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ROCKY MOUNTAIN SPOTTED FEVER: INFECTIVITY OF FASTING AND RECENTLY FED TICKS.

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During the spring and summer of 1921 certain experiments were conducted at the field laboratory of the United States Public Health Service at Hamilton, Mont., the results of which have added somewhat to our knowledge of the virus of Rocky Mountain spotted fever as it occurs in the tick. Some of these experiments involved the testing for infectivity of large numbers of adult ticks secured in the field; and, since it was believed that the usual method of feeding on guinea pigs was not dependable, a preliminary experiment was carried out in order to compare the results of feeding with the inoculation of macerated tick contents, our criterion of infectivity being either the development of spotted fever or the development of an immunity to spotted fever. Following is an outline of this experiment:

March 16 to 20: Twenty-five adult ticks were fed on infected guinea pig No. 420.

March 22: Twelve of these ticks were selected for testing; six were permitted to feed on a guinea pig each for three days; the remaining six were dissected and the entire contents of each emulsified in salt solution and inoculated into six pigs, a separate guinea pig being used for each tick.

Results of tick-content inoculation.—Four of the six pigs inoculated with the contents of infected ticks developed spotted fever and two were rendered immune.¹

Results of tick feeding.—None of the six pigs upon which infected ticks were fed developed spotted fever; one died of pneumonia. After an afebrile period of 10 days the five remaining pigs each received intraperitoneally the contents of the tick which had previously fed upon it. Three of these pigs developed spotted fever as a result of this inoculation; the other two died of an intercurrent infection.

The above experiments, if taken at face value, indicate that the tick-content inoculation method is the more reliable. However, a possible basis for misinterpretation lay in the fact that the ticks used were but recently infected with the virus. Indeed, it was known

¹ Animals are regarded as immune when spotted fever does not develop following an intraperitoneal injection of 1 c. c. of citrated heart's blood of a guinea pig at the height of infection, while it develops in control animals.

that many failures have resulted in our own experiences, and in those of others, in attempting to transmit the virus by the feeding of recently infected adult ticks (infected as adults). Such failures may be due to the existence of an incubation period of unknown duration necessary for the development and distribution of the organism in the tick before it can become infective. Similar experiments are, therefore, being carried out with this possible time element in mind. At the time, however, it was thought that the results of this preliminary experiment were sufficiently suggestive to justify the use of the inoculation method; and although the results of the sum total of our subsequent tests indicate its value, yet it is considered that a combined *feeding* and *inoculation* procedure (Tables I, II, and III) is more dependable in indicating infection. The following observations are our basis for this opinion:

Over 100 lots of drag ticks (drag ticks are unfed males and females secured by dragging a white outing flannel "flag" over vegetation), using 15 to 25 ticks from each lot, were tested by inoculating the tick contents into guinea pigs without once resulting in spotted fever, although many of these tick lots were collected in areas known to be infected. When immunity tests were given to these pigs, many of them were found to be immune.

In view of the results of the preliminary experiment, these results were not easy to interpret until three similarly conducted tests with ticks secured from a mountain goat resulted in spotted fever. The essential difference between the drag ticks and the goat ticks was that the latter had recently ingested blood, whereas the former had not fed since engorging as nymphs not later than during the fall of 1921. The possibility suggested itself that the ingestion of fresh blood was sufficient to reactivate the virus in the tick, since goats are not, as far as known, susceptible to the infection. (Our use of the term "reactivation" is discussed later.)

Our procedure was then changed as follows: Ticks to be tested were first fed on guinea pigs for 48 hours, and if no fever developed within 10 days following the removal of the ticks the contents of the same ticks were then inoculated into the pig upon which they had fed; if fever did not develop in another 10 days the pig was given an immunity test. In order to check the results previously secured by *inoculation alone*, ticks were first tested from some of the same lots of drag ticks which had failed to give spotted fever on immediate inoculation of their contents. These tests included some of those lots which had conferred immunity but failed to give spotted fever. Spotted fever was secured from the first lots thus retested. In some pigs it developed after feeding (Table I, pig 1100, and Table II, pig 1095), and in some after the subsequent inoculation of tick contents (Table III, pig 897); still others were rendered immune, as shown by

the immunity tests (Table III, pig 819), and others showed neither fever nor immunity (Table III, pig 891). The following tables are typical illustrations of these results. (Temperatures are in the centigrade scale, 39° to 39.6° being normal for guinea pigs.)

TABLE I.—*Drag tick natural infectivity experiment No. 72.*

[TICK LOT NO. 523.]

First test of tick lot.			Retest of tick lot.		
Contents of 15 ticks inoculated into pig 718, May 6, 1922.			25 ticks placed on pig 1100, June 16, 1922.		
Date	Temperature.	Remarks.	Date.	Temperature.	Remarks.
May 7.....	39.2	Immunity test.	June 17.....	39.6	Ticks removed.
May 8.....	39.0		June 18.....	39.8	
May 9.....	39.4		June 19.....	39.4	
May 10.....	39.2		June 20.....	39.2	
May 11.....	39.2		June 21.....	39.6	
May 12.....	39.2		June 22.....	40.0	
May 13.....	39.2		June 23.....	41.0	
May 14.....	39.2		June 24.....	41.0	
May 15.....	39.0		June 25.....	40.8	
May 16.....	39.4		June 26.....	41.0	
May 17.....	39.6		June 27.....	40.4	
May 18.....	39.6		June 28.....	40.2	
May 19.....	39.7		June 29.....	39.0	
May 20.....	39.8		June 30.....		Dead; spotted fever.
May 21.....	40.0				
May 22.....	40.4				
May 23.....	40.6				
May 24.....	41.0				
May 25.....	41.0				
May 26.....			Killed; spotted fever.		

TABLE II.—*Drag tick natural infectivity experiment No. 61.*

[TICK LOT NO. 326.]

First test of lot.			Retest of lot.		
Contents of 15 ticks inoculated into pig 663, May 2, 1922.			13 ticks in capsule fastened to pig No. 1095, June 16, 1922.		
Date.	Temperature.	Remarks.	Date.	Temperature.	Remarks.
May 3.....	39.2	Immunity test.	June 17.....	38.8	Ticks removed.
May 4.....	39.2		June 18.....	39.6	
May 5.....	39.0		June 19.....	40.0	
May 6.....	39.2		June 20.....	39.6	
May 7.....	39.4		June 21.....	40.0	
May 8.....	39.2		June 22.....	41.0	
May 9.....	39.8		June 23.....	40.8	
May 10.....	39.0		June 24.....	41.0	
May 11.....	39.4		June 25.....	41.0	
May 12.....	39.4		June 26.....	40.6	
May 13.....	39.0		June 27.....	40.6	
May 14.....	38.8		June 28.....	40.2	
May 15.....	39.0		June 29.....	40.0	Killed; spotted fever.
May 16.....	39.5				
May 17.....	40.8				
May 18.....	40.8				
May 19.....	39.6				
May 20.....	39.0				
May 21.....	38.6				
May 22.....	39.2				
May 23.....	38.8				
May 24.....	38.4				
May 25.....	38.6				
May 26.....	38.8				
May 27.....	39.0		Released; immune.		

TABLE III.—Examples of results of feeding drag ticks on guinea pigs.

Spotted fever following feeding alone. Pig No. 1029, June 16, 1922. (Repeated from Table II.)		Fever following inoculation of tick contents. Feeding negative. Fig No. 897; May 27, 1922.		Feeding and inoculation tests both negative. Ticks infected as shown by immunity test. Fig No. 819; May 17, 1922.		Feeding and inoculation negative. No infection of ticks according to immunity test. Fig No. 891; May 27, 1922.		
Date.	Temperature.	Remarks.	Date.	Temperature.	Remarks.	Date.	Temperature.	Remarks.
June 17.....	38.8		May 18.....	39.4		May 28.....	38.8	
June 18.....	39.6	Ticks removed.	May 19.....	38.8		May 29.....	38.8	Ticks removed.
June 19.....	40.0		May 20.....	39.6		May 30.....	39.0	
June 20.....	39.6		May 21.....	39.0		May 31.....	39.0	
June 21.....	40.0		May 22.....	39.2		June 1.....	39.0	
June 22.....	41.0		May 23.....	39.0		June 2.....	39.0	
June 23.....	40.8		May 24.....	39.0		June 3.....	39.0	
June 24.....	41.0		May 25.....	39.2		June 4.....	39.0	
June 25.....	41.0		May 26.....	39.4		June 5.....	39.4	
June 26.....	40.6		May 27.....	39.0		June 6.....	38.8	
June 27.....	40.0		May 28.....	39.0		June 7.....	39.2	
June 28.....	40.2		May 29.....	39.2		June 8.....	39.2	Tick contents inoculated.
June 29.....	40.0	Killed; Spotted fever.	May 30.....	39.0		June 9.....	39.2	
			May 31.....	39.0		June 10.....	39.4	
			June 1.....	38.8		June 11.....	39.4	
			June 2.....	38.6		June 12.....	39.2	
			June 3.....	39.0		June 13.....	39.4	
			June 4.....	39.0		June 14.....	39.2	
			June 5.....	38.4		June 15.....	39.2	
			June 6.....	38.8		June 16.....	39.2	
			June 7.....	38.6	Spotted fever; typical symptoms.	June 17.....	39.0	
			June 8.....	38.6		June 18.....	39.0	
			June 9.....	39.4		June 19.....	39.4	Immunity test.
			June 10.....	39.2		June 20.....	39.0	
			June 11.....	39.2		June 21.....	39.4	
			June 12.....	39.0		June 22.....	38.8	
			June 13.....	39.4		June 23.....	40.0	
			June 14.....	39.0		June 24.....	40.4	
			June 15.....	39.0		June 25.....	40.4	
			June 16.....	38.8		June 26.....	41.0	
			June 17.....	39.0		June 27.....	41.0	
			June 18.....	39.0	Immune; released.	June 28.....	38.6	Dead; spotted fever.
						June 29.....		

Table III shows the four results which are possible from testing drag ticks by the combined feeding and inoculation method.

Tables I and II are typical of the results obtained when drag ticks (adults which have not fed since engorging as nymphs not later than during the fall of 1921) were tested (a) by inoculation, (b) by feeding and subsequent inoculation if fever did not develop from feeding.

Table IV gives the results from these two series of tests on drag ticks, (a) immediate inoculation of tick contents and (b) feeding followed by inoculation if no spotted fever resulted from the feeding.

TABLE IV.—*Drag tick infectivity tests.*

(a) By direct inoculation:	
Total tests completed.....	101
Tests resulting in spotted fever.....	0
Tests resulting in immunity.....	29
Tests negative.....	72
(b) By combined feeding and inoculation (including tests in which the pig sickened with spotted fever after feeding alone, inoculation therefore being omitted):	
Total tests completed.....	65
Tests resulting in spotted fever after feeding.....	10
Tests resulting in spotted fever after inoculation, ticks having previously fed.....	10
Tests showing immunity from feeding and inoculation.....	8
Tests negative from feeding and inoculation.....	37

It will be recalled that in the preliminary experiment the inoculation of infected adult tick contents, the ticks having been artificially infected in the laboratory, produced fever, and the *feeding alone* of infected ticks from the same group did not; whereas in the later tests made with drag ticks (naturally infected), the tick content inoculations produced at most immunity in experiments where the feeding of ticks from identical lots produced fever. In interpreting these apparently contradictory results, it must be remembered that in the preliminary experiment the adult ticks ingested the virus only from two to six days before being tested, whereas in the drag tick tests the ticks used were collected in the early spring of 1921 and had not ingested blood since engorging as nymphs not later than the fall of 1921. Under the latter conditions we have not once produced spotted fever by the inoculation of tick contents; but, on the other hand, we have done so repeatedly by permitting them to feed. (Table III, pig 897.)

Mention should also be made of the fact that when testing ticks taken from host animals (as in the case of the mountain goat noted above), the inoculation of the tick contents has frequently resulted in spotted fever, as shown in Table V. Such ticks had, of course, partially or completely fed within a short time prior to the test.

TABLE V.—*Animal tick natural infectivity experiment No. 147: Guinea pig 1087; inoculated intraperitoneally with contents of 10 D. andersoni nymphs removed from a cottontail rabbit, June 14, 1922.*

Date.	Temperature.	Remarks.	Date.	Temperature.	Remarks.
June 15.....	39.6		June 22.....	41.2	
June 16.....	39.2		June 23.....	41.2	
June 17.....	39.6		June 24.....	41.2	
June 18.....	39.6		June 25.....	39.6	
June 19.....	39.6		June 26.....	.....	Dead; typical spotted fever lesions.
June 20.....	41.0				
June 21.....	41.4				

These results seem to support the supposition upon which we based our idea of a combined *feeding-inoculation* method for testing adult tick infectivity; namely, the ingestion of fresh blood is necessary to "reactivate" the virus in the unfed infected ticks which appear in the spring.

The same tests have been made with the rabbit tick, *Hæmaphysalis leporis palustris* Packard, with similar results. Transmission of the virus by the rabbit tick was demonstrated by one of the writers in 1921 (Parker, unpublished experiment).

DISCUSSION.

1. The above instances do not represent isolated experiments, but are typical of many tests. It is believed that the results indicate that it is unwise to rely upon either *feeding* or *inoculation* alone as an indication of the presence or absence of Rocky Mountain spotted fever virus in unfed adult ticks. The inoculation method alone is apparently reliable when testing recently fed ticks in all stages.

2. Of particular interest is the nonvirulent immunity-producing phase of the virus that was demonstrated in unfed infected adults (ticks that molted to adults prior to the winter of 1921) when their contents were inoculated into guinea pigs. This phase contrasts strongly with the highly infective phase which frequently developed promptly in such ticks (selected from the same lots) following the ingestion of animal blood. Whenever immunity followed inoculation, it was considered due to the inoculation since, so far as known, no worker in spotted fever has ever found a naturally immune pig. The present writers have inoculated more than 100 fresh pigs with virus such as used in the immunity tests, and the results have been uniformly successful.

An immunity producing phase also occurs in the eggs as first shown by Ricketts.² Spotted fever was produced by the injection of eggs of infected females, using from five to eighty eggs. These eggs, however, were less than a week old. With eggs that had been dried for four months, immunity instead of fever developed.

² Ricketts, H. T.: Contributions to Medical Science. Univ. of Chicago Press. 1911.

In an attempt to cultivate the virus, Fricks³ in 1915 inoculated infected tick eggs which had been incubated with a special culture medium for 25 days and produced immunity in the inoculated pig.

In 1921, one of the writers (Parker) produced immunity by the inoculation of comparatively fresh eggs from an infected rabbit tick, the immunity test being given three months after inoculation.

3. The term "reactivation" is used for lack of a better descriptive word to designate the transition of the virus from a nonvirulent immunity-producing phase to a virulent fever-producing phase. It is not known whether this transition is due to multiplication of the virus, to development of a possible distinct stage in its life cycle, to renewal of virulence following a period of attenuation, or, perhaps to some other unrecognized condition initiated by the ingestion of fresh mammalian blood.

This phenomenon provides an explanation of the fact first demonstrated by Ricketts, that ticks usually do not infect unless attached for some hours. In a single instance he secured infection in one hour and three-fourths, but found that 10 to 20 hours feeding was usually required. In our studies we have repeatedly fed ticks for 48 hours without securing infection; whereas the presence of the virus was afterwards demonstrated, either by infection following inoculation of the contents of the ticks concerned or by the subsequent immunity test (Table III, pigs No. 897 and 819). It seems probable, therefore, that when unfed infected adult ticks have hibernated, the virus must be reactivated by fresh blood before such ticks become infective. Furthermore, it is possible that this apparent need of blood furnishes an explanation of the comparatively small number of human cases which occur. Many ticks which attach themselves to human beings are doubtless removed before "reactivation" has taken place.

The study of this phenomenon suggests the possibility that the virus may sometimes die out in the tick. Observations made by King⁴ have shown that unfed adult ticks frequently live for two and three years and occasionally into the fourth season. If the ingestion of fresh blood is essential for the "reactivation" of the virus, it seems probable that in instances covering such extended periods of time the virus may die or its vitality be so reduced that "reactivation" can not occur. The results shown by Table III may be indicative of different periods of fasting on the part of ticks infected in nature; although immunity which could not be ascribed to such cause has occasionally been unexpectedly produced.

³ Fricks, L. D.: Rocky Mountain Spotted Fever: A Report of Laboratory Investigations of the Virus. Public Health Reports, vol. 31, No. 9, Mar. 3, 1916, pp. 516-521. Reprint No. 327.

⁴ King, W. V.: Unpublished experiments.

A TOXIN-PRODUCING ANAEROBE ISOLATED PRINCIPALLY FROM FLY LARVÆ.

ITS RELATION TO THE ORGANISMS HITHERTO KNOWN TO BE CAUSATIVE FACTORS IN THE PRODUCTION OF BOTULISM.

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A toxic anaërobe isolated from fly larvæ which was shown to bring about the same effects in laboratory animals as types A and B, *B. botulinus*, but which produced a toxin which was not neutralized by the antitoxins of either of these two types, was recently described.¹ A further study has been made of this strain and of several other similar strains isolated from different sources, as well as of representatives of the American types A and B, *B. botulinus*, and of two European strains of *B. botulinus*. The purpose has been to determine the relationship between these various strains, both as to cultural behavior and toxin production, with the object of classifying the organism under discussion.

Single-cell isolations from six cultures of the type of organism originally isolated from fly larvæ have been obtained, of which four have been included in this study. These cultures include the following:

Strain Saunders, isolated from fly larvæ (*Lucilia cæsar*, as identified by Doctor Saunders) received from Dr. E. W. Saunders, St. Louis, Mo., who used them in experimental work for the production of "limberneck" in chickens.

Strain 117, isolated from fly larvæ (*Lucilia sericata*, as identified by Dr. J. M. Aldrich, United States National Museum) obtained from the crop of a chicken which died from "limberneck" in the vicinity of Glen Echo, Md.

Strain 121, isolated from fly larvæ (*Lucilia sericata* as identified at United States National Museum) obtained through Doctor Saunders from Dr. E. W. Wisdom, Oklahoma, from "limberneck" material.

Strain 3421, isolated by Dr. Robert Graham, University of Illinois, from the crop of a "limberneck" chicken.

In addition to these, two other strains which resemble the above culturally and which produce similar toxins have been received from Doctor Graham and have been isolated as single-cell cultures. These include strain 487 from a "limberneck" chicken, and strain 526 from the stomach of a horse which died with symptoms resembling botulism.²

¹ Pub. Health Rep., 1922, 37, 164-170. Reprint No. 726.

² The isolation of the organism from material obtained from four different and distantly separated localities, indicates that it is widespread in its distribution. It seems likely that the habitat of the organism is the soil, as is true of *B. botulinus*, types A and B. The ready isolation of the organism from certain fly larvæ may be explained as follows: It is probable that unburied carcasses of dead animals become contaminated with the organism; the organisms multiply in the carcass, meat being a favorable medium for growth; flies, particularly the green carrion flies, are attracted to the decomposing carcass; ova are

Two American strains of type A, *B. botulinus*, a strain isolated by the author from olives in the Memphis, Tenn., outbreak, and the Boise strain³ from asparagus, and two type B strains, the Nevin strain⁴ from cottage cheese and strain 465 from bread, have been studied. Two European cultures, strain 94, received through Dr. G. F. Reddish, Richmond, Va., and strain 95, received through Dr. K. F. Meyer, San Francisco, have also been studied. The following descriptions were received with these cultures:

Strain 95. "Received as *B. botulinus* type (?). No. 95. Lister Institute, Feb., 1921; received by them from Professor Madсен, originally Inst. f. Infect. Dis., Berlin."

Strain 94. "*B. botulinus* No. 94. Strain A. Institute of Infectious Diseases at Berlin; received from Miss Robertson, Lister Institute."

All of the above strains have been obtained as single-cell cultures, using the technique of Doctor Barber,⁵ and their characteristics have been studied from the single-cell isolations.

A number of media designed to test the proteolytic action of the different cultures have been used. These include meat, milk, blood serum, and coagulated egg white. The action on a number of carbohydrates and related substances, 17 in all, has been studied. Morphology and thermal death point have also been considered.

Morphologically, the fly larvæ organism is differentiated from the American types A and B by the fact that the spores, which appear early, are terminal rather than subterminal. The thermal death point is lower, resembling in this respect the original van Ermengem strain.

As to cultural characteristics, the two American type A strains, the two American type B strains, and the Lister Institute strain 95, appear to be identical. All of the proteins used were acted upon vigorously. Gelatin and blood serum were rapidly and completely liquefied, meat was darkened and partially digested, coagulated egg white was completely digested, and the casein of milk was curdled and nearly all digested. The fly larvæ organism and the Lister Institute strain 94, on the other hand, were inactive or brought about no noticeable change in the protein media used, with the exception of gelatin and Loeffler's blood serum. If growth was obtained in gelatin (it was obtained with difficulty in the case of the fly larvæ organisms) the gelatin was

deposited; these develop into larvæ, which feed on the carcass and become infected. "Lämberneck" in chickens probably develops as the result of the ingestion of large numbers of these larvæ or of the infected meat. Chickens are relatively resistant to the toxin of the organism under discussion, as well as to those of types A and B, *B. botulinus*, but if sufficiently large amounts of toxic material are ingested, symptoms affecting the leg, wing, and neck muscles develop, and death may result if enough toxin is ingested. Incidentally, the distribution of the spores of *B. botulinus*, types A and B, may, to a certain extent, be similarly explained.

³ Thom, Edmondson, and Giltner: Jour. Amer. Med. Assoc., 1919, lxxiii, 907.

⁴ Jour. Infect. Dis., 1921, 28, 226.

⁵ Philippine Jour. Sci., 1914, ix, 307.

liquefied. In Loeffler's blood serum there was a drop of fluid in the case of three of the fly larvæ strains after an incubation period of two months.

The American types A and B strains and the Lister Institute strain 95 brought about active fermentation of glucose, levulose, maltose, and glycerin, whereas the action on the remaining carbohydrates and similar substances was slight or negligible. All the fly larvæ strains produced practically identical reactions in the carbohydrate media. The most conspicuous difference between these and the preceding cultures was the active fermentation of galactose and inosite and the nonfermentation of glycerin. The Lister Institute strain 94 was active in the fermentation of adonite in addition to fermenting the carbohydrates acted upon by the American types A and B.

Without going into further detail, it may be stated that the most prominent cultural characteristic of the American types A and B and the European strain, Lister Institute 95, is their active proteolytic behavior with the production of strong odors in meat media and other protein media. The fly larvæ organism and the Lister Institute strain 94, on the other hand, are nonproteolytic or very feebly proteolytic, and produce slight or no noticeable odors. Arranged as to proteolysis we have, therefore, the following:

Nonproteolytic or feebly proteolytic:

Strains from fly larvæ;
Lister Institute strain, 94.

Strongly proteolytic:

Type A Memphis and Boise strains;
Type B Nevin strain and strain 465;
Lister Institute strain, 95.

The strain of *B. botulinus* originally isolated by van Ermengem was described as failing to digest the casein of milk, and no mention is made of strong odors. It appears that the strains which have been isolated principally from fly larvæ are much more closely related culturally to the original van Ermengem type than are the American strains designated as types A and B. The species name *botulinus* is therefore justifiable. The principal difference culturally between the two forms lies in the fact that the van Ermengem organism produced a large amount of gas in solid culture media, whereas the fly larvæ organism usually grows without the production of gas.

The descriptions of the Darmstadt strain, representing the other type isolated in Europe, are not very adequate, particularly as regards proteolytic action, and it is possible that impure cultures were sometimes studied. A comparative study of the two organisms by Ornstein⁵, however, throws some light on the subject. Ho

⁵Ztschr. f. Chemotherap., 1. t., Orig., 1. bd., 1913, 458-469.

calls attention to the fact that the organisms differed not only as regards toxin production but also in their morphological and biological aspects. The Darmstadt organism was more slender, and the flagellæ were different. Transplants of the organism sometimes failed to grow, and media suitable for the van Ermengem strain were not always suitable for the growth of the Darmstadt strain. The Darmstadt strain usually failed to produce gas in solid culture media. The description of the Darmstadt strain corresponds well with the new American type and leads one to the conclusion that the latter is probably more closely related to the Darmstadt strain than to either the van Ermengem or the American types A and B.

Antitoxins against the American types A and B are available and an antitoxin has now also been produced against the fly larvæ organism. By the use of these three antitoxins, the toxins of the cultures studied have been found to fall into the following groups:

Type A:

Memphis strain;
Boise strain;
Lister Institute strain 95.

Type B:

Nevin strain;
Strain 465;
Lister Institute strain 94.

Type —:

Strains from fly larvæ and "limberneck" chickens.

The term "type" has been used to signify the kind of toxin produced, the toxins of types A and B each failing to be neutralized by the antitoxins of the heterologous type. The toxin of the organism isolated from fly larvæ is not neutralized by either type A or type B antitoxin, and, conversely, the antitoxin of the fly larvæ organism fails to protect against even one minimal lethal dose of either type A or type B toxin. We have, therefore, in this organism another "type" and it logically becomes type C. It will therefore be designated as *B. botulinus* type C.

We find in the literature⁶ that the antitoxin of van Ermengem's strain neutralized the toxin of a strain of *B. botulinus* isolated by Madsen from mackerel. It seems probable that the culture designated as Lister Institute strain 95 (Madsen), which was available for this study, is the mackerel culture. We have evidence, therefore, that the van Ermengem strain produced type A toxin, inasmuch as the toxin of the Lister Institute strain 95 has been found to be neutralized by the antitoxin of the American type A strains.

The accompanying chart presents the relationship both as to proteolysis and toxin production of the strains studied and of the van Ermengem and Darmstadt strains.

⁶ Kolle und Wassermann; Handb. der path. mikroorganismen, 2. Aufl., iv, 918.

Action on proteins.

Type of toxin.	Nonproteolytic or feebly proteolytic.	Strongly proteolytic.
Type A.	[van Ermengem strain]→	Lister Institute strain 95← (Madsen). Memphis strain from← olives. Boise strain from as← paragus.
Type B.	Lister Institute strain 94← ("strain A Berlin").	Nevin strain from← cottage cheese. Strain 465 from bread ←
Type C.	Strains from fly larvæ← and "limber neck" chickens.	
Not known.	[Darmstadt strain.]	

Bracketed strains are those which have not been available for study in this series.

The lines —————→ indicate that the toxin of the strain toward which the arrow points is neutralized by the antitoxin indicated. Dotted lines→ indicate a *probable* neutralization of the toxin of the strain toward which the arrow points by the antitoxin of the other.

The study shows that there are strains which are alike culturally but which produce dissimilar toxins (type A, Memphis strain, and type B, Nevin strain), and, on the other hand, there are strains which produce similar toxins, but which differ culturally (type B, Nevin strain, and type B, Lister Institute strain 94). It is therefore evident that the organisms producing toxins poisonous by mouth are not one particular organism but form a group of organisms.

The full report will be published in a forthcoming Hygienic Laboratory Bulletin. Fuller information may be available at that time regarding the identity and correlation of the European strains.

INFLUENZA IN THE UNITED STATES.

CASES REPORTED BY STATES, FEBRUARY 11 TO 17, 1923—DEATHS FROM INFLUENZA AND PNEUMONIA IN CITIES, OCTOBER 29, 1922, TO FEBRUARY 10, 1923.

The following table shows the number of cases of influenza reported by State health officers, by telegraph, for the week ended February 17, 1923, compared with similar reports for the corresponding week of 1922, 1921, and 1920:

Cases of influenza reported by State health officers for the week ended February 17, 1923, and corresponding week of the years 1922, 1921, and 1920.

State and division.	Week ended—			
	Feb. 17, 1923.	Feb. 18, 1922.	Feb. 19, 1921.	Feb. 21, 1920.
New England division:				
Maine.....	275	131	2	3,702
Massachusetts.....	295	1,764	32	5,601
Vermont.....	2	12		1,314
Connecticut.....	185	1,325	12	2,771
Middle Atlantic division:				
New York (exclusive of New York City).....	1,419	1,577	63	11,304
New York City.....	3,608	3,284	109	3,030
New Jersey.....	562	1,555	94	2,798
East North Central division:				
Indiana.....	240			3,904
Illinois.....	755	633	34	7,237
Wisconsin.....	1,059	22	22	6,274
West North Central division:				
Minnesota.....	10	10		4,213
Missouri.....	516	234	30	466
South Dakota.....	0	1		3,047
Nebraska.....	205	10		3,272
Kansas.....	919	480	9	10,026
South Atlantic division:				
Delaware.....	27	2	19	43
Maryland.....	3,557	263	143	4,758
District of Columbia.....	19	8	1	104
West Virginia.....	162	59		1,848
Georgia.....	551	128	35	7,809
Florida.....	34	123	4	1,420
East South Central division:				
Kentucky.....		705	25	4,295
Alabama.....	275	29	11	2,366
Mississippi.....	1,323			3,332
West South Central division:				
Arkansas.....	812	158	19	2,793
Louisiana.....	644	36	22	3,153
Texas.....	460	123	8	1,035
Mountain division:				
Colorado (exclusive of Denver).....	13	17		
New Mexico.....	19	35		632
Pacific division:				
Washington.....		902		4,596
Oregon.....	17	442		1,971
California.....	821	4,315		7,420

The following table shows the number of deaths from influenza and from pneumonia (all forms) in certain large cities of the United States from October 29, 1922, to February 10, 1923, inclusive. This table is taken from the Weekly Health Index, issued by the Division of Vital Statistics, Bureau of the Census.

Deaths from influenza and pneumonia (all forms).

City.	Deaths from influenza for week ended—						Deaths from pneumonia (all forms) for week ended—					
	Nov. 4, 1922, to Jan. 6, 1923.	1923					Nov. 4, 1922, to Jan. 6, 1923.	1923				
		Jan. 13.	Jan. 20.	Jan. 27.	Feb. 3.	Feb. 10.		Jan. 13.	Jan. 20.	Jan. 27.	Feb. 3.	Feb. 10.
Total.....	324	114	158	212	291	396	8,380	1,461	1,402	1,500	1,783	1,869
Akron.....	1			3	2	2	38	9	14	9	10	7
Albany.....	2	1	0	2	3	4	50	10	11	11	12	18
Atlanta.....				1	5	2	159	42	37	20	18	12
Baltimore.....	14	9	6	8	17	25	279	53	37	47	52	69
Birmingham.....						2	71	12	10	7	10	4
Boston.....	13	9	8	2	14	2	318	54	64	70	63	78
Bridgeport.....	7	1	3	2	2	2	44	10	11	9	14	5
Buffalo.....		4	1	2	3		77	23	20	34	41	
Cambridge.....					1		48	7	7	12	15	4
Camden.....							58	11	23	23	32	30
Chicago.....	31	7	5	11		43	682	126	94	103	133	156
Cincinnati.....	24	10	19	16	24	18	132	30	24	27	22	28
Cleveland.....	6	4	1	2	3	12	177	34	33	38	36	52
Columbus.....	3	7	5	8	16	21	60	12	14	9	23	30
Dallas.....	3	0	4	6	8	6	33	8	9	11	12	13
Dayton.....				3	2	4	37	13	14	12	14	25
Denver.....					3	3	111	13	18	17	15	13
Detroit.....	14	4	9	6	8	13	322	64	55	62	77	78
Duluth.....							11	2	2	2	3	3
Erie.....				1	1	4	28	1	2	2	6	3
Fall River.....	1						36	11	6	5	7	7
Flint.....					1	4	13	6	5	7	12	4
Fort Worth.....					1	2	23	9	5	4	4	5
Grand Rapids.....	0	0	2	0	0	2	23	5	7	4	4	10
Houston.....					0	0	35	11	5	5	3	2
Indianapolis.....	2	2	2	0	2	1	100	18	18	19	19	29
Jacksonville, Fla.....					1	0	2	6	3	3	2	2
Jersey City.....	0	0	0	3	3	4	85	14	13	17	14	30
Kansas City, Kans.....					1	4	21	5	8	12	8	8
Kansas City, Mo.....	11	1	9	2	7	11	126	14	16	16	23	31
Los Angeles.....	7	0	1	2	2	1	134	24	23	21	21	31
Louisville.....				6	2	4	99	22	20	21	27	22
Lowell.....				1	2		37	4	6	11	10	6
Lynn.....				1	0		22	6	1	14	6	7
Memphis.....	1		6	6	7	6	68	15	20	20	21	15
Milwaukee.....					3	3	83	23	15	15	30	43
Minneapolis.....				1	1	1	89	16	5	9	3	2
Nashville.....					10	5	42	14	10	13	12	5
New Bedford.....				1	0	0	47	7	3	7	21	15
New Haven.....			2			2	56	13	7	13	6	4
New Orleans.....				8	8	9	132	11	21	16	25	23
New York.....	78	14	23	28	46	80	1,663	181	220	211	299	322
Newark, N. J.....	4			1	1	0	131	15	13	15	17	23
Norfolk.....							32	7	3	10	6	10
Oakland.....	3		1	3			47	6	5	9	10	
Omaha.....				0	0	0	16	20	8	7	16	13
Paterson.....							60	20	9	13	15	
Philadelphia.....	64	30	36	33	34	20	795	153	140	132	163	142
Pittsburgh.....				12	8	23	425	82	77	59	89	102
Portland, Oreg.....							54	9	5	5		
Providence.....	4	0	1	0	2	2	78	9	13	10	25	16
Richmond.....	0	4	4	4	2	6	6	6	6	11	13	9
Rochester.....	1	2	1		2		10	10	10	13	14	14
St. Louis.....							301	45	50	68	72	70
St. Paul.....				4	1	2	62	7	11	11	12	4
Salt Lake City.....					0	0	68	5	2	2	1	3
San Antonio.....					1	1	27	4	7	9	6	11
San Francisco.....	18	2	1	0	3	6	113	17	12	15	22	33
Seattle.....					1	1	43	3	2	5	3	4
Spokane.....	2			0	0	0	19	3	1	3	1	5
Springfield, Mass.....				0	1	1	52	4	3	7	8	15
Syracuse.....	0		0	2	0	3	45	10	7	8	21	11
Tacoma.....							12	2	2	3	1	1
Toledo.....	2	1	1	2	3	2	44	7	15	8	11	15
Trenton.....	2	1	1	2	1		48	9	7	10	11	11
Washington, D. C.....	4	1	6	18	19	20	176	34	29	58	59	53
Wilmington, Del.....					4				10	15	8	17
Worcester.....						2				7	14	11
Yonkers.....	2						23	1	8	2	6	5
Youngstown.....				0			22	4	6	2	3	

Blank space indicates that no report was received; 0 indicates no deaths.

DEATH RATES IN A GROUP OF INSURED PERSONS.

COMPARISON OF DEATH RATES FOR PRINCIPAL CAUSES, NOVEMBER AND DECEMBER, 1922, AND YEARS 1912 TO 1922, INCLUSIVE.

The accompanying tables are taken from the Statistical Bulletin of the Metropolitan Life Insurance Co. for January, 1923, and compare the mortality experience of the company for the months of November and December, 1922, and the years 1912 to 1922, inclusive. The rates for 1922 are based on a strength of approximately 14,000,000 insured persons.

The death rate for December, 1922 (9 per 1,000), was stated to be the lowest figure for this month ever recorded for this group of policyholders. Practically all of the important causes of death show lower rates for December, 1922, than for the same month of 1921. Influenza shows a large increase and pneumonia, organic diseases of the heart, and Bright's disease show a slight increase. The influenza death rate was 14.2 per 100,000 for December, 1922, as compared with 7.4 for December, 1921, and 8.6 for December, 1920.

Death rates (annual basis) for principal causes per 100,000 lives exposed, November and December, 1922, and December and year, 1921.

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death.	Death rate per 100,000 lives exposed.			
	Decem-ber, 1922.	Novem-ber, 1922.	Decem-ber, 1921.	Year 1921.
Total, all causes.....	900.4	819.2	908.7	870.6
Typhoid fever.....	4.8	6.0	6.2	6.7
Measles.....	5.9	2.2	1.3	3.2
Scarlet fever.....	4.4	4.1	5.6	7.0
Whooping cough.....	2.3	1.8	1.2	3.9
Diphtheria.....	27.7	25.2	32.1	23.8
Influenza.....	14.2	7.0	7.4	8.7
Tuberculosis (all forms).....	101.9	90.6	108.3	117.4
Tuberculosis of respiratory system.....	92.8	82.5	99.0	105.6
Cancer.....	71.5	69.3	78.6	71.7
Cerebral hemorrhage.....	65.9	53.6	72.4	62.1
Organic diseases of heart.....	129.4	121.6	128.1	117.4
Pneumonia (all forms).....	87.2	63.1	78.5	67.8
Other respiratory diseases.....	14.5	14.8	16.6	14.1
Diarrhea and enteritis.....	6.2	8.8	7.3	14.2
Bright's disease (chronic nephritis).....	74.1	69.4	73.7	68.0
Puerperal state.....	14.4	15.3	17.5	19.8
Suicides.....	5.8	4.8	7.1	7.6
Homicides.....	5.5	5.5	8.6	6.7
Other external causes (excluding suicides and homicides).....	62.1	60.2	51.5	57.6
Traumatism by automobile.....	15.0	15.2	12.8	12.2
All other causes.....	202.6	195.8	206.9	192.9

MORTALITY RECORD FOR 1922.

The gross death rate for 1922 was 877.2 per 100,000, as compared with 870.6 for 1921. Lower mortality rates for 1922 as compared with 1921 are shown for tuberculosis, typhoid fever, three of the common diseases of childhood (diphtheria, scarlet fever, and whooping cough), diarrheal diseases, and puerperal diseases and conditions.

The annual death rate in this selected group, from 1911 to 1921, has varied between 73 and 87 per cent of the death rate in the registration area of the United States.

Tuberculosis.—The death rate for tuberculosis for 1922 (113.4 per 100,000) was stated to be the lowest in the records of the company. It shows a decline of 3.4 per cent from the rate for 1921 (117.4), and of nearly 50 per cent from the rate for 1911 (224.6), a more rapid decline in this special group than is indicated for the registration area of the United States. The decline in the rate for 1922 from that for 1921 was greater among the colored than among the white policyholders.

Typhoid fever.—The death rate for typhoid fever for 1922 (5.6 per 100,000) was also the lowest in the records of the company, and represents a reduction of 16 per cent from the rate for 1921, and of nearly 75 per cent from the rate for 1911 (22.8 per 100,000).

Common infectious diseases of children.—Death rates for diphtheria, scarlet fever, and whooping cough were lower for 1922 than for 1921, while the death rate for measles was slightly higher. The diphtheria death rate was the lowest recorded during the 12-year period 1911–1922, suggesting a promising outlook for a successful fight on this disease.

Diarrheal diseases.—The death rate for diarrheal conditions declined from 14.2 per 100,000 in 1921 to 10.7 in 1922, the lowest figures for these diseases in the records of the company, suggesting continued improvement in the protection of water and food supplies.

Puerperal diseases.—Only a small decrease was registered during 1922 in the death rates for puerperal diseases and conditions. It is stated that the effect of the influenza epidemic upon the death rate for these causes was important during the first quarter of the year; also that the records show no general tendency of the rate to decline, even in spite of the declining birth rate.

Higher death rates for 1922 over those for 1921 are shown for influenza and pneumonia, organic heart diseases, and diabetes. Slight increases are also shown for chronic nephritis and cerebral hemorrhage.

Death rates per 100,000 lives exposed, for principal causes of death, 1912 to 1922.

[Industrial department, Metropolitan Life Insurance Co.]

Cause of death.	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912
All causes of death.	877.2	870.6	909.4	1,063.0	1,559.2	1,161.1	1,168.1	1,130.9	1,152.8	1,199.4	1,201.2
Typhoid fever.	5.6	6.7	6.7	7.3	11.5	12.1	13.0	12.9	16.1	18.4	19.1
Communicable diseases of childhood.	29.6	37.9	43.1	31.5	41.6	46.8	40.8	36.4	48.2	58.1	46.2
Measles.	4.3	3.2	8.5	3.5	8.6	11.1	9.9	5.7	6.9	12.3	7.6
Scarlet fever.	4.8	7.0	6.0	3.9	3.6	6.0	4.1	4.6	9.8	12.7	9.0
Whooping cough.	2.6	3.9	6.6	3.2	10.1	5.1	5.8	4.7	5.8	5.9	5.1
Diphtheria.	17.8	23.8	22.1	20.9	19.3	24.6	21.0	21.4	25.7	27.2	24.5
Influenza and pneumonia.	94.7	76.5	159.5	214.1	542.2	135.4	138.1	119.5	111.6	118.4	116.2
Influenza.	21.5	8.7	53.5	96.9	272.4	14.4	23.8	13.0	11.3	12.3	12.3
Pneumonia.	73.3	67.8	106.1	117.2	269.8	121.0	114.3	106.5	100.3	106.1	103.9
Meningococcus meningitis.	.6	.9	1.0	1.3	2.8	3.5	1.5	1.3	1.5	1.7	3.0
Tuberculosis (all forms).	113.4	117.4	137.9	156.5	189.0	188.9	190.2	197.8	204.5	206.7	212.9
Tuberculosis of respiratory system.	102.9	105.6	124.0	141.6	171.2	172.3	172.8	180.0	185.2	186.6	191.5
Cancer (all forms).	71.5	71.7	69.8	67.0	70.9	70.3	70.9	69.8	70.5	70.3	70.3
Diabetes mellitus.	17.0	15.5	14.1	13.4	14.0	15.3	15.9	15.1	14.2	13.9	13.7
Cerebral hemorrhage, apoplexy.	62.4	62.1	61.3	59.8	64.0	66.8	68.7	68.5	69.2	67.2	70.3
Diseases of heart.	126.0	117.4	117.0	113.9	141.7	142.0	140.2	136.7	138.1	140.6	143.8
Diarrhea and enteritis.	10.7	14.2	15.8	16.9	23.4	25.5	26.2	24.4	21.7	27.7	27.6
1 to 2 years.	4.8	6.0	7.0	7.5	11.6	11.9	12.5	11.3	11.9	13.2	12.8
2 years and over.	5.9	8.1	8.8	9.5	11.8	13.6	13.7	13.1	12.8	14.5	14.8
Chronic nephritis (Bright's Disease).	69.9	68.0	70.8	73.5	86.8	95.7	99.0	95.7	95.4	96.0	99.4
Puerperal state (total).	18.9	19.8	20.0	20.0	27.4	18.2	17.6	18.0	19.8	20.0	18.4
Puerperal septicemia.	7.3	8.5	8.6	6.7	7.3	7.5	7.2	7.2	8.4	9.1	8.0
Puerperal album. and convulsions.	4.7	4.9	5.0	4.8	4.9	5.1	5.0	4.8	5.1	5.3	4.8
Accidents of pregnancy.	1.7	1.6	3.1	3.0	6.9	1.6	1.4	1.8	1.7	1.7	1.5
Total external causes.	71.4	72.0	72.0	94.2	128.9	106.7	99.5	88.2	89.2	98.3	92.9
Suicides.	7.4	7.6	6.1	6.8	7.6	9.3	9.8	12.2	12.3	13.5	12.4
Homicides.	6.2	6.7	5.8	6.9	6.2	7.4	6.9	6.9	7.0	7.2	6.7
Accidents (total).	57.7	57.5	59.6	63.8	75.5	76.5	73.2	67.3	69.9	77.6	73.8
Accidental burns.	6.1	6.6	8.1	8.1	9.0	8.9	8.8	8.6	8.4	9.0	9.1
Accidental drowning.	7.2	8.2	6.7	8.6	9.4	8.7	9.7	11.9	10.0	12.1	10.2
Accidental traum. by fall.	7.3	7.1	7.3	8.0	10.4	11.9	13.1	11.9	12.6	13.7	12.7
Accidental traum. by machines.	1.6	1.0	1.7	1.6	2.4	2.0	1.7	1.4	1.5	2.0	1.7
Railroad accidents.	4.1	3.9	5.2	5.7	7.8	8.5	7.9	7.4	7.5	9.0	9.2
Automobile accidents.	13.5	12.2	11.1	10.7	10.3	9.7	7.4	5.4	4.8	4.1	3.0
All other accidents.	18.0	18.5	18.5	21.2	26.1	26.8	24.6	20.7	25.1	27.7	27.9
War deaths.	.1	.1	.5	16.6	39.7	13.5	9.6	1.8			
Other diseases and conditions.	185.5	190.5	197.4	193.5	218.7	233.2	247.1	245.5	250.5	261.9	267.4

Examination for Entrance into the Regular Corps of the Public Health Service.

Examinations of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

Chicago, Ill., March 12, 1923.

San Francisco, Calif., March 12, 1923.

Washington, D. C., March 12, 1923.

Candidates must be not less than 23 nor more than 32 years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass satisfactory physical, academic, and professional examinations before boards of commissioned medical officers.

Successful candidates will be recommended for appointment by the President, with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

DEATHS DURING WEEK ENDED FEBRUARY 10, 1923.

Summary of information received by telegraph from industrial insurance companies for week ended February 10, 1923, and corresponding week of 1922. (From the Weekly Health Index, February 14, 1923, issued by the Bureau of the Census, Department of Commerce.)

	Week ended Feb. 10, 1923.	Corresponding week, 1922.
Policies in force.....	51, 424, 628	48, 908, 095
Number of death claims.....	12, 224	10, 311
Death claims per 1,000 policies in force, annual rate.....	12. 4	11. 0

Deaths from all causes in certain large cities of the United States during the week ended February 10, 1923, infant mortality, annual death rate, and comparison with corresponding week of 1922. (From the Weekly Health Index, February 14, 1923, issued by the Bureau of the Census, Department of Commerce.)

City.	Estimated population July 1, 1923.	Week ended Feb. 10, 1923.		Annual death rate per 1,000, corresponding week 1922.	Deaths under 1 year.		Infant mortality rate, week ended Feb. 10, 1923. ¹
		Total deaths.	Death rate. ¹		Week ending Feb. 10, 1923.	Corresponding week 1922.	
Total.....	28, 575, 058	9, 394	17. 1	15. 6	1, 183	1, 091	.....
Akron, Ohio.....	³ 208, 435	36	9. 0	6. 8	6	7	71
Albany, N. Y.....	117, 375	59	26. 2	22. 0	4	6	88
Atlanta, Ga.....	222, 963	62	14. 5	16. 4	8	8	.....
Baltimore, Md.....	773, 580	318	21. 4	14. 9	42	20	124
Birmingham, Ala.....	195, 901	59	15. 7	15. 8	8	13	.....
Boston, Mass.....	770, 400	328	22. 2	14. 9	36	29	103
Bridgeport, Conn.....	³ 143, 555	36	13. 1	14. 9	5	4	69
Cambridge, Mass.....	111, 444	32	15. 0	10. 8	3	3	53
Camden, N. J.....	124, 157	72	30. 2	14. 1	11	6	182
Chicago, Ill.....	⁴ 2, 833, 288	855	15. 7	12. 8	136	86	.....
Cincinnati, Ohio.....	406, 312	175	22. 5	18. 2	18	11	118
Cleveland, Ohio.....	877, 992	249	14. 8	9. 6	28	19	77
Columbus, Ohio.....	261, 082	116	23. 2	14. 6	12	7	125
Dallas, Tex.....	177, 274	57	16. 8	14. 6	9	4	.....
Dayton, Ohio.....	165, 530	58	18. 3	10. 6	10	3	164
Denver, Colo.....	272, 031	90	17. 3	17. 3	12	8	.....
Detroit, Mich.....	³ 993, 678	344	18. 1	13. 0	63	57	126
Duluth, Minn.....	106, 289	28	13. 7	.....	4	.....	91
Erie, Pa.....	112, 571	30	13. 9	9. 0	2	0	41
Fall River, Mass.....	120, 912	50	21. 6	17. 7	10	10	142
Flint, Mich.....	117, 968	28	12. 4	.....	2	.....	40
Fort Worth, Tex.....	125, 021	27	11. 3	13. 6	3	3	.....
Grand Rapids, Mich.....	145, 947	54	19. 3	13. 8	12	2	189
Houston, Tex.....	154, 970	29	9. 8	10. 8	6	4	.....
Indianapolis, Ind.....	347, 882	107	16. 4	19. 1	14	15	108
Jacksonville, Fla.....	100, 046	38	19. 8	22. 4	4	4	.....
Jersey City, N. J.....	309, 034	112	18. 9	18. 2	16	12	107
Kansas City, Kans.....	115, 781	43	19. 4	14. 2	8	8	183
Kansas City, Mo.....	351, 819	120	17. 8	15. 5	11	11	.....
Los Angeles, Calif.....	666, 833	227	17. 7	17. 6	19	17	71
Louisville, Ky.....	257, 671	91	18. 4	18. 5	14	5	151
Lowell, Mass.....	115, 089	39	17. 7	15. 5	10	6	174
Lynn, Mass.....	102, 683	35	17. 8	.....	7	.....	53
Memphis, Tenn.....	170, 067	78	23. 9	20. 2	7	19	.....
Milwaukee, Wis.....	484, 595	160	17. 2	12. 0	35	21	174
Minneapolis, Minn.....	409, 125	116	14. 8	13. 3	15	6	82
Nashville, Tenn.....	121, 128	38	16. 4	13. 0	4	2	.....
New Bedford, Mass.....	130, 072	44	17. 6	14. 7	16	7	233
New Haven, Conn.....	172, 967	48	14. 5	15. 6	2	4	26
New Orleans, La.....	404, 375	155	20. 0	19. 1	11	24	.....
New York, N. Y.....	5, 927, 625	1, 743	15. 3	18. 5	223	300	89
Bronx Borough.....	840, 344	187	11. 6	14. 0	16	25	56
Brooklyn Borough.....	2, 159, 687	601	14. 5	18. 4	84	108	89
Manhattan Borough.....	2, 267, 001	761	17. 5	21. 2	101	139	98
Queens Borough.....	535, 844	127	12. 4	13. 1	19	19	102
Richmond Borough.....	127, 549	67	27. 4	20. 1	3	9	55

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1922. Cities left blank are not in the registration area for births.

³ Enumerated population Jan. 1, 1920.

⁴ Estimated population July 1, 1922.

Deaths from all causes in certain large cities of the United States during the week ended February 10, 1923, infant mortality, annual death rate, and comparison with corresponding week of 1922. (From the Weekly Health Index, February 14, 1923, issued by the Bureau of the Census, Department of Commerce.)—Continued.

City.	Estimated population July 1, 1923.	Week ended Feb. 10, 1923.		Annual death rate per 1,000, corresponding week 1922.	Deaths under 1 year.		Infant mortality rate, week ended Feb. 10, 1923.
		Total deaths.	Death rate.		Week ending Feb. 10, 1923.	Corresponding week 1922.	
Newark, N. J.	438,699	143	17.0	15.5	20	17	94
Norfolk, Va.	159,089	39	12.8	9.2	7	1	123
Oakland, Calif.	240,086	74	16.1	12.7	4	3	51
Omaha, Nebr.	204,382	73	18.6	14.8	9	6	97
Paterson, N. J.	139,579	44	16.4	23.7	5	8	80
Philadelphia, Pa.	1,922,788	679	18.4	15.5	75	87	97
Pittsburgh, Pa.	4607,902	280	24.0	19.3	35	23	122
Portland, Oreg.	273,621	57	10.9	13.6	7	8	71
Providence, R. I.	242,378	84	18.1	14.9	14	16	114
Richmond, Va.	181,044	63	18.1	17.2	5	2	61
Rochester, N. Y.	317,867	95	15.6	11.5	8	8	63
St. Louis, Mo.	803,853	256	16.6	14.2	12	13	.....
St. Paul, Minn.	241,891	69	14.9	15.0	7	12	65
Salt Lake City, Utah	126,241	41	16.9	18.9	4	3	65
San Antonio, Tex.	184,727	66	18.6	.....	14	.....	.....
San Francisco, Calif.	539,038	180	17.4	16.3	12	15	72
Seattle, Wash.	315,312	54	8.9	12.6	5	7	44
Spokane, Wash.	104,573	32	16.0	21.5	1	4	22
Springfield, Mass.	144,227	53	19.2	9.7	4	3	57
Syracuse, N. Y.	184,511	63	17.8	17.0	9	14	117
Tacoma, Wash.	101,731	20	10.3	.....	2	.....	50
Toledo, Ohio	268,338	78	15.2	11.6	11	6	111
Trenton, N. J.	127,390	49	20.1	29.2	8	14	135
Washington, D. C.	3437,571	243	29.0	16.7	22	15	126
Wilmington, Del.	117,728	67	29.7	14.4	11	8	224
Worcester, Mass.	191,927	58	15.8	23.5	5	13	56
Yonkers, N. Y.	107,520	26	12.6	15.8	2	8	43
Youngstown, Ohio	3132,358	22	8.7	13.4	4	6	54

³ Enumerated population Jan. 1, 1920.

⁴ Estimated population July 1, 1922.

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 STATE SUMMARIES.

Reports for Week Ended February 17, 1923.

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

ALABAMA.		COLORADO.	
	Cases.	(Exclusive of Denver.)	Cases.
Cerebrospinal meningitis.....	2	Chicken pox.....	36
Chicken pox.....	21	Diphtheria.....	19
Diphtheria.....	14	Influenza.....	13
Influenza.....	275	Lethargic encephalitis.....	1
Lethargic encephalitis.....	1	Measles.....	2
Malaria.....	14	Mumps.....	16
Measles.....	91	Paratyphoid fever.....	1
Ophthalmia neonatorum.....	2	Pneumonia.....	9
Pellagra.....	4	Scarlet fever.....	51
Pneumonia.....	86	Smallpox.....	1
Scarlet fever.....	14	Tuberculosis.....	10
Smallpox.....	3	Typhoid fever.....	2
Tuberculosis.....	38	Whooping cough.....	19
Typhoid fever.....	9		
Whooping cough.....	25	CONNECTICUT.	
		Cerebrospinal meningitis.....	1
		Chicken pox.....	41
		Conjunctivitis.....	2
		Diphtheria.....	40
		Influenza.....	185
		Lethargic encephalitis.....	7
		Measles.....	355
		Mumps.....	40
		Pneumonia (lobar).....	51
		Scarlet fever.....	76
		Smallpox.....	4
		Tuberculosis (all forms).....	36
		Typhoid fever.....	2
		Whooping cough.....	63
		DELAWARE.	
		Chicken pox.....	3
		Diphtheria.....	2
		Influenza.....	27
		Measles.....	65
		Pneumonia.....	6
		Scarlet fever.....	5
		Tuberculosis.....	2
		Whooping cough.....	1
ARKANSAS.			
Chicken pox.....	19		
Diphtheria.....	4		
Influenza.....	812		
Malaria.....	17		
Measles.....	28		
Mumps.....	3		
Pellagra.....	1		
Scarlet fever.....	5		
Smallpox.....	1		
Tuberculosis.....	2		
Typhoid fever.....	9		
Whooping cough.....	5		
CALIFORNIA.			
Cerebrospinal meningitis:			
Eureka.....	1		
Los Angeles.....	1		
Diphtheria.....	139		
Influenza.....	821		
Leprosy—San Francisco.....	1		
Lethargic encephalitis—San Francisco.....	1		
Measles.....	269		
Rabies in man—Los Angeles.....	1		
Scarlet fever.....	173		
Smallpox.....	11		
Typhoid fever.....	5		

DISTRICT OF COLUMBIA.		INDIANA.	
	Cases.		Cases.
Chicken pox.....	30	Cerebrospinal meningitis—Marion County.....	1
Diphtheria.....	8	Diphtheria.....	84
Influenza.....	19	Influenza.....	240
Measles.....	63	Pneumonia.....	61
Scarlet fever.....	18	Poliomyelitis—Boone County.....	1
Tuberculosis.....	34	Scarlet fever.....	61
Typhoid fever.....	2	Smallpox.....	20
Whooping cough.....	36	Typhoid fever.....	2
FLORIDA.		IOWA.	
Dengue.....	1	Diphtheria.....	41
Diphtheria.....	15	Scarlet fever.....	93
Influenza.....	34	Smallpox.....	4
Malaria.....	6	KANSAS.	
Ophthalmia neonatorum.....	1	Chicken pox.....	88
Pneumonia.....	10	Diphtheria.....	56
Scarlet fever.....	4	German measles.....	1
Smallpox.....	14	Influenza.....	919
Typhoid fever.....	9	Lethargic encephalitis.....	1
GEORGIA.		Measles.....	91
Chicken pox.....	23	Mumps.....	47
Dengue.....	1	Pneumonia.....	115
Diphtheria.....	3	Scarlet fever.....	101
Hookworm disease.....	23	Septic sore throat.....	1
Influenza.....	551	Smallpox.....	9
Malaria.....	5	Tetanus.....	1
Measles.....	155	Tuberculosis.....	18
Mumps.....	4	Typhoid fever.....	7
Pneumonia.....	42	Whooping cough.....	51
Scarlet fever.....	8	LOUISIANA.	
Septic sore throat.....	4	Cerebrospinal meningitis.....	2
Smallpox.....	10	Dengue.....	4
Tuberculosis (pulmonary).....	4	Diphtheria.....	25
Typhoid fever.....	2	Influenza.....	644
Whooping cough.....	2	Scarlet fever.....	7
ILLINOIS.		Smallpox.....	11
Diphtheria:		Typhoid fever.....	5
Cook County (including Chicago).....	158	MAINE.	
Chicago.....	146	Chicken pox.....	14
Kane County.....	10	Diphtheria.....	7
Madison County.....	16	Influenza.....	275
Scattering.....	86	Lethargic encephalitis.....	1
Influenza:		Measles.....	48
Chicago.....	454	Pneumonia.....	54
Scattering.....	301	Scarlet fever.....	29
Pneumonia.....	893	Tuberculosis.....	16
Poliomyelitis:		Typhoid fever.....	13
Cook County (including Chicago).....	3	Whooping cough.....	36
Chicago.....	2	MARYLAND.¹	
Franklin County.....	1	Cerebrospinal meningitis.....	1
Grundy County.....	1	Chicken pox.....	104
Scarlet fever:		Diphtheria.....	59
Cook County (including Chicago).....	118	Dysentery.....	2
Chicago.....	104	German measles.....	3
Henry County.....	10	Influenza.....	3,557
Kane County.....	13	Lethargic encephalitis.....	9
La Salle County.....	9	Malaria.....	1
Peoria County.....	9	Measles.....	311
Scattering.....	112	Mumps.....	65
Smallpox.....	22	Ophthalmia neonatorum.....	1
Typhoid fever.....	4		
Whooping cough.....	242		

¹ Week ended Friday.

MARYLAND—continued.

	Cases.
Paratyphoid fever.....	2
Pneumonia (all forms).....	352
Poliomyelitis.....	1
Scarlet fever.....	86
Septic sore throat.....	4
Trachoma.....	1
Tuberculosis.....	26
Typhoid fever.....	4
Whooping cough.....	109

MASSACHUSETTS.

Cerebrospinal meningitis.....	3
Chicken pox.....	162
Diphtheria.....	170
German measles.....	7
Influenza.....	295
Lethargic encephalitis.....	7
Measles.....	972
Mumps.....	221
Ophthalmia neonatorum.....	32
Pneumonia (lobar).....	276
Poliomyelitis.....	3
Scarlet fever.....	341
Septic sore throat.....	5
Trachoma.....	1
Trichinosis.....	1
Tuberculosis (all forms).....	161
Typhoid fever.....	4
Whooping cough.....	333

MICHIGAN.

Diphtheria.....	147
Measles.....	131
Pneumonia.....	307
Scarlet fever.....	348
Smallpox.....	52
Tuberculosis.....	28
Typhoid fever.....	15
Whooping cough.....	152

MINNESOTA.

Chicken pox.....	13
Diphtheria.....	79
Influenza.....	10
Lethargic encephalitis.....	5
Measles.....	363
Pneumonia.....	8
Scarlet fever.....	178
Smallpox.....	71
Tuberculosis.....	72
Typhoid fever.....	3

MISSISSIPPI.

Diphtheria.....	16
Influenza.....	1,323
Scarlet fever.....	5
Typhoid fever.....	3

MISSOURI.

Anthrax.....	1
Chicken pox.....	108
Diphtheria.....	71
Epidemic sore throat.....	7
Influenza.....	516
Measles.....	238
Mumps.....	13

MISSOURI—continued.

	Cases.
Pneumonia.....	27
Rabies.....	1
Scarlet fever.....	84
Smallpox.....	2
Tetanus.....	1
Trachoma.....	5
Tuberculosis.....	40
Typhoid fever.....	4
Whooping cough.....	15

MONTANA.

Diphtheria.....	5
Scarlet fever.....	16
Smallpox.....	3

NEBRASKA.

Chicken pox.....	22
Diphtheria.....	15
Influenza.....	205
Lethargic encephalitis—Omaha.....	1
Measles:	
Howard County.....	10
Scattering.....	11
Mumps.....	29
Pneumonia.....	1
Scarlet fever:	
Omaha.....	12
Scattering.....	47
Septic sore throat.....	1
Typhoid fever.....	2
Whooping cough.....	20

NEW JERSEY.

Chicken pox.....	143
Diphtheria.....	144
Influenza.....	562
Measles.....	1,184
Pneumonia.....	365
Poliomyelitis.....	1
Scarlet fever.....	226
Typhoid fever.....	3
Whooping cough.....	154

NEW MEXICO.

Chicken pox.....	27
Conjunctivitis.....	1
Diphtheria.....	69
German measles.....	1
Influenza.....	19
Measles.....	4
Mumps.....	4
Pneumonia.....	18
Scarlet fever.....	15
Smallpox.....	2
Tuberculosis.....	21
Typhoid fever.....	1
Whooping cough.....	1

NEW YORK.

(Exclusive of New York City.)

Cerebrospinal meningitis.....	3
Diphtheria.....	122
Influenza.....	1,419
Lethargic encephalitis.....	10
Measles.....	793

NEW YORK—continued.

	Cases.
Pneumonia.....	637
Poliomyelitis.....	2
Scarlet fever.....	307
Smallpox.....	2
Typhoid fever.....	11
Whooping cough.....	397

NORTH CAROLINA.

Cerebrospinal meningitis.....	1
Chicken pox.....	112
Diphtheria.....	43
Measles.....	1,030
Ophthalmia neonatorum.....	2
Scarlet fever.....	26
Septic sore throat.....	2
Smallpox.....	102
Typhoid fever.....	4
Whooping cough.....	336

OREGON.

Chicken pox.....	19
Diphtheria.....	7
Influenza.....	17
Lethargic encephalitis:	
Clackamas County.....	1
Portland.....	4
Measles.....	8
Mumps.....	2
Pneumonia.....	18
Poliomyelitis:	
Portland.....	1
Washington County.....	1
Scarlet fever.....	16
Smallpox.....	11
Tuberculosis.....	10
Typhoid fever.....	2
Whooping cough.....	4

SOUTH DAKOTA.

Cerebrospinal meningitis.....	1
Chicken pox.....	10
Diphtheria.....	2
Measles.....	2
Pneumonia.....	8
Scarlet fever.....	24
Smallpox.....	4
Tuberculosis.....	6
Typhoid fever.....	3

TEXAS.

Cerebrospinal meningitis.....	1
Chicken pox.....	34
Dengue.....	12
Diphtheria.....	21
Influenza.....	460
Measles.....	111
Mumps.....	89
Pneumonia.....	34
Scarlet fever.....	10
Smallpox.....	27
Tuberculosis.....	28
Typhoid fever.....	1
Whooping cough.....	26

¹ Deaths.

VERMONT.

	Cases.
Chicken pox.....	43
Diphtheria.....	5
Influenza.....	2
Measles.....	17
Mumps.....	14
Pneumonia.....	13
Scarlet fever.....	25
Smallpox.....	2
Whooping cough.....	26

WASHINGTON.

Chicken pox.....	46
Diphtheria.....	9
Dysentery.....	2
Lethargic encephalitis—Vancouver.....	1
Measles.....	5
Mumps.....	19
Pneumonia.....	4
Scarlet fever:	
Seattle.....	11
Tacoma.....	9
Scattering.....	42
Smallpox:	
Spokane.....	10
Scattering.....	16
Tuberculosis.....	18
Typhoid fever.....	3
Whooping cough.....	36

WEST VIRGINIA.

Diphtheria.....	23
Influenza:	
Morgantown.....	75
Pensboro.....	50
Scattering.....	37
Measles:	
Keyser.....	57
Morgantown.....	27
Wheeling.....	124
Scarlet fever.....	10
Typhoid fever.....	3

WISCONSIN.

Milwaukee:	
Cerebrospinal meningitis.....	1
Chicken pox.....	14
Diphtheria.....	19
Influenza.....	17
Lethargic encephalitis.....	1
Measles.....	250
Mumps.....	1
Pneumonia.....	26
Scarlet fever.....	208
Tuberculosis.....	10
Typhoid fever.....	1
Whooping cough.....	25
Scattering:	
Chicken pox.....	98
Diphtheria.....	30
German measles.....	1
Influenza.....	1,042
Lethargic encephalitis.....	2
Measles.....	998
Mumps.....	8
Pneumonia.....	37

WISCONSIN—continued.

Scattering—Continued.	Cases.
Scarlet fever.....	137
Smallpox.....	37
Trachoma.....	1
Tuberculosis.....	17
Typhoid fever.....	2
Whooping cough.....	83

WYOMING.

	Cases.
Cerebrospinal meningitis—Sweetwater County.....	1
Chicken pox.....	9
Mumps.....	1
Pneumonia.....	7
Scarlet fever.....	3
Smallpox.....	2
Typhoid fever.....	1

Reports for Week Ended February 10, 1923.

ILLINOIS.

	Cases.
Cerebrospinal meningitis:	
Bond County.....	1
Chicago.....	2
Diphtheria:	
Cook County (including Chicago).....	208
Chicago.....	188
Kane County.....	14
Lake County.....	9
Madison County.....	17
Scattering.....	99
Influenza:	
Chicago.....	475
Scattering.....	586
Pneumonia.....	864
Scarlet fever:	
Cook County (including Chicago).....	117
Chicago.....	102
Henry County.....	10
Kane County.....	12

ILLINOIS—continued.

	Cases.
Scarlet fever—Continued.	
Peoria County.....	15
Woodford County.....	19
Scattering.....	152
Smallpox.....	35
Typhoid fever.....	7
Whooping cough.....	231
NORTH DAKOTA.	
Chicken pox.....	5
Diphtheria.....	20
Influenza.....	2
Lethargic encephalitis.....	1
Measles.....	4
Pneumonia.....	4
Scarlet fever.....	30
Smallpox.....	7
Tuberculosis.....	1
Typhoid fever.....	1
Whooping cough.....	8

SUMMARY OF CASES REPORTED MONTHLY BY 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.	Polomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
<i>December, 1922.</i>										
North Carolina.....	2	397			318		1	329	133	29
<i>January, 1923.</i>										
Florida.....	1	48	473	29	13	2		13	55	38
Louisiana.....	1	148	972	34	17	4	1	22	86	72
Massachusetts.....	11	890	611		3,624	1	10	1,216		38
Michigan.....	19	912	303		619		1	1,614	443	57
North Dakota.....		57			41		1	209	48	4
Vermont.....		23	2		126			83	14	6
West Virginia.....	1	231	5,410		544			184	34	25

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923.

ANTHRAX.

City.	Cases.	Deaths
West Virginia:		
Huntington.....		1

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Feb. 3, 1923.		City.	Median for previous years.	Week ended Feb. 3, 1923.	
		Cases.	Deaths.			Cases.	Deaths.
California:				Minnesota:			
Los Angeles.....	0		1	Duluth.....	0		1
Oakland.....	0	1		Missouri:			
San Francisco.....	1	3	1	St. Louis.....	0	1	
Stockton.....	0	1	1	New Jersey:			
Connecticut:				Newark.....	0	2	1
Hartford.....	0		1	New York:			
Florida:				New York.....	7	2	2
Tampa.....	0		1	Ohio:			
Illinois:				Cleveland.....	0	1	
Chicago.....	2	2	2	Pennsylvania:			
Indiana:				Philadelphia.....	1	2	2
Indianapolis.....	0		1	Texas:			
Massachusetts:				San Antonio.....	1		1
Somerville.....	0	1		West Virginia:			
Michigan:				Charleston.....	0		2
Detroit.....	0	1	2				

DENGUE.

City.	Cases.	Deaths.
Louisiana:		
Baton Rouge.....	1	

DIPHTHERIA.

See p. 364; also Current State summaries, p. 352, and Monthly summaries by States, p. 356.

INFLUENZA.

City.	Cases.		Deaths, week ended Feb. 3, 1923.	City.	Cases.		Deaths, week ended Feb. 3, 1923.
	Week ended Feb. 4, 1922.	Week ended Feb. 3, 1923.			Week ended Feb. 4, 1922.	Week ended Feb. 3, 1923.	
Alabama:				Connecticut—Continued.			
Birmingham.....		15	1	Hartford.....	3		6
Mobile.....		6	3	Meriden.....	2		
Tuscaloosa.....	3	16		New Britain.....	10		
Arkansas:				New Haven.....	3		
Fort Smith.....	9			New London.....		7	1
Hot Springs.....		6		Waterbury.....	1		
Little Rock.....		91		District of Columbia:			
North Little Rock.....		10		Washington.....	5	46	19
California:				Florida:			
Berkeley.....	2			St. Petersburg.....		13	
Long Beach.....	1	1		Tampa.....	1	16	1
Los Angeles.....	20	19	1	Georgia:			
Oakland.....	4	1		Albany.....	3		
San Francisco.....	29	33	4	Atlanta.....	15	58	5
Santa Ana.....		5		Augusta.....	2		
Stockton.....		2		Brunswick.....	1		
Colorado:				Rome.....	1	775	
Denver.....			3	Savannah.....	5		4
Connecticut:				Valdosta.....	1		
Bridgeport.....	28	2	2	Illinois:			
Fairfield.....	1			Aurora.....		2	1
Greenwich.....		1		Centralia.....	2		

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

INFLUENZA—Continued.

City.	Cases.		Deaths, week ended Feb. 3, 1923.	City.	Cases.		Deaths, week ended Feb. 3, 1923.
	Week ended Feb. 4, 1922.	Week ended Feb. 3, 1923.			Week ended Feb. 4, 1922.	Week ended Feb. 3, 1923.	
Illinois—Continued.				Massachusetts—Contd.			
Chicago.....	67	300	22	Springfield.....	2	1	1
Cicero.....	1	2		Waltham.....		2	
Decatur.....		1		Watertown.....		2	
East St. Louis.....		2		Webster.....	1		
Elgin.....		2		Winthrop.....	4	3	1
Jacksonville.....	4			Woburn.....			2
La Salle.....	7			Worcester.....	140	3	
Oak Park.....	2			Michigan:			
Quincy.....			2	Battle Creek.....		39	3
Indiana:				Benton Harbor.....	1		
Fort Wayne.....			1	Detroit.....	10	27	8
Hammoud.....			2	Flint.....		7	1
Indianapolis.....			2	Grand Rapids.....	1	2	
Kokomo.....			3	Highland Park.....	1	1	
Kansas:				Marquette.....		20	
Atchison.....	3			Muskegon.....		1	1
Coffeyville.....		1		Pontiac.....		11	
Fort Scott.....		4		Minnesota:			
Hutchinson.....		3		Minneapolis.....	2		1
Kansas City.....		1		St. Paul.....			2
Lawrence.....	4	4		Winona.....	1		
Salina.....	1	17		Missouri:			
Topeka.....	41			Joplin.....	1		
Wichita.....	1		1	Kansas City.....	4	12	7
Kentucky:				St. Joseph.....		1	
Covington.....	1	2	4	St. Louis.....	2		
Lexington.....	17	2	1	Springfield.....			2
Louisville.....	115	145	2	Montana:			
Owensboro.....	15			Billings.....		2	
Paducah.....		8		Great Falls.....	1		
Louisiana:				New Jersey:			
Baton Rouge.....		33	9	Asbury Park.....	1		
New Orleans.....		17	8	Asbury Park.....	8		
Maine:				Bayonne.....	3		
Auburn.....	21			Bloomfield.....	1		
Bangor.....		3		Clifton.....	3		
Bath.....	3	14		East Orange.....	9	8	
Lewiston.....	44			Englewood.....	14		
Portland.....		2		Garfield.....	5		
Sanford.....	1			Hackensack.....	3		
Maryland:				Harrison.....		9	
Baltimore.....	51	785	17	Jersey City.....	21	2	
Cumberland.....	3	7		Kearny.....	23	23	
Frederick.....		30		Montclair.....	4		
Massachusetts:				Morristown.....	1		
Amesbury.....		7	1	Newark.....	44	100	1
Attleboro.....	5			Orange.....	28	10	1
Beverly.....	3	1		Passaic.....	18	10	1
Boston.....	148	37	14	Paterson.....	345	13	
Braintree.....	8	15	1	Summit.....	6		
Brookline.....	3			Trenton.....	63	2	1
Cambridge.....	32	4	1	West New York.....	1		
Chelsea.....	7	1		West Orange.....	1		
Danvers.....	1	3		New York:			
Everett.....	3			Albany.....	23	167	
Fall River.....		2	1	Amsterdam.....		62	
Gardner.....	1			Buffalo.....	10	17	3
Haverhill.....	16	21		Cohoes.....	6	8	
Lawrence.....	1	1		Elmira.....	3		
Lowell.....	18	9	2	Ithaca.....	3	4	
Lynn.....	2	1		Jamestown.....	32		
Malden.....	3			Lackawanna.....	2		
Medford.....	4			Lockport.....		136	1
New Bedford.....	2	8		Middletown.....		16	
Newburyport.....	5	6		Mount Vernon.....	212		
Newton.....	3	1		New York.....	5,731	983	46
Northampton.....	3	1	1	Niagara Falls.....		4	
Peabody.....	18			North Tonawanda.....	8		
Pittsfield.....	2	1		Olean.....		1	1
Quincy.....		3		Peckskill.....	6		
Salem.....	5	1		Port Chester.....	1		
Saugus.....	10	11		Poughkeepsie.....	2	1	
Somerville.....	7			Rochester.....		5	2
				Saratoga Springs.....	6	29	

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

INFLUENZA—Continued.

City.	Cases.		Deaths, week ended Feb. 3, 1923.	City.	Cases.		Deaths, week ended Feb. 3, 1923.
	Week ended Feb. 4, 1922.	Week ended Feb. 3, 1923.			Week ended Feb. 4, 1922.	Week ended Feb. 3, 1923.	
New York—Continued.				South Carolina:			
Schenectady.....	1	2	3	Charleston.....		16	4
Syracuse.....	12	3		Greenville.....			1
Troy.....	3			Tennessee:			
Watertown.....	1	3		Chattanooga.....	1		
Yonkers.....	4			Memphis.....			7
North Carolina:				Nashville.....			10
Durham.....			2	Texas:			
Wilmington.....			1	Amarillo.....		4	2
Ohio:				Corsicana.....		25	
Akron.....	2	10	2	Dallas.....		13	8
Barberton.....	1	2		El Paso.....		1	3
Canton.....			1	Fort Worth.....		1	1
Cincinnati.....	24	12	24	Galveston.....		3	
Cleveland.....	15	113	3	Houston.....	1		
Cleveland Heights.....		5		San Antonio.....			1
Columbus.....		26	16	Waco.....		2	
Hamilton.....		20	1	Vermont:			
Lancaster.....			1	Barre.....	1		
Lima.....			1	Virginia:			
Lorain.....		1		Alexandria.....	3		
Marion.....		5		Charlottesville.....			1
Newark.....			2	Danville.....		2	
Norwood.....	1			Petersburg.....		17	1
Piqua.....		4		Richmond.....		13	3
Sandusky.....	1			Roanoke.....	2		1
Springfield.....		9	1	Washington:			
Tiffin.....		6		Aberdeen.....	135		
Toledo.....			3	Seattle.....	13		
Youngstown.....			1	West Virginia:			
Oklahoma:				Charleston.....	2	10	1
Oklahoma.....	3			Fairmont.....	1	6	
Oregon:				Huntington.....	1	15	
Portland.....	1		1	Wheeling.....	1		
Pennsylvania:				Wisconsin:			
Philadelphia.....	14	58	34	Beloit.....		3	1
Rhode Island:				Milwaukee.....	3	53	1
Pawtucket.....	5		1	Wyoming:			
Providence.....	16	1	2	Cheyenne.....		1	

LEPROSY.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Louisiana:					
New Orleans.....		1			

LETHARGIC ENCEPHALITIS.

Oregon:			Wisconsin:		
Portland.....	1	2	Eau Claire.....	1	

MALARIA.

Florida:			Louisiana:		
St. Petersburg.....	1		New Orleans.....	3	
Tampa.....	3		New York:		
Georgia:			New York.....	1	
Brunswick.....	2		Texas:		
Macon.....	1		Waco.....		1
Savannah.....	1				

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

MEASLES.

See p. 364; also Current State summaries, p. 352, and Monthly summaries by States, p. 356.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Georgia:			South Carolina:		
Rome.....	2		Charleston.....		1
Louisiana:			Texas:		
New Orleans.....	1		Dallas.....		1
Missouri:			San Antonio.....		1
Kansas City.....	1	1			

PNEUMONIA (ALL FORMS).

Alabama:			Illinois—Continued.		
Birmingham.....	17	10	Peoria.....		5
Mobile.....		6	Quincy.....		4
Montgomery.....		5	Rockford.....		4
Arkansas:			Springfield.....	4	3
Little Rock.....	15		Indiana:		
California:			East Chicago.....		6
Alameda.....		3	Fort Wayne.....		8
Eureka.....		1	Frankfort.....		1
Glendale.....	1		Gary.....		16
Long Beach.....	3		Hammend.....		2
Los Angeles.....	48	21	Huntington.....		1
Oakland.....		13	Indianapolis.....		19
Pasadena.....	5	2	Kokomo.....		1
Riverside.....		2	Laporte.....	8	
Sacramento.....		2	Logansport.....		3
San Bernardino.....		4	Mishawaka.....		7
San Diego.....	6	5	Peru.....		1
San Francisco.....	17	10	South Bend.....		4
Santa Ana.....	2	1	Terre Haute.....		5
Santa Barbara.....		1	Iowa:		
Stockton.....		3	Burlington.....	4	3
Colorado:			Council Bluffs.....		1
Denver.....		15	Marshalltown.....	1	
Pueblo.....		4	Mason City.....	4	
Connecticut:			Muscatine.....	1	
Bridgeport.....	6	4	Sioux City.....	1	
Derby.....		2	Kansas:		
Fairfield.....		1	Coffeyville.....	1	
Greenwich.....	1		Hutchinson.....	1	
Hartford.....	5	3	Kansas City.....	15	
Manchester.....	2		Parsons.....		1
New Haven.....		6	Salina.....	2	
New London.....		1	Wichita.....	5	4
District of Columbia:			Kentucky:		
Washington.....		50	Covington.....		3
Florida:			Henderson.....	2	1
St. Petersburg.....	1		Lexington.....		5
Tampa.....	1		Louisville.....	57	27
Georgia:			Louisiana:		
Atlanta.....	23	18	Baton Rouge.....	8	4
Macon.....	2		New Orleans.....		25
Rome.....	9		Maine:		
Savannah.....		6	Auburn.....		1
Valdosta.....		1	Bangor.....	4	
Illinois:			Bath.....	3	1
Alton.....		1	Biddeford.....	7	3
Aurora.....	7	2	Lewiston.....		6
Centralia.....	1		Portland.....		5
Chicago.....	468	133	Sanford.....	3	1
Cicero.....	6	2	Waterville.....	1	
Decatur.....	9	3	Maryland:		
East St. Louis.....		4	Baltimore.....	144	52
Elgin.....	6	1	Cumberland.....		4
Evanston.....	5		Frederick.....		1
Freeport.....		2	Massachusetts:		
Galesburg.....	5	2	Adams.....	1	
Jacksonville.....	1		Amesbury.....		1
Kewanee.....		7	Attleboro.....		1
La Salle.....	1		Belmont.....	1	
Mattoon.....	1		Boston.....		63
Oak Park.....	7	6	Braintree.....	1	

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Massachusetts—Continued.			New Jersey:		
Brookline	4	1	Atlantic City	4	2
Cambridge		15	Belleville	2	
Chelsea		6	Bloomfield	1	
Clinton	3	1	Clifton	4	1
Everett	1		East Orange	7	1
Fall River		7	Elizabeth		7
Framingham		2	Englewood	2	
Gardner		1	Garfield		2
Greenfield		1	Hoboken		6
Haverhill	8	2	Jersey City	5	
Holyoke	3	2	Kearny		3
Lawrence		2	Long Branch	1	
Leominster		1	Montclair		3
Lowell		10	Morristown		1
Lynn	11	2	Newark	93	14
Malden		7	Orange	9	2
Medford	4	1	Passaic	6	1
Melrose		1	Paterson	12	8
Methuen		2	Phillipsburg		2
New Bedford		21	Plainfield	3	
Newburyport	2	1	Summit	1	
Newton		4	Trenton	11	9
Northbridge		2	New Mexico:		
Pittsfield		5	Albuquerque		2
Plymouth		1	New York:		
Quincy	6	3	Albany	21	
Salem	2		Amsterdam	3	
Saugus		1	Auburn		4
Somerville	7	2	Buffalo	68	41
Southbridge		2	Cohoes	7	
Springfield		3	Elmira	5	1
Taunton		3	Hornell	6	2
Waltham	1		Ithaca	4	3
Watertown	2		Lackawanna	7	2
Webster		1	Lockport	6	
West Springfield		2	Middletown	3	1
Westfield		1	Mount Vernon	8	
Winthrop	3		New York	534	269
Worcester		14	Newburgh	1	
Michigan:			Niagara Falls	15	7
Ann Arbor	6	4	Olean	5	1
Battle Creek	3	1	Poughkeepsie	6	1
Benton Harbor	5		Rochester	33	13
Detroit	145	77	Saratoga Springs	2	
Flint		12	Schenectady	10	5
Grand Rapids	16	1	Syracuse	38	21
Hamtramck		6	Watertown	1	
Highland Park	7	2	White Plains	2	1
Jackson		5	Yonkers	8	6
Kalamazoo	4	3	North Carolina:		
Marquette	7		Greensboro		3
Muskegon	12	8	Rocky Mount		3
Pontiac	13	5	Wilmington		5
Port Huron	2	1	Winston-Salem		5
Sault Ste. Marie	1		Ohio:		
Minnesota:			Akron	18	10
Duluth	3	2	Ashtabula		1
Minneapolis		3	Barberton	3	2
Rochester		1	Cambridge		2
St. Paul		15	Canton		6
Missouri:			Chillicothe		2
Kansas City	43	23	Cincinnati		22
St. Joseph		3	Cleveland	111	36
Springfield		5	Cleveland Heights	2	
Montana:			Columbus		22
Anaconda		1	Dayton	4	
Billings		1	East Cleveland	10	1
Great Falls		2	East Youngstown		1
Helena		2	Fremont	1	
Missoula	7	2	Hamilton		6
Nebraska:			Kenmore	1	
Lincoln		4	Lancaster		3
Omaha	16		Lima		3
New Hampshire:			Mansfield	2	
Berlin		1	Marion	1	
Concord		1	Middletown		3
Nashua		2	New Philadelphia	2	

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Ohio—Continued.			Texas—Continued.		
Newark.....		6	San Antonio.....		6
Piqua.....		3	Waco.....		5
Salem.....		1	Utah:		
Sandusky.....		1	Salt Lake City.....		1
Springfield.....		5	Vermont:		
Tiffin.....		1	Burlington.....		2
Toledo.....		11	Virginia:		
Youngstown.....		3	Alexandria.....		5
Zanesville.....		2	Charlottesville.....		1
Oklahoma:			Lynchburg.....		3
Oklahoma.....		4	Norfolk.....		6
Oregon:			Petersburg.....		1
Portland.....		5	Portsmouth.....		6
Pennsylvania:			Richmond.....		8
Philadelphia.....	170	163	Roanoke.....		4
Rhode Island:			West Virginia:		
Cranston.....		2	Bluefield.....		1
Cumberland.....		2	Charleston.....		1
Pawtucket.....		6	Clarksburg.....		1
Providence.....		25	Huntington.....		2
South Carolina:			Parkersburg.....		2
Charleston.....		5	Wheeling.....		8
Greenville.....		1	Wisconsin:		
South Dakota:			Ashland.....		2
Sioux Falls.....		2	Beloit.....		2
Tennessee:			Eau Claire.....	2	
Memphis.....		21	Fond du Lac.....		1
Nashville.....		12	Janesville.....		1
Texas:			Kenosha.....		1
Amarillo.....	1		Madison.....		1
Beaumont.....		2	Milwaukee.....		30
Corsicana.....		2	Oshkosh.....		1
Dallas.....		12	Racine.....		1
El Paso.....		17	Sheboygan.....		1
Fort Worth.....		4	Superior.....		2
Houston.....		3			

POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Feb. 3, 1923.		City.	Median for previous years.	Week ended Feb. 3, 1923.	
		Cases.	Deaths.			Cases.	Deaths.
Maryland:				New York:			
Baltimore.....	0	1	1	New York.....	0	1	
Massachusetts:							
Boston.....	0	1	1				

RABIES IN ANIMALS.

City.	Cases.	City.	Cases.
California:		Missouri:	
Los Angeles.....	7	Kansas City.....	1
Pasadena.....	1	Tennessee:	
Kentucky:		Memphis.....	3
Louisville.....	1		
Massachusetts:			
Holyoke.....	1		
Melrose.....	1		

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

RABIES IN MAN.

City.	Cases.	Deaths.
California:		
Los Angeles.....	1	1

SCARLET FEVER.

See p. 364; also Current State summaries, p. 352, and Monthly summaries by States, p. 356.

SMALLPOX.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding week of the years 1915 to 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Feb. 3, 1923.		City.	Median for previous years.	Week ended Feb. 3, 1923.	
		Cases.	Deaths.			Cases.	Deaths.
California:				Missouri:			
Bakersfield.....	0	1	.....	St. Louis.....	6	1	.....
Los Angeles.....	3	1	.....	Montana:			
Oakland.....	0	2	.....	Great Falls.....	3	2	.....
Colorado:				Missoula.....	0	3	.....
Denver.....	13	5	1	New York:			
Florida:				Niagara Falls.....	0	5	.....
St. Petersburg.....		3	.....	North Carolina:			
Tampa.....	0	1	.....	Durham.....	0	1	.....
Georgia:				Winston-Salem.....	1	20	.....
Atlanta.....	1	1	.....	North Dakota:			
Savannah.....	0	1	.....	Grand Forks.....	1	1	.....
Valdosta.....	0	1	.....	Ohio:			
Indiana:				Dayton.....	1	3	.....
Anderson.....	0	1	.....	Lima.....	0	2	.....
Fort Wayne.....	0	1	.....	Toledo.....	1	2	.....
Gary.....	2	3	.....	Oklahoma:			
Indianapolis.....	6	1	.....	Oklahoma.....	5	3	.....
Kokomo.....	0	1	.....	Oregon:			
Muncie.....	3	7	.....	Portland.....	5	3	.....
Iowa:				South Carolina:			
Marshalltown.....	0	1	.....	Greenville.....	0	3	.....
Kansas:				Tennessee:			
Atchison.....	0	1	.....	Knoxville.....	0	7	.....
Leavenworth.....	0	1	.....	Memphis.....	6	6	.....
Maine:				Texas:			
Biddeford.....		1	.....	Amarillo.....		1	.....
Michigan:				Utah:			
Detroit.....	7	1	.....	Salt Lake City.....	1	14	.....
Flint.....	2	4	.....	Washington:			
Jackson.....	0	1	.....	Bellingham.....	0	1	.....
Minnesota:				Seattle.....	2	6	.....
Duluth.....	1	12	.....	Spokane.....	7	15	.....
Minneapolis.....	19	8	.....	Wisconsin:			
St. Cloud.....	0	1	.....	Eau Claire.....	0	3	.....
St. Paul.....	10	12	.....	Stevens Point.....		1	.....
				Superior.....	2	12	.....

TETANUS

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Missouri:		
Mobile.....	1	.....	St. Louis.....		1
California:			Pennsylvania:		
Stockton.....	1	1	Philadelphia.....	2	1

TUBERCULOSIS

See p. 364; also Current State summaries, p. 352.

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

TYPHOID FEVER.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding week of the years 1915 and 1922, inclusive. In instances in which data for the full eight years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Feb. 3, 1923.		City.	Median for previous years.	Week ended Feb. 3, 1923.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Minnesota:			
Birmingham.....	2	1		Minneapolis.....	2	2	
Arkansas:				Missouri:			
Hot Springs.....	0	1		Kansas City.....	0	1	
Little Rock.....	0	2		Nebraska:			
California:				Omaha.....	0	1	
Los Angeles.....	1	1		New Jersey:			
San Francisco.....	1	1		Newark.....	1	4	
District of Columbia:				Trenton.....	0	1	
Washington.....	1	1		New York:			
Florida:				Buffalo.....	2	1	1
Tampa.....	2	1	1	Geneva.....	0		1
Illinois:				Hornell.....	0	1	
Chicago.....	3	3		Ithaca.....	0	1	
Mattoon.....	0		1	New York.....	11	13	1
Indiana:				Rochester.....	1	1	
Hammond.....	0	1		Pennsylvania:			
Kansas:				Allentown.....	1	1	
Wichita.....	0	1		Bethlehem.....	0	1	
Louisiana:				Columbia.....	0	1	
New Orleans.....	3	8	2	South Carolina:			
Maryland:				Charleston.....	0	1	
Baltimore.....	2	3		South Dakota:			
Massachusetts:				Sioux Falls.....	0	1	
Cambridge.....	0	1		Tennessee:			
Chelsea.....	0	1		Nashville.....	0	1	1
Fall River.....	0	1		Texas:			
Lynn.....	0	1		San Antonio.....	0	2	
Newton.....	0	1		Waco.....	0	1	
Southbridge.....	0	1		West Virginia:			
Waltham.....	0	1		Fairmont.....	0	1	
Worcester.....	0	1		Wheeling.....	0	2	1
Michigan:				Wisconsin:			
Detroit.....	2	1		Ashland.....	0	1	1
Grand Rapids.....	0	2		Sheboygan.....	3	1	
Pontiac.....	0	1					

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:										
Birmingham.....	178,806	50	2		3		2		10	5
Mobile.....	60,777	28					1		1	2
Montgomery.....	43,461	24							3	3
Tuscaloosa.....	11,996		3				4		2	
Arkansas:										
Hot Springs.....	11,695	4			1					
Little Rock.....	65,142		2		3		1		10	
North Little Rock.....	14,048		1		5					
California:										
Alameda.....	28,806	7	1						1	
Bakersfield.....	18,638	8	2	1	1					1
Eureka.....	12,923	6					2		2	
Glendale.....	13,536	8	1							
Long Beach.....	55,593	16	4		8		1			
Los Angeles.....	576,673	212	54	3	46		38		108	22
Oakland.....	216,261	59	16		6		12		3	5
Pasadena.....	45,354	14	3	1	2		5		2	2
Richmond.....	16,843	2	2						1	
Riverside.....	19,341	7	1		1		1			

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
California—Continued.										
Sacramento.....	65,908	20	3	.....	1	.....	1	.....	1	4
San Bernardino.....	18,721	12	2	.....	.....	.....	.....	.....	.....	.....
San Diego.....	74,683	26	6	.....	57	.....	4	.....	1	1
San Francisco.....	506,676	166	30	1	5	.....	12	1	35	10
Santa Ana.....	15,485	9	1	.....	.....	.....	1	.....	.....	.....
Santa Barbara.....	19,441	8	.....	.....	.....	.....	.....	.....	.....	1
Santa Cruz.....	10,917	4	.....	.....	.....	.....	.....	.....	.....	.....
Stockton.....	40,296	15	3	.....	.....	.....	.....	.....	.....	1
Vallejo.....	21,107	3	.....	.....	.....	.....	.....	.....	.....	.....
Colorado:										
Denver.....	256,491	90	30	9	1	.....	16	.....	.....	14
Pueblo.....	43,050	13	5	.....	.....	.....	.....	.....	1	.....
Connecticut:										
Bridgeport.....	143,555	44	8	.....	92	1	8	1	3	2
Derby.....	11,238	3	.....	.....	.....	.....	.....	.....	.....	.....
Fairfield (town).....	11,475	2	2	.....	15	.....	3	.....	.....	.....
Greenwich (town).....	22,123	.....	.....	.....	.....	.....	3	.....	1	.....
Hartford.....	138,036	56	1	7	18	.....	1	6	1	4
Manchester (town).....	18,370	3	.....	.....	.....	.....	1	.....	.....	.....
Milford (town).....	10,193	3	.....	.....	10	.....	.....	.....	1	.....
New Haven.....	162,537	38	.....	.....	50	1	8	.....	2	1
New London.....	25,688	10	3	.....	.....	.....	2	.....	.....	.....
Norwich (city).....	22,304	7	1	1	.....	.....	.....	.....	.....	.....
District of Columbia:										
Washington.....	437,571	212	21	2	62	.....	17	1	26	8
Florida:										
St. Petersburg.....	14,237	8	1	.....	1	.....	.....	.....	.....	1
Tampa.....	51,608	24	.....	.....	.....	.....	1	.....	2	3
Georgia:										
Atlanta.....	200,616	71	.....	.....	1	.....	.....	.....	.....	3
Macon.....	52,995	.....	1	.....	100	.....	1	.....	2	.....
Rome.....	13,252	.....	2	.....	.....	.....	.....	.....	1	.....
Savannah.....	83,252	46	.....	.....	.....	.....	2	.....	1	1
Valdosta.....	10,783	3	.....	.....	.....	.....	.....	.....	.....	.....
Idaho:										
Boise.....	21,393	5	1	.....	.....	.....	1	.....	.....	.....
Illinois:										
Alton.....	24,682	5	4	.....	3	.....	1	.....	1	.....
Aurora.....	36,397	10	8	.....	1	.....	13	.....	.....	.....
Centralia.....	12,491	7	.....	.....	.....	.....	.....	.....	.....	1
Chicago.....	2,701,705	780	167	11	292	3	117	2	259	41
Cicero.....	44,995	11	.....	.....	1	.....	1	.....	2	.....
Decatur.....	43,818	10	.....	.....	1	.....	6	.....	.....	.....
East St. Louis.....	66,767	17	1	.....	15	.....	1	.....	.....	1
Elgin.....	27,454	5	.....	.....	.....	.....	1	.....	.....	.....
Evanston.....	37,234	5	8	.....	9	.....	4	.....	.....	.....
Forest Park.....	10,768	.....	1	.....	.....	.....	.....	.....	.....	.....
Freeport.....	19,609	12	3	1	.....	.....	3	.....	.....	.....
Galesburg.....	23,834	11	5	1	.....	.....	2	.....	.....	.....
Jacksonville.....	15,713	8	.....	.....	.....	.....	.....	.....	.....	.....
Kewanee.....	16,026	13	.....	.....	1	.....	11	.....	.....	.....
La Salle.....	13,050	3	.....	.....	80	.....	.....	.....	1	.....
Mattoon.....	13,552	4	1	.....	.....	.....	.....	.....	.....	.....
Oak Park.....	39,858	13	2	.....	3	.....	2	.....	.....	.....
Pekin.....	12,086	4	.....	.....	.....	.....	.....	.....	.....	.....
Peoria.....	76,121	32	4	1	63	.....	20	.....	.....	2
Quincy.....	35,978	21	.....	.....	.....	.....	.....	.....	.....	.....
Rockford.....	65,651	16	.....	.....	1	.....	4	.....	.....	.....
Springfield.....	59,183	18	7	.....	64	.....	.....	.....	14	1
Indiana:										
Anderson.....	29,767	10	1	.....	.....	.....	1	.....	.....	.....
Bloomington.....	11,595	3	.....	.....	.....	.....	1	.....	2	2
Crawfordsville.....	10,139	2	.....	.....	.....	.....	3	.....	.....	.....
East Chicago.....	35,067	13	.....	.....	.....	.....	.....	.....	.....	1
Fort Wayne.....	86,549	36	5	1	.....	.....	6	.....	.....	.....
Frankfort.....	11,585	4	2	.....	.....	.....	3	.....	.....	.....
Gary.....	55,378	16	1	.....	.....	.....	3	.....	.....	.....
Hammond.....	36,004	13	3	.....	15	.....	1	.....	.....	1
Huntington.....	14,000	4	1	.....	.....	.....	2	.....	.....	.....
Indianapolis.....	314,194	132	11	1	1	.....	4	.....	.....	6
Kokomo.....	30,067	15	3	.....	.....	.....	1	.....	.....	.....
La Fayette.....	22,486	4	2	.....	.....	.....	.....	.....	.....	.....

CITY REPORTS FOR WEEK ENDED FEBRUARY 2, 1923—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Indiana—Continued.										
Laporte.....	15,158	1	1		1				2	
Logansport.....	21,626	5			20					
Mishawaka.....	15,195	8	3		13		4		2	
Muncie.....	36,524	7								1
Peru.....	12,410	1								
South Bend.....	70,983	14	5		19			8		1
Terre Haute.....	66,083	24	2		14		9			1
Iowa:										
Burlington.....	24,057	9	2	1			1			
Cedar Rapids.....	45,556	2	2				3			
Clinton.....	24,151	2	2				1			
Council Bluffs.....	36,162	12	1				1			
Davenport.....	56,727	2	2							
Dubuque.....	39,141	1	1		106					
Marshalltown.....	15,731						2			
Mason City.....	20,065	6	2				1			1
Muscatine.....	16,068	9	1		21					
Ottumwa.....	23,603	1	1	1			1			
Sioux City.....	71,227	3	3		2		3		2	
Kansas:										
Atchison.....	12,630		1							
Colfeville.....	13,452	3							1	
Fort Scott.....	10,693	1	1							
Hutchinson.....	23,298								2	
Kansas City.....	101,177		2		2		4			
Lawrence.....	12,456	2					1			
Leavenworth.....	16,912		2							
Parsons.....	16,028	5								
Salina.....	15,085	4	1				3			
Wichita.....	72,217	37	14				6			1
Kentucky:										
Covington.....	57,121	39	1				2			1
Henderson.....	12,169	2			16		1		1	
Lexington.....	41,534	25	1		1					3
Louisville.....	234,891	96	4	1	3		1		19	4
Paducah.....	24,735		2		7					
Louisiana:										
Baton Rouge.....	21,782	14	1	1					2	1
New Orleans.....	387,219	163	23		7		3		16	13
Maine:										
Auburn.....	16,985	4					3			
Bangor.....	25,978						2			
Bath.....	14,731	7							2	
Biddeford.....	18,008	6							1	1
Lewiston.....	31,791	17	1				4		1	
Portland.....	69,272	49	3		37		2			1
Sanford (town).....	10,691	7			2		1			
Waterville.....	13,351						1			
Maryland:										
Baltimore.....	733,826	284	49	3	67		29		30	31
Cumberland.....	29,837	14	2		22					
Frederick.....	11,066	8	6		10		1			1
Massachusetts:										
Adams (town).....	12,967	2								
Amesbury (town).....	10,036	3	1							
Arlington (town).....	18,665	4			10		1			
Attleboro.....	19,731	5								
Belmont (town).....	10,749	4							1	
Beverly.....	22,561	3	1				1		1	
Boston.....	748,060	313	96	6	91	2	58	3	42	15
Braintree (town).....	10,580	9			12		2			1
Brookline.....	37,748	8	1		1		5			
Cambridge.....	109,694	44	4		33		8		2	2
Chelsea.....	43,184	16	4		13	1	4		1	
Chicopee.....	36,214	9		1						
Clinton.....	12,979	3								
Danvers.....	14,108							1		
Dedham.....	10,792	4								
Easthampton.....	14,261				1		1			
Everett.....	40,120	9	1		21		4			1
Fall River.....	120,485	39	7		50	1	5		11	4
Frammingham.....	17,033	15					1			
Gardner.....	16,971	7							1	
Greenfield.....	15,462	8						1		
Haverhill.....	53,884	23	10		8		17		3	5

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusetts—Continued.										
Holyoke	60,203	18	4				19			
Lawrence	94,270	28	5	1	1				10	
Leominster	19,744	9	1				2		1	
Lowell	112,759	41	7	2	86	1	3		9	
Lynn	99,148	33	3		86	1	8		3	3
Malden	49,103	26	3	2	24		4			
Medford	39,038	8					3		1	
Melrose	18,204	2			1					
Methuen	15,189	8								
New Bedford	121,217	49	2	1	201		5		6	
Newburyport	15,618	5			4					
Newton	46,054	15	2		7		6			
Northampton	21,951	6	1		1		1		1	
Northbridge	10,174	4								
Pittsfield	41,763	18					5		2	1
Plymouth	13,045	4								
Quincy	47,876	11	2		1		7		3	
Salem	42,529	14	2		1					
Saugus	10,874	2	1		10		2			
Somerville	93,091	35	9	3	13		6		3	2
Southbridge	14,245	6								1
Springfield	129,614	45	3	1			1		1	1
Taunton	37,137	15			40	1	1			
Wakefield	13,025	4	1						1	
Waltham	30,915	10	2				6		1	
Watertown	21,457	1	5		2		4		1	
Webster	13,258	1			1		2			
West Springfield	13,443	4								
Westfield	18,604	10	2	1			1		2	1
Winthrop	15,455	3			7					
Woburn	16,574	7								1
Worcester	179,754	68	3		4		8		2	3
Michigan:										
Alpena	11,101		2	1			2			
Ann Arbor	19,516	21	3	1	8		1		2	1
Battle Creek	36,164	4	5				6			
Benton Harbor	12,233		1		4		1			
Detroit	993,678	318	45	7	17		161	3	22	19
Flint	91,599	46	11	1	7		25	1	8	2
Grand Rapids	137,634	25	2				12		6	
Hamtramck	48,615	10			1	1	1	1		
Highland Park	46,499	12	1				3		2	1
Holland	12,183				3		4			
Jackson	48,374	18					4			2
Kalamazoo	48,487	21	13	1	2		3		4	3
Marquette	12,718	3								
Muskegon	36,570	20								1
Pontiac	34,273	17	1				1		1	1
Port Huron	25,944	14	1				1			
Sault Ste. Marie	12,096	4							1	1
Minnesota:										
Duluth	98,917	20	3		137		12		5	
Faribault	11,089	3					4			
Hibbing	15,069	6			1		13			
Minneapolis	380,582	72	24		2		45	1	17	5
Rochester	13,722	17								
St. Cloud	15,873		5							
St. Paul	234,698	89	23	1	101		46	2	6	4
Missouri:										
Capo Girardeau	10,252						1			
Joplin	29,902		1							
Kansas City	324,410	105	13		8		17		10	7
St. Joseph	77,939	35	8				2			1
St. Louis	772,897	250	41	1	103		24	1	22	7
Springfield	39,631	22								1
Montana:										
Anaconda	11,668	4								
Billings	15,100	2							1	
Great Falls	24,121	6	3	1						
Helena	12,037	7							1	
Missoula	12,668	4					2			
Nebraska:										
Lincoln	54,948	15	2		1		1			
Omaha	191,601	50	6	1	1		3			1

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Nevada:										
Reno.....	12,016	4								
New Hampshire:										
Berlin.....	16,104	3								
Concord.....	22,167	9								1
Keene.....	11,210	8	1				2			1
Nashua.....	28,379	16					1			3
Portsmouth.....	13,569	0								
New Jersey:										
Asbury Park.....	12,400	5								
Atlantic City.....	50,707	12			84		4		3	
Bayonne.....	76,754		1						3	
Belleville.....	15,660				2					
Bloomfield.....	22,019	3			16		6			
Clifton.....	26,470	6	2		21					
East Orange.....	50,710	7	1		33		3		3	
Elizabeth.....	95,783		9	2	41		1			1
Englewood.....	11,627	2			8		1		1	1
Garfield.....	19,381	6	2		9					1
Hackensack.....	17,667	10			1		3			
Harrison.....	15,721		1		10				1	
Hoboken.....	68,166	28		1			1			2
Jersey City.....	298,103		15		13		18		7	
Kearny.....	26,724	11	1		1		1		1	
Long Branch.....	13,521	7							1	1
Montclair.....	28,810	8	1		7		2			
Morristown.....	12,548	3					1		1	
Newark.....	414,524	89	13	1	163	5	28		54	7
Orange.....	33,268	10	1		49		3			
Passaic.....	63,841	22			6		3		7	1
Paterson.....	135,875	8	7		2		2		4	
Perth Amboy.....	41,707	10	1		2		6			2
Phillipsburg.....	16,923	5	1						1	
Plainfield.....	27,700	5	2		5		2			
Summit.....	10,174	0			1					
Trenton.....	119,289	56	26	3	13		22		5	3
Union (town).....	20,651		2				2			
West Hoboken.....	40,074	1								
West New York.....	29,926	1	1							
West Orange.....	15,573	2			23		5			
New Mexico:										
Albuquerque.....	15,157	14	2				3		5	3
New York:										
Albany.....	113,344		3				3		3	
Amsterdam.....	33,524	7	9		1					
Auburn.....	36,182	14								
Buffalo.....	506,775	190	11	3	184	1	31	3	21	11
Cohoes.....	22,987	4							1	
Elmira.....	45,393		2		3		3			
Geneva.....	14,648	2								
Hornell.....	15,025	4								
Hudson.....	11,745	7	2				1			
Ithaca.....	17,004	6							1	
Lockawanna.....	17,918	6	2				1		1	
Loekport.....	21,308	9					2		1	
Middletown.....	18,420						1			1
Mount Vernon.....	42,726	17	2	1	16		2		1	
New York.....	5,620,048	1,627	201	14	262	3	256	6	1,216	108
Newburgh.....	30,366	9			2		1		1	
Niagara Falls.....	50,760	24	4	1	1		3		3	
Olean.....	20,506	4	1	1	17		11			
Peekskill.....	15,868	6			2		9		1	
Poughkeepsie.....	35,000	18					3		2	3
Rochester.....	295,750	91	4	2	88		4		14	7
Saratoga Springs.....	13,181	4	1							
Schenectady.....	88,723	22	2		2		2	1	2	1
Syracuse.....	171,717	54	7		2		27	1	6	3
Watertown.....	31,285	6					2			
White Plains.....	21,031	5			1		14		1	
Yonkers.....	100,176	25	5	1	33		4			6
North Carolina:										
Durham.....	21,719	9	1				4		2	
Greensboro.....	15,861	7								
Raleigh.....	24,418	16				22	2			
Rocky Mount.....	12,742	10								
Wilmington.....	33,372	19			1					2
Winston-Salem.....	48,395	17							1	

1 Pulmonary tuberculosis only.

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

DIPHThERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

	Population Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Ohio:										
Akron.....	208,435	48	4		4		4		1	
Ashtabula.....	22,082	5								
Barberton.....	18,811	5	1				3			
Bucyrus.....	10,425	2			16					
Cambridge.....	13,104	5			8					
Canton.....	87,091	23	9		6		3		1	2
Chillicothe.....	15,831	5					1			
Cincinnati.....	401,247	204	17	2	9		11		19	13
Cleveland.....	796,841	195	50	1	125	1	169	2	33	17
Cleveland Heights.....	15,236		2		1		9		1	
Columbus.....	237,031	120	2	2	39		6		6	6
Coshocton.....	10,847				3					
Dayton.....	152,559	59	1				13			
East Cleveland.....	27,292	4	2		3		2		1	1
East Youngstown.....	11,237	3								
Findlay.....	17,021	5			23					
Fremont.....	12,468	6								
Hamilton.....	39,675	16			2					
Kenmore.....	12,683				1		2			
Lancaster.....	14,706	8	2	1	1					
Lima.....	41,326	12	1							
Lorain.....	37,295		8		88		3		1	
Mansfield.....	27,824	4	1		86		2		1	
Marion.....	27,891						1		1	
Martins Ferry.....	11,631	2			7					
Middletown.....	23,594	6					1			
New Philadelphia.....	10,718		1				1			
Newark.....	26,718	19			2					1
Niles.....	13,089	4	4				1			1
Norwood.....	24,966				1					
Piqua.....	15,044	8					5	1		
Salem.....	10,305	5								
Sandusky.....	22,897	7	1		3		2			
Springfield.....	60,840	26	2		7		9		1	1
Steubenville.....	28,508	16	1		1					
Tiffin.....	14,375	6			1					
Toledo.....	243,164	77	8		254	3	20	1	10	6
Youngstown.....	132,358		30	4	10		8		2	4
Zanesville.....	29,569	20	1		7		2			
Oklahoma:										
Oklahoma.....	91,295	28	3				5			
Tulsa.....	72,075		2		13		2			
Oregon:										
Portland.....	258,288	72	10	2	1		7		5	2
Pennsylvania:										
Allentown.....	73,502		1		45		2		5	
Altoona.....	60,331		3		61		2			
Ambridge.....	12,730		2		5					
Beaver Falls.....	12,802		2							
Berwick.....	12,181		2							
Bethlehem.....	50,358		5		11		4			
Braddock.....	20,879		1		1		1			
Bradford.....	15,525				2					
Bristol.....	10,273		1							
Butler.....	23,778				2		1			
Carnegie.....	11,516		1		13					
Carrick.....	10,504		2							
Chambersburg.....	13,171				1		2			
Chester.....	58,030				48					
Columbia.....	10,836		1		53					
Dickson.....	11,049				2					
Donora.....	14,131				6					
Dubois.....	13,681		1		1		1			
Duquesne.....	19,011		1		18		1			
Easton.....	33,813				17		1			
Erie.....	93,372		3		1		4		5	
Farrell.....	15,583				1					
Greensburg.....	15,033				4					
Harrisburg.....	75,917		2		74		5			
Hazleton.....	32,277						1			
Homestead.....	20,452		2		19					
Jeannette.....	10,627				2					
Johnstown.....	67,327		3		1		4			

CITY REPORTS FOR WEEK ENDED FEBRUARY 3, 1923—Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Pennsylvania—Continued.										
Leicester	53,190		2		46		13			
Lebanon	24,643		1		135		1			
McKee's Rocks	16,713				4					
McKeesport	46,781		2		16				1	
Mahanoy City	15,599		1		2					
Monessen	18,179		1		1					
Mount Carmel	17,469						1			
Nanticoke	22,614				1					
New Castle	44,938		1				1		1	
New Kensington	11,987				2					
North Braddock	14,928				2					
Oil City	21,274				31					
Philadelphia	1,823,779	712	95	11	615	18	58		84	39
Phoenixville	10,484				13					
Pittsburgh	588,343		31		364		36		14	
Pottstown	17,431				31					
Pottsville	21,876				2					
Reading	107,784		2		97					
Scranton	137,783		1		12		3			
Shamokin	21,204		1							
Sharon	21,747				3					
Steelton	13,428				17		1			
Swissvale	10,908		1		2					
Tamaqua	12,353				5					
Uniontown	15,662									
Washington	21,480		2				1			
West Chester	11,717		1		39		1			
Wilkes-Barre	73,533		1		4		1		2	
Wilkesburg	24,403		1		11		1			
Williamsport	36,198		3							
Woodlawn	12,495				3					
York	47,512		1		8		6			
Rhode Island:										
Cranston	29,407	7			14		2			
Cumberland (town)	16,077	9			5		1			
East Providence (town)	21,793				7					
Pawtucket	64,248	19	2	1						1
Providence	237,595	104	14	1	131	10	5	1	2	6
South Carolina:										
Charleston	67,957	25	1				3			1
Columbia	37,524	16							1	
Greenville	23,127	10								
South Dakota:										
Sioux Falls	25,202	8	1		1		2		1	1
Tennessee:										
Knoxville	77,818		1		1		2		2	2
Memphis	162,351	73	2		279		6		12	3
Nashville	118,342	46	1		9		6		5	
Texas:										
Amarillo	15,494				1					
Beaumont	40,422	7	2							
Corpus Christi	10,522	3							1	1
Corsicana	11,356	4	2							
Dallas	158,976	54	6				3		1	3
El Paso	77,530	196			107	4	4		109	7
Fort Worth	106,482	26	5						1	1
Galveston	44,255	8	4				3			
Houston	138,276	35	9				4			3
San Antonio	161,379	64	3		2					9
Waco	38,500	7								2
Utah:										
Salt Lake City	118,110	23	3		4		3	1		3
Vermont:										
Barre	10,008						1			
Burlington	22,779	10								
Rutland	14,954	6								
Virginia:										
Alexandria	18,060	10								
Charlottesville	10,683	5								
Danville	21,539	12	1				2		3	1
Lynchburg	39,670	10	2		25				3	
Norfolk	115,777		1				3		5	4

FOREIGN AND INSULAR.

PLAGUE ON VESSELS.

Steamship "Helcion"—At Thursday Island—From Singapore.

The steamship *Helcion* from Singapore, Straits Settlements, direct, arrived at Thursday Island Quarantine, Australia, December 1, 1922, with a case of plague on board. The patient was stated to be a Chinese fireman. No rat infestation was found on the vessel.

Vessel from South America—Plague-Infected Rats and Cats—Port of London.

The Department of Public Health of the Union of South Africa published, under date of January 12, 1923, the statement that the port authorities of London, England, reported, December 30, 1922, the finding of plague-infected rats and cats in the grain cargo of a vessel recently from South America.

CHILE.

Smallpox—Valparaiso.

Smallpox has been reported to be increasingly prevalent at Valparaiso, Chile. Under date of December 26, 1922, 83 cases were reported in hospital. On the same date, four new entries of smallpox cases with five deaths were reported in hospital.

JAMAICA.

"Alastrim."

During the two weeks ended January 27, 1923, 74 new cases of "alastrim" were reported in the Island of Jamaica. Of these, 52 cases occurred during the week ended January 27, 1923.

Typhoid Fever—Kingston and Vicinity.

During the same period, five cases of typhoid fever, occurring during the week ended January 20, were reported in Kingston and 32 cases in the surrounding country.

MADAGASCAR.

Plague—January—December, 1922.

During the period January 1 to December 10, 1922, 143 cases of plague were reported in the Island of Madagascar, of which 78 were

bubonic in form, 21 pneumonic (2 doubtful), and 44 septicemic (5 doubtful). Five of the septicemic cases were stated to have been also pneumonic. For distribution according to province and locality see page 374.

PANAMA CANAL.

Vaccination of Persons Arriving from Valparaiso.

According to information dated January 31, 1923, persons arriving in the Panama Canal from Valparaiso, Chile, will not be permitted to go ashore until they have been vaccinated by a quarantine officer of the Panama Canal.

POLAND.

Communicable Diseases.

During the period November 19 to December 2, 1922, communicable diseases were reported in Poland as follows:

November 19-25, 1922.

Disease.	Cases.	Deaths.	Localities having highest mortality.
Cerebrospinal meningitis.....	6	4	Lodz.
Diphtheria.....	84	13	Pomerania; Posen.
Measles.....	849	27	Lwow; Warsaw City.
Scarlet fever.....	298	39	Do.
Smallpox.....	20	3	Stanislawow.
Tuberculosis.....	141	145	Lwow; Warsaw City.
Typhoid fever.....	310	23	Kielce; Warsaw City.
Typhus fever.....	219	14	Nowogrodek.
Typhus fever, recurrent.....	160	5	Bialystok; Nowogrodek.
Whooping cough.....	112	3	

November 26-December 2, 1922.

Cerebrospinal meningitis.....	7	7	Lodz, Warsaw City.
Diphtheria.....	97	10	Warsaw City.
Measles.....	770	35	Lwow; Warsaw City.
Scarlet fever.....	303	40	Do.
Smallpox.....	12	2	
Tuberculosis.....	104	187	Do.
Typhoid fever.....	300	26	Lodz; Lwow.
Typhus fever.....	181	13	Tarnopol.
Typhus fever, recurrent.....	158	8	Lublin; Nowogrodek.
Whooping cough.....	162	10	Lwow; Warsaw City.

Dysentery.

During the period under report, 64 cases of dysentery with 8 deaths were reported in Poland.

RUSSIA.

Communicable Diseases—Lettonia—November, 1922.

Communicable diseases were reported in the Province of Lettonia, Russia, during the month of November, 1922, as follows:

Disease.	New cases.	Disease.	New cases.
Cerebrospinal meningitis.....	1	Smallpox.....	5
Chicken pox.....	16	Typhoid fever.....	99
Diphtheria.....	51	Typhus fever.....	26
Measles.....	12	Typhus fever, recurrent.....	3
Paratyphoid fever.....	3	Whooping cough.....	23
Scarlet fever.....	128		

Dysentery—Leprosy—Rabies—November, 1922.

During the same period 16 cases of dysentery, 1 case of leprosy, and 1 case of rabies were reported in the Province of Lettonia.

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

Reports Received During Week Ended February 23, 1923.¹

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

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay.....	Dec. 17-23.....	1	1	
Calcutta.....	Dec. 24-30.....	20	13	
Do.....	Dec. 31-Jan. 6.....	18	10	
Rangoon.....	Dec. 10-23.....	3	1	

PLAGUE.

Egypt.....				Jan. 1-11, 1923: Cases, 1; deaths, 1.
City—				
Alexandria.....	Jan. 8-10.....	1	1	
India:				
Bombay.....	Dec. 3-23.....	8	6	
Karachi.....	Dec. 31-Jan. 6.....	2	2	
Madras Presidency.....	Dec. 24-30.....	165	119	
Do.....	Dec. 31-Jan. 6.....	261	131	
Rangoon.....	Dec. 10-23.....	20	19	
Java:				
East Java—				
Socrabaya.....	Dec. 10-16.....	1	1	
Madagascar—				Jan. 1-Dec. 10, 1922: Cases, 143.
Province—				
Moramanga—				
Amparafara region.....	Sept. 18-Nov. 5.....	21		18 bubonic; 3 septicemic (doubtful, 2).
Moramanga.....	Dec. 6-9.....	3		Bubonic.
Tamatave.....	Feb. 10-Sept. 12.....	10		Do.
Tananarivo—				
Ambohimangakeley.....	Nov. 19-Dec. 9.....	9		Bubonic, 3; pneumonic, 3; septicemic, 3.
Anketrina.....	Mar. 27-May 9.....	11		Bubonic, 4; pneumonic, 2; septicemic, 5 (3 doubtful).
Fenoarivo region.....	Oct. 7-Nov. 28.....	16		Bubonic, 3; pneumonic, 8; septicemic, 5.
Tananarivo.....	Jan. 1-Dec. 10.....	73		Bubonic, 37; pneumonic, 8; septicemic, 28.

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 February 23, 1923—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Straits Settlements: Singapore.....	Dec. 17-23.....	2	2	
Union of South Africa: Transvaal— Klipfontein.....	Dec. 24-30.....			Outbreak.
On vessels: S. S. Helcion.....	Dec. 1.....	1		At Thursday Island Quarantine, Australia, from Singapore, Straits Settlements. In Chinese fireman.
—.....	Dec. 30.....			At Port of London, plague-infected rats and cats found in grain cargo on vessel from South America.

SMALLPOX.

Arabia: Aden.....	Jan. 7-13.....	1		
Canada: Ontario— Hamilton.....	Feb. 4-10.....	1		
Chile: Concepcion.....	Dec. 12-25.....		4	
Do.....	Jan. 9-15.....		3	
Valparaiso.....	Dec. 26.....	4	5	In hospital, 83 cases.
China: Amoy.....	Dec. 24-30.....			Present.
Manchuria— Mukden.....	Jan. 7-13.....			Do.
Chosen (Korea): Chemulpo.....	Dec. 1-31.....	83	55	
Fusan.....	do.....	3		
Gensan.....	do.....	6	2	
Seoul.....	do.....	13	1	
India: Bombay.....	Dec. 3-23.....	9	4	
Calcutta.....	Dec. 24-30.....	4	2	
Do.....	Dec. 31-Jan. 6.....	10	4	
Karachi.....	do.....	3	4	
Madras.....	Dec. 24-30.....	21	2	
Do.....	Dec. 31-Jan. 6.....	15	4	
Rangoon.....	Dec. 10-23.....	13	2	
Japan: Kobe.....	Jan. 13-19.....	1	1	
Mexico: Saltillo.....	Jan. 28-Feb. 3.....		1	Nov. 19-Dec. 2, 1922: Cases, 32; deaths, 5.
Poland:				
Portugal: Lisbon.....	Jan. 5-20.....	22	6	Dec. 25-31, 1922: Deaths, 12.
Oporto.....	Jan. 14-20.....	5	2	
Russia: Province— Lettonia.....	Nov. 1-30.....	5		
Turkey: Constantinople.....	Dec. 31-Jan. 20.....	213	56	
Union of South Africa: Cape Province.....	Dec. 24-30.....			Outbreaks.
Natal.....	do.....			Do.
On vessel: S. S. Junin.....	Jan. 13.....	1		At Antofagasta, Chile. Vessel proceeded to Arica, Chile, with patient on board.

TYPHUS FEVER.

Algeria: Oran.....	Jan. 11-20.....	1	1	
Chile: Concepcion.....	Dec. 12-18.....		1	
Do.....	Dec. 23-Jan. 13.....		7	
Iquique.....	Jan. 14-20.....		1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**Reports Received During Week Ended February 23, 1923—Continued.****TYPHUS FEVER—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Manchuria—				
Harbin.....	Jan. 1-7.....	1		
Danzig (Free City).....	Jan. 7-13.....	1		
Great Britain:				
Glasgow.....	Jan. 21-27.....	1		
Mexico:				
San Luis Potosi.....	Jan. 28-Feb. 3.....		1	
Poland.....				Nov. 19-Dec. 2, 1922: Cases, 400; deaths, 27. Recurrent typhus: Cases, 318; deaths, 13.
Russia:				
Lettonia.....	Nov. 1-30.....	26		Recurrent typhus: Cases, 3.
Turkey:				
Constantinople.....	Dec. 31-Jan. 20.....	14	2	
Union of South Africa:				
Orange Free State.....	Dec. 24-30.....			Outbreaks.
Venezuela:				
Maracaibo.....	Jan. 21-27.....		1	

YELLOW FEVER.

Mexico:				
Ciudad Victoria.....	Dec. 17-23.....	1		

Reports Received from December 30, 1922, to February 16, 1923.¹**CHOLERA.**

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Liutaoku.....	Sept. 22.....	60	20	
Chosen (Korea):				
Yalu River Region.....				Sept. 22, 1922: 30 deaths reported.
India:				Sept. 24-Nov. 18, 1922: Cases 7,890; deaths, 5,316.
Bombay.....	Oct. 27-Nov. 4.....	1		
Calcutta.....	Nov. 12-Dec. 23.....	82	47	
Madras.....	Nov. 19-Dec. 16.....	4	2	
Rangoon.....	Nov. 12-Dec. 9.....	14	9	
Philippine Islands:				
Province—				
Laguna.....	Oct. 12-18.....	1		
Russia:				
Archangel (Government).....	Oct. 1-7.....	7		
Tashkent.....	do.....	27		Turkestan Republic: 3 cases reported on waterways.
Ukraine:				Sept. 1-30, 1922: Cases, 119.
Donetz (Government).....	Sept. 1-30.....	29		
Tchernigov (Government).....	do.....	36		
Siam:				
Bangkok.....	Oct. 29-Dec. 16.....	3	1	

PLAGUE.

Azores:				
Fayal Island—				
Castelo Branco.....	Dec. 2-31.....		3	Vicinity of Horta. Dec. 30, 1922: Several cases.
Pico Island—				
Lages.....	Nov. 27-Dec. 15.....		8	1 case present Dec. 15, 1922.
St. Michaels Island.....				Nov. 12-Dec. 30, 1922: Cases, 100; deaths, 35. At localities 3-9 miles from Ponta Delgada.
Ponta Delgada.....	Nov. 26-Dec. 9.....	3		

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 December 30, 1922, to February 16, 1923—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Brazil:				
Bahia.....	Oct. 29-Dec. 9.....	4	4	
Porto Alegre.....	Nov. 19-25.....	1		
British East Africa:				
Kenya Colony—				
Tanganyika Territory..	Oct. 15-Nov. 18... ..	1	5	
Ceylon:				
Colombo.....	Nov. 12-Dec. 16... ..	28	21	Plague rodents, 12.
China:				
Hongkong.....	Nov. 5-Dec. 23... ..	14	12	
Ecuador:				
Guayaquil.....	Nov. 1-Dec. 31... ..	9	3	Rats examined, 16,600; found infected, 72.
Do.....	Jan. 1-15.....	3	1	Rats examined, 4,500; found infected, 13.
Egypt.....				Jan. 1-Dec. 28, 1922: Cases, 485; deaths, 228. Jan. 1, 1922-Jan. 4, 1923: Cases, 487; deaths, 228.
City—				
Alexandria.....	Nov. 19-25.....	2		
Port Said.....	Nov. 19-27.....	4	2	
Suez.....	Nov. 18-Dec. 5... ..	3	4	
Province—				
Assiout.....	Nov. 19-Dec. 29... ..	4	1	Septicemic: 1 case, 1 death.
Dakahlieh.....	Dec. 3.....	1		Pneumonic.
Minieh.....	Nov. 18-27.....	2	1	
India.....				Oct. 1-Nov. 18, 1922: Cases, 12,775; deaths, 10,084.
Bombay.....	Oct. 27-Dec. 2.....	30	25	
Karachi.....	Dec. 10-16.....	1	1	
Madras Presidency.....	Nov. 19-Dec. 23... ..	2,104	1,329	
Madras.....	Nov. 19-25.....	1	1	
Rangoon.....	Nov. 12-Dec. 9... ..	26	25	
Japan:				
Osaka.....				July 1-Nov. 30, 1922: Cases, 70.
Java.....				Oct. 1-Nov. 30, 1922: Cases, 900; deaths, 763.
East Java—				
Soerabaya.....	Oct. 22-Dec. 9... ..	11	11	
Soerakarta—				
Klaten.....	Nov. 4.....			Present in epidemic form.
Toeloeng-Angoeng.....	Oct. 29-Nov. 11... ..	17	17	Not a seaport.
Madagascar:				
Province—				
Moramanga.....				To Nov. 12, 1922: Cases, 24; deaths, 21. Cases reported to Oct. 30, 1922, pneumonic.
Tananarive—				
Fencarivo.....				To Oct. 30, 1922: Cases, 7; deaths, 7. Septicemic. (See Public Health Reports, Dec. 29, 1922, p. 3237.)
(District.)				
Do.....	Oct. 31-Nov. 12... ..	3	3	
Tananarivo.....	Oct. 23-Dec. 10... ..		5	One septicemic.
Mesopotamia:				
Bagdad.....	Oct. 1-Nov. 30... ..	16		
Palestine:				
Jaffa.....	Nov. 27-Dec. 4... ..	1		
Peru.....				Nov. 1-Dec. 15, 1922: Cases, 120; deaths, 51.
Localities—				
Canete.....	Nov. 16-Dec. 15... ..	22	9	
Chepen.....	Nov. 1-15.....			Present.
Chiclayo (city and country).	Nov. 16-Dec. 15... ..	17	7	
do.....	do.....	4		
Guadaloupe.....	Nov. 1-Dec. 15... ..	15	6	
Huacho.....	Nov. 16-Dec. 15... ..	4	1	
Huaral.....	Nov. 16-30.....	1		
Huarmey.....	Dec. 1-15.....	1	1	
Jayanca.....	Nov. 16-Dec. 15... ..	4	2	
Lambayeque.....	Nov. 16-30.....	5	3	
Lima (city).....	Nov. 1-Dec. 15... ..	8	6	
Lima (country).....	do.....	9	1	
Lurin.....	Dec. 1-15.....	1		
Magdalena del Mar.....	Nov. 16-30.....	1		
Mala.....	Dec. 1-15.....	1		
Mosche.....	Nov. 16-30.....	2	1	
Piura.....	do.....	8	5	
Pueblo Nuevo.....	Dec. 1-15.....	4	2	
San Pedro.....	Nov. 1-Dec. 15... ..	6	3	
Sullana.....	Nov. 16-30.....	3	3	
Trujillo.....	Nov. 1-Dec. 15... ..	1	1	
Tuman.....	Nov. 16-30.....	3		

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

Reports Received from December 30, 1922, to February 16, 1923—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Portugal:				
Lisbon.....	Nov. 10-29.....	4	2	
Portuguese West Africa:				
Angola—				
Loanda.....	Oct. 1-Dec. 2.....		44	Fatal cases among white population.
Siam:				
Bangkok.....	Nov. 12-Dec. 16...	4	4	
Spain:				
Barcelona.....	Nov. 15-Dec. 18...	1		Sept. 24-Nov. 14, 1922: Cases, 23; deaths, 9.
Syria:				
Beirut.....	Nov. 6-12.....	2	1	
Turkey:				
Constantinople.....	Nov. 22-28.....	2		

SMALLPOX.

Algeria:				
Algiers.....	Dec. 1-10.....	1		
Arabia:				
Aden.....	Nov. 19-Dec. 23...	7	3	
Brazil:				
Bahia.....	Nov. 5-11.....	1		
Rio de Janeiro.....	Nov. 25-Dec. 30...	40	15	
Sao Paulo.....	Oct. 16-22.....	1	1	
British East Africa:				
Kenya Colony—				
Tanganyika Territory..	Oct. 8-Nov. 18.....	173	9	
Uganda.....	Sept. 1-30.....	1	1	
Canada:				
Manitoba—				
Winnipeg.....	Dec. 10-30.....	14		
Do.....	Jan. 21-27.....	1		
New Brunswick—				
Northumberland County..	Jan. 21-27.....	7		
Ontario:				
Hamilton.....	Dec. 31-Feb. 3.....	3		Dec. 1-31, 1922: Cases, 51; deaths, 1. Jan. 1-30, 1923: Cases, 43.
Niagara Falls.....	Dec. 3-30.....	10		
Do.....	Dec. 31-Jan. 12.....	12		
Ottawa.....	Dec. 10-23.....	6		
Do.....	Jan. 7-20.....	10		
Toronto.....	Dec. 10-30.....	2		
Quebec—				
Quebec.....	Jan. 14-20.....	3		
Saskatchewan—				
Regina.....	Dec. 3-23.....	2		
Ceylon:				
Colombo.....	Nov. 12-Dec. 9.....	8	3	
Chile:				
Concepcion.....	Oct. 30-Nov. 20.....		3	
Valparaiso.....	Oct. 2-Nov. 5.....		51	
China:				
Amoy.....	Nov. 5-Dec. 23.....		3	Nov. 26-Dec. 16, 1922: Present.
Antung.....	Nov. 13-Dec. 10.....	2		
Canton.....	Oct. 1-Nov. 30.....			Prevalent.
Chungking.....	Nov. 5-Dec. 16.....			Present.
Foochow.....	Nov. 12-Dec. 16.....			Do.
Hankow.....	Dec. 31-Jan. 6.....	3	1	
Hongkong.....	Nov. 5-11.....		1	
Manchuria—				
Harbin.....	Nov. 20-Dec. 31.....	13		
Mukden.....	Nov. 19-Dec. 16.....			Do.
Nanking.....	Nov. 5-Dec. 23.....			Do.
Chosen (Korea):				
Chemulpo.....	Oct. 1-Nov. 30.....	52	29	
Fusan.....	Nov. 1-30.....	1		
Seoul.....	Oct. 1-Nov. 30.....	6		
Colombia:				
Buenaventura.....	Feb. 2.....	50		
Cuba:				
Province—				
Camaguey.....	Nov. 11-30.....	16		
Oriente.....	Nov. 21-30.....	8		

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

Reports Received from December 30, 1922, to February 16, 1923—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Czechoslovakia.....				Oct. 1-31, 1922: Cases, 3.
Province—				
Bohemia.....	Oct. 1-31.....	1		
Moravia.....	do.....	1		
Slovakia.....	Oct. 1-Nov. 30.....	2		
Dominican Republic:				
Puerto Plata.....	Dec. 14-30.....	2		
Santo Domingo.....	Dec. 3-16.....			Present.
San Pedro de Macoris.....	Jan. 13-19.....	2		
Ecuador:				
Guayaquil.....	Dec. 1-31.....	10		
Do.....	Jan. 1-15.....	5		
France:				
Paris.....	Dec. 1-10.....	1		
Germany:				
Bremen.....	Dec. 3-9.....	1		
Great Britain:				
Liverpool.....	Dec. 11-17.....	1		From vessel.
London.....	Nov. 26-Dec. 23.....	3		
Nottingham.....	Dec. 3-13.....	3		
Do.....	Jan. 7-13.....	2		
Greece:				
Saloniki.....	Nov. 6-Dec. 10.....	3	1	Nov. 5-18, 1922: Cases, 1,390; deaths, 276.
Zante.....	Jan. 17.....			Epidemic.
India:				Nov. 12-18, 1922: Cases, 689; deaths, 160.
Bombay.....	Nov. 5-Dec. 2.....	5		
Calcutta.....	Nov. 12-Dec. 23.....	42	21	
Karachi.....	Nov. 26-Dec. 30.....	6		
Madras.....	Nov. 12-Dec. 23.....	50	21	
Rangoon.....	Nov. 5-Dec. 9.....	9	3	
Java:				
East Java—				
Soerabaya.....	Nov. 5-11.....	4		
West Java—				
Batavia.....	Nov. 11-Dec. 22.....	25	1	City and Province.
Mesopotamia:				
Bagdad.....	Oct. 1-Nov. 30.....	568	361	
Mexico:				
Chihuahua.....	Dec. 4-17.....		4	
Do.....	Jan. 1-28.....	19	11	
Guadalajara.....	Dec. 1-31.....	4		
Mexico City.....	Nov. 12-Dec. 23.....	43		Including municipalities in Federal District.
Do.....	Dec. 31-Jan. 6.....	8		
Nogales.....	Dec. 10-19.....		1	
Do.....	Dec. 31-Jan. 6.....		1	
San Luis Potosi.....	Jan. 14-20.....		1	
Sonora, State.....				Nov. 1-30, 1922: Present in northern section.
Empalme.....	Nov. 1-30.....	4	1	
Torreon.....	Dec. 1-31.....		1	
Peru:				
Callao.....	Nov. 1-15.....	2		
Lima (city).....	Dec. 1-15.....	3	1	
Lima (country).....	Nov. 1-15.....	2	1	
Poland.....				Oct. 1-Nov. 18, 1922: Cases, 71; deaths, 19.
Portugal:				
Lisbon.....	Nov. 19-Dec. 30.....	143	34	
Do.....	Dec. 31-Jan. 13.....	29	37	
Oporto.....	Oct. 15-Dec. 30.....	24	12	
Do.....	Dec. 31-Jan. 13.....	3	3	
Portuguese West Africa:				
Angola—				
Loanda.....	Oct. 27-Nov. 11.....		10	
Russia:				
Province—				
Esthonia.....	Oct. 1-Nov. 30.....	42		
Lettonia.....	Oct. 1-31.....	1		
Ukraine.....				Jan.-Sept., 1922: Cases, 8,744.
Spain:				
Corunna.....	Nov. 26-Dec. 2.....		1	
Huelva.....	Nov. 24-30.....		1	
Seville.....	Nov. 27-Dec. 31.....		32	
Do.....	Jan. 1-14.....		5	
Valencia.....	Nov. 26-Dec. 23.....	3		
Do.....	Dec. 31-Jan. 13.....	3		

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

Reports Received from December 30, 1922, to February 16, 1923—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Switzerland:				
Berne.....	Nov. 19-Dec. 30...	85		
Do.....	Dec. 31-Jan. 13.....	47		
Zurich.....	Nov. 19-Dec. 30.....	19		
Syria:				
Aleppo.....	Nov. 19-Dec. 23.....	38	20	Dec. 3-30, 1922: Present.
Do.....	Dec. 31-Jan. 13.....	14	4	
Damascus.....	Nov. 1-30.....	82	16	
Tunis:				
Tunis.....	Dec. 1-22.....	2	1	
Turkey:				
Constantinople.....	Nov. 19-Dec. 16.....	122	34	
Union of South Africa.....				
Cape Province.....				Oct. 1-Nov. 30, 1922: Cases—Colored, 29; white, 4.
Do.....	Oct. 29-Dec. 16.....			Oct. 1-Nov. 30, 1922: Cases—Colored, 21; white, 4.
Natal.....	Dec. 3-16.....			Outbreaks.
Orange Free State.....	Dec. 10-16.....			Do.
Southern Rhodesia.....	Nov. 9-15.....	3		Do.
Transvaal.....				Oct. 1-31, 1922: Cases, 8.
Do.....	Oct. 29-Nov. 4.....			Outbreaks.
Johannesburg.....	Nov. 1-30.....		1	
Yugoslavia.....				
Serbia.....				Aug. 1-31, 1922: Cases, 30; deaths, 12.
Belgrade.....	Nov. 12-Dec. 23.....	9	4	Aug. 1-31, 1922: Cases, 26.
On vessel:				
S. S. Huntress.....	Nov. 11.....	1		At Fremantle, Australia, from Cape Town, South Africa.
.....	Dec. 17-23.....	1		At Liverpool.

TYPHUS FEVER.

Algeria:					
Algiers.....	Nov. 11-Dec. 31...	2	1		
Brazil:					
Pernambuco.....	Dec. 3-9.....	2	2		
Porto Alegre.....	Nov. 19-Dec. 16.....	3			
Chile:					
Antofagasta.....	Nov. 12-Dec. 30.....	24	5	Nov. 11-Dec. 5, 1922: Cases, 10; deaths, 2.	
Do.....	Dec. 31-Jan. 6.....	2	1		
Concepcion.....	Oct. 17-Nov. 27.....		8		
Talcahuano.....	Nov. 12-Dec. 23.....	10	6		
China:					
Antung.....	Nov. 13-Dec. 10.....	7			
Manchuria—					
Harbin.....	Nov. 20-26.....	7			
Cuba:					
Matanzas.....	Dec. 25-31.....	1	1		
Czechoslovakia:					
City—					
Prague.....	Nov. 19-25.....	1			
Province—					
Bohemia.....	Nov. 1-30.....	1			
Ruthenia.....	Oct. 1-31.....	1			
Slovakia.....	Nov. 1-30.....	2			
Egypt:					
Alexandria.....	Nov. 19-Dec. 31.....	2	1		
Cairo.....	Oct. 1-Nov. 11.....	11	7		
Germany:					
Berlin.....	Nov. 26-Dec. 2.....		1		
Coblenz.....	Dec. 10-16.....	1			
Dresden.....	do.....	1			
Great Britain:					
Glasgow.....	Jan. 7-13.....	2			
Greece:					
Leucadia.....	Jan. 17.....			Present.	
Prevesa.....	do.....			Do.	
Zante.....	do.....			Do.	
Ireland:					
Fel'mullet.....	June 15-Dec. 14.....	20		In county Mayo.	
Mexico:					
Mexico City.....	Nov. 12-Dec. 23.....	78		Including municipalities in Federal District.	
Do.....	Dec. 31-Jan. 7.....	7		Do.	

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

Reports Received from December 30, 1922, to February 16, 1923—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Palestine.....				Dec. 5-25, 1922: Cases, 3; in northern section.
Jaffa.....	Dec. 12-18.....	2		
Jerusalem.....	Dec. 26-Jan. 1.....		1	
Persia:				
Teheran.....	Sept. 24-Oct. 24.....	1		
Poland.....				Oct. 1-Nov. 18, 1922: Cases, 1,015; deaths, 74. Recurrent typhus: Cases, 1,265; deaths, 32.
Portugal:				
Oporto.....	Oct. 15-Dec. 2.....	1	1	
Rumania:				
Bucharest.....				To Jan. 31, 1923: Cases, 96; deaths, 13.
Chisinau.....	Nov. 1-30.....	5		
Russia.....				July 30-Sept. 23, 1922: Cases, 23,803.
Esthonia.....				Oct. 1-Nov. 30, 1922: Cases, 7.
Libau.....	Dec. 24-30.....	1		Recurrent typhus: Cases 7.
Lettonia.....	Oct. 1-31.....	19		Recurrent typhus: Cases, 4.
Ukraine.....	Jan.-Sept.....	307,329		
Ukraine, Tartar Republic and Siberia.....	June 1-30.....	35,926		Provisional figures.
Do.....	July 1-31.....	17,262		Do.
Do.....	Aug. 1-31.....	6,864		Do.
Do.....	Sept. 1-30.....	2,388		Do.
Spain:				
Barcelona.....	Nov. 30-Dec. 27.....		3	
Do.....	Jan. 11-17.....		1	
Syria:				
Aleppo.....	Dec. 10-16.....	1	1	
Do.....	Jan. 7-13.....	10	4	
Turkey:				
Constantinople.....	Nov. 27-Dec. 2.....	3		
Union of South Africa.....				Oct. 1-Nov. 30, 1922: Colored—cases, 1,986; deaths, 184; white—cases, 7; deaths, 2.
Cape Province.....				Oct. 1-Nov. 30, 1922: Colored—cases, 1,799; deaths, 146; white—cases, 3; deaths, 1.
Do.....	Dec. 3-16.....			Outbreaks.
Natal.....				Oct. 1-Nov. 30, 1922: Colored—cases, 107; deaths, 27; white—cases, 2.
Do.....	Dec. 3-9.....			Outbreaks.
Orange Free State.....				Oct. 1-Nov. 30, 1922: Colored—cases, 58; deaths, 6; white—cases, 2; deaths, 1.
Do.....	Dec. 10-16.....			Outbreaks.
Transvaal.....				Oct. 1-Nov. 30, 1922: Colored—cases, 22; deaths, 5.
Johannesburg.....	Nov. 1-30.....	3	6	
Yugoslavia:				
Bosnia-Herzegovina.....	Aug. 1-31.....	1		
Serbia.....				Aug. 1-31, 1922: Recurrent typhus fever, cases, 4.

YELLOW FEVER.

West Africa:				
Senegal—				
Saltpond.....				Reported present Dec. 21, 1922.
Warral.....				Do.