1.05	3.44
Washington	2.90	1.50	.63	.73	.02	2.30	.71	1.15	.43	.29
West Virginia	.90	1.91	.56			2.55	.03	.85	2.49	2.27
Wisconsin	1.51	.72	2.34	.48		1.23	.12	.54	.12	2.48
Wyoming	2.02	.31	1.09	.10		3.06	.00	.10	.31	1.51

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

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

Diphtheria.—For the week ended December 4, 1926, 41 States reported 2,525 cases of diphtheria. For the week ended December 5, 1925, the same States reported 2,295 cases of this disease. One hundred cities, situated in all parts of the country and having an aggregate population of more than 30,000,000, reported 1,299 cases of diphtheria for the week ended December, 4, 1926. Last year for the corresponding week they reported 942 cases. The estimated expectancy for these cities was 1,376 cases. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty-eight States reported 5,178 cases of measles for the week ended December 4, 1926, and 4,443 cases of this disease for the week ended December 5, 1925. One hundred cities reported 1,021 cases of measles for the week this year and 1,963 cases last year.

Poliomyelitis.—The health officers of 42 States reported 34 cases of poliomyelitis for the week ended December 4, 1926. The same States reported 37 cases for the week ended December 5, 1925.

Scarlet fever.—Scarlet fever was reported for the week as follows: Forty-one States—this year, 4,038 cases; last year, 3,704 cases; 100 cities—this year, 1,392 cases; last year, 1,199 cases; estimated expectancy, 1,031 cases.

Smallpox.—For the week ended December 4, 1926, 41 States reported 612 cases of smallpox. Last year for the corresponding week they reported 433 cases. One hundred cities reported smallpox for the week as follows: 1926, 83 cases; 1925, 73 cases; estimated expectancy, 55 cases. No deaths from smallpox were reported by these cities for the week this year.

Typhoid fever.—Five hundred and thirty-seven cases of typhoid fever were reported for the week ended December 4, 1926, by 41 States. For the corresponding week of 1925 the same States reported 667 cases of this disease. One hundred cities reported 60 cases of typhoid fever for the week this year and 110 cases for the corresponding week last year. The estimated expectancy for these cities was 86 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia were reported for the week by 94 cities, with a population of more than 29,350,000, as follows: 1926, 771 deaths; 1925, 860 deaths.

City reports for week ended December 4, 1926

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration 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 week 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 nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1917 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations 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, 1925, 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			
NEW ENGLAND									
Maine:									
Portland	75,333	32	2	1	0	0	2	0	1
New Hampshire:									
Concord	22,546	0	1	0	0	0	11	0	0
Manchester	83,097	3	5	0	0	1	3	0	3
Vermont:									
Barre	10,008	4	1	1	0	0	18	0	0
Burlington	24,089	1	1	0	0	0	1	0	2
Massachusetts:									
Boston	779,620	110	66	33	5	1	5	56	18
Fall River	128,993	15	5	11	0	0	1	6	8
Springfield	142,065	12	5	5	0	2	2	1	2
Worcester	190,757	28	6	5	0	0	0	3	3
Rhode Island:									
Pawtucket	69,760	7	2	2	0	0	0	0	5
Providence	267,918	0	10	9	0	0	0	0	3
Connecticut:									
Bridgeport	(1)	4	11	1	1	0	2	1	3
Hartford	160,197	10	9	3	0	0	0	0	2
New Haven	178,927	16	4	2	0	0	2	0	5
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	57	25	24	1	0	5	1	14
New York	5,873,356	230	219	203	57	11	22	136	182
Rochester	316,786	10	10	11	2	0	2	0	5
Syracuse	182,003	10	11	1	----	0	10	10	4
New Jersey:									
Camden	128,642	3	6	7	1	1	1	1	1
Newark	452,513	35	19	5	8	2	9	14	9
Trenton	132,020	4	7	9	0	1	0	0	5
Pennsylvania:									
Philadelphia	1,979,364	200	86	64	2	9	9	13	64
Pittsburgh	631,563	85	32	26	----	3	14	8	18
Reading	112,707	20	5	4	----	0	2	2	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	23	22	15	0	1	0	28	10
Cleveland	936,485	107	49	101	1	1	5	3	10
Columbus	279,836	23	8	17	0	0	0	1	7
Toledo	287,380	102	19	5	0	0	4	0	7
Indiana:									
Fort Wayne	97,846	5	5	8	0	0	8	0	2
Indianapolis	358,819	47	13	25	0	1	1	0	7
South Bend	80,091	8	2	2	0	0	13	0	0
Terre Haute	71,071	4	3	2	0	0	0	0	1
Illinois:									
Chicago	2,995,239	162	155	66	8	5	155	26	53
Peoria	81,564	15	2	1	0	1	67	10	3
Springfield	63,923	13	3	3	1	1	12	0	1

[1] No estimate made.

City reports for week ended December 4, 1926—Continued

Division, State, and city	Population July 1, 1925, 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			
EAST NORTH CENTRAL—Continued									
Michigan:									
Detroit	1,245,824	127	74	112	9	4	5	25	16
Flint	130,316	47	14	4	0	0	2	0	1
Grand Rapids	153,698	9	7	2	0	0	1	0	2
Wisconsin:									
Kenosha	50,891	22	2	0	0	0	9	18	2
Madison	46,385	26	1	2	0	0	0	0	0
Milwaukee	509,192	81	31	26	0	0	11	41	15
Racine	67,707	53	3	5	0	0	0	17	1
Superior	39,671	0	1	2	0	0	0	0	2
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	11	3	0	0	0	35	0	3
Minneapolis	425,435	244	28	40	0	1	2	0	5
St. Paul	246,001	55	21	9	0	0	3	0	9
Iowa:									
Davenport	52,469	0	2	2	0	----	10	0	----
Sioux City	76,411	18	3	3	0	----	0	0	----
Waterloo	36,771	37	0	0	0	----	2	0	----
Missouri:									
Kansas City	367,481	----	14	----	----	----	----	----	----
St. Joseph	78,342	2	5	0	0	0	0	0	1
St. Louis	821,543	45	60	31	0	0	2	4	----
North Dakota:									
Fargo	26,403	12	1	0	0	0	2	0	0
South Dakota:									
Aberdeen	15,036	24	0	0	0	----	2	1	----
Sioux Falls	30,127	7	1	0	0	----	0	1	----
Nebraska:									
Lincoln	60,941	12	2	1	0	0	0	0	0
Omaha	211,768	14	7	5	0	0	5	6	7
Kansas:									
Topeka	55,411	30	4	0	0	0	1	0	2
Wichita	88,367	36	8	6	0	0	2	1	2
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	4	4	1	0	0	0	0	1
Maryland:									
Baltimore	796,293	145	37	39	12	1	2	9	10
Cumberland	33,741	4	2	0	0	0	0	0	0
Frederick	12,035	4	0	1	0	0	0	0	0
District of Columbia:									
Washington	497,906	31	28	23	0	2	0	0	10
Virginia:									
Lynchburg	30,395	1	2	4	0	2	0	0	3
Norfolk	(1)	0	5	4	0	0	1	0	2
Richmond	186,403	8	14	13	0	0	14	0	0
Roanoke	58,208	9	4	2	0	0	0	0	1
West Virginia:									
Charleston	49,019	5	3	1	0	1	4	0	3
Huntington	63,485	0	2	4	0	----	0	0	----
Wheeling	56,208	18	4	3	0	0	1	0	1
North Carolina:									
Raleigh	30,371	1	2	3	0	0	0	0	2
Wilmington	37,061	14	1	2	0	0	0	0	1
Winston-Salem	69,031	9	2	4	0	1	0	0	1
South Carolina:									
Charleston	73,125	0	2	1	54	2	1	0	4
Columbia	41,225	0	1	2	0	0	0	0	0
Greenville	27,311	1	0	3	0	0	0	0	1
Georgia:									
Atlanta	(1)	1	5	20	20	2	1	0	9
Brunswick	16,809	0	1	0	0	0	0	0	0
Savannah	93,134	1	3	0	14	0	0	0	3
Florida:									
Miami	69,754	0	----	5	0	0	2	1	4
St. Petersburg	26,847	----	1	----	----	0	----	----	0
Tampa	94,743	0	2	3	0	0	2	0	4

[1] No estimate made.

City reports for week ending December 4, 1926—Continued

Division, State, and city	Population July 1, 1925, 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			
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	2	3	6	0	0	0	0	4
Louisville	305,935	13	13	6	0	0	0	1	13
Tennessee:									
Memphis	174,533	13	11	5	0	0	3	0	0
Nashville	136,220	0	5	18	0	3	0	0	3
Alabama:									
Birmingham	205,670	5	6	14	9	5	2	0	5
Mobile	65,935	0	2	1	0	0	0	0	1
Montgomery	46,481	1	1	8	0	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	0	2	3	0	-------	0	0	-------
Little Rock	74,216	0	3	0	0	-------	3	0	3
Louisiana:									
New Orleans	414,493	3	12	17	5	7	28	0	19
Shreveport	57,857	6	1	1	0	0	0	0	2
Oklahoma:									
Oklahoma City	(1)	0	4	1	0	2	2	0	6
Texas:									
Dallas	194,450	2	13	31	0	1	1	0	4
Galveston	48,375	0	1	3	0	0	0	0	2
Houston	164,954	3	5	13	0	0	0	0	4
San Antonio	198,069	0	4	6	0	1	1	0	3
MOUNTAIN									
Montana:									
Billings	17,971	5	0	0	0	1	93	0	0
Great Falls	29,883	13	1	0	0	0	0	0	2
Helena	12,037	0	1	1	0	0	0	0	1
Missoula	12,668	1	0	1	0	0	0	5	0
Idaho:									
Boise	23,042	4	0	1	0	0	0	0	0
Colorado:									
Denver	280,911	18	13	15	-------	4	14	1	11
Pueblo	43,787	8	5	0	0	0	0	0	1
New Mexico:									
Albuquerque	21,000	2	1	0	0	0	0	1	1
Arizona:									
Phoenix	38,669	0	0	1	0	0	0	0	4
Utah:									
Salt Lake City	130,948	38	3	7	0	0	205	2	8
Nevada:									
Reno	12,665	1	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	73	7	3	0	-------	10	21	-------
Spokane	108,897	21	4	1	0	-------	124	0	-------
Tacoma	104,455	12	3	16	0	0	0	0	4
Oregon:									
Portland	282,383	12	10	10	0	0	4	2	6
California:									
Los Angeles	(1)	65	42	56	7	1	6	12	25
Sacramento	72,260	0	3	4	1	1	43	14	1
San Francisco	557,530	25	17	20	3	1	78	11	13

[1] No estimate made.

City reports for week ending December 4, 1926—Continued

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		
NEW ENGLAND											
Maine:											
Portland	2	3	0	0	0	0	1	1	0	23	24
New Hampshire:											
Concord	0	2	0	0	0	0	0	0	0	0	13
Manchester	2	0	0	0	0	2	0	0	0	0	27
Vermont:											
Barre	0	0	0	0	0	1	0	0	0	2	4
Burlington	1	0	0	0	0	0	0	0	0	22	4
Massachusetts:											
Boston	41	80	0	0	0	13	2	1	0	15	214
Fall River	1	5	0	0	0	2	1	1	0	11	37
Springfield	7	3	0	0	0	0	1	0	0	5	34
Worcester	11	9	0	0	0	2	0	0	0	5	46
Rhode Island:											
Pawtucket	1	0	0	0	0	0	0	0	0	0	18
Providence	7	14	0	0	0	2	1	0	0	1	58
Connecticut:											
Bridgeport	8	16	0	0	0	0	1	0	0	0	26
Hartford	6	3	0	0	0	1	0	0	0	1	25
New Haven	7	3	0	0	0	0	1	0	0	1	26
MIDDLE ATLANTIC											
New York:											
Buffalo	20	12	0	0	0	4	2	3	2	19	132
New York	135	178	0	1	0	[1]86	20	7	1	80	1,341
Rochester	11	6	0	0	0	4	1	2	0	16	57
Syracuse	12	13	0	0	0	1	1	0	0	6	40
New Jersey:											
Camden	3	2	1	0	0	3	0	1	1	0	33
Newark	16	24	0	0	0	3	1	0	0	45	88
Trenton	2	0	0	0	0	4	0	0	0	6	43
Pennsylvania:											
Philadelphia	69	63	0	0	0	36	5	4	2	51	557
Pittsburgh	37	16	1	0	0	6	1	1	0	17	163
Reading	2	0	0	0	0	2	0	0	1	8	33
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	14	18	0	0	0	5	1	3	0	3	132
Cleveland	32	25	1	0	0	9	2	0	0	18	168
Columbus	11	19	1	3	0	7	0	0	0	9	83
Toledo	14	14	1	2	0	6	1	0	0	49	85
Indiana:											
Fort Wayne	2	3	0	1	0	0	0	0	1	1	18
Indianapolis	12	22	4	26	0	7	1	0	0	14	96
South Bend	3	1	1	0	0	1	0	0	0	0	7
Terre Haute	4	9	0	0	0	0	0	0	0	1	11
Illinois:											
Chicago	118	121	0	0	0	38	5	3	1	46	696
Peoria	6	5	1	0	0	0	0	0	0	0	22
Springfield	2	3	0	0	0	2	0	0	0	5	19
Michigan:											
Detroit	78	83	2	0	0	20	3	2	0	48	250
Flint	8	15	0	1	0	1	0	0	0	1	22
Grand Rapids	8	12	0	0	0	1	1	0	0	2	38
Wisconsin:											
Kenosha	1	6	1	0	0	1	0	0	0	8	11
Madison	1	9	0	-------	0	0	0	0	0	1	-------
Milwaukee	28	8	1	0	0	3	1	1	1	42	95
Racine	4	3	0	0	0	0	0	0	0	7	18
Superior	2	0	1	0	0	0	0	0	0	0	4

[1] Pulmonary tuberculosis only.

City reports for week ended December 4, 1926—Continued

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		
WEST NORTH CENTRAL											
Minnesota:											
Duluth	5	12	0	0	0	3	0	0	0	0	20
Minneapolis	44	87	3	0	0	3	1	0	0	0	84
St. Paul	18	19	10	4	0	1	0	1	0	6	53
Iowa:											
Davenport	0	2	1	0			0	0		4	
Sioux City	3	8	0	0			0	0		0	
Waterloo	3	2	0	0			0	0		2	
Missouri:											
Kansas City	11		0				1				
St. Joseph	3	3	0	0	0	2	0	0	0	0	21
St. Louis	36	33	0	0	0	7	2	1	0	19	255
North Dakota:											
Fargo	3	7	0	0	0	0	0	0	0	0	6
South Dakota:											
Aberdeen	1	17	0	0			0	0		0	
Sioux Falls	2	1	0	0			0	0		0	
Nebraska:											
Lincoln	2	0	0	0	0	0	0	0	0	2	16
Omaha	5	10	4	1	0	1	0	0	0	2	55
Kansas:											
Topeka	2	2	0	19	0	1	0	2	0	3	10
Wichita	3	12	0	0	0	1	1	0	0	4	24
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	16	0	0	0	2	1	0	0	0	24
Maryland:											
Baltimore	21	16	0	0	0	12	3	3	0	48	195
Cumberland	1	2	0	0	0	1	1	0	1	0	12
Frederick	0	2	0	0	0	0	0	0	0	1	4
District of Col.:											
Washington	20	10	0	0	0	10	4	0	0	0	159
Virginia:											
Lynchburg	1	11	0	0	0	0	0	0	0	0	22
Norfolk	2	3	0	0	0	1	0	0	0	2	
Richmond	7	6	0	0	0	4	1	1	0	5	41
Roanoke	2	5	0	0	0	1	0	0	0	9	18
West Virginia:											
Charleston	1	3	0	0	0	1	1	0	0	0	28
Huntington	2	4	0	0			0	0		0	
Wheeling	2	0	0	0	0	0	0	2	0	3	15
North Carolina:											
Raleigh	2	8	0	0	0	0	0	0	0	7	19
Wilmington	1	2	0	0	0	0	0	0	0	7	13
Winston-Salem	2	1	0	0	0	1	0	1	0	9	22
South Carolina:											
Charleston	1	1	0	1	0	2	0	1	0	0	24
Columbia	0	1	0	0	0	0	0	0	0	0	
Greenville	0	0	0	0	0	1	0	0	0	1	18
Georgia:											
Atlanta	5	8	1	8	0	0	1	0	2	0	77
Brunswick	0	0	0	0	0	1	0	0	0	0	6
Savannah	1	1	0	1	0	2	0	0	0	0	24
Florida:											
Miami		3		0	0	2		0	0	0	51
St. Petersburg	0		0		0	0	0		0		11
Tampa	1	1	1	0	0	4	0	1	0	2	32
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	1	0	0	0	3	0	0	0	0	23
Louisville	5	11	0	0	0	1	1	1	1	12	94
Tennessee:											
Memphis	5	24	0	0	0	0	1	2	1	13	49
Nashville	3	7	0	0	0	4	1	2	0	1	38
Alabama:											
Birmingham	4	4	1	0	0	6	2	3	0	2	71
Mobile	2	0	0	0	0	0	1	0	0	0	14
Montgomery	1	0	0	0	0	0	0	0	0	0	28

City reports for week ended December 4, 1926—Continued

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		
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	2	0	0	0	----	----	0	0	----	0	----
Little Rock	2	1	0	0	----	3	1	0	----	0	----
Louisiana:											
New Orleans	7	17	0	0	0	3	2	1	0	1	143
Shreveport	1	0	0	0	0	1	1	0	0	0	21
Oklahoma:											
Oklahoma City	3	2	0	0	0	0	1	0	0	0	31
Texas:											
Dallas	4	20	0	2	0	5	1	0	0	1	48
Galveston	0	3	0	0	0	3	0	0	0	0	18
Houston	2	8	0	0	0	0	0	1	0	0	62
San Antonio	1	0	0	0	0	11	1	0	0	0	47
MOUNTAIN											
Montana:											
Billings	1	2	0	0	0	0	0	0	0	0	9
Great Falls	1	6	0	0	0	0	0	0	0	0	4
Helena	0	0	0	1	0	0	0	0	0	0	2
Missoula	0	8	0	0	0	0	0	1	0	0	6
Idaho:											
Boise	1	2	1	0	0	0	0	0	0	0	5
Colorado:											
Denver	10	83	4	0	0	11	0	0	0	1	82
Pueblo	2	0	0	0	0	1	0	0	0	0	10
New Mexico:											
Albuquerque	0	2	0	0	0	5	0	2	0	1	17
Arizona:											
Phoenix	3	3	0	0	0	13	0	0	0	0	33
Utah:											
Salt Lake City	3	1	1	1	0	3	1	0	0	1	48
Nevada:											
Reno	0	0	1	0	0	0	0	0	0	0	2
PACIFIC											
Washington:											
Seattle	7	17	3	0	----	----	1	2	----	2	----
Spokane	6	20	4	3	----	----	0	2	----	1	----
Tacoma	3	8	3	3	0	2	0	0	0	3	30
Oregon:											
Portland	7	21	5	1	0	0	1	0	0	0	69
California:											
Los Angeles	20	39	3	4	0	22	2	1	0	6	270
Sacramento	2	4	1	2	0	1	1	0	0	0	22
San Francisco	11	11	1	1	0	9	0	1	0	14	149

City reports for week ended December 4, 1926—Continued

Division, State, and city	Cerebrospinal meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	2	1	0	0	0	0	1	0	0
Connecticut:									
Hartford	0	0	1	1	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York	4	1	3	3	0	0	3	1	0
New Jersey:									
Camden	0	0	0	0	0	0	0	1	0
Newark	0	0	0	0	0	0	0	1	0
Pennsylvania:									
Philadelphia	0	0	1	1	0	0	0	0	0
Pittsburgh	0	0	0	1	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Columbus	0	0	0	0	0	0	0	1	0
Illinois:									
Chicago	2	1	1	1	0	0	1	1	0
Peoria	0	1	0	0	0	0	0	0	0
Michigan:									
Grand Rapids	1	1	0	0	0	0	0	0	0
Wisconsin:									
Milwaukee	0	0	1	1	0	0	0	0	0
WEST NORTH CENTRAL									
Missouri:									
St. Louis	2	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore [1]	1	2	1	0	0	0	0	0	0
North Carolina:									
Raleigh	0	0	0	0	0	1	0	0	0
Wilmington	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston [2]	0	0	0	0	1	0	0	0	0
Georgia:									
Atlanta	1	0	0	0	0	1	0	0	0
Brunswick	0	0	0	0	0	1	0	0	0
Florida:									
St. Petersburg	0	1	0	0	0	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	1	0	0	0	0	0	0	0
Alabama:									
Birmingham	0	0	0	0	2	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	2	0	0	0
Louisiana:									
New Orleans	1	0	0	0	0	0	0	0	0
Texas:									
Dallas	0	0	0	0	2	0	0	0	0
Galveston	0	0	0	0	0	1	0	0	0
PACIFIC									
Washington:									
Seattle	1	0	2	0	0	0	0	0	0
Spokane	3	0	0	0	0	0	0	0	0
California:									
Los Angeles	0	0	1	0	1	1	0	3	0
San Francisco	0	0	0	1	0	0	1	0	0

[1] Typhus fever; 1 case at Baltimore, Md.

[2] Dengue; 1 case at Charleston, S. C.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended December 4, 1926, compared with those for a like period ended December 5, 1925. The population figures used in computing the rates are approximate estimates as of July 1, 1925 and 1926, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had an estimated aggregate population of nearly 30,000,000 in 1925 and nearly 30,500,000 in 1926. The 95 cities reporting deaths had more than 29,200,000 estimated population in 1925 and more than 29,730,000 in 1926. 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, October 31 to December 4, 1926—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Nov. 7, 1925	Nov. 6, 1926	Nov. 14, 1925	Nov. 13, 1926	Nov. 21, 1925	Nov. 20, 1926	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926
101 cities	161	224	169	229	176	230	154	[2] 212	165	[3] 225
New England	93	118	122	135	139	139	101	132	120	173
Middle Atlantic	125	142	140	162	143	159	150	154	137	176
East North Central	178	276	185	264	180	292	155	[2] 259	164	267
West North Central	264	252	235	222	221	213	170	191	272	[3] 221
South Atlantic	198	319	236	391	271	278	207	284	207	242
East South Central	126	425	63	265	121	368	110	218	116	301
West South Central	189	254	203	379	167	327	172	301	264	318
Mountain	277	218	240	182	305	146	129	200	231	228
Pacific	141	288	138	232	177	326	157	305	122	270

MEASLES CASE RATES

101 cities	149	81	169	105	222	135	205	[2] 133	342	[3] 177
New England	822	66	903	31	1,090	47	798	57	1,526	102
Middle Atlantic	159	16	170	44	255	28	238	30	338	37
East North Central	70	80	84	100	97	121	118	[2] 131	243	145
West North Central	14	151	10	147	14	197	29	109	18	[3] 127
South Atlantic	144	21	217	24	271	54	330	23	516	49
East South Central	16	26	16	10	47	31	32	16	37	26
West South Central	9	9	9	26	9	26	4	103	4	142
Mountain	37	792	46	1,529	28	1,948	9	2,540	9	2,840
Pacific	17	315	19	260	30	491	25	340	55	704

SCARLET FEVER CASE RATES

101 cities	163	189	182	207	178	213	197	[2] 215	211	[3] 242
New England	261	265	237	352	201	331	206	286	216	326
Middle Atlantic	110	94	142	125	143	129	149	137	166	156
East North Central	159	189	180	185	187	202	210	[2] 201	261	239
West North Central	358	415	354	346	401	407	438	411	405	[3] 459
South Atlantic	173	199	161	178	115	145	134	158	119	182
East South Central	100	249	168	296	126	228	168	239	163	244
West South Central	97	112	114	142	88	116	132	198	106	211
Mountain	166	583	176	701	157	637	166	783	240	929
Pacific	155	205	196	280	188	337	237	251	215	267

[1] 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, 1925 and 1926, respectively.
[2] Racine, Wis., not included.
[3] Kansas City, Mo., not included.

Summary of weekly reports from cities, October 31 to December 4, 1926—Annual rates per 100,000 population, compared with rates for the corresponding period of 1925—Continued

SMALLPOX CASE RATES

	Week ended—									
	Nov. 7, 1925	Nov. 6, 1926	Nov. 14, 1925	Nov. 13, 1926	Nov. 21, 1925	Nov. 20, 1926	Nov. 28, 1925	Nov. 27, 1926	Dec. 5, 1925	Dec. 4, 1926
101 cities	9	3	8	5	16	5	16	[2] 5	13	[3] 14
New England	0	0	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	1
East North Central	12	6	13	10	31	3	31	[2] 8	13	21
West North Central	10	2	4	10	16	4	10	30	18	[3] 57
South Atlantic	12	0	6	2	19	4	2	4	4	19
East South Central	26	10	32	10	11	0	11	5	11	0
West South Central	0	9	0	30	0	4	9	4	13	9
Mountain	18	0	18	9	18	0	9	0	0	18
Pacific	47	3	41	5	75	49	94	5	105	35

TYPHOID FEVER CASE RATES

101 cities	27	24	11	21	17	16	13	[2] 12	19	[3] 10
New England	22	17	2	9	31	7	17	7	22	7
Middle Atlantic	12	12	8	21	20	21	14	13	26	9
East North Central	18	13	9	10	3	5	3	[2] 4	8	6
West North Central	31	26	16	16	14	6	8	8	10	[3] 9
South Atlantic	60	45	10	36	29	23	27	19	19	17
East South Central	168	104	42	52	32	36	21	31	53	42
West South Central	48	22	57	34	31	13	31	17	40	9
Mountain	37	91	9	27	18	27	18	18	0	9
Pacific	8	46	3	30	6	30	14	22	14	16

[2] Racine, Wis., not included.
[3] Kansas City, Mo., not included.

INFLUENZA DEATH RATES

95 cities	13	11	11	14	8	10	9	[2] 10	11	[3] 14
New England	5	12	7	2	2	2	12	9	10	7
Middle Atlantic	14	9	14	10	6	10	8	7	10	13
East North Central	11	6	10	10	6	10	5	[2] 9	6	9
West North Central	6	6	13	13	2	6	2	2	6	[3] 2
South Atlantic	17	15	2	17	13	8	10	15	17	21
East South Central	37	21	26	26	42	31	26	4[illegible]	42	42
West South Central	15	43	29	71	10	33	34	3[illegible]	39	43
Mountain	9	18	0	27	18	9	9	36	18	46
Pacific	15	7	4	14	18	4	4	0	4	11

PNEUMONIA DEATH RATES

95 cities	133	101	132	106	146	123	126	[2] 126	144	[3] 123
New England	134	99	120	90	139	104	156	132	180	118
Middle Atlantic	143	113	143	114	160	135	145	138	161	150
East North Central	119	84	131	85	139	106	95	[2] 100	142	87
West North Central	86	84	81	76	101	120	81	74	54	[3] 72
South Atlantic	194	120	152	139	146	143	134	165	159	105
East South Central	152	99	163	166	221	171	179	104	131	135
West South Central	150	118	102	113	155	156	150	213	155	161
Mountain	102	164	176	155	222	109	157	146	157	209
Pacific	91	50	109	99	87	75	98	124	98	153

[2] Racine, Wis., not included. [3] Kansas City, Mo., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1925 and 1926, 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	
			1925	1926	1925	1926
Total	101	95	29,900,058	30,427,598	29,221,531	29,733,613
New England	12	12	2,176,124	2,206,124	2,176,124	2,206,124
Middle Atlantic	10	10	10,346,970	10,476,970	10,346,970	10,476,970
East North Central	16	16	7,481,656	7,655,436	7,481,656	7,655,436
West North Central	12	10	2,550,024	2,589,131	2,431,253	2,468,448
South Atlantic	21	21	2,716,070	2,776,070	2,716,070	2,776,070
East South Central	7	7	993,103	1,004,953	993,103	1,004,953
West South Central	8	6	1,184,057	1,212,057	1,078,198	1,103,694
Mountain	9	9	563,912	572,773	563,912	572,773
Pacific	6	4	1,888,142	1,934,084	1,434,245	1,469,144

FOREIGN AND INSULAR

THE FAR EAST

Report for week ended November 27, 1926.—The following report for the week ended November 27, 1926, was transmitted by the Eastern Bureau of the Secretariat of the Health Section of the League of Nations, located at Singapore, to the headquarters at Geneva:

Maritime towns	Plague		Cholera		Smallpox		Maritime towns	Plague		Cholera		Smallpox	
	Cases	Deaths	Cases	Deaths	Cases	Deaths		Cases	Deaths	Cases	Deaths	Cases	Deaths
British India:							Siam: Bangkok	0	0	0	0	1	0
Bombay		0		0	5	4	French Indo-China:						
Calcutta		0		16	22	18	Turane	0	0	1	0	0	0
Rangoon		3		1	0	0	Haiphong	0	0		32	0	0
Madras		0		0	1	0	Chosen: Fusan	0	0	0	0	1	0
Vizagapatam	1	0		0	0	0	Kwantung: Dairen	0	0	0	0	1	0
Tuticorin		0		0	1	0	Egypt: Alexandria	1	0	0	0	0	0
Ceylon: Colombo	1	1	0	0	0	0	Mauritius: Port Louis	8	6	0	0	0	0
Straits Settlements:							Union of South Africa:						
Singapore	1	0	1	1	0	0	Durban	0	0	0	0	2	0
Dutch East Indies:													
Cheribon	0	0	0	0	0	0							

Telegraphic reports from the following maritime towns indicated that no case of plague, cholera, or smallpox was reported during the week:

ASIA

Arabia.—Aden, Jeddah, Kamaran, Perim.

Iraq.—Basrah.

Persia.—Mohammerah, Bender-Abbas, Bushire.

British India.—Karachi, Chittagong, Cochin, Negapatam.

Portuguese Indies.—Nova Goa.

Federated Malay States.—Port Swettenham.

Straits Settlements.—Penang.

Dutch East Indies.—Smarang, Batavia, Surabaya, Sabang, Makassar, Banjermasin, Palembang, Belawan-Deli, Padang, Tarakan, Menado, Balikpapan.

French Indo-China.—Saigon and Cholon.

Sarawak.—Kuching.

British North Borneo.—Sandakan, Jesselton, Kudat, Tawao.

Portuguese Timor.—Dilly.

China.—Amoy, Shanghai (International Settlement).

Hong-Kong.

Macao.

Formosa.—Keelung.

Japan.—Yokohama, Osaka, Nagasaki, Niigata, Tsuruga, Hakodate, Shimonoseki, Moji, Kobe.

Korea.—Chemulpo.

Manchuria.—Mukden, Changchun, Harbin, Antung, Yingkow.

Kwantung.—Port Arthur.

U. S. S. R.—Vladivostok.

AUSTRALASIA AND OCEANIA

Australia.—Adelaide, Melbourne, Sydney, Brisbane, Rockhampton, Townsville, Port Darwin, Broome, Fremantle, Garnarvon, Thursday Island.

New Guinea.—Port Moresby.

New Britain Mandated Territory.—Rabaul and Kokopo.

New Zealand.—Auckland, Wellington, Christchurch, Invercargill, Dunedin.

New Caledonia.—Noumea.

Fiji.—Suva.

Hawaii.—Honolulu.

Society Islands.—Papeete.

AFRICA

Egypt.—Port Said, Suez.

Anglo-Egyptian Sudan.—Port Sudan, Suakin.

Eritrea.—Massaua.

French Somaliland.—Jibuti.

British Somaliland.—Berbera.

Italian Somaliland.—Mogadiscio.

Kenya.—Mombasa.

Zanzibar.—Zanzibar.

Tanganyika.—Dar-es-Salaam.

Seychelles.—Victoria.

Madagascar.—Majunga, Tamatave.

Portuguese East Africa.—Mozambique, Beira, Lourenço-Marques.

Union of South Africa.—East London, Port Elizabeth, Cape Town.

Reports had not been received in time for distribution from—

Dutch East Indias.—Samarinda, Pontianak.
Philippine Islands.—Manila, Iloilo, Jolo, Cebu, Zamboanga.

ARGENTINA

Plague—Province of Cordoba—November 20, 1926.—Under date of November 20, 1926, five cases of plague were reported at localities in the interior of the Province of Cordoba, Argentina. The cases were mild and have not been bacteriologically verified.

BRAZIL

Mortality—Communicable diseases—Santos—August 29–October 3, 1926.—During the six-week period ended October 3, 1926, 255 deaths from all causes were reported at Santos, Brazil, the greatest number of deaths reported during one week being 59 and the lowest 35. The deaths included influenza, 4; malaria, 4; measles, 8; puerperal fever, 2; tetanus, 3; tuberculosis, 42; typhoid fever, 4; whooping cough, 1. During the period under report dysentery was stated to have been present. Population, 150,000.

CANADA

Communicable diseases—Week ended November 27, 1926.—The Canadian Ministry of Health reports cases of certain communicable diseases in seven Provinces of Canada for the week ended November 27, 1926, as follows:

Diseases	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Influenza	22							22
Poliomyelitis				2				2
Smallpox				34	2	21	4	61
Typhoid fever			3	10	2	14	3	32

CHINA

Communicable diseases—Canton—September, 1926.—During the month of September, 1926, communicable diseases were reported in Canton, China, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cholera	72	32	Measles	2	
Diphtheria	1		Smallpox	1	
Dysentery	10	4	Typhoid fever	28	2
Influenza	14				

Population, 1,300,000.

EGYPT

Plague—November 5–11, 1926.—During the week ended November 11, 1926, a case of plague was reported in Egypt, occurring in the district of Tanta.

Summary.—During the period January 1 to November 11, 1926, 142 cases of plague were reported in Egypt, as compared with 136 cases during the corresponding period of the year 1925.

GERMANY

Further relative to typhoid fever epidemic—Hanover.—Information dated November 22, 1926, shows that the epidemic of typhoid fever which was reported at Hanover, Germany, September 18, 1926, with a total of 1,504 cases under treatment and 42 fatalities to that date,[1] was considered terminated, only a few cases being reported at that time. The highest point of prevalence was reached with 2,000 cases under treatment. The total number of deaths reported was 267.

JAMAICA

Smallpox (alastrim)—October 31–November 27, 1926.—During the period October 31 to November 27, 1926, 20 cases of smallpox, reported as alastrim, were notified in the Island of Jamaica, occurring at localities outside of Kingston.

Other communicable diseases.—During the same period other communicable diseases were reported in the Island of Jamaica as follows:

Disease	Cases		Disease	Cases	
	Kingston	Other localities		Kingston	Other localities
Cerebrospinal meningitis		2	Puerperal fever		1
Chicken pox		5	Tuberculosis (pulmonary)	7	29
Dysentery	5	117	Typhoid fever	18	99

Population: Island, 916,620; Kingston, 62,707.

MADAGASCAR

Plague—September 16–30, 1926.—During the period September 16 to 30, 1926, 98 cases of plague with 93 deaths were reported in the island of Madagascar. The occurrence was distributed according to Provinces as follows: *Itasy*—Cases, 1; deaths, 1; *Majunga*—cases, 9; deaths, 8; *Moramanga*—cases, 23; deaths, 23; *Tananarive* (town)—cases, 4; deaths, 3; other places in Tananarive Province—cases, 58; deaths, 55. The distribution of occurrence according to type was: Bubonic—cases, 44; deaths, 41; pneumonic—cases, 32, deaths, 30; septicemic—cases, 22; deaths, 22.

[1] Public Health Reports, Oct. 29, 1926, page 2511.

PERU

Mortality from certain diseases—September-October, 1926.—Arequipa.—During the months of September and October, 1926, deaths from communicable diseases were reported at Arequipa, Peru, as follows: *September, 1926*—Gastroenteritis, 1 death; influenza with complications, 13 deaths; tuberculosis, 14; typhoid fever, 2. *October, 1926*—Gastroenteritis, 7; influenza, 8; tuberculosis, 19. Population, 43,000.

Disease prevalence.—Gastroenteritis in children, smallpox, tuberculosis, typhoid fever, and in winter bronchial affections and pneumonia, were stated to be the prevailing diseases at Arequipa.

Plague—October, 1926.—During the month of October, 1926, 36 cases of plague with 13 deaths were reported in Peru, occurring in the departments of Lambayeque, Libertad, Lima, and Piura. In the department of Cajamarca plague was reported present in one Province and locality, with an unreported number of cases. (See p. 3031.)

SENEGAL

Plague—Yellow fever—November 1-10, 1926.—During the period November 1 to 10, 1926, 55 cases of bubonic plague, with 27 deaths, occurring in natives, were reported from the interior of Senegal, West Africa. Five deaths from yellow fever, of which three were in Syrians and two in Europeans, were reported from the Kaolak region, Senegal.

Measures to prevent spread.—The infected areas were stated to have been isolated and measures taken to localize the outbreaks and prevent spread.

UNION OF SOUTH AFRICA

Plague—Cape Province—October 24-30, 1926.—During the week ended October 30, 1926, a fatal case of plague, occurring in a European, was reported in the Williston district, Cape Province, Union of South Africa. The case occurred on a farm, and the patient was in direct contact with and had helped to nurse the previously reported cases, who were members of his family.

Smallpox.—During the period under report outbreaks of smallpox were reported in the Cape Province, occurring in two districts. In Natal two new cases were reported in Inanda district, in Hindus, both contacts with previous cases removed from Shire's barracks, Durban. Twenty-two further cases were reported in Durban, making a total from date of original outbreak at Durban, week ended October 16, 1926, of 38 cases, with 8 deaths, occurring in Hindus.

Measures to prevent spread.—Isolation of all cases and suspects in hospital; surveillance of all contacts; vaccination or revaccination of the population in and around Durban.

Typhus fever—Cape Province—Orange Free State—September, 1926.—During the month of September, 1926, 48 cases of typhus fever with two deaths were reported in the Union of South Africa. The occurrence was distributed as follows: *Cape Province*—Cases, 24; deaths, 2. *Orange Free State*—Cases, 24. The occurrence was in the colored or native population.

YUGOSLAVIA

Communicable diseases—October, 1926.—During the month of October, 1926, communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	66	13	Rabies	2	2
Cerebrospinal meningitis	7	2	Scarlet fever	534	74
Diphtheria	237	41	Tetanus	30	14
Dysentery	206	30	Typhoid fever	806	81
Lethargic encephalitis	1		Typhus fever	1	
Measles	524	2	Whooping cough	280	7

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

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended December 24, 1926 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Tsingtau	Oct. 24-30			Present.
India:				
Calcutta	Oct. 3-23	44	37	
Rangoon	Oct. 24-30	1	1	
Siam				Oct. 24-30, 1926: Cases, 34; deaths, 32. Apr. 1-Oct. 30, 1926. Cases, 7,705; deaths, 5,075.
Bangkok	Oct. 24-30	1	1	

PLAGUE

Argentina:				
Cordoba Province	Nov. 20	5		
Ceylon:				
Colombo	Oct. 31-Nov. 6	1	1	Provisional diagnosis.
Egypt				Nov. 5-11, 1926: One case. Summary—Jan. 1-Nov. 11, 1926: Cases, 142; corresponding period, year 1925, 136.
India:				
Rangoon	Oct. 17-30	2	2	
Java:				
Batavia	Oct. 24-30	8	8	Province.
Madagascar				Sept. 16-30, 1926: Cases, 98; deaths, 93.
Itasy Province	Sept. 16-30	1	1	Bubonic.
Majunga Province	do	9	8	Do.
Moramanga Province	do	23	23	Bubonic, 8; pneumonic, 10; septicemic, 5.
Tamatave Province	do	3	3	Bubonic.
Tananarive Province—				
Tananarive Town	do	4	3	Bubonic, 1; pneumonic, 2; septicemic, 1.
Other localities	do	58	55	Bubonic, 22; pneumonic, 20; septicemic, 16.

[1] From medical officers of the Public Health Service, American consuls and other sources.

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

Reports Received During Week Ended December 24, 1926—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Peru				October, 1926: Cases, 36; deaths, 13.
Department—				
Cajamarca	Oct. 1-31			Present in the Province of Cajamarca.
Lambayeque	do	4	2	Chiclayo Province and district.
Libertad	do	8	1	Provinces—Pacasmayo and Trujillo.
Lima	do	22	9	Provinces—Canete; Chancay; Huacho; Lima. Lima City, cases, 2; deaths, 1; country district—Cases, 7; deaths, 5.
Piura	do	2	1	Province—Huancabamba.
Senegal				Nov. 1-10, 1926: Cases, 55; deaths, 27. In natives. Interior of country.
Siam				Apr. 1-Oct. 30, 1926: Cases, 15; deaths, 10.
Syria:				
Beirut	Oct. 11-20	3		
Union of South Africa:				
Cape Province—				
Williston District	Oct. 24-30	1	1	On farm. Patient in direct contact with previous cases in same family group.

SMALLPOX

Canada:				
Alberta				Nov. 21-27, 1926: Cases, 4.
Calgary	Nov. 21-27	3		
Manitoba				Nov. 21-27, 1926: Cases, 2.
Winnipeg	Dec. 5-11	3		
Ontario				Nov. 21-27, 1926: Cases, 34.
Saskatchewan				Nov. 21-27, 1926: Cases, 21.
China:				
Canton	Sept. 1-30	1		
Egypt:				
Alexandria	Oct. 22-28	1		
Cairo	May 14-June 10	17	6	
Great Britain:				
England and Wales—				
Sheffield	Nov. 14-27	17		
India:				
Bombay	Oct. 24-Nov. 6	8	3	
Calcutta	Oct. 3-23	4	9	
Rangoon	Oct. 17-23		1	
Italy:				
Rome	Aug. 30-Sept. 5	2		Consular district including Island of Sardinia.
Jamaica				Oct. 31-Nov. 27, 1926: Cases 20.
Java:				Reported a alastrim.
East Java and Madura	Oct. 10-16	14	2	
Mexico:				
San Luis Potosi	Nov. 28-Dec. 4		2	
Peru:				
Arequipa				Sept.-Oct., 1926: Present.
Portugal:				
Lisbon	Nov. 14-20	5		
Siam				Oct. 24-30, 1926: Cases, 29; deaths, 10. Apr. 1-Oct. 30, 1926: Cases, 628; deaths, 251.
Bangkok	Oct. 24-30	8	4	Including 1 death from previous week.
Switzerland:				
Lucerne				Canton of Lucerne. Sept. 1-30, 1926: 1 case.
Union of South Africa:				
Cape Province	Oct. 24-30			Outbreaks, occurring in 2 districts.
Natal—				
Durban	Oct. 24-30	22		In Hindus, contacts with previous cases. Total cases, Oct. 16-30, 1926: 38, deaths, 8.

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

Reports Received During Week Ended December 24, 1926—Continued

TYPHUS FEVER

Place	Date	Cases	Deaths	Remarks
Palestine:				
Jaffa	Nov. 2-8	1		
Nazareth	do	1		
Poland				Sept. 26-Oct. 2, 1926: Cases, 11; deaths, 3. Recurrent typhus fever, 1 case.
Union of South Africa				September, 1926: Cases, 48; deaths, 2. Colored.
Cape Province				Sept. 1-30, 1926: Cases, 24; deaths, 2.
Elliot District	Oct. 24-30	1		
Orange Free State				Sept. 1-30, 1926: Cases, 24.
Yugoslavia				October, 1926: 1 case.

YELLOW FEVER

Senegal (West Africa):				
Kaolak region	Nov. 1-10		5	Europeans, 2; Syrians, 3.

Reports Received from June 26 to December 17, 1926 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
Ceylon				Apr. 18-May 29, 1926: Cases, 31; deaths, 29.
China:				
Amoy	Aug. 8-Oct. 30	274		Stated to be present in epidemic form.
Antung	Aug. 1-31	500		
Canton	June 1-30	38	14	
Do	July 15-31	54	28	
Do	Aug. 25-31	30	8	
Changsha	Oct. 3-16	2		
Foochow	Aug. 15-Oct. 2		1	In foreign population.
Kulangsu	Sept. 12-18		2	
Manchuria—				
Changshun	Aug. 1-31	320		
Dairen	do	10	1	
Harbin	Aug. 5-Sept. 12	289	83	
Newchwang	Aug. 1-31	167		
Nanking	July 25-Oct. 2			Present.
Shanghai	Reported July 20	35	8	
Do	July 25-Oct. 23	43	420	Cases, foreign; deaths, native and foreign.
Swatow	July 11-Oct. 16	50	63	
Tsingtao	July 11-Aug. 30	4	4	Japanese settlements, 10 deaths; Chinese, 30 to 40 deaths daily, estimated.
Do	Oct. 10-16			Present.
Chosen:				
North Heian Province	Sept. 3-16	70	30	Deaths estimated.
Shingishu	Sept. 13	19		Including places in vicinity.
French Settlements in India	Mar. 7-June 26	31	30	
Do	June 27-Aug. 28	94	83	
India				Apr. 25-June 26, 1926: Cases, 18,526; deaths, 11,531. June 27-Oct. 9, 1926: Cases, 28,544; deaths, 17,966.
Bombay	May 30-June 5	1	1	
Do	July 18-Oct. 16	4	4	
Calcutta	Apr. 4-May 29	478	418	
Do	June 13-26	73	69	
Do	June 27-Sept. 25	304	272	
Madras	May 16-June 5	2	1	
Do	Aug. 1-Sept. 25	7	6	
Rangoon	May 9-June 26	67	44	
Do	June 27-Sept. 4	31	29	
Indo-China:				
Saigon	May 2-15	52	48	
Do	May 22-June 26	42	32	
Do	June 27-Aug. 14	31	17	

[1] From medical officers of the Public Health Service, American consuls, and other sources.

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

Reports Received from June 26 to December 17, 1926—Continued

CHOLERA—Continued

Place	Date	Cases	Deaths	Remarks
Japan				To Sept. 10, 1926: Cases, 35.
Ken (Prefecture)—				
Hiroshima	To Sept. 10	1		
Hyogo	do	7		
Kagakawa	do	8		
Kanagawa	do	3		Including Yokohama.
Kochi	do	1		
Ookayama	do	7		
Osaka	do	6		
Taihoku	Sept. 1-10	2		
Wakayama	To Sept. 10	2		
Taiwan Island	Sept. 21-Oct. 10	11		
Philippine Islands:				
Manila	Dec. 29, 1925-Oct. 30, 1926.	27	6	
Provinces—				
Albay	Apr. 18-24	1	1	
Davao	May 23-29	1		
Mindoro	Feb. 21-Mar. 6	3	3	
Pampanga	July 25-31	1	1	
Rizal	July 18-24	1		
Romblon	Dec. 14-31	42	43	
Do	Jan. 2-Mar. 27	41	35	
Siam				Apr. 1-Oct. 23, 1926: Cases, 7,671; deaths, 5,043.
Bangkok	May 2-June 12	1,325	736	
Do	June 30-26	56	26	
Do	June 27-Oct. 23	98	68	
Straits Settlements:				
Singapore	July 4-17	2	1	
On vessel:				
Steamship Macedonia	Aug. 5	7		At Yokohama, Japan. Vessel sailed from Singapore July 18, 1926.

PLAGUE

Algeria:				
Algiers	June 21-30	1		Under date of July 16, 2 cases reported.
Do	July 1-20	1		
Do	Sept. 23	1		
Bona	Aug. 14	1		
Oran	Sept. 21-Nov. 13	10	5	
Philippeville	Sept. 7	1		
Sfax	Nov. 13	7		
Azores:				
Fayal Island—				
Horta	Aug. 2-29	2	2	
St. Michaels Island	May 9-June 26	4	1	
Do	June 27-July 10	3	1	
Brazil:				
Paranagua	Oct. 8			Present.
British East Africa:				
Kenya—				
Kisumu	May 16-22	1	1	
Do	Aug. 17-Sept. 11	3	2	
Uganda	Mar. 1-June 30	732	574	
Do	July 1-Aug. 31	312	267	
Canary Islands:				
Las Palmas	Nov. 2	3		Stated to be in locality removed from port.
Teneriffe	Aug. 2	2		
Ceylon:				
Colombo	May 29-June 5	1	1	
Chile:				
Iquique	June 20-26		1	
China:				
Amoy	Apr. 18-June 26	40	30	
Do	June 27-Aug. 7	28		
Foochow	June 6-July 31			Several cases. Not epidemic.
Nanking	May 9-Oct. 23			Prevalent.
Swatow	July 25-31	14		

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

Reports Received from June 26 to December 17, 1926—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Ecuador				January-June, 1926: Cases, 385; deaths, 154.
Chimborazo	January-June	9	2	Rats taken, 766.
Guayaquil	May 16-June 30	6		Rats taken, 30,914; found infected, 31.
Do	July 1-Oct. 31	19	3	Rats, taken, 82,774; found infected, 115.
Leon	January-June	43	19	Localities, 2.
Loja	do	176	75	Cantons, 2.
Tungurahua	do	83	29	At Ambato, Huachi, and Pinguhua. Rats taken, 1,542.
Egypt				Jan. 1-Nov. 4, 1926. Cases, 141.
City—				
Alexandria	July 27-Aug. 12	4	1	
Suez	May 21-July 1	9	5	
Do	July 29	2		
Provinces—				
Beheran	July 23-Aug. 15	4	1	
Beni-Suef	May 23-June 8	8	2	
Charkieh	July 27	1	1	
Gharbieh	June 2	1	1	
Minieh	July 24	1	1	
Sidi Barrani	Sept. 30-Oct. 21	23	3	In Western desert.
Tanta District	Oct. 22-Nov. 9	2		
France:				
Marseille	July 8	1	1	Reported July 24.
Paris	Oct. 18	1		
St. Denis	Reported Aug. 2	1		Vicinity of Paris.
St. Ouen	Aug. 14	2		Suburb of Paris.
Great Britain:				
Liverpool	Aug. 29-Sept. 4	2	1	
Greece:				
Athens	Apr. 1-May 31	16	4	Including Piræus.
Do	Aug. 1-Sept. 30	20	5	Do.
Patras	May 27-June 12	4	1	
Do	July 25-Oct. 29	9	5	
Zante	May 17	1		
Hawaii Territory:				
Hamakua	June 9			1 plague rodent trapped near Hamakua Mill.
Honokaa	Oct. 6	1	1	
Paauhau	July 18-24			Plague, infected rat trapped.
India				Apr. 25-June 16, 1926: Cases, 53,001; deaths, 41,576. June 27-Oct. 9, 1926: Cases, 10,028; deaths, 5,660.
Bombay	May 2-June 26	16	15	
Do	July 18-Oct. 9	13	12	
Karachi	May 23-June 26	15	13	
Do	July 11-17	1	1	
Madras Presidency	Apr. 25-June 26	162	93	
Do	July 4-Oct. 16	1,062	507	
Rangoon	May 9-June 26	20	15	
Do	June 27-Oct. 16	87	75	
Indo-China:				
Saigon	May 23-June 26	8	3	
Do	July 18-Aug. 7	2	1	
Iraq:				
Baghdad	Apr. 18-June 12	161	108	
Do	July 18-Sept. 11	4	4	
Japan:				
Yokohama	July 2-Aug. 10	9	8	
Java:				
Batavia	Apr. 24-June 19	65	65	
Do	June 26-Oct. 16	89	87	
Cheribon	Apr. 11-24	3	3	
Do	Sept. 12-18	1	1	
East Java and Madura	June 13-19	1	1	
Do	July 25-Oct. 16	1	2	
Surabaya	Aug. 22-Sept. 25	18	2	
Madagascar:				
Ambositra Province	May 1-15	4	4	Septicemic.
Antisirabi Province	June 16-30	4	4	
Itasy Province	do	17	10	
Do	Aug. 16-Sept. 15	7	7	
Maevatanana Province	do	2	2	
Majunga Province	June 16-30	10	6	
Do	Aug. 16-Sept. 15	57	48	
Mananjary Province	do	1	1	
Moramanga Province	Apr. 1-15	2	2	Do.
Do	Sept. 1-15	8	8	

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

Reports Received from June 26 to December 17, 1926—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Madagascar—Continued.				
Tamatave Province	Aug. 16–Sept. 15	17	12	
Tananarive Province				Apr. 1–June 30, 1926: Cases, 130; deaths, 120. July 1–Sept. 15, 1926: Cases, 155; deaths, 148.
Towns—				
Majunga	Aug. 1–15	14	10	
Tamatave (Port)	May 16–31	1	1	
Do	July 1–Aug. 15	6	5	
Tananarive	Apr. 1–June 30	7	7	
Do	July 1–Sept. 15	28	28	
Mauritius:				
Port Louis	July 31	1	1	
Nigeria				Feb. 1–June 30, 1926: Cases, 191; deaths, 163. July 1–31, 1926: Cases, 121; deaths, 112.
Peru				May–June, 1926: Cases, 57; deaths, 16. July 1–Sept. 30, 1926: Cases, 89; deaths, 52.
Departments—				
Ancash	May 1–31			Present.
Do	July 1–Sept. 30	2		
Cajamarca	May 1–June 30	10	4	
Do	Aug. 1–Sept. 30	1		
Ica	May 1–31	1		
Do	July 1–31	1		
Junin	Sept. 1–30	21	20	
Lambayeque	do	1		
Libertad	May 1–31	4		
Do	Sept. 1–30	3	1	
Lima	May 1–June 30	29	12	
Do	July 1–Sept. 30	60	31	
Piura	June 1–30	13		
Russia				Jan. 1–Mar. 31, 1926: Cases, 37.
Senegal				Nov. 1–30, 1925: Cases, 3; deaths, 2. Mar. 1–June 30, 1926: Cases, 342; deaths, 213.
Siam				Apr. 1–Oct. 16, 1926: Cases, 15; deaths, 10.
Bangkok	May 23–June 26	2	2	
Do	July 18–24	1	1	
Straits Settlements:				
Singapore	May 2–8	1	1	
Do	July 4–17	1	1	
Syria:				
Beirut	July 1–Aug. 10	2		
Do	Oct. 15			Present.
Tunisia	May 11–June 30	174		
Do	July 1–Aug. 20	13		
Do	Reported Nov. 27	57		
Kairouan	June 9	3		9 cases 30 miles south of Kairouan.
Turkey:				
Constantinople	Aug. 1–Sept. 25	7	4	
Union of South Africa:				
Cape Province	May 16–22	5	3	
Do	Oct. 17–23	4	3	
Calvinia District	June 13–26	12	6	
Do	June 27–Aug. 21	3	3	
Hanover District	Oct. 10–16	1	1	Native. On farm.
Kimberley District	Oct. 17–23	2	2	European.
Williston District	June 13–26	2		
Do	June 27–July 3	1		
Do	Oct. 17–23	3	2	
Orange Free State—				
Hoopstad District	Aug. 15–21	1		
Protestpan	May 9–22	3	3	
On vessel:				
Steamship Zaria	September, 1926	2	2	At Liverpool, England, from Lagos, Nigeria, West Africa; 29 plague-infected rats found on board.

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

Reports Received from June 26 to December 17, 1926—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria				July 21–Sept. 20, 1926: Cases, 230.
Algiers	May 21–June 30	14		
Do	July 1–Aug. 31	3		
Arabia:				
Aden	Oct. 3–9	1		Imported.
Belgium				Sept. 1–30, 1926: Cases, 2.
Antwerp	Aug. 1–7	1	1	
Bolivia:				
La Paz	May 1–June 30	14	7	
Do	July 1–Aug. 31	16	8	
Brazil:				
Bahia	June 20–26	1		
Do	June 27–Oct. 23	76	41	
Manaos	Apr. 1–30		5	
Para	May 16–June 26	26	25	
Do	June 27–Oct. 30	38	27	
Pernambuco	July 11–Oct. 16	236	26	
Porto Alegre	Aug. 10–31	2		
Rio de Janeiro	May 2–June 19	132	91	
Do	July 4–Sept. 25	2,534	1,338	
Do	Oct. 3–Nov. 13	475	300	Jan. 1–Oct. 16, 1926: Cases, 3,601; deaths, 1,896.
Sao Paulo	June 27–Aug. 22		5	
Santos	Mar. 1–7		1	
British East Africa:				
Mombasa	July 5–11	5	4	
Tanganyika	May 1–31	252	46	
Do	Aug. 29–Sept. 18	7		
Uganda	Mar. 1–May 31	3		
Do	Aug. 1–31	1		
British South Africa:				
Northern Rhodesia	May 18–24	17	6	Natives.
Do	June 8–14	5		
Do	Sept. 11–17	1		
Canada				May 30–June 26, 1926: Cases, 70. June 27–Nov. 20, 1926: Cases, 471.
Alberta				May 30–June 12, 1926: Cases, 3, June 27–Nov. 13, 1926: Cases, 82.
Calgary	Sept. 5–Nov. 22	47		
British Columbia—				
Vancouver	Aug. 16–Sept. 12	3		
Manitoba				May 30–June 26, 1926: Cases, 15. June 27–Nov. 20, 1926: Cases, 86.
Winnipeg	June 6–12	5		
Do	July 4–Dec. 4	15		
New Brunswick				Oct. 31–Nov. 6, 1926: 1 case.
Northumberland County.	Oct. 11–23	1		
Ontario				May 30–June 26, 1926: Cases, 36, June 27–Nov. 20: Cases, 178.
Fort William	July 25–Aug. 7	2		
Kingston	May 23–June 26	5		
Do	July 11–Nov. 6	3		
Kitchener	Apr. 26–May 29	3	1	
North Bay	May 2–22	5		
Do	July 25–31	2		
Orillia	Apr. 26–May 29	7		
Ottawa	July 18–24	1		
Do	Nov. 28–Dec. 4	1		
Packenham	do	10		
Peterboro	Sept. 1–30	10		
Toronto	July 18–Nov. 27	46		
Waterloo	July 18–24	6		
Saskatchewan				May 30–June 26, 1926: Cases, 16. June 27–Nov. 20: Cases, 124.
Regina	July 4–Sept. 25	3		
Ceylon				Mar. 14–May 29, 1926: Cases, 44; deaths, 3. Sept. 12–18, 1926: Cases 2.
Colombo	Sept. 19–Oct. 16	7		
Chile:				
Antofagasta	June 6–12	1		
China:				
Amoy	May 1–June 26	4	8	
Do	July 4–10	1		
Antung	May 17–June 19	5		
Do	July 4–18	2		
Canton	May 1–31	4	2	
Changsha	Aug. 8–14	1		
Chungking	May 2–Oct. 23			Present.
Foochow	May 2–Oct. 30			Do.
Fushun	Sept. 12–18	1		
Hongkong	May 2–June 26	19	10	
Do	June 27–July 3	1	1	

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

Reports Received from June 26 to December 17, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
China—Continued.				
Manchuria	July 4-31	18		Railway stations.
An-shan	May 16-June 12	5		South Manchurian Railway.
Antung	May 16-June 19	5		
Changchun	May 16-June 26	6		Do.
Do	June 27-Sept. 11	2		Do.
Dairen	Apr. 26-June 20	69	16	
Do	June 28-Aug. 8	5	3	
Fushun	May 16-June 5	4		Do.
Harbin	May 14-June 30	21		Do.
Do	July 1-28	12		
Kai-yuan	May 16-June 30	10		Do.
Kungchuling	June 13-19	1		Do.
Liaoyang	May 16-June 30	4		Do.
Mukden	do	4		Do.
Penhsihu	May 16-June 19	4		Do.
Do	Aug. 8-Oct. 3	3		Do.
Ssupinghai	May 16-June 30	2		Do.
Do	Aug. 1-7	1		Do.
Teshihchiao	May 16-June 30	2		Do.
Tieh-ling	Sept. 27-Oct. 3	1		
Wa-feng-tien	do	3		Do.
Do	Aug. 1-7	1		Do.
Nanking	May 8-Oct. 30			Present.
Shanghai	May 2-June 26	10	25	Cases, foreign: Deaths, population of international concession, foreign and native.
Do	June 27-July 24	3	3	
Do	Oct. 3-9	1		
Swatow	May 9-Oct. 30			Sporadic.
Tientsin	June 2-26		1	Reported by British municipality.
Wanshien	May 1			Prevalent.
Chosen				Mar. 1-June 30, 1926: Cases, 667; deaths, 146. July 1-31, 1926: Cases, 82; deaths, 27.
Fusan	May 1-31	1		
Seishun	do	2	1	
Egypt:				
Alexandria	May 15-July 1	18	3	
Do	July 23-Oct. 21	14	7	
Cairo	Jan. 29-May 13	39	8	
Estonia				May 1-June 30, 1926: Cases, 3.
France				Mar. 1-June 30, 1926: Cases, 141. July 1-Aug. 31: Cases, 24.
Paris	Sept. 1-Oct. 31	65	18	
St. Etienne	Apr. 18-June 15	7	3	
Do	Sept. 16-30	2	1	
French settlements in India	Mar. 7-June 26	282	282	
Do	June 27-Aug. 28	68	68	
Germany:				
Coblenz	Oct. 24-30	1		
Gold Coast	Mar. 1-June 30	671		
Do	July 1-31	20	1	
Great Britain:				
England and Wales				May 23-June 26, 1926: Cases, 933; June 27-Nov. 13, 1926: Cases, 2,415.
Birmingham	Sept. 26-Oct. 2	1		
Bradford	May 23-29	1		
Do	Aug. 29-Sept. 4	1		
Hull	Oct. 17-23	1		
London	Sept. 26-Oct. 23	4		
Newcastle-on-Tyne	June 6-12	1		
Do	July 11-Nov. 30	7		At Gateshead, several cases reported.
Nottingham	May 2-June 5	7		
Do	July 18-24	1		
Sheffield	June 13-19	1		
Do	July 4-Nov. 13	32		
South Shields	Oct. 3-9	1		
Stoke-on-Trent	Nov. 7-13	1		
Greece:				
Athens	July 1-31	71	6	Including Piræus.
Saloniki	June 1-14		3	
Guatemala:				
Guatemala City	June 1-30		2	
India				Apr. 25-June 26, 1926: Cases, 54,851; deaths, 14,771. June 27-Oct. 9, 1926: Cases, 27,840; deaths, 8,445.
Bombay	May 2-June 26	220	134	
Do	June 27-Oct. 23	129	72	
Calcutta	Apr. 4-May 20	171	152	
Do	June 13-26	24	18	
Do	June 27-Oct. 2	45	42	
Karachi	May 6-June 26	44	18	
Do	June 27-Oct. 30	15	7	

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

Reports Received from June 26 to December 17, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
India—Continued.				
Madras	May 16-June 26	7	4	
Do	June 27-Nov. 6	80	21	
Rangoon	May 9-June 26	10	5	
Do	July 4-Sept. 11	21	4	
Indo-China:				
Saigon	May 9-June 26	2		
Iraq:				
Baghdad	do	8	3	
Do	July 4-Sept. 11	3	1	
Basra	Apr. 18-June 22	34	25	
Do	Aug. 15-21	1		
Italy				Mar. 28-June 26, 1926: Cases, 34.
Catania	Aug. 9-15	2		June 27-Aug. 7, 1926: Cases, 12.
Rome	June 14-20	4		Entire consular district, including island of Sardinia.
Jamaica				Apr. 25-June 26, 1926: Cases, 201. (Reported as alastrim.)
Do				June 27-Oct. 30, 1926: Cases, 327. (Reported as alastrim.)
Japan				Apr. 11-June 26, 1926: Cases, 658.
Kobe	May 30-June 5	1		June 27-Aug. 28, 1926: Cases, 70.
Nagoya	May 16-June 22		1	
Do	July 4-10	1		
Taiwan Island	May 11-20	24		
Do	June 1-20	23		
Do	July 11-Aug. 10	2		
Tokyo	June 26-July 17	3		
Yokohama	May 2-8	2		
Java:				
Batavia	May 15-June 25	2		Province.
Do	July 24-Oct. 16	17		Do.
East Java and Madura	Apr. 11-July 3	100	6	
Do	July 4-Oct. 2	61	3	
Malang	Apr. 4-10	6	1	Interior.
Surabaya	May 16-22	14	1	
Do	July 18-Sept. 25	143	8	
Latvia				Apr. 1-June 30, 1926: Cases, 5.
Mexico				Feb. 1-June 30, 1926: Deaths, 1,525.
Aguascalientes	June 13-26		5	
Guadalajara	June 8-14		2	
Do	June 29-Sept. 27		8	
Mexico City	May 16-June 5	3		Including municipalities in Federal district.
Do	July 25-Nov. 25	7		Do.
Saltillo	July 18-24		1	
San Antonio de Arenales	Jan. 1-June 30			Present: 100 miles from Chihuahua.
San Luis Potosi	June 13-26		7	
Do	July 4-Nov. 27		28	
Torreon	May 1-June 30		17	
Do	July 1-Nov. 13		16	
Netherlands:				
Amsterdam	July 18-24		9	
Nigeria				Feb. 1-June 30, 1926: Cases, 521; deaths, 49.
Persia:				
Teheran	Apr. 21-Aug. 23		14	
Peru:				
Arequipa	June 1-30		1	
Poland				Mar. 28-May 1, 1926: Cases, 12 deaths, 1. June 27-Sept. 11, 1926: Cases, 416; deaths, 1.
Portugal:				
Lisbon	Apr. 26-June 19	10	3	
Do	July 11-Nov. 13	36	7	
Oporto	May 23-June 5	4		
Do	July 11-Nov. 6	3	1	
Russia				Jan. 1-Apr. 30, 1926: Cases, 2,529.
Siam				Apr. 1-Oct. 23, 1926: Cases, 599; deaths, 241.
Bangkok	May 2-June 12	23	20	
Do	July 4-Oct. 23	79	61	
Spain				Jan. 1-June 30, 1926: Deaths, 99.
Valencia	Aug. 22-Oct. 23	3		
Straits Settlements:				
Singapore	Apr. 25-May 1	1		
Do	July 11-17	1		

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

Reports Received from June 26 to December 17, 1926—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Sumatra:				
Medan	Aug. 22-28			1 case varioloid.
Switzerland:				
Lucerne Canton	June 1-30	1		
Do	July 1-31	2		
Tripolitania	Apr. 1-June 30	12		
Tunisia				Apr. 1-June 30, 1926: Cases, 17. July 1-Sept. 30, 1926: Cases, 38.
Tunis	Sept. 11-30	2		
Union of South Africa	June 1-30	8	1	
Cape Province	June 20-26			Outbreaks.
Do	Aug. 15-21			Do.
Idutya district	May 23-29			Do.
Natal	May 30-June 5			Do.
Durban	Oct. 10-23	18		
Orange Free State	June 20-Aug. 28			Do.
Transvaal				June 6-12, 1926: Outbreaks in Pietersburg and Rustenburg districts.
Do	Aug. 29-Sept. 4	1		Native.
Johannesburg	May 9-June 12	5		
Do	July 11-Sept. 25	4		
Praetoria	Sept. 19-25	1		
Yugoslavia				Apr. 15-30, 1926: Cases, 2; deaths, 1.
Zagreb	Aug. 9-15	2		
On vessels:				
S. S. Karapara				At Zanzibar, June 7, 1926: 1 case of smallpox landed. At Durban, Union of South Africa, June 16, 1926: 1 suspect case landed.
Steamship	July 2	1		Vessel from Glasgow, Scotland, for Canada. Patient from Glasgow; removed at quarantine on outward voyage.

TYPHUS FEVER

Algeria				July 21-Sept. 20, 1926: Cases, 34 deaths, 1.
Algiers	May 21-June 30	7	1	
Do	July 21-Aug. 31	3		
Argentina:				
Rosario	Feb. 1, 28	2		
Bolivia:				
La Paz	June 1-30		1	
Do	Aug. 1-31	9	1	
Bulgaria				Mar. 1-June 30, 1926: Cases, 87; deaths, 14.
Chile:				
Antofagasta	May 23-June 26	4		
Do	June 27-July 3	1		
Concepcion	June 1-7		1	
Do	Oct. 1-31			Stated to be present in gaol.
Iquique	Aug. 8-Oct. 16	1	2	
Valparaiso	Apr. 29-May 5		1	
Do	Aug. 14-Nov. 6	11		
China:				
Antung	June 14-27	7	1	
Do	June 26-Oct. 31	45	1	
Canton	May 1-31	1		
Chungking	Aug. 29-Sept. 4			Present.
Ichang			1	Reported May 1, 1926. Occurring among troops.
Manchuria—				
Harbin	Oct. 14-20	1		
Wanshien				Present among troops, May 1, 1926. Locality in Chungking consular district.
Chosen				Feb. 1-June 30, 1926: Cases, 1,005; deaths, 112. July 1-31, 1926: Cases, 37; deaths, 6.
Chemulpo	May 1-June 30	38		
Do	July 1-31	7	2	
Gensan	June 1-30	1		
Seoul	do	8	3	
Do	July 1-Aug. 31	8		
Czechoslovakia				Jan. 1-June 30, 1926: Cases, 156; deaths 6

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

Reports Received from June 26 to December 17, 1926—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Egypt:				
Alexandria	July 16–Aug. 19	3		
Do	Oct. 1–7	1	1	
Cairo	Jan. 29–May 13	89	27	
Do	July 23–Aug. 5	1		
Port Said	June 4–24	4	1	
Do	July 9–Oct. 7	5	1	
France	Aug. 1–31	5		
Great Britain:				
Scotland—				
Glasgow	July 30–Aug. 21	9	1	
Port Glasgow	Reported Dec. 10	8		
Greece:				
Athens	Sept. 1–30		17	Including Piræus.
Hungary	May 1–June 30	3		
Iraq:				
Baghdad	Oct. 10–16	1		
Ireland (Irish Free State):				
Cork	June 5	1		
Cork County	Oct. 17–23	1		
Kerry County—				
Dingle	June 27–July 3	1		
Italy				Mar. 28–May 8, 1926: Cases, 3.
Palermo	Sept. 12–18	1		
Japan				Mar. 28–May 29, 1926: Cases, 37.
Latvia				May 1–June 30, 1926: Cases, 19. Aug. 1–31, 1926: Cases, 2.
Lithuania				Mar. 1–June 30, 1926: Cases, 199; deaths, 22. July 1–Aug. 31, 1926: Cases, 23.
Mexico				Feb. 1–June 30, 1926: Deaths, 189
Durango	July 1–31		1	
Mexico City	May 16–June 5	20		Including municipalities in Federal District
Do	June 13–19	9		Do.
Do	July 25–31	3		Do.
Do	Aug. 15–Nov. 20	89		Do.
San Luis Potosi	June 13–26			Present, city and country.
Morocco				Mar. 1–June 30, 1926: Cases, 426. July 1–Aug. 31, 1926: Cases, 20.
Norway:				
Stavanger	Sept. 6–12	1		
Palestine				Mar. 1–June 30, 1926: Cases, 14; deaths, 1. Aug. 1–Oct. 25, 1926: Cases, 22.
Birtuvia	Oct. 31–Nov. 6	1		
Gaza	July 6–12	1		
Haifa	July 13–Aug. 30	5		
Halalal	Aug. 17–23	1		
Jaffa district	June 15–28	5		
Do	Sept. 28–Nov. 2	3		
Jerusalem	Sept. 14–27	2		
Majdal district	July 13–Aug. 2	2		
Nazareth district	July 13–Nov. 2	6		
Petah Tokvah	Oct. 5–11	3		
Tiberias	Aug. 3–9	1		
Yavneil	Aug. 17–23	1		
Persia:				
Teheran	May 23–June 22		1	
Do	July 24–Aug. 23		3	
Peru:				
Arequipa	Jan. 1–31		2	
Lima	Aug. 1–31	1		
Poland				Mar. 28–June 26, 1926: Cases, 1,272; deaths, 85. June 27–Sept. 18, 1926: Cases, 294; deaths, 22.
Tarnopol district	Oct. 10–16	1	1	
Rumania				Mar. 1–June 30, 1926: Cases, 899; deaths, 83. July 1–31, 1926: Cases, 65; deaths, 9.
Russia				Jan. 1–Apr. 30, 1926: Cases, 18,647.
Spain	Jan. 1–June 30		13	
Tunisia				Apr. 1–June 30, 1926: Cases, 110.
Tunis	June 11–30	3		July 1–Sept. 20, 1926: Cases, 101.
Turkey:				
Constantinople	June 16–22	1		

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

Reports Received from June 26 to December 17, 1926—Continued

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Union of South Africa				Apr. 1–May 31, 1926: Cases, 153; deaths, 19.
Do				July 1–31, 1926: Cases, 90; deaths, 17.
Cape Province				Apr. 1–June 30, 1926: Cases, 202; deaths, 24, native. July 1–31, 1926: Cases, 58; deaths, 15.
Clydesdale	Oct. 17–23			Outbreaks.
Glengray district	June 27–July 3			Do.
Grahamstown	do	1		
Natal			1	Apr. 1–June 30, 1926: Cases, 23.
Durban	July 25–Sept. 18	11		July 1–31, 1926: Cases, 23; deaths, 2.
Orange Free State				Apr. 1–June 30, 1926: Cases, 24; deaths, 4. July 1–31, 1926: Cases, 7.
Brandford district	Oct. 10–16			Outbreak on farm.
Transvaal				Apr. 1–June 30, 1926: Cases, 10; deaths, 5. July 1–31, 1926: Cases, 2. Aug. 15–21, 1926, outbreaks.
Johannesburg	Aug. 29–Sept. 4	1		Outbreaks.
Walkkerstrom district	June 20–26			Do.
Wolmaransstad district	do			Do.
Yugoslavia				Apr. 15–June 30, 1926: Cases, 48; deaths, 7. July 1–Aug. 31, 1926: Cases, 3; deaths, 1.
Zagreb	May 15–21	1		

YELLOW FEVER

Brazil	Reported June 26			Present in interior of Bahia, Pirapora, and Minas.
Bahia	May 9–June 26	10	7	
Do	July 4–10	1		
Gold Coast	Apr. 1–June 30	8	4	
Nigeria	June 1–30	1	1	