

PUBLIC HEALTH REPORTS

VOL. 36

OCTOBER 14, 1921

No. 41

KEEPING QUALITIES OF MARKET SAMPLES OF NEOARS-PHENAMINE WHILE IN AMPULE.

By GEORGE B. ROTH, M. D., Pharmacologist, Hygienic Laboratory, United States Public Health Service.

Comparatively little is known concerning the keeping qualities of market samples of the newer organic arsenicals, arsphenamine and neoarsphenamine.¹

Both compounds are regarded as very unstable substances when exposed to the air, and for this reason they are prepared for the market in sealed glass containers from which the air has been excluded either by production of a vacuum or by displacement of the air with a nonoxidizing gas such as carbon dioxide, nitrogen, or hydrogen.²

During the last three years many lots of commercial arsphenamine and neoarsphenamine, comprising samples from practically every domestic manufacturer, were submitted to the Hygienic Laboratory for reexamination, and in no instance was a lot of arsphenamine encountered which could be definitely said to have deteriorated. However, a number of lots of neoarsphenamine were found which showed deterioration since their first examination.³

Many preparations of neoarsphenamine were encountered in which striking changes were noticed in many of their physicochemical properties, such as changes in color, solubility, mobility in ampule, and odor. No instances of such changes were found in any of the arsphenamines examined.

¹ Throughout this paper the official names arsphenamine and neoarsphenamine are used to designate the compounds formerly known exclusively as salvarsan and neosalvarsan, respectively, but now being manufactured under various trade names. Arsphenamine is the dihydrochloride of 3, 3'-diamino-4, 4'-dihydroxyarsenobenzene, while neoarsphenamine is usually considered to be sodium 3, 3'-diamino-4, 4'-dihydroxyarsenobenzene-*n*-methyleuc sulphinate.

² See U. S. Patent No. 1,081,592, P. Ehrlich and A. Berthelm, Dec. 16, 1913.

³ According to an act of Congress (32 Stat., 728) and regulations issued by the Secretary of the Treasury, all arsphenamine and allied products must be examined by the Federal Government before being released for interstate or foreign trade. Such examination is made in the Hygienic Laboratory of the United States Public Health Service and consists of both chemical and toxicological tests. Briefly, the regulations require that in the toxicological tests, white rats weighing between 100 and 150 grams shall live 48 hours when given arsphenamine intravenously as a 2 per cent alkaline aqueous solution, in dosage of 100 mgm. per kilo, 0.9 c. c. of normal sodium hydroxide being used to alkalinize each 0.1 gm. of arsphenamine. White rats of similar weights are required to live 7 days when given neoarsphenamine as a 4 per cent aqueous solution in dosage of 200 mgm. per kilo. The rate of injection for both compounds shall be from 12 to 15 seconds for each 0.1 c. c. of fluid. The details of the tests are to be found in Miscellaneous Publication No. 22 of the United States Public Health Service, 1920.

It thus appeared that arsphenamine was the more stable of the two compounds and that further investigation of the keeping qualities of neorsphenamine was especially imperative. A more extensive investigation was therefore made, and the results are reported herein.

The present report deals almost wholly with products from four of the largest domestic manufacturers, and the age of the preparations in no case was over three years. The examination included tests for toxicity, made according to the above-described official method, and observations on changes in solubility, mobility in ampule, color, and odor.

The changes in solubility were determined by making up a 4 per cent solution of the drug in distilled water. The drug was considered incompletely soluble if, when made up in the above manner, a clear solution was not effected within 10 minutes. It was considered that no increase in toxicity had occurred unless more than 40 per cent of the animals reacted differently from the manner in which they reacted at the first examination. For example, if a sample killed 1 out of 5 rats at a certain dosage at first examination, and on second examination killed 2 out of 5 at the same dosage, no difference in toxicity was recorded. If, however, 3 or more died out of 5 on second examination, the preparation was considered to be more toxic than at first examination.

Throughout this paper room temperature refers to temperatures ranging from 20° to 29° centigrade (inclusive), and storeroom temperature to variations of from 18° to 20° centigrade (inclusive). All storeroom samples were kept in the dark in closed packages.

The major portion of the experiments are tabulated in Tables I, II, III, and IV, and respectively represent products from four different domestic manufacturers.

The official observation period of seven days was used in obtaining the results of the toxicity tests referred to above.

TABLE I.—*Keeping qualities of neocarsphenamine (manufacturer A) while in ampule and when subjected to various conditions, toxicity being indicated by the tolerance shown by white rats, when administered intravenously as a 4 per cent aqueous solution.*

Sam- ple.	Date of manufacture.	How kept.	Appearance and physical properties at examination.	Date of examination.	Details and results of examination.	Remarks.
1	March, 1919.....	Room temp. (20°-28° C.).	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	March, 1919.....	1 died on fifth day, out of 5 injected at 200 mgm. per kilo.	
1	do.....	Storeroom temp. (18°- 20° C.).	Deep golden yellow powder; freely mobile in ampule; turbid solution in water at room temp.; alkaline to litmus.	March, 1920.....	No deaths out of 5 injected at 200 mgm. per kilo.	Solution filtered.
2	do.....	Room temp.....	Light golden yellow powder; readily soluble in water at room temp.; freely mobile in ampule.	July, 1919.....	1 died on fifth day, out of 5 injected at 240 mgm. per kilo; 3 died within 4 days, out of 10 injected at 280 mgm. per kilo.	Test in March: 1 died on first day, out of 5 in- jected at 200 mgm. per kilo.
2	do.....	Storeroom temp.....	Light golden yellow powder; freely mobile in ampule; st. turbid solu- tion in water at room temp.	March, 1921.....	1 death on first day, out of 5 injected at 240 mgm. per kilo (4 per cent solu- tion).	Garlicky odor to solu- tion; turbid after 20 minutes.
3	do.....	Room temp.....	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	do.....	No deaths out of 5 injected at 200 mgm. per kilo.	
3	do.....	Submitted for reexam- ination; probably kept at room temp.	Light golden yellow powder; freely mobile in ampule; turbid solution after 1 hour in water at room temp.	July, 1920.....	do.....	Solution still turbid after filtration; 2 animals re- ceived filtered, 3 un- filtered solution.
4	November, 1919.....	Room temp.....	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	November, 1919.....	do.....	Solution alkaline to litmus.
4	do.....	Storeroom temp.....	Light golden yellow powder; freely mobile in ampule; incompletely soluble; fine flocculent suspension; alkaline to litmus.	March, 1920.....	1 died on fourth day, out of 5 injected at 200 mgm. per kilo.	Solution filtered; alkali- line to litmus.
5	December, 1919.....	Room temp.....	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	December, 1919.....	No deaths out of 5 injected at 200 mgm. per kilo.	Injection made in 5 to 6 seconds.
5	do.....	Submitted for reexam- ination; probably kept at room temp.	Light golden yellow powder; freely mobile in ampule; difficultly solu- ble in water at room temp.; com- plete solution after 20 minutes.	July, 1920.....	1 death out of 5 injected at 200 mgm. per kilo.	Storeroom sample also difficultly soluble; powder trifle darker than submitted.
6	January, 1920.....	Room temp.....	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	January, 1920.....	2 deaths—1 on fourth, 1 on fifth day— out of 10 injected at 200 mgm. per kilo.	
6	do.....	Storeroom temp.....	do.....	June, 1921.....	No deaths out of 10 injected at 200 mgm. per kilo.	
7	do.....	Room temp.....	do.....	January 12, 1920.....	3 died out of 5 injected at 200 mgm. per kilo.	

TABLE I.—*Keeping qualities of nearsphenamine (manufacturer A) while in ampule and when subjected to various conditions, toxicity being indicated by the tolerance shown by white rats, when administered intravenously as a 4 per cent aqueous solution*—Continued.

Sam- ple.	Date of manufacture.	How kept.	Appearance and physical properties at examination.	Date of examination.	Details and results of examination.	Remarks.
7	January, 1920	Room temp.	Light gold en yellow powder; freely mobile in ampule; slightly turbid solution after $\frac{1}{2}$ hour.	January 23, 1920.	4 died out of 5 injected at 200 mgm. per kilo.	Withdrawn by manu- facturer.
7	do.	Storeroom temp.	do.	July, 1921.	1 died within 7 days out of 5 injected at 200 mgm. per kilo.	Neutral to litmus; solu- tion not filtered.
8	February, 1920	Room temp.	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	April, 1920.	1 died out of 5 injected at 420; 5 died out of 5 injected at 500 mgm. per kilo.	500 mgm. dose given as 10 per cent solution; 420 mgm. dose given as 4 per cent solution.
8	do.	Storeroom temp.	do.	March, 1921.	4 died within 4 days, out of 5 injected at 400 mgm. per kilo.	Given as 10 per cent solution.
8	do.	do.	do.	do.	3 died within 4 days, out of 5 injected at 300 mgm. per kilo; none died out of 5 injected at 200 mgm.	4 per cent solution.
8	do.	do.	do.	June, 1921.	7 died within 1 day, out of 10 injected at 400 mgm. per kilo.	10 per cent solution.
9	April, 1920	Room temp.	do.	April, 1920.	No deaths out of 5 injected at 200 mgm. per kilo.	
9	do.	Storeroom temp.	do.	July, 1921.	do.	
10	July, 1920	Room temp.	do.	August, 1920.	None died out of 5 injected at 200; 2 died within 5 days, out of 5 at 300; and 5 within 3 days, out of 5 injected at 400 mgm. per kilo.	Rats on 200 mgm. dose received 4 per cent solution; all others 10 per cent solution.
10	do.	Storeroom temp.	do.	March, 1921.	1 died on fifth day, out of 5 injected at 200 mgm. per kilo.	4 per cent solution.
11	do.	Room temp.	do.	July, 1920	No deaths out of 5 injected at 200 mgm. per kilo.	
11	do.	Submitted for reexami- nation; probably kept at room temp.	do.	May, 1921.	do.	
12	August, 1920	Room temp.	do.	August, 1920	1 death on third day, out of 5 injected at 400; 5 deaths within 24 hours, out of 5 injected at 500 mgm. per kilo.	Given as 10 per cent solution.
12	do.	Storeroom temp.	do.	March, 1921.	5 died within 2 days, out of 5 injected at 400 mgm. per kilo; no deaths at 200 mgm., 5 injected.	200 mgm. dose given as 4 per cent solution; 400 mgm. as 10 per cent solution.
12	do.	do.	do.	June, 1921.	4 died within 5 days, out of 5 injected at 400 mgm. per kilo.	10 per cent solution.
13	do.	Room temp.	do.	August, 1920.	2 died within 2 days, out of 10 injected at 200 mgm. per kilo.	
13	do.	Storeroom temp.	do.	June, 1921.	None died out of 10 injected at 200 mgm. per kilo.	

TABLE II.—*Keeping qualities of neosphenamine (manufacturer B) while in ampule and when subjected to various conditions, toxicity being indicated by the tolerance shown by white rats, when administered intravenously as a 4 per cent solution.*

Sam- ple.	Date of manufacture.	How kept.	Appearance and physical properties at examination.	Date of examination.	Details and results of examination.	Remarks.
1	December, 1918...	Room temp. (20°-29° C.).	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	December, 1918...	3 died within 6 days, out of 10 injected at 180 mgm. per kilo.	
1	do.....	Submitted for reexami- nation; probably kept at room temp.	Deep golden yellow powder; adheres slightly to sides of ampule; incom- pletely soluble in water at room temp.	May, 1921.....	No deaths out of 5 injected at 200 mgm. per kilo.	
2	February, 1919...	Room temp.	Deep golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	March, 1919.....	No deaths out of 5 injected at 200; 8 deaths within 4 days, out of 10 in- jected at 240 mgm. per kilo.	
2	do.....	do.....	Deep golden yellow powder; freely mobile in ampule; forms turbid solu- tion.	May, 1921.....	2 deaths within 6 days, out of 5 injected at 200 mgm. per kilo.	
3	May, 1919.....	do.....	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	May, 1919.....	2 deaths within 7 days, out of 10 in- jected at 200 mgm. per kilo.	
3	do.....	Store room temp. (15°- 20° C.).	do.....	June, 1921.....	No deaths out of 10 injected at 200 mgm. per kilo.	
4	June, 1919.....	Room temp.	do.....	June, 1919.....	No deaths out of 5 injected at 200 mgm. per kilo.	
4	do.....	Submitted for reexami- nation; probably kept at room temp.	Light golden yellow; freely mobile in ampule; incompletely soluble in water at room temp.; sharp garlicky odor to solution.	December, 1919.....	do.....	Solution unfiltered.
4	do.....	do.....	do.....	June, 1920.....	1 death on first day, out of 5 injected at 200 mgm. per kilo.	Death occurred from un- filtered solution.
4	September, 1919.....	Room temp.	Deep golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	September, 1919.....	1 death on third day, out of 5 injected at 200 mgm. per kilo.	
5	do.....	Submitted for reexami- nation; probably kept at room temp.	do.....	May, 1920.....	No deaths out of 5 injected at 200 mgm. per kilo.	
5	do.....	Store room temp.	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	July, 1921.....	do.....	
6	December, 1919...	Room temp.	do.....	December, 1919...	4 deaths within 5 days, out of 10 in- jected at 200 mgm. per kilo.	
6	do.....	Submitted for reexamina- tion; probably kept at room temp.	Deep golden yellow powder; freely mobile in ampule; incompletely soluble in water at room temp.	April, 1920.....	No deaths out of 5 injected at 200 mgm. per kilo.	Solution filtered.
7	January, 1920.....	Room temp.	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	January, 1920.....	1 death on fourth day, out of 5 in- jected at 200 mgm. per kilo.	

TABLE II.—*Keeping qualities of nearsphenamine (manufacturer B) while in ampule and when subjected to various conditions, toxicity being indicated by the tolerance shown by white rats, when administered intravenously as a 4 per cent solution—Continued.*

Sam- ple.	Date of manufacture.	How kept.	Appearance and physical properties at examination.	Date of examination.	Details and results of examination.	Remarks.
7	January, 1920....	Submitted for reexamina- tion; probably kept at room temp.	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	July, 1920.....	No deaths out of 5 injected at 200 mgm. per kilo.	
7	do.....	do.....	do.....	October, 1920.....	1 death on fourth day, out of 5 in- jected at 200 mgm. per kilo.	
7	do.....	Storeroom temp.....	do.....	July, 1921.....	No deaths out of 5 injected at 200 mgm. per kilo.	
8	April, 1920.....	Room temp.....	do.....	April, 1920.....	3 died within 4 days, out of 10 in- jected at 200 mgm. per kilo.	
8	do.....	Storeroom temp.....	do.....	June, 1921.....	1 died on first day, out of 10 injected at 200 mgm. per kilo.	
9 ¹	May, 1920.....	Room temp.....	do.....	May, 1920.....	No deaths out of 5 injected at 200 mgm. per kilo.	
9 ¹	do.....	Storeroom temp.....	do.....	July, 1921.....	do.....	
9 ²	do.....	do.....	Orange-red powder; freely mobile in ampule; incompletely soluble in water at room temp.	do.....	2 deaths within 4 days, out of 5 injected at 200 mgm. per kilo.	Odor of ether on open- ing ampule.
10	August, 1920.....	Room temp.....	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	do.....	No deaths out of 5 injected at 200; 1 death out of 5 injected at 200 mgm. per kilo.	Suggestion of turbidity after standing.
10	do.....	Storeroom temp.....	do.....	August, 1920.....	do.....	Animal that died was pregnant.
11	September, 1920....	Room temp.....	do.....	June, 1921.....	4 deaths within 6 days out of 5 injected at 200; 5 deaths within 3 days out of 5 injected at 300 mgm. per kilo.	
11	do.....	Submitted for reexami- nation; probably kept at room temp.	do.....	September, 1920..	No deaths out of 5 injected at 200 mgm. per kilo.	
12	do.....	Room temp.....	do.....	May, 1921.....	do.....	
12	do.....	Submitted for reexami- nation; probably kept at room temp.	do.....	September, 1920..	do.....	
12	do.....	Room temp.....	do.....	May, 1921.....	2 deaths within 4 days, out of 5 injected at 200 mgm. per kilo.	
13	October, 1920.....	Room temp.....	do.....	October, 1920.....	4 deaths within 7 days, out of 10 in- jected at 200 mgm. per kilo.	
13	do.....	Storeroom temp.....	do.....	June, 1920.....	do.....	
14	do.....	Room temp.....	do.....	November, 1920..	3 deaths within 6 days, out of 10 in- jected at 200 mgm. per kilo.	Odor of ether on opening ampule.
14	do.....	Storeroom temp.....	do.....	June, 1921.....	Nonced out of 10 injected at 200 mgm. per kilo.	

¹ Shipment 1.² Shipment 2.

TABLE III.—*Keeping qualities of neophsphenamine (manufacturer C) while in ampule and when subjected to various conditions, toxicity being indicated by the tolerance shown by white rats, when administered intravenously as a 4 per cent aqueous solution.*

Sam- ple.	Date of manufacture.	How kept.	Appearance and physical properties at examination.	Date of examination.	Details and results of examination.	Remarks.
1	February, 1919...	Room temp. (20°-23° C.)...	Golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	February, 1919...	1 death on first day, out of 5 injected at 200 mgm. per kilo.	Odor of ether on opening ampule.
1	do.....	Storeroom temp. (18°-20° C.)	Brick red cake; can not be moved on shaking ampule; practically insol- uble in water at room temp.	March, 1921.....	No deaths out of 5 injected at 200 mgm. per kilo (filtrate contained 0.75 per cent As).	Odor of ether on opening ampule; material set- tles.
2	do.....	Room temp.....	Golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	February, 1919...	1 death out of 5 injected at 200 mgm. per kilo.	Odor of ether on opening ampule.
2	do.....	Storeroom temp.....	Orange red powder; freely mobile in ampule; readily soluble in water at room temp.; garlicky odor to solu- tion.	March, 1921.....	No deaths out of 5 injected at 200 mgm. per kilo.	
3	May, 1919.....	Room temp.....	Golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	May, 1919.....	do.....	Marked odor of ether on opening ampule.
3	do.....	Storeroom temp.....	Brick-red powder; freely mobile in ampule; incompletely soluble in water at room temp.; coarse suspen- sion.	March, 1921.....	1 death on second day, out of 5 in- jected at 200 mgm. per kilo.	Do.
4	do.....	Room temp.....	Golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	May, 1919.....	No deaths out of 5 injected at 200 mgm. per kilo.	Odor of ether on opening ampule.
4	do.....	Storeroom temp.....	Brick-red powder; freely mobile in ampule; incompletely soluble in water at room temp.	March, 1921.....	do.....	Solution alkaline to lit- mus.
5	June, 1919.....	do.....	Deep golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	July, 1919.....	2 died within 5 days, out of 10 injected at 200; 4 within 7 days out of 10 in- jected at 240; 9 within 4 days out of 10 injected at 320 mgm. per kilo.	
5	do.....	do.....	do.....	May, 1920.....	1 died on second day, out of 5 injected at 200 mgm. per kilo.	Odor of ether on open- ing ampule.
5	do.....	Room temp.: exposed to light (sunlight part of time) since Aug. 12, 1919.	do.....	June, 1920.....	No deaths out of 5 injected at 200 mgm. per kilo.	Slight garlicky odor to solution.
5	do.....	Incubated at 37° C. since Sept 19, 1919.	do.....	do.....	do.....	Do.
5	do.....	Storeroom temp.....	do.....	February, 1921...	1 died on seventh day, out of 5 injected at 200 mgm. per kilo.	Garlicky odor to solution.

TABLE III.—*Keeping qualities of neorsphenamine (manufacturer C) while in ampule and when subjected to various conditions, toxicity being indicated by the tolerance shown by white rats, when administered intravenously as a 4 per cent aqueous solution—Continued.*

Sam- ple.	Date of manufacture.	How kept.	Appearance and physical properties at examination.	Date of examination.	Details and results of examination.	Remarks.
5	June, 1919.....	Storeroom temp.....	Deep golden yellow powder; freely mobile in ampule; readily soluble in water of room temp.....	June, 1921.....	1 death on fifth day, out of 5 injected at 200 mgm. per kilo.	Odor of ether on open- ing ampule.
5	do.....	Incubated at 37° C. since Sept. 19, 1919.	Reddish powder; freely mobile in ampule; incompletely soluble in cold water; partial solution con- tained much flocculent material.	do.....	No deaths out of 5 injected at 200 mgm. per kilo.	Do.
6	July, 1919.....	Room temp.....	Deep golden yellow; freely mobile in ampule; readily soluble in water at room temp.....	July, 1919.....	do.....	
6	do.....	Storeroom temp.....	do.....	March, 1921.....	do.....	
7	September, 1919.	Room temp.....	do.....	September, 1919..	2 deaths within 3 days, out of 10 in- jected at 200 mgm. per kilo.	
7	do.....	Storeroom temp.....	do.....	March, 1921.....	4 deaths within 4 days, out of 5 in- jected at 200 mgm. per kilo.	
7	do.....	do.....	do.....	June, 1921.....	3 deaths within 5 days, out of 10 in- jected at 200 mgm. per kilo.	
8	April, 1920.....	Room temp.....	do.....	April, 1920.....	No deaths out of 5 injected at 200 mgm. per kilo.	
8	do.....	Storeroom temp.....	do.....	March, 1921.....	4 deaths within 4 days, out of 5 in- jected at 200 mgm. per kilo.	
8	do.....	do.....	do.....	June, 1921.....	1 death on second day, out of 5 injected at 200 mgm. per kilo.	Odor of ether on opening ampule.
9	September, 1920.	Room temp.....	do.....	September, 1920..	3 deaths within 6 days, out of 10 in- jected at 200 mgm. per kilo.	
9	do.....	do.....	do.....	June, 1921.....	1 died on third day, out of 10 injected at 200 mgm. per kilo.	
10	do.....	do.....	do.....	October, 1920.....	6 deaths within 7 days, out of 15 in- jected at 200 mgm. per kilo.	
10	do.....	do.....	do.....	March, 1921.....	4 deaths within 6 days, out of 5 in- jected at 200 mgm. per kilo.	
10	do.....	do.....	do.....	June, 1921.....	1 death on fourth day, out of 10 injected at 200 mgm. per kilo.	

TABLE IV.—*Keeping qualities of neocarsphenamine (manufacturer D) while in ampule and when subjected to various conditions, toxicity being indicated by the tolerance shown by white rats, when administered intravenously as a 4 per cent aqueous solution.*

Sam- ple.	Date of manufacture.	How kept.	Appearance and physical properties at examination.	Date of examination.	Details and results of examination.	Remarks.
1	May, 1919.....	Store room temp. (18°-20° C.).	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	June, 1919.....	None died out of 10 injected at 200 mgm. per kilo.	
1	do.....	do.....	Light golden yellow powder; freely mobile in ampule; turbid solution in water at room temp.	March, 1921.....	7 died out of 10 injected at 200 mgm. per kilo.	
1	do.....	do.....	do.....	May, 1921.....	3 died within 4 days out of 5 injected at 200 mgm. per kilo.	
1	do.....	do.....	do.....	June, 1921.....	None died out of 10 injected at 200 mgm. per kilo.	
2	July, 1919.....	Room temp. (20°-26° C.).	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	July, 1919.....	1 death on sixth day, out of 5 injected at 200 mgm. per kilo.	
2	do.....	Submitted for reexamina- tion; probably kept at room temp.	do.....	October, 1919.....	1 death on fourth day, out of 5 injected at 200 mgm. per kilo.	
2	do.....	Store room temp.	Light golden yellow powder; freely mobile in ampule; turbid solution in water at room temp.	July, 1921.....	3 died within 3 days out of 5 injected at 200 mgm. per kilo.	Not filtered.
3	September, 1919..	Room temp.	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	September, 1919..	No deaths out of 5 injected at 200 mgm. per kilo.	
3	do.....	Incubated 24 hours at 37° C.	do.....	October, 1919.....	1 death on fifth day out of 5 injected at 200 mgm. per kilo.	
3	do.....	Store room temp. since September, 1919.	do.....	June, 1920.....	No deaths out of 5 injected at 200 mgm. per kilo.	
3	do.....	Incubated at 37° C. since Sept. 30, 1919.	Light golden yellow powder; freely mobile in water at room temp.; gar- licky odor to incomplete solution.	do.....	do.....	Incomplete solution after 4 hour; filtered before injection.
3	do.....	Store room temp.	Light golden yellow powder; freely mobile; readily soluble in water at room temp.	do.....	do.....	
4	do.....	Room temp.	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	July, 1921.....	2 died within 7 days out of 5 injected at 200 mgm. per kilo.	
4	do.....	Incubated at 37° C. for 24 hrs.	do.....	September, 1919..	No deaths out of 5 injected at 200 mgm. per kilo.	
4	do.....	Store room temp.	do.....	October, 1919.....	do.....	
4	do.....	do.....	do.....	June, 1920.....	1 death on fourth day out of 5 injected at 200 mgm. per kilo.	

TABLE IV.—*Keeping qualities of neocarsphenamine (manufacturer D) while in ampule and when subjected to various conditions, toxicity being indicated by the tolerance shown by white rats, when administered intravenously as a 4 per cent aqueous solution—Continued.*

Sam- ple.	Date of manufacture.	How kept.	Appearance and physical properties at examination.	Date of examination.	Details and results of examination.	Remarks.
4	September, 4919..	Incubated at 37° C. since Sept. 30, 1919.	Light golden yellow powder; freely mobile in ampule; incompletely sol- uble in water at room temp.; gar- licky odor to incomplete solution; powder trifle darker than previous tube.	June, 1920.....	1 death on third day out of 5 injected at 200 mgm. per kilo.	Incomplete solution after ½ hour; filtered before injection.
4	do.....	Store room temp.....	Light golden yellow powder; freely mobile in ampule; incompletely sol- uble in water at room temp.; no gar- licky odor to solution.	June, 1921.....	No deaths out of 5 injected at 200 mgm. per kilo.	Incomplete solution on filtered.
4	do.....	Incubated at 37° C. since Sept. 30, 1919.	Deep golden yellow powder; not freely mobile in ampule; odor of ether on opening ampule; incompletely sol- uble in cold water; much flocculent material remains undissolved; gar- licky odor to solution.	do.....	do.....	Do.
5	October, 1919.....	Room temp.....	Light golden yellow powder; freely mobile in ampule; readily soluble in water at room temp.	October, 1919.....	2 died within 4 days, out of 10 injected at 200 mgm. per kilo.	
5	do.....	Store room temp.....	do.....	March, 1921.....	None died out of 10 injected at 200 mgm. per kilo.	
6	do.....	Room temp.....	do.....	November, 1919.....	1 died on third day, out of 5 injected at 200 mgm. per kilo.	
6	do.....	Submitted for exami- nation; probably kept at room temp.	do.....	March, 1920.....	No deaths out of 5 injected at 200 mgm. per kilo.	
6	do.....	Store room temp.....	do.....	July, 1921.....	No deaths out of 5 injected at 200 mgm. per kilo.	
7	March, 1920.....	Room temp.....	do.....	March, 1920.....	2 died on fifth day, out of 10 injected at 200 mgm. per kilo.	
7	do.....	Store room temp.....	do.....	March, 1921.....	2 died within 4 days, out of 5 injected at 200 mgm. per kilo.	
7	do.....	do.....	do.....	June, 1921.....	1 died on second day, out of 5 injected at 200 mgm. per kilo.	
8	June, 1920.....	Room temp.....	do.....	June, 1920.....	No deaths out of 10 injected at 200 mgm. per kilo.	
8	do.....	Store room temp.....	Light golden yellow powder; freely mobile in ampule; incompletely sol- uble in water at room temperature; fine flocculent ppt.	March, 1921.....	9 died within 5 days, out of 10 injected at 200 mgm. per kilo.	
8	do.....	do.....	do.....	June, 1921.....	All died within 6 days, out of 10 in- jected at 200 mgm. per kilo.	Solution not altered; formed white scum on surface after 1 hour.

9	July, 1920.....	Room temp.....	Light golden yellow powder: freely mobile in ampule; readily soluble in water at room temp.	July, 1920.....	3 died within 5 days, out of 10 injected at 200 mgm. per kilo.
9	do.....	Submitted for reexamination: probably kept at room temp.	Deep golden yellow powder: freely mobile in water at room temp.	June, 1921.....	3 died within 3 days, out of 5 injected at 200 mgm. per kilo.
9	do.....	Storeroom temp.....	Sample trifle lighter in color than previous ampule, otherwise same (insoluble).	do.....	4 died within 5 days, out of 5 injected at 200 mgm. per kilo.
10	November, 1920..	Room temp.....	Light golden yellow powder: freely mobile in ampule; readily soluble in water at room temp.	December, 1920...	2 deaths within 5 days, out of 10 injected at 200 mgm. per kilo.
10	do.....	Storeroom temp.....	do.....	March, 1921.....	No deaths out of 5 injected at 200 mgm. per kilo.
10	do.....	do.....	do.....	July, 1921.....	do.....

Summary of Results.

The foregoing tables show that market samples of neoarsphenamine may deteriorate in ampule under ordinary conditions. They may change in color, solubility, toxicity, mobility in ampule, and odor after varying periods.

The change in color in some instances consisted of a slight deepening of the original golden-yellow powder, whereas in other cases a change to a brick red occurred, such as takes place when the powder is exposed to the air for a day or more. Prolonged incubation at 37° C. or heating at 100° C. caused deepening in color.

A relatively large number of samples showed a decrease in solubility; in one lot it occurred within two weeks after manufacture; in other lots from four months to slightly over two years had elapsed before the condition was noticed. The decrease in solubility varied as shown by the production of a turbid solution or a solution containing a fine flocculent precipitate with some lots, to that of a coarse suspension with other lots, the coarse suspension in some cases being practically insoluble in water within half an hour. Incubation of the ampules at 37° C., as well as at higher temperatures, hastens the development of a decrease in solubility.

Many lots, although showing a change in color and solubility, did not show an increase in toxicity. Some had become more toxic as well as difficultly soluble. An increase in toxicity was noticed in some lots after about one year, even though no apparent changes in their physical properties had occurred, the increase in some cases being slight enough to permit the preparations to pass the official toxicity tests, whereas other lots which had retained their ready solubility failed to meet the official toxicological requirements.

The change in the mobility of the powder in ampule was usually so pronounced that a solid mass was formed which was frequently adherent to the sides of the ampule. A marked deepening in color usually accompanied the change from a freely mobile powder to the solid form.

The odor of the neoarsphenamines varied greatly. Some lots emitted an odor resembling ether, others emitted a garlicky odor on opening the ampule. Incubation at 37° C. may produce a pronounced ethereal or a garlicky odor. It is interesting to note that ampules from the same lot varied as to the odor emitted on opening the ampule. Ampules which emitted a garlicky odor usually produced incomplete solutions which emitted a similar odor.

Discussion of Results in Tables and Additional Investigations.

The fact that the chemical constitution of neoarsphenamine is still in dispute should be borne in mind in a discussion of these results.

Neoarsphenamine, as previously stated, is usually considered to be sodium 3, 3'-diamino-4, 4'-dihydroxy arsenobenzene-N-methylene sulphinate, and therefore should have an arsenic content of about 30 per cent. In reality, however, the Government regulations require that commercial samples shall have only about 20 per cent arsenic. They must therefore contain either a large amount of by-products or impurities, or diluent, to reduce the arsenic from the theoretical amount to that which exists in commercial samples.

Macallum,¹ states that certain neoarsphenamines consist to a great extent of reaction by-products. Raiziss and Falkow,² have recently reported that considerable variation was found upon analysis of a number of samples of neoarsphenamine obtained from three different laboratories. They found that the deviation in the arsenic to nitrogen ratio, which they regard as a comparatively good indicator of the purity of the arsenical component, was greater for the neoarsphenamines than for the arsphenamines which they examined, indicating that neoarsphenamine is not as definite a compound as arsphenamine. In addition, the values which they obtained for the oxygen requirements were in excess of those required merely by the arseno group, the excess being attributed to the presence of uncombined sodium formaldehyde sulphonylate. They found, furthermore, that the amount of combined sulphonylate was greater than that necessary for one amino group and less than that calculated for a substitution product with both amino groups closed, from which they concluded that neoarsphenamine may be assumed to be a mixture of both the mono- and di- substituted products.

We must, therefore, regard commercial neoarsphenamine as a mixture rather than as a definite chemical compound. It would seem to be more nearly exact to describe neoarsphenamine as a substance prepared from arsphenamine by means of formaldehyde sulphonylate, as prescribed by the present Treasury Department regulations.

The causes for the above deterioration, for the most part, can only be conjectured. The occurrence of physical deterioration in some lots within a relatively short time, about two weeks, for example, whereas it required a year or more for other lots to show a similar change, supports the idea of there being essential chemical differences in the

¹ Macallum, A. Douglas, *The Examination of Neoarsphenamine*: Jour. Amer. Chem. Soc., 1921, vol. 43, p. 643.

² Raiziss, George W., and Falkow, M., *The Chemistry of Neoarsphenamine and Its Relation to Toxicity*: Jour. Biol. Chem., 1921, vol. 16, p. 209.

character of the various lots. But in addition to this cause there are other influences which tend to bring about this condition, chief of which are the influences of age and temperature. Our results indicate that when neoarsphenamine was kept in ampule at ordinary temperature, many of the lots had deteriorated within two years, so that a lot which is over two years old should be looked upon as one requiring careful investigation before being used clinically.

Temperature was found to be a potent factor in hastening the deterioration of neoarsphenamine in ampule. It was found that a lot would remain unchanged longer at a temperature of 18° – 20° C. than when kept at a temperature of 37° C. Whereas profound changes may be readily effected in some lots by heating to 100° C. for 20 minutes, other lots may be practically unchanged by such treatment. The gross character of the changes produced by heating in ampule at 100° C. for 20 minutes are the development of a relatively insoluble product emitting an ethereal or garlicky odor, and the production of a relatively immobile powder which may become adherent to the sides of the ampule. These observations suggest that neoarsphenamine should be kept under conditions similar to those required for vaccines and allied biologics, namely, at ice-box temperature rather than at room or higher temperatures, and that some neoarsphenamine is unsuited for use in the Tropics.

The effect of storage (probably heat) is probably further shown by the following observation. During the war our forces in France employed French neoarsphenamine to some extent. Upon return of our forces the stock of French neoarsphenamine, which was forwarded to the medical supply officer at Washington, was referred to the Hygienic Laboratory for examination, and it was found that much of the returned French neoarsphenamine had become insoluble in water and in some cases had deepened in color markedly; also some had become practically immobile in ampule. Inasmuch as a number of lots of this product which had previously been received from other sources were readily soluble in water, it would appear that conditions of storage may have been responsible for the above-mentioned changes. Age may have played a part; but it would seem that it was not the most important factor, as some of the more recent lots were more profoundly affected than the older ones.

A very pertinent question in connection with the foregoing findings is, Does the above deterioration occur only in domestic products? We are led to believe that deterioration may occur in all products, inasmuch as we have found that certain samples of Canadian and French products were likewise insoluble. This together with the observation of Verda,⁴ that a sample of German neosalvarsan ob-

⁴Verda, A., *Esame fisico-chimico del neosalvarsan*: Schweizerische Apoth. Zeit. 1920, Vol. 58, p. 280.

tained from a foreign military store and which was less than two years old had become insoluble, is indeed strong evidence that deterioration is a general phenomenon and may occur in all products.

In order to ascertain the relative occurrence of deterioration in neoarsphenamine, as evidenced by a change to a more difficultly soluble product, all of the lots which complied with the official requirements, received during the period February, 1919, to February, 1920, from manufacturers B and C were tested in July, 1921. Out of the 49 lots received from manufacturer B, 13 were found to be difficultly soluble, whereas out of the 25 lots received from manufacturer C, 8 lots had changed from a readily soluble to a difficultly soluble powder; in other words, about 25 per cent of the lots issued by manufacturer B and about 30 per cent of those issued by manufacturer C had deteriorated in less than three years' time.

The behavior of lot 9, manufacturer B, indicates that incomplete drying of the product before ampuling is a factor in causing the deterioration of this lot. This lot was sent to the Hygienic Laboratory in two shipments. The history of these two shipments as obtained from the manufacturer is as follows:

Shipment 1 was sent to the Hygienic Laboratory on April 30, 1920, after 6 days' drying. On June 3, 1920, analysis showed that the remainder of the batch, which was kept in a vacuum chamber, had lost approximately 2 per cent of volatile matter and was cut accordingly. Shipment 2 was made on June 8, 1920, and differed from shipment 1 only in having lost about 2 per cent in moisture.

On reexamination of these two shipments in June, 1921, the samples from shipment 1 were found to have turned a deep orange red, were difficultly soluble in water, and emitted a strong ethereal odor, whereas samples from shipment 2 had remained practically unchanged in color, solubility, and odor.

Both shipments had been kept under identical conditions while at the Hygienic Laboratory; that is, at storeroom temperature. The occurrence of a strong ethereal odor in shipment 1 and none in shipment 2 suggested that the loss due to drying was probably largely due to volatilized ether. Upon analysis for arsenic, shipment 1 was found to contain 17.96 per cent arsenic; shipment 2, 18.32 per cent.⁵

It is possible that the heat required to seal the ampules may have been sufficient to induce in some lots changes of so slight a nature as to be undiscoverable at first examination, but which progressed during the ageing of the lots. If such is the case, it could be readily obviated by increasing the length of the ampules.

⁵Determined by Mr. C. G. Rensburg, of the Division of Chemistry, Hygienic Laboratory.

The deterioration of neoarsphenamine, as indicated by physical changes, does not necessarily signify that there is a coincident increase in toxicity. This is amply demonstrated by the results in the tables here presented. The relation of toxicity to solubility was formerly considered to be a more intimate one than the present results indicate.*

The former conclusion, namely, that a decrease in the solubility of neoarsphenamine was usually accompanied by an increase in its toxicity, was formed from experiments carried out almost wholly using neoarsphenamines from manufacturer D. It is interesting to note, in Table IV (manufacturer D), that out of the 10 lots examined, 3 which had decreased in solubility had also become more toxic. It would appear from the above results that this relationship holds particularly for the products from manufacturer D.

The results of the toxicity tests reported in the tables can not be properly interpreted without taking into consideration the possibility of there being a seasonal variation in the resistance of rats to neoarsphenamine. It has been suspected for some time that rats were more resistant to neoarsphenamine during the summer months than during the winter months. The present results afford some evidence that such is the case. For example, lot 7, manufacturer C, gave a higher mortality rate in March than in June or September of 1921; lots 8 and 10, manufacturer C, and lot 1, manufacturer D, gave higher mortality rates in March than in June of 1921.

Further evidence that a seasonal variation to neoarsphenamine exists in rats is shown by the following data: Compilations made from the records of official tests made during March, 1920, showed that out of 65 lots of neoarsphenamine tested, in which 325 rats were used, 87 rats, or about 27 per cent, died within 7 days; whereas out of 47 lots tested during June, 1920, in which 235 rats were used, 25 rats, or about 11 per cent, died within 7 days. The mortality percentage for March and June, 1921, was, respectively, 45 and 15 per cent. These data would indicate that white rats are considerably more resistant in June than in March.

Considering the above findings on the seasonal variability of the rat, in connection with the results of the toxicity tests given here, it can be concluded that lots 8 and 12, manufacturer A, and lot 10, manufacturer B, had become more toxic, within about a year, without manifesting a coincident change in solubility; whereas lots 2, 8, and 9, manufacturer D, had not only become more toxic but had decreased in solubility as well.

*Roth, George B., Some Salient Facts Regarding the Toxicity of Arsphenamine and Neoarsphenamine: Arch. Derm. and Syph., 1920, vol. 2, p. 292.

It is very probable that the changes in toxicity in neoarsphenamine are due to oxidative processes occurring within the ampule. If the changes that occur are of such nature, they would likely be very similar to those described by Hunt¹ recently for aqueous solutions of arsphenamine; that is, that arsphenamine in solution first becomes more toxic upon cleavage of the arseno group and less toxic upon further oxidation of the cleavage products from the trivalent to the pentavalent form. Lots which were found to have decreased in solubility, therefore, may have passed through a more toxic stage during the progress of their deterioration.

Conclusions.

1. Commercial neoarsphenamine is a relatively unstable substance in ampule.

2. Age, heat, and incomplete drying of the substance before ampuling are factors in causing deterioration in commercial neoarsphenamine.

3. The deterioration of neoarsphenamine is shown by changes in color, mobility in ampule, toxicity, solubility, and odor.

4. The results of the experiments suggest (a) that inasmuch as neoarsphenamine may deteriorate within a short time after manufacture, and in order to secure further data on its keeping properties, the date of manufacture might be given on the label of all lots issued; (b) that neoarsphenamine should be kept under conditions similar to those required for vaccines; that is, at ice-box temperature.

BIOLOGICAL PRODUCTS.

ESTABLISHMENTS LICENSED FOR THE PROPAGATION AND SALE OF VIRUSES, SERUMS, TOXINS, AND ANALOGOUS PRODUCTS.

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

The licenses granted to the following establishments for the products mentioned do not imply an indorsement of the claims made by the manufacturers for their respective preparations. The granting of a license means that inspections of the establishment concerned and laboratory examinations of samples of its products are made regu-

¹ Hunt, Reid, Some Factors Relating to the Toxic Action of Arsphenamine: Jour. Am. Med. Assoc., 1921, vol. 76, p. 854.

larly to insure the observance of safe methods of manufacture, to ascertain freedom from contamination, and to determine the potency of diphtheria antitoxin, tetanus antitoxin, antidyenteric serum, antimeningococcic serum, antipneumococcic serum, bacterial vaccines, prepared from typhoid bacillus, paratyphoid bacillus A, paratyphoid bacillus B, and diphtheria toxin-antitoxin mixture, the only products for which potency standards or tests have been established.

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

Establishments Licensed and Products for which Licenses have been Issued.

AMERICAN ESTABLISHMENTS.

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

Diphtheria antitoxin; tetanus antitoxin; antianthrax serum; antidyenteric serum; antigenococcic serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; hemostatic serum (Lapenta); normal horse serum; thyroidectomized horse serum; vaccine virus; rabies vaccine (Cumming); tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, acne diploccoccus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, prodigious bacillus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; pollen extract; modified bacterial derivatives made from colon bacillus, gonococcus, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, pyocyanus bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus.

H. K. Mulford Co., Philadelphia, Pa.—License No. 2:

Diphtheria antitoxin; tetanus antitoxin; perfringens antitoxin; antianthrax serum; antidyenteric serum; antigenococcic serum; antimelitensis serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine; tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; tuberculin protease-free (Lyons); bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, dysentery bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, micrococcus melitensis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; sensitized bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; pollen extract.

Slee Laboratories, Swiftwater, Pa.—License No. 6:

Diphtheria antitoxin; tetanus antitoxin; normal horse serum; vaccine virus; bacterial vaccines made from acne bacillus, colon bacillus, gonococcus, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus.

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

Diphtheria antitoxin; tetanus antitoxin; antianthrax serum; antigenococcic serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine; tuberculin old; tuberculin B. F.; bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus.

Bureau of Laboratories, Department of Health, New York City.—License No. 14:

Diphtheria antitoxin; tetanus antitoxin; antimeningococcic serum; antipneumococcic serum; normal horse serum; vaccine virus; rabies vaccine; tuberculin old; and bacterial vaccines made from gonococcus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture.

- Lederle Antitoxin Laboratories, Pearl River, N. Y.—License No. 17:**
 Diphtheria antitoxin; tetanus antitoxin; antianthrax serum; antidyenteric serum; antigonococcic serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine; tuberculin old; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture; pollen extract.
- Bacterio-Therapeutic Laboratory, Asheville, N. C.—License No. 23:**
 Watery extract of tubercle bacilli (von Ruck); modified tubercle bacillus derivative (von Ruck).
- Dr. G. H. Sherman, East Jefferson Avenue, Detroit, Mich.—License No. 30:**
 Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, nonvirulent tubercle bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus.
- Hygienic Laboratory, California State Board of Health, Berkeley, Calif.—License No. 40:**
 Rabies vaccine.
- The Abbott Laboratories, 4735 East Ravenswood Avenue, Chicago, Ill.—License No. 43:**
 Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; pollen extract.
- Beebe Laboratories, St. Paul, Minn.—License No. 45:**
 Diphtheria antitoxin; tetanus antitoxin; bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, ozena bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus.
- Dr. W. T. McDougall, 640 Minnesota Avenue, Kansas City, Kans.—License No. 49:**
 Rabies vaccine.
- St. Louis Pasteur Institute, 3514 Lucas Avenue, St. Louis, Mo.—License No. 50:**
 Rabies vaccine (dilution method).
- The Upjohn Co., Kalamazoo, Mich.—License No. 51:**
 Bacterial vaccines made from colon bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; pollen extract.
- E. R. Squibb & Sons' Research and Biological Laboratories, New Brunswick, N. J.—License No. 52:**
 Diphtheria antitoxin; tetanus antitoxin; antigonococcic serum; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine; bacterial vaccines made from acne bacillus, colon bacillus, dysentery bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, pyocyaneus bacillus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus, and typhoid bacillus; leucocytic extract from the horse; diphtheria toxin-antitoxin mixture; arsphenamine; neoarsphenamine; sodium arsphenamine; solution of arsphenamine.
- Laboratory of Clinical Pathology, 1208 Wyandotte Street, Kansas City, Mo.—License No. 53:**
 Rabies vaccine.
- Dr. James McI. Phillips, 2057 North High Street, Columbus, Ohio.—License No. 54:**
 Rabies vaccine (dilution method).
- Eli Lilly & Co., Indianapolis, Ind.—License No. 56:**
 Diphtheria antitoxin; tetanus antitoxin; antistreptococcic serum; normal horse serum; normal sheep serum; vaccine virus; rabies vaccine (Harris); tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from acne bacillus, cholera vibrio, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, meningococcus, micrococcus catarrhalis, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, plague bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture.
- Swan Myers Co., 219 North Senate Avenue, Indianapolis, Ind.—License No. 58:**
 Bacterial vaccines made from acne bacillus, colon bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, micrococcus tetragenus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus.
- Gilliland Laboratories, Ambler, Pa.—License No. 63:**
 Diphtheria antitoxin; tetanus antitoxin; antimeningococcic serum; antipneumococcic serum; antistreptococcic serum; normal horse serum; vaccine virus; rabies vaccine; tuberculin old; tuberculin B. E.; tuberculin B. F.; bacterial vaccine made from acne bacillus, gonococcus, influenza bacillus, paratyphoid bacillus A, paratyphoid bacillus B, pertussis bacillus, pneumococcus, staphylococcus albus, staphylococcus aureus, streptococcus, and typhoid bacillus; diphtheria toxin-antitoxin mixture.

Antitoxin and Vaccine Laboratory, Department of Public Health, Commonwealth of Massachusetts, Forest Hills, Boston 30, Mass.—License No. 64:

Diphtheria antitoxin; antimeningococcic serum; antipneumococcic serum; vaccine virus; bacterial vaccines made from paratyphoid bacillus A, paratyphoid bacillus B, and typhoid bacillus; diphtheria toxin-antitoxin mixture.

United States Standard Products Co., Woodworth, Wis.—License No. 65:

Diphtheria antitoxin; tetanus antitoxin; normal horse serum; bacterial vaccines made from paratyphoid bacillus A, paratyphoid bacillus B, and typhoid bacillus; diphtheria toxin-antitoxin mixture.

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

The Arlington Chemical Co., Yonkers, N. Y.—License No. 67:

Bacterial vaccines made from colon bacillus, micrococcus tetragenus, pneumococcus, staphylococcus albus, staphylococcus aureus, staphylococcus citreus, streptococcus; pollen extract; animal epidermal extract; animal food extract; vegetable food extract.

Dermatological Research Laboratories, Philadelphia, Pa.—License No. 68:

Arsphenamine; neoarsphenamine.

H. A. Metz Laboratories, 122 Hudson Street, New York City.—License No. 69:

Arsphenamine; neoarsphenamine; sodium arsphenamine; silver arsphenamine.

Synthetic Drugs and Diarsenol Laboratories, Buffalo, N. Y.—License No. 70:

Arsphenamine; neoarsphenamine; sodium arsphenamine.

Hynson, Westcott, & Dunning, Baltimore, Md.—License No. 76:
Suspension of arsphenamine.

Mallinckrodt Chemical Works, St. Louis, Mo.—License No. 77:

Arsphenamine.

Empire State Chemical Laboratories, Brooklyn, N. Y.—License No. 78:

Arsphenamine.

FOREIGN ESTABLISHMENTS.

Institut Pasteur de Paris, Paris, France.—License No. 11. Selling agents for the United States: Pasteur Laboratories of America, 366 West Eleventh Street, New York City:

Diphtheria antitoxin; tetanus antitoxin; antianthrax serum; antidyenteric serum; antiplague serum; antistreptococcic serum; bacterial vaccines made from cholera vibrio, plague bacillus, staphylococcus albus, and staphylococcus aureus.

Swiss Serum and Vaccine Institute, Berne, Switzerland.—License No. 21. Selling agents for the United States: C. Bischoff and Co., 451 Washington St., New York City:

Tetanus antitoxin; antidyenteric serum; antigenococcic serum; antimeningococcic serum; antiplague serum; antistreptococcic serum; tuberculin, old; bacterial vaccines made from cholera vibrio, colon bacillus, gonococcus, influenza bacillus, plague bacillus, pneumococcus, staphylococcus aureus, streptococcus, and typhoid bacillus.

Farbwerke Hoechst, vorm. Meister Lucius und Brüning, Hoechst am Main, Germany.—License No. 24.

Selling agents for the United States: H. A. Metz Laboratories, 122 Hudson St., New York City:

Diphtheria antitoxin; normal horse serum; tuberculin old; tuberculin T. R.; tuberculin B. E.; tuberculin B. F.; bacterial vaccines made from cholera vibrio, staphylococcus albus, staphylococcus aureus, and staphylococcus citreus; typhoid bacillus; arsphenamine; neoarsphenamine; sodium arsphenamine; silver arsphenamine.

Inoculation Department, St. Mary's Hospital, London, England.—License No. 48. Selling agents for the United States: Parke Davis and Co., Detroit, Mich.:

Bacterial vaccines made from acne bacillus, Friedländer bacillus, gonococcus, influenza bacillus, micrococcus catarrhalis, pneumococcus, pseudodiphtheria bacillus, staphylococcus albus, staphylococcus aureus, and streptococcus; pollen extract.

Connaught Antitoxin Laboratories, University of Toronto, Toronto, Canada.—License No. 73:

Diphtheria antitoxin; tetanus antitoxin.

Les Etablissements Poulenc Freres, 92 Rue Vieille-du-Temple, Paris III, France.—License No. 74. Selling agents for the United States: Powers-Weighman-Rosengarten Co., Philadelphia, Pa.:

Arsphenamine; neoarsphenamine.

Laboratoires Naline, Villeneuve-la-Garenne, Seine, France.—License No. 75. Selling agents for the United States: Geo. J. Wallau, 6 Cliff St., New York City:

Phospharsphenamine.

CITY HEALTH OFFICERS, 1921.

Directory of Those in Cities of 10,000 or More Population.

Directories of the city health officers in the cities of the United States having a population of 10,000 or more have been published in the Public Health Reports^a for each year from 1916 to 1920 for the information of health officers and others interested in public health activities. These directories have been compiled from data furnished by the health officers. The cities included in this directory are those having 10,000 population or more, according to the census of 1920.

The asterisk (*) indicates that the officer so designated has been reported to be a "full-time" health officer. For this purpose a "full-time" officer is defined as "one who does not engage in the practice of medicine or in any other business, but devotes all his time to official business."

City.	Name of health officer.	Official title.
Alabama:		
Anniston.....	*G. A. Cryer, M. D. ¹	County health officer.
Bessemer.....		Do.
Birmingham.....	*J. D. Dowling, M. D. ²	Do.
Dothan.....		Do.
Florence.....	*W. H. Abernethy, M. D. ³	Do.
Gadsden.....	*C. L. Murphree, M. D. ⁴	Do.
Mobile.....	*Chas. A. Mohr, M. D.	County and city health officer.
Montgomery.....	*J. L. Bowman, M. D.	County health officer.
Selma.....		
Tuscaloosa.....	*A. A. Kirk, M. D.	County and city health officer.
Arizona:		
Phoenix.....	H. K. Beauchamp, M. D.	City health officer.
Tucson.....	A. G. Schnabel, M. D.	City physician.
Arkansas:		
Fort Smith.....	*A. A. McKelvey, M. D.	District health officer.
Hot Springs.....	B. F. Casada, M. D. ⁵	County health officer.
Little Rock.....	*John Thames, M. D.	City health officer.
North Little Rock.....	Shelby Atkinson, M. D.	Health officer.
Pine Bluff.....	T. W. Woodul, M. D. ⁶	County health officer.
California:		
Alameda.....	Arthur Hieronymus, M. D.	Health officer.
Bakersfield.....	S. C. Long, M. D. ⁷	County health officer.
Berkeley.....	Ernest H. Pape, M. D.	Health officer.
Eureka.....	John N. Chain, M. D.	Do.
Fresno.....	C. Mathewson, M. D.	City health officer.
Glendale.....	J. E. Eckles, M. D.	Health officer.
Long Beach.....	*Ralph Lemen Taylor, M. D.	Do.
Los Angeles.....	*L. M. Powers, M. D.	Health commissioner.
Oakland.....	Kirby B. Smith, M. D.	Health officer.
Pasadena.....	*J. Severy Hibben, M. D.	Health officer and city physician.
Pomona.....	*Wm. H. Eaton, M. D.	Deputy county health officer.
Richmond.....	*Chas. Robert Blake, M. D. ⁸	Commissioner of health.
Riverside.....	Wm. B. Wells, M. D.	Health officer.
Sacramento.....	George Joyce Hall, M. D.	Do.
San Bernardino.....	C. C. Owen, M. D.	Do.
San Diego.....	Alex. M. Lessem, M. D.	Health officer and superintendent.
San Francisco.....	*William C. Hassler, M. D.	Health officer.
San Jose.....	Henry C. Brown, M. D.	Do.
Santa Ana.....	J. I. Clark, M. D.	City health officer.
Santa Barbara.....	*A. L. O'Banion, D. V. M.	Do.
Santa Cruz.....	Willis R. Congdon, M. D.	Do.

^a Reprints Nos. 346, 416, 494, 539, and 599.

¹ Health officer for Calhoun County and all incorporated cities and towns in the county.

² Health officer for Jefferson County and all municipalities in the county.

³ Health officer for Lauderdale County and all cities and towns in the county.

⁴ Health officer for Etowah County.

⁵ Health officer for Garland County.

⁶ Health officer for Jefferson County.

⁷ Health officer for Kern County.

⁸ Also health officer for Contra Costa County.

City.	Name of health officer.	Official title.
California—Continued.		
Santa Monica.....	*S. L. Berkley.....	Commissioner of public safety.
Stockton.....	Lindwood Dozier, M. D.....	City health officer.
Vallejo.....	E. A. Peterson, M. D.....	Health officer.
Venice.....	*Irvin L. Magee, M. D.....	Do.
Colorado:		
Boulder.....	John R. Barber, M. D.....	Director of public health.
Colorado Springs.....	Omer R. Gillett, M. D.....	Health officer.
Denver.....	*William H. Sharpley, M. D.*	Manager health and charity.
Greeley.....	*T. J. Gibbeon.....	City health officer.
Pueblo.....	W. E. Buck, M. D.....	Chief of department of health, inspection and sanitation.
Trinidad.....	G. W. Robinson, M. D.....	City physician.
Connecticut:		
Ansonia.....	Frederick C. Goldstein, M. D.....	Health officer.
Bridgeport.....	*William H. Coon, M. D.....	Do.
Bristol.....	Joseph I. Woisard, M. D.....	Do.
Danbury.....	George E. Lemmer, M. D.*	Do.
Derby.....	Elmer T. Sharpe, M. D.....	Designated examiner United States Public Health Service.
East Hartford.....	Franklin H. Mayberry, M. D.....	Health officer.
Enfield.....	*George T. Finch, M. D.....	Town health officer.
Fairfield.....	*Laurence E. Poole, M. D.....	Health officer and school physician.
Greenwich.....	Albert S. Austin, M. D.....	Health officer.
Hartford.....	*Chas. F. Botsford, M. D.....	Superintendent of board of health.
Manchester.....	D. C. Y. Moore, M. D.....	Chairman of board of health.
Meriden.....	Edgar Adams Wilson, M. D.....	Town health officer.
Middletown.....		
Milford.....	Willie S. Putney, M. D.....	Health officer.
Naugatuck.....		
New Britain.....	*Roger M. Griswold, M. D.....	Superintendent of board of health.
New Haven.....	*Frank W. Wright, M. D.....	Health officer.
New London.....	*Benjamin N. Pennell, D. V. S.....	City health officer.
Norwalk.....	Robert E. Ferdue, M. D.....	Do.
Norwich.....	Edward J. Brophy, M. D.....	Health officer.
Orange.....	Chas. A. Bevan, M. D.*	Town health officer.
Stamford.....	James J. Costanzo, M. D.....	City health officer.
Stratford.....	George F. Lewis, M. D.....	Town health officer.
Torrington.....		
Wallingford.....	M. T. Sheehan, M. D.....	Borough health officer.
Waterbury.....	*Bertrand E. Roberts, M. D.....	City health officer.
Williamantic.....	W. P. S. Keating, M. D.....	Do.
Windham.....	F. E. Wilcox, M. D.....	Town health officer.
Delaware:		
Wilmington.....	Howard R. Frantz.....	Secretary of board of health.
District of Columbia:		
Washington.....	*William C. Fowler, M. D.....	Health officer.
Florida:		
Jacksonville.....	*William W. MacDonell, M. D.....	City health officer.
Key West.....	William R. Warren, M. D.....	Do.
Miami.....	*W. I. Lanier, M. D.....	Do.
Pensacola.....		
St. Petersburg.....	Arthur T. Hudson, M. D.....	Health officer and city physician.
Tampa.....	Jesse R. Harris, M. D.....	Health officer.
Georgia:		
Albany.....	*Hugo Robinson, M. D.....	Health commissioner.
Athens.....	*J. D. Appiewhite, M. D.*	Commissioner of health.
Atlanta.....	*John P. Kennedy, M. D.....	City health officer.
Augusta.....	Eugene E. Murphy, M. D.....	Health officer.
Brunswick.....	*R. L. DeSaussure, M. D.*	Commissioner of health.
Columbus.....	*J. A. Thrash, M. D.....	Health officer.
Lagrange.....	*C. E. Kinzer, M. D.*	Commissioner of health.
Macon.....	*F. W. Margerum, D. P. H.....	Health officer.
Rome.....	*B. V. Elmore, M. D.*	Commissioner of health.
Savannah.....	*G. F. Brunner, M. D.....	Health officer.
Valdosta.....	*G. T. Crozier, M. D.*	Commissioner of health.
Waycross.....	*John R. Scully, D. V. S.....	Health officer.
Idaho:		
Boise.....	Roscoe C. Ward, M. D.....	City physician.
Pocatello.....	Carl N. Clark, M. D.....	Do.
Illinois:		
Alton.....	Daniel F. Duggan, M. D.....	Health commissioner.
Aurora.....	Geo. W. Haan, M. D.....	Do.
Belleville.....	B. H. Portnoe, M. D.....	Health officer.
Berwyn.....	Arthur MacNeal, M. D.....	Do.
Bloomington.....	*J. M. Furstman, M. D.....	Health director.
Blue Island.....	L. A. Burkhardt.....	Commissioner of health.

* Also health officer for Denver County.

¹⁰ Health officer for city and town.

¹¹ Address, West Haven, Conn.

¹² Also health officer for Clarke County.

¹³ Also health officer for Glynn County.

¹⁴ Also health officer for Troup County.

¹⁵ Also health officer for Floyd County.

¹⁶ Also health officer for Lowndes County.

City.	Name of health officer.	Official title.
Illinois—Continued.		
Calro.....	B. S. Hutchison, M. D.	Health officer and city physician.
Canton.....	W. T. Zeigler, M. D.	City physician.
Centralia.....	J. W. Armstrong, M. D.	Health officer.
Champaign.....	W. E. Schowengerdt, M. D.	Do.
Chicago.....	*John Dill Robertson, M. D.	Commissioner of health.
Chicago Heights.....	G. F. Schreiber, M. D.	Health commissioner.
Cicero.....	Bret L. Vilna, M. D.	Commissioner of health.
Danville.....	W. C. Dixon, M. D.	Health commissioner.
Decatur.....	*W. J. Harding.	Superintendent of health.
East St. Louis.....	*C. W. Laffie, M. D.	Health commissioner.
Elgin.....	*A. J. Volstorff.	Health officer.
Evanston.....	Clarence T. Roome, M. D.	Health commissioner.
Forest Park.....	H. P. A. Carstens, M. D.	Commissioner of health.
Freeport.....	J. A. Soling, M. D.	Health commissioner.
Galesburg.....	E. D. Wing, M. D.	Commissioner of health.
Granite City.....	J. J. Fitzgerald, M. D.	City physician.
Herrin.....	Abe Hicks.	President of board of health.
Jacksonville.....	A. M. King, M. D.	City health physician.
Joliet.....	E. J. Higgins, M. D.	Commissioner of health.
Kankakee.....	*Chas. K. Smith, M. D.	Health officer.
Kewanee.....	H. N. Heflin, M. D.	Commissioner of health.
La Salle.....	*Edmund W. Weis, M. D. ¹⁷	Health commissioner.
Lincoln.....	E. E. Gaffney, M. D.	Health officer.
Mattoon.....	E. E. Richardson, M. D.	Do.
Maywood.....	Harold H. Roberts, M. D.	Do.
Moline.....	*Levin Linblade.	Health inspector.
Murphysboro.....	Frank Reeves.	Commissioner of public health and safety.
Oak Park.....	Frank S. Needham, M. D.	Commissioner of health.
Ottawa.....	*W. A. Pike, M. D.	Health officer.
Pekin.....	L. R. Clary, M. D.	Do.
Peoria.....	E. A. Garrett, M. D.	Commissioner of health.
Quincy.....	*John W. H. Pollard, M. D.	Health officer.
Rockford.....	N. O. Gunderson, M. D.	Commissioner of health.
Rock Island.....	Albert N. Mueller, M. D.	City physician.
Springfield.....	*Albert E. Campbell, M. D.	Superintendent of health.
Streator.....	A. N. McCord, M. D.	President of board of health.
Urbana.....	A. M. Lindley, M. D.	Do.
Waukegan.....	John C. Foley, M. D.	City physician.
Indiana:		
Anderson.....	J. A. Long, M. D.	Secretary of health board.
Bloomington.....	John E. Luzadder, M. D.	Secretary of city board of health.
Clinton.....	E. A. Evans, M. D.	Secretary of board of health.
Crawfordsville.....	Thomas L. Cooksey, M. D. ¹⁸	County health commissioner.
East Chicago.....	J. A. Teegarden, M. D.	Secretary of board of health.
Elkhart.....	L. A. Elliott, M. D.	Do.
Elwood.....	Charles G. Dick, M. D.	Do.
Evansville.....	Porter H. Linthicum, M. D.	Do.
Fort Wayne.....	Maurice R. Lohman, M. D.	Do.
Frankford.....	W. J. Fernald, M. D.	Secretary of city board of health.
Gary.....	Christopher M. Reyher, M. D.	Secretary of board of health.
Hammond.....	W. A. Buchanan, M. D.	Do.
Huntington.....	R. F. Frost, M. D.	Do.
Indianapolis.....	*Herman G. Morgan, M. D.	City sanitarian.
Jeffersonville.....	J. H. Baldwin, M. D.	City health officer.
Kokomo.....	T. C. Cochran, M. D.	Do.
La Fayette.....	A. J. Bauer, M. D.	Secretary of board of health.
Laporte.....	*John Pracher, M. D.	City health officer.
Logansport.....	J. J. Stanton, M. D.	Health officer.
Marion.....	G. R. Daniels, M. D.	Secretary of board of health.
Michigan City.....	E. O. Krueger, M. D.	Health officer.
Mishawaka.....	C. A. Dresch, M. D.	Do.
Muncie.....	Frederick L. Bunch, M. D.	Secretary of city board of health.
New Albany.....	Chester C. Funk, M. D.	Secretary of board of health.
Newcastle.....	Wm. C. Hellman, M. D.	Secretary of city board of health.
Peru.....	L. O. Malsbury, M. D.	Health officer.
Richmond.....	George B. Hunt, M. D.	Secretary of board of health.
South Bend.....	E. G. Fryermuth, M. D.	Do.
Terre Haute.....	Maurice E. Van Cleave, M. D.	Secretary of city board of health.
Vincennes.....	Norman E. Beckes, M. D.	Secretary of board of health.
Whiting.....	Wm. E. Futnam, M. D.	Secretary of department of health.
Iowa:		
Boone.....	William Woodburn, M. D.	Health officer.
Burlington.....	Geo. H. Steinie, M. D.	Health officer and city physician.
Cedar Rapids.....	R. C. Alt, M. D.	City physician.
Clinton.....	Leslie K. Fenlon, M. D.	City health officer.
Council Bluffs.....	Chas. H. Bower, M. D.	Health officer.
Davenport.....	*Harry Fendt.	Do.
Des Moines.....	*H. L. Saylor, M. D.	Health commissioner.
Dubuque.....	*D. C. Steelsmith, M. D., C. P. H.	Health officer.
Fort Dodge.....	J. D. Lowry, M. D.	City health physician.

¹⁷ Health officer for three cities, La Salle, Peru, and Oglesby.¹⁸ Also health officer for Montgomery County.

City.	Name of health officer.	Official title.
Iowa—Continued.		
Fort Madison	Thomas Bess, M. D.	Health officer.
Iowa City	A. W. Bennett, M. D.	Do.
Koosauk	Bruce L. Giffillan, M. D.	Physician to board of health.
Marshalltown	James F. Battin, M. D.	Health officer for local board of health.
Mason City	J. E. McDonald, M. D.	Superintendent of public health and sanitation.
Muscatine	Walter W. Dant, M. D.	Health physician.
Ottumwa	Margaret B. Mills, M. D.	City physician.
Sioux City	C. B. Courshon, M. D.	Health officer.
Waterloo	Harry W. Sigworth, M. D.	City physician.
Kansas:		
Arkansas City	Ernest F. Day, M. D.	Chairman of city board of health.
Atchison	Chas. W. Robinson, M. D.	City and county health officer.
Chanute	R. A. Light, M. D.	City health officer.
Coffeyville	Walter H. Wells, M. D.	City physician and health officer.
Eldorado	*J. W. Buckley	Health officer.
Emporia		
Fort Scott	John C. Lardner, M. D.	Secretary of board of health.
Hutchinson	Guy E. Walker, M. D.	City physician.
Independence	C. O. Shepherd, M. D.	Health officer.
Kansas City	*Louis E. Gleyne, M. D.	Commissioner of health and sanitation.
Lawrence	*Arthur W. Clark, M. D.	Superintendent of public health.
Leavenworth	Chas. J. McGee, M. D.	City health officer.
Parsons	Miel C. Ruble, M. D.	City physician.
Pittsburg	Ralph E. Jenkins, M. D.	City health officer.
Salina	S. T. Blades, M. D.	Health officer.
Topeka	*Earle G. Brown, M. D.	City health officer.
Wichita	*Milton D. Nyberg, M. D.	City physician.
Kentucky:		
Ashland	J. P. Riffe, M. D.	Health officer.
Covington	Ira D. Cosby, M. D.	City health officer.
Henderson	*Chas. H. Voorhies, M. D.	Health officer.
Lexington	Ellis Owen, M. D.	City health officer.
Louisville	John Todd, M. D.	Do.
Newport	*George W. DuVall, M. D.	Director of department of health, of Davies County.
Owensboro		City health officer.
Paducah	H. P. Linn, M. D.	
Louisiana:		
Alexandria	*C. M. Abbott, M. D. ¹⁹	Director of public health.
Baton Rouge	Philip H. Jones, M. D.	President of board of health.
Lake Charles	*G. C. McKinney, M. D.	Do.
Monroe	D. I. Hirsch, M. D.	Do.
New Orleans	John Callan, M. D. ²⁰	Superintendent of public health.
Shreveport	G. C. Chandler, M. D.	President of board of health.
Maine:		
Auburn	*Leo F. Hall, M. D.	Local health officer.
Augusta	George A. Coombs, M. D.	Health officer.
Bangor	*Harry D. McNeal, M. D.	Do.
Bath	*Chester S. Kingsley, M. D.	Do.
Biddeford	John W. Mahoney	Local health officer.
Lewiston	*L. J. Dumont, M. D.	Health officer.
Portland	*Thomas Tetreau, M. D.	Do.
Sanford	*C. W. Blagden, M. D.	Do.
Waterville	*Wm. J. Young, M. D. ²¹	Do.
Maryland:		
Annapolis	Joseph C. Joyce, M. D.	Do.
Baltimore	*C. Hampson Jones, M. D.	Commissioner of health.
Cumberland	*Harvey H. Weiss	Health officer.
Frederick	J. M. Goodman, M. D.	City health officer.
Hagerstown	S. M. Wagaman, M. D. ²²	Health officer.
Massachusetts:		
Adams		
Amesbury		
Arlington	Wm. H. Bradley	Agent and clerk for board of health.
Attleboro	Ralph P. Kent, M. D.	Health officer.
Belmont	Thomas F. Harris	Agent of board of health.
Beverly	*Alonzo O. Woodbury	Agent and clerk.
Boston	*William C. Woodward, M. D.	Health commissioner.
Braintree	Walter B. Skinner	Chairman of board of health.
Brookton	Fred J. Ripley, M. D.	Health officer.
Brookline	Francis P. Deunay, M. D.	Do.
Cambridge	*S. B. Kelleher, M. D.	Medical inspector.
Chelsea	*Wm. J. Randall	Health officer.
Chicopee	*Chas. J. O'Brien	Agent of board of health.
Clinton	*Frederick E. Murphy	Health officer.
Danvers	*Hugo Nappe	Do.
Dedham	John W. Pratt, M. D.	Secretary of board of health.
Dorchester	Clemence C. Buckner	Health officer.

¹⁹ Also health officer for Rapides Parish.²⁰ Also health officer for Orleans Parish.²¹ Also health officer for Winslow and Vassalboro, Me.²² Also health officer for Washington County.

City.	Name of health officer.	Official title.
Massachusetts—Contd.		
Everett.....	*William Gess.....	Agent of board of health.
Fall River.....	*Samuel B. Morris.....	Do.
Fitchburg.....	*Fred R. Brigham.....	Do.
Framingham.....	*Fred Stone Dedson.....	Executive officer.
Gardner.....	*William F. O'Donnell.....	Health officer.
Gloucester.....	*William E. Tucker.....	Agent of board of health.
Greenfield.....	*George F. Moore.....	Health agent.
Haverhill.....	*George T. Lennon.....	Agent and clerk.
Holyoke.....	*J. Sidney Wright.....	Health officer.
Lawrence.....	*Edward C. Callahan.....	Director of public health.
Leominster.....	C. E. Bigelow, M. D.....	Health officer.
Lowell.....	*Francis J. O'Hare.....	Agent of board of health.
Lynn.....	Michael R. Donovan, M. D.....	Commissioner of public health.
Malden.....	Chas. E. Prior, M. D.....	Chairman of board of health.
Marlboro.....	*John J. Cassidy.....	Agent of board of health.
Medford.....	Paul Haley, M. D.....	Inspector for board of health.
Melrose.....	Clarence F. Holden, M. D.....	Chairman of board of health.
Methuen.....	*George Hart.....	Health officer.
Millford.....	James J. Birmingham.....	Sanitary inspector.
Natick.....	William J. Cochran, M. D.....	Chairman of board of health.
New Bedford.....	William G. Kirschbaum.....	Agent and executive officer.
Newburyport.....	*William Thurston.....	Agent and clerk.
Newton.....	*Francis Geo. Curtis, M. D.....	Chairman of board of health.
North Adams.....	*Douglas W. Hyde.....	Agent of board of health.
Northampton.....	*George R. Turner.....	Do.
Northbridge.....	W. E. Babner, M. D.....	Physician for board of health.
Norwood.....	James J. Mulvehill, D. V. S.....	Agent of board of health.
Peabody.....	*James J. Ray.....	Health agent.
Pittsfield.....	A. L. Stone, M. D.....	Health officer.
Plymouth.....	George H. Jackson, M. D.....	Physician for board of health.
Quincy.....	Fred E. Jones, M. D.....	Commissioner of health.
Revere.....	*Joseph E. Lamb, M. D.....	Agent of board of health.
Salem.....	*John J. McGrath.....	Do.
Saugus.....	Chas. E. Light.....	Chairman of board of health.
Somerville.....	*Frank L. Morse, M. D.....	Medical inspector.
Southbridge.....	*Albert R. Brown.....	Agent of board of health.
Springfield.....	*William L. Young.....	Do.
Taunton.....	Thomas F. Cusick, M. D.....	Chairman of board of health.
Wakefield.....	David Taggart.....	Health officer.
Waltham.....	C. B. Fulcr, M. D.....	Director of public welfare.
Watertown.....	*John W. Tapper.....	Health officer and agent of board of health.
Webster.....	Myron Cutler, M. D.....	Agent of board of health.
West Springfield.....	J. J. Lysaght.....	Do.
Westfield.....	Robert M. Marr, M. D.....	Chairman of board of health.
Weymouth.....	F. L. Doucett, M. D.....	Clerk of board of health.
Winchester.....	*Maurice Dinneen.....	Health officer and agent of board of health.
Winthrop.....	*Smith A. Mowry.....	Do.
Woburn.....	*Edward F. Gorman.....	Agent and secretary of board of health.
Worcester.....	*James C. Coffey.....	Executive officer.
Michigan:		
Adrian.....	J. P. Bland, M. D.....	Health officer.
Alpena.....	D. A. Cameron, M. D.....	Health physician.
Ann Arbor.....	John A. Wessinger, M. D.....	Health officer.
Battle Creek.....	*A. A. Hoyt, M. D.....	Health officer and city physician.
Bay City.....	J. William Gustin, M. D.....	Health officer.
Benken Harbor.....	E. R. Taylor, M. D.....	Do.
Detroit.....	*Henry F. Vaughan, C. E., D. P. H.....	Commissioner of health.
Escanaba.....	Harry J. Defnet, M. D.....	Health officer.
Flint.....	*William De Kleine, M. D.....	Do.
Grand Rapids.....	*C. C. Slemmons, M. D.....	Do.
Hamtramck.....	T. T. Dysarz, M. D.....	Do.
Highland Park.....	William N. Braley, M. D.....	Do.
Holland.....	Wm. C. Kools, M. D.....	Do.
Ironwood.....	*Clarence W. Olsen, M. D.....	Health officer and sanitary engineer.
Ishpeming.....	*David Littlejohn, M. D.....	Health officer.
Jackson.....	*Harry B. Neagle, M. D., C. P. H.....	Health officer and director of hospitals.
Kalamazoo.....	*A. H. Rockwell, M. D.....	Health officer and director of public health and welfare.
Lansing.....	*S. R. Hill, M. D.....	Health officer.
Marquette.....	*Chas. P. Drury, M. D.....	Do.
Monroe.....		
Muskegon.....	*Cornelius J. Addison, M. D.....	City health officer.
Owosso.....	W. E. Ward, M. D.....	Do.
Pontiac.....	*Chas. A. Neafie, M. D.....	Director of public health.
Port Huron.....	W. J. Duff, M. D.....	Health officer.
Saginaw.....	*George F. Clark, M. D.....	Do.
Sault Ste. Marie.....	*John J. Griffin, M. D.....	City health officer.
Traverse City.....	George A. Holliday, M. D.....	Health officer.
Wyandotte.....	T. J. Langlois, M. D.....	City physician.

City.	Name of health officer.	Official title.
Minnesota:		
Austin	Chas. F. Lewis, M. D.	Chairman of board of health.
Duluth	Edw. W. Fahey, M. D.	Director of public health.
Faribault	W. H. Robilliard, M. D.	Health officer.
Hibbing	C. F. Carstens, M. D.	Do.
Mankato	A. F. Kemp, M. D.	Health commissioner.
Minneapolis	*Francis E. Harrington, M. D.	Commissioner of public health.
Rochester	C. H. Mayo, M. D.	City health officer.
St. Cloud	*Paul Schorer	Sanitary officer.
St. Paul	*Benjamin F. Simon, M. D.	Chief health officer.
Virginia	Holland T. Ground, M. D.	Health officer.
Winona	William V. Lindsay, M. D.	Do.
Mississippi:		
Biloxi	*George F. Carroll, M. D.	City health officer.
Columbus	T. H. Henry, M. D. ²³	County health officer.
Greenville	A. J. Ware, M. D. ²⁴	Do.
Hattiesburg	*B. F. Moseley, M. D.	Do.
Jackson		
Laurel	C. M. Hyde, M. D.	City health officer.
Meridian	R. J. Wilson, M. D. ²⁵	County health officer.
Natches		
Vicksburg	Sylvan Myers, M. D.	Health officer.
Missouri:		
Cape Girardeau	J. W. Pearson	Do.
Carthage	H. A. La Force, M. D.	City health officer.
Columbia	W. A. Norris, M. D.	Acting health officer.
Hannibal		
Independence	H. A. Schroeder, M. D.	City physician.
Jefferson City	L. David Enloe, M. D.	Do.
Joplin	Moses B. Harutun, M. D.	Commissioner of health and sanitation.
Kansas City	*E. H. Bullock, M. D.	Health director.
Moherly	C. H. Dixon, M. D.	City health commissioner.
St. Joseph	George M. Boteler, M. D.	Health officer.
St. Louis	*Max C. Starkloff, M. D.	Health commissioner.
Sedalia	*C. W. Lettwich	Sanitary officer.
Springfield	*Ed. S. Finch	Health commissioner.
Montana:		
Anaconda	O. C. Evans, M. D. ²⁶	Secretary county board of health.
Billings	*Roscoe C. Main, M. D. ²⁷	Health officer.
Butte	Frank J. Williams, M. D.	Do.
Great Falls	*Aloysius N. J. Dolan, M. D. ²⁸	Secretary of board of health.
Helena		
Missoula	*F. D. Pease, M. D.	Health officer.
Nebraska:		
Grand Island	Frank D. Ryder, M. D.	City physician.
Hastings		
Lincoln	*Chauncey F. Chapman, M. D.	Superintendent of health.
North Platte	Claude A. Selby, M. D.	City physician.
Omaha	A. S. Pinto, M. D.	Health commissioner.
Nevada:		
Reno	W. L. Samuels, M. D.	Secretary of board of health.
New Hampshire:		
Berlin	*Richard H. Coombs	Health officer.
Concord	*Chas. E. Palmer	Sanitary officer.
Dover	*William E. Whiteley	Executive officer.
Keene	*Arthur E. Burke, C. P. H.	Health officer.
Laconia	W. H. True, M. D.	Do.
Manchester	*Howard A. Streeter, M. D.	Do.
Nashua	Patrick J. McLaughlin, M. D.	Chairman of board of health.
Portsmouth	George A. Trelick, M. D.	Health officer.
New Jersey:		
Asbury Park	*B. H. Obert	Do.
Atlantic City	Samuel L. Salasin, M. D.	Do.
Bayonne	William W. Brooke, M. D.	Do.
Belleville	W. Brand Smith	Do.
Bloomfield	Joseph C. Sallie, M. D.	Do.
Bridgeton	*Chas. E. Bellows, Ph. G.	Sanitary inspector.
Camden	*John F. Leavitt, M. D.	Health officer.
Clifton	Jeremiah F. Quinlan	Health inspector.
East Orange	*T. Dudley Ballinger	Health officer.
Elizabeth	*Louis J. Richards	Do.
Englewood	*John A. Manson	Sanitary inspector.
Garfield	Chas. B. Bleasby, M. D.	Health officer.
Gloucester City	J. Alonza Beck, M. D.	Do.
Hackensack	George W. Finke, M. D.	Do.
Harrison	*John T. McClure	Do.
Hoboken	Joseph F. K. Stack, M. D.	Commissioner of health.

²³ Also health officer for Lowndes County.²⁴ Also health officer for Washington County.²⁵ Also health officer for Lauderdale County.²⁶ Also health officer for Deer Lodge County.²⁷ Also health officer for Yellowstone County.²⁸ Also health officer for Cascade County.

City.	Name of health officer.	Official title.
New Jersey—Continued.		
Irvington.....	*Joseph K. Ciekenger.....	Health officer.
Jersey City.....	*James J. Hagan.....	Do.
Kearny.....	*Henry V. Amerman.....	Do.
Long Branch.....	*R. Clifford Errickson.....	Do.
Millville.....		
Montclair.....	*Herbert B. Lerner.....	Do.
Morristown.....	*John F. Kilkenny.....	Sanitary inspector.
New Brunswick.....	R. I. Cronk, M. D.....	Health officer.
Newark.....	*Chas. V. Craster, M. D., D. P. H.....	Do.
Orange.....	*John O'Brien.....	Do.
Passaic.....	John N. Ryan, M. D.....	Do.
Paterson.....	*J. Alexander Browne, M. D.....	Do.
Perth Amboy.....	*Chas. S. Thompson, D. V. S.....	Do.
Phillipsburg.....	Alma L. Williston, M. D.....	Do.
Plainfield.....	*N. J. Randolph Chandler.....	Do.
Rahway.....	*Fred M. Williams.....	Executive officer.
Roosevelt.....	Joseph Wantock, M. D.....	Health officer.
Summit.....	Henry P. Dengler, M. D.....	Acting health officer.
Trenton.....	Alton S. Fell, M. D.....	Health officer.
Union.....	Grant P. Curtis, M. D.....	Do.
West Hoboken.....	*Frank A. Frederick.....	Do.
West New York.....	*Rudolph Kunre.....	Chief health inspector.
West Orange.....	*David E. Buckley.....	Health officer.
New Mexico:		
Albuquerque.....	*J. F. Doherty, M. D. ²⁹	Director of public health.
New York:		
Albany.....	Arthur Sautter, M. D.....	Health officer.
Amsterdam.....	H. M. Hicks, M. D.....	Do.
Auburn.....	Thomas C. Sawyer, M. D.....	Do.
Batavia.....	John W. Baker, M. D.....	Do.
Beacon.....		
Binghamton.....	C. J. Longstreet, M. D.....	Do.
Buffalo.....	*Francis E. Fronczak, M. D.....	Health commissioner.
Cohoes.....	John Archibold, M. D.....	Health officer.
Corning.....	Frank S. Swain, M. D.....	Do.
Cortland.....	A. C. Knapp, M. D.....	Do.
Dunkirk.....	George E. Ellis, M. D.....	Do.
Elmira.....	Reeve B. Howland, M. D.....	City health officer.
Fulton.....	E. J. Drury, M. D.....	Health officer.
Geneva.....	Chauncy W. Grove, M. D.....	Do.
Glens Falls.....	*Virgil D. Selleck, M. D.....	Do.
Gloversville.....	Alex. L. Johnson, M. D.....	Do.
Herkimer.....	A. L. Fagan, M. D.....	Do.
Hornell.....	B. R. Wakeman, M. D.....	Do.
Hudson.....	William D. Collins, M. D.....	Do.
Ilion.....	Frank B. Conterman, M. D.....	Do.
Ithaca.....	H. H. Crum, M. D.....	Do.
Jamestown.....	*John J. Mahoney, M. D.....	Superintendent of public health.
Johnstown.....	Frank N. Neurendorf, M. D.....	Health officer.
Kingston.....	Frank A. Johnston, M. D.....	Do.
Lackawanna.....	Alois Joki, M. D.....	Health physician.
Little Falls.....	George S. Eveleth, M. D.....	Health officer.
Lockport.....	Thomas E. Spalding, M. D.....	City physician.
Middletown.....	J. L. Hamner, M. D.....	Health officer.
Mount Vernon.....	John H. Tallman, M. D.....	Do.
Newburgh.....	Thomas J. Burke, M. D.....	Do.
New Rochelle.....	*Edwin H. Coddling, M. D.....	Do.
New York.....	*Royal S. Copeland, M. D.....	Commissioner of health.
Niagara Falls.....	J. L. Bishop, M. D.....	Health officer.
North Tonawanda.....	*Thomas P. C. Barnard, M. D.....	Do.
Ogdensburg.....	J. W. Benton.....	Do.
Olean.....	J. A. Johnson, M. D.....	Do.
Oneida.....	George F. Mills, M. D.....	Do.
Oneonta.....	George W. Augustin, M. D.....	Do.
Ossining.....	Amos O. Squire, M. D.....	Do.
Oswego.....	James E. Mansfield, M. D.....	Do.
Peekskill.....	Fred A. Snowden, M. D.....	Do.
Plattsburg.....	Joseph Henry Lakeoque, M. D.....	Do.
Port Chester.....	W. J. Sheehan, M. D.....	Do.
Port Jervis.....	G. Otto Pobe, M. D.....	Do.
Poughkeepsie.....	*Heien L. Paliser, M. D.....	Do.
Rensselaer.....	*	
Rochester.....	*G. W. Goler, M. D.....	Do.
Rome.....	Howard D. MacFarland, M. D.....	City health officer.
Saratoga Springs.....	A. Sherman Downs, M. D.....	Health officer.
Schenectady.....	J. H. Collins, M. D.....	Do.
Syracuse.....	Henry A. MacGruer, M. D.....	Commissioner of health.
Tonawanda.....	John T. Harris, M. D.....	Health officer.
Troy.....	Melville D. Dickinson, M. D.....	Do.
Utica.....	Hugh H. Shaw, M. D.....	Do.
Watertown.....	*Isaac W. Brewer, M. D.....	Do.

²⁹ Also health officer for Bernalillo County.

City.	Name of health officer.	Official title.
New York—Continued.		
Watervliet.....	Wm. B. D. Van Auken, M. D.....	Health officer.
White Plains.....	Edwin G. Ramsdell, M. D.....	Do.
Yonkers.....	C. W. Buckmaster, M. D.....	Commissioner of public health.
North Carolina:		
Asheville.....	C. V. Reynolds, M. D.....	Health officer.
Charlotte.....	*Wilbur A. McPhaul, M. D.....	City health officer.
Durham.....	*Arch Chestham, M. D.....	Superintendent of health.
Gastonia.....	C. J. McComb, M. D.....	Health officer.
Goldsboro.....	*Hickman Ray, M. D.*	Do.
Greensboro.....	*William M. Jones, M. D.....	County health officer.
High Point.....	W. J. McAnally, M. D.....	City physician.
New Bern.....	*W. D. Gilmore, M. D.....	Health officer.
Raleigh.....	*E. F. Long, M. D.*	Do.
Rocky Mount.....	*H. Lee Large, M. D.....	Superintendent of department of health.
Salisbury.....	*C. W. Armstrong, M. D.* ²²	Health officer.
Wilmington.....	*John H. Hamilton, M. D.* ²³	County health officer.
Wilson.....	*L. J. Smith, M. D.....	City and county health officer.
Winston-Salem.....	*R. L. Carlton, M. D.....	City health officer.
North Dakota:		
Fargo.....	F. O. Gronvold, M. D.....	Health officer.
Grand Forks.....	E. C. Haagensen, M. D.....	City health officer.
Minot.....	*	
Ohio:		
Akron.....	*Donald D. Shira, M. D.....	Director of health.
Alliance.....	Floyd R. Stamp, M. D.....	City health commissioner.
Ashtabula.....	Azro J. Pardee, M. D.....	Health officer.
Barberton.....	W. A. Mansfield, M. D.....	Health commissioner.
Bellaire.....	*D. W. Boone, M. D.....	Do.
Bucyrus.....	A. H. McCrory, M. D.....	Commissioner of health.
Cambridge.....	O. F. Lowry, M. D.....	Health commissioner.
Canton.....	*Margaretta McAbee.....	Acting health officer.
Chillicothe.....	*G. E. Robbins, M. D.* ²⁴	Commissioner of health.
Cincinnati.....	*Wm. H. Peters, M. D.....	Health commissioner.
Cleveland.....	*Harry L. Rockwood, M. D.....	Do.
Cleveland Heights.....		
Columbus.....	W. L. Dick, M. D.....	Acting health officer.
Coshocton.....	Glenn E. Smith.....	Health commissioner.
Cuyahoga Falls.....	*W. W. Seupholm.....	Deputy sanitary officer.
Dayton.....	*A. O. Peters, M. D.....	Health commissioner.
East Cleveland.....	G. W. Stober, M. D.....	Director of health.
East Youngstown.....	John D. Boylan, M. D.* ²⁵	District health commissioner.
Elyria.....	G. E. French, M. D.....	Health commissioner.
Findlay.....	*Amos Beardsley.....	Commissioner of health.
Fremont.....	E. L. Vermilya, M. D.....	Do.
Hamilton.....	M. F. Vereker, M. D.....	Health commissioner.
Ironton.....	E. E. Wells, M. D.....	Do.
Kenmore.....	*Donald D. Shira, M. D.....	County health commissioner.
Lakewood.....		
Lancaster.....	C. H. Hamilton, M. D.....	Health commissioner.
Lima.....	J. B. Poling, M. D.....	Do.
Lorain.....	Valloyd Adair, M. D.....	Do.
Mansfield.....	John Maglott, M. D.....	Do.
Marietta.....	J. W. Donaldson, M. D.....	Do.
Marion.....	*Chas. M. Tobin, M. D.....	Do.
Martins Ferry.....	*W. S. Tilton.....	City health commissioner.
Massillon.....	*T. Clarke Miller, M. D.....	Health commissioner.
Middletown.....	G. D. Lummis, M. D.....	Do.
Newark.....	W. H. Morgan, M. D.....	Do.
New Philadelphia.....	Joseph Blickensderfer, M. D.....	Do.
Niles.....	W. A. Werner, M. D.....	Do.
Norwood.....	*Harry J. Wittenberg, M. D.....	Do.
Piqua.....	J. H. Lowe, M. D.....	Do.
Portsmouth.....	Oral D. Talje, M. D.....	Do.
Salem.....	*R. M. Schwartz, M. D.* ²⁶	Do.
Sandusky.....	W. C. Schoeffe, M. D.....	Director of public health.
Springfield.....	Rush R. Richison, M. D.* ²⁷	Do.
Steubenville.....	*Theodore W. Smith.....	Health commissioner.
Tiffin.....	J. A. Gosling, M. D.....	Do.
Toledo.....	Chester W. Waggoner, M. D.....	Commissioner of health.
Warren.....	George N. Simpson, M. D.....	Do.
Youngstown.....	H. E. Welch, M. D.....	Do.
Zanesville.....	G. W. McCormick, M. D.....	Do.

²² Also health officer for Wayne County.²³ Also health officer for Wake County.²⁴ Also health officer for Rowan County.²⁵ Also health officer for New Hanover County.²⁶ Also health commissioner for Ross County.²⁷ Also health commissioner of Mahoning County General Health District.

Also health commissioner for Columbiana County.

Also commissioner for Clark County board of health.

City.	Name of health officer.	Official title.
Oklahoma:		
Ardmore.....	Walter Hardy, M. D. ²	County health officer.
Bartlesville.....	G. F. Woodring, M. D.	City superintendent of health.
Chickasha.....	E. L. Dawson, M. D.	Do.
Enid.....	*Walter H. McKenzie, M. D. ²	Health officer.
Guthrie.....	Eugene O. Barker, M. D.	City physician.
McAlester.....	W. C. Graves, M. D. ²	City health physician.
Muskogee.....	F. W. Ewing, M. D.	City superintendent of health.
Oklahoma City.....	*A. R. Lewis, M. D.	State health commissioner.
Oklmulgee.....	*Fred S. Watson, M. D.	Health officer.
Sapulpa.....	C. B. Reese, M. D.	City health officer.
Shawnee.....	J. H. Scott, M. D.	City superintendent of health.
Tulsa.....	L. C. Presson, M. D.	Superintendent of health.
Oregon:		
Astoria.....	Nellie S. Vernon, M. D.	City health officer.
Eugene.....	S. M. Kerron, M. D. ⁴	County health officer.
Medford.....	*	
Portland.....	*George Parrish, M. D.	City health officer.
Salem.....	R. E. Pomeroy, M. D.	Do.
Pennsylvania:		
Allentown.....	*I. Treichler Butz, M. D.	Health officer.
Altoona.....	*T. G. Herbert.	Chief of division of health.
Ambridge.....	*Louis Herrmann.	Health officer.
Beaver Falls.....	*Frank A. Weber.	Do.
Berwick.....	*P. T. Grah.	Do.
Bethlehem.....	S. E. Rauch, M. D.	Do.
Braddock.....	*James R. Wills.	Do.
Bradford.....	*Sylvester J. Rusch.	Do.
Bristol.....	*John M. Wright.	Do.
Butler.....	*H. M. Stanley.	Do.
Canonsburg.....	*William Caldwell.	Do.
Carbondale.....	*P. F. Langan.	Sanitary officer.
Carlisle.....	*A. P. Litzman.	Health officer.
Carnegie.....	*A. A. Tarter.	Do.
Carrick.....	Wm. F. Bauman.	Do.
Chambersburg.....	Walter J. Fahnestock.	City health inspector.
Charleroi.....	*W. M. Darby.	Health inspector.
Chester.....	Jas. MacIntyre.	Health officer.
Coatesville.....	*Joseph M. Rea.	Do.
Columbia.....	Henry B. Clepper.	Do.
Connellsville.....	*George Hetzel.	Sanitary police.
Dickson City.....	A. S. Cantor, M. D.	Deputy county medical director.
Dopora.....	*J. B. McCame.	Health officer.
Dubois.....	Luther W. Quinn, M. D.	City physician.
Dunmore.....	Herbert E. Castello.	Health officer.
Duquesne.....	*John Butler.	Do.
Easton.....	J. James Condran, M. D.	City health officer.
Erie.....	J. W. Wright, M. D.	Health officer.
Farrell.....	*Wm. C. Heinze.	Do.
Greensburg.....	*T. Ray Hunter.	Do.
Harrisburg.....	John M. J. Raunick, M. D.	Secretary and director.
Hazleton.....	*P. J. Bommer.	Health officer.
Homestead.....	*James L. King.	Do.
Jeannette.....	*A. T. Coon.	Chief health officer.
Johnstown.....		
Lancaster.....	*James H. Deen.	Health officer.
Lebanon.....	E. H. Gingrich, M. D.	Do.
McKeesport.....	Daniel Stratton.	Superintendent of public safety.
McKee's Rocks.....	*B. V. Anderson.	Health officer.
Mahanoy City.....	*John Sullivan.	Do.
Meadville.....		
Monessen.....	*B. H. Clendenon.	Do.
Mount Carmel.....	*Fred Gross.	Do.
Nanticoke.....	*Felix Grygo.	Do.
New Castle.....	William L. Steen, M. D.	Do.
New Kensington.....	*A. L. Davis.	Do.
Norristown.....	*Chas. E. White.	Secretary and health officer.
North Braddock.....	*Robert M. Sylves.	Health officer.
Oil City.....	*W. J. Lewis.	Do.
Old Forge.....	*Luigi Marsiliano.	Do.
Olyphant.....	*James L. O'Malley.	Do.
Philadelphia.....	*C. Lincoln Furbush, M. D.	Director of department of public health.
Phoenixville.....	Chas. F. Fisher.	Health officer.
Pittsburgh.....	*William H. Davis.	Director of department of public health.
Pittston.....	*Thomas F. Tracey.	Health officer.
Plymouth.....	H. G. Templeton, M. D.	Do.
Pottstown.....	*Clymer Missimer.	Do.
Pottville.....	*O. L. Kleckner.	Do.

² Also health officer for Carter County.

³ Also health officer for Garfield County.

⁴ Also health officer for Pittsburgh County.

⁵ Also health officer for Lane County.

City.	Name of health officer.	Official title.
Pennsylvania—Contd.		
Punxsutawney	*Ira J. Hain, M. D.	Health officer.
Reading	N. E. Newbury, M. D.	Director of department of public health.
Scranton		
Shamokin		
Sharon	C. H. Moses, M. D.	Health officer.
Shenandoah	*Cyrus Geise	Do.
Steelton	*E. G. Butler	Do.
Sunbury	*Victor A. Koble	Do.
Swissvale	*E. T. Roberts	Do.
Tamaqua	Lamont Perrine	Do.
Uniontown	*Wm. C. Hall	Do.
Warren	*Ralph N. Brown	Do.
Washington	*J. G. Dinsmore	Do.
West Chester	*Enoch P. Hershey	Do.
Wilkes-Barre		
Wilkinsburg	*J. M. Snyder	Do.
Williamsport	Clarence E. Shaw, M. D.	Do.
Woodlawn	*Jas. E. Tanner	Do.
York	J. Frank Small, M. D.	Director of public health.
Rhode Island:		
Bristol	John H. Magee	Health officer.
Central Falls	A. R. V. Fenwick, M. D.	Superintendent of health.
Cranston	Daniel S. Latham, M. D.	Superintendent of health and city physician.
Cumberland	A. Woodhead, M. D.	Health officer.
East Providence	Irving W. Slack, M. D.	Do.
Newport	*J. W. Sampson	Executive officer of board of health.
Pawtucket	Charles H. Holt	Superintendent of health.
Providence	*Chas. V. Chapin, M. D.	Do.
Warwick	Ralph Fred Lockwood, M. D.	Health officer.
West Warwick	T. F. Darby, M. D.	Do.
Woonsocket	Thomas J. McLaughlin, M. D.	Do.
South Carolina:		
Anderson	*James Carl Mitchell, V. M. D.	Do.
Charleston	*J. Mercier Green, M. D.	Do.
Columbia	*Jean B. La Borde, M. D.	City health officer.
Florence	*C. C. Craft, M. D.	Health officer.
Greenville	*Clarence E. Smith, D. V. S.	Commissioner of health.
Spartanburg	*Wm. O. Wrightson, M. D.	Director of health.
South Dakota:		
Aberdeen	*J. H. Swafford, M. D. ^a	Superintendent board of health.
Sioux Falls	*W. M. Barnes, M. D.	Director of public health.
Tennessee:		
Chattanooga	E. B. Wise, M. D.	Director of health.
Jackson		
Johnson City	J. P. Randall, M. D.	Health officer and city physician.
Knoxville	Wm. R. Cochran, M. D.	Director of department of health.
Memphis	J. J. Durrett, M. D.	Superintendent of health.
Nashville	*W. E. Hibbett, M. D.	City health officer.
Texas:		
Abilene	W. Auda Vee Cash, M. D. ^a	City and county health officer.
Amarillo	R. M. Walker, M. D.	City health officer.
Austin	*C. H. Brownlee, M. D.	Do.
Beaumont	D. McMickin, M. D.	Do.
Brownsville	W. E. Spivey, M. D.	Do.
Cleburne	Wm. E. Lucey, M. D.	Do.
Corpus Christi	W. E. Wills, M. D.	Do.
Corsicana	T. B. Sadler, M. D.	Health officer.
Dallas	*Wilson T. Davidson, M. D.	Director of public health.
Del Rio	B. F. Orr, M. D.	City health officer.
Denison	W. T. Booth, M. D.	Health officer.
El Paso	Hugh S. White, M. D.	City health officer.
Fort Worth	A. W. Montague, Jr., M. D.	City health officer and city physician.
Galveston	W. L. Hoecker, M. D.	City health physician.
Greenville	J. J. Handley, M. D.	City health officer.
Houston	*A. H. Flickwir, M. D.	Health officer.
Laredo	H. M. Austin, M. D.	City health officer.
Marshall	Chas. E. Heartsill, M. D.	Do.
Palestine		
Paris	Lucian Nicholson, M. D.	Do.
Port Arthur	A. S. Pollock, M. D.	Do.
Ranger	C. O. Terrell, M. D.	Health officer.
San Antonio	W. A. King, M. D.	Do.
Sherman		
Temple	T. F. Bunkley, M. D.	City health officer.
Texarkana	William Hibbitts, M. D.	Do.
Tyler	Albert Woldert, M. D.	Do.
Waco	R. F. Minnock, M. D.	Health officer.
Wichita Falls	W. P. Lowry, M. D.	City health officer.

^a Also superintendent of Brown County board of health.^a Also health officer of Taylor County.^a Also health officer of Navarro County.

City.	Name of health officer.	Official title.
Utah:		
Ogden.....	*Roy H. Wilson, M. D. *	Supervisor of public health.
Provo.....	Walter T. Hasler, M. D.	City physician.
Salt Lake City.....	W. Christopherson, M. D.	Health commissioner.
Vermont:		
Barre.....	*Clarence H. Burr, M. D. *	District health officer.
Burlington.....	*Chas. A. Ravey, M. D.	Health officer.
Rutland.....	*Bern D. Colby, M. D.	Health officer, district No. 7.
Virginia:		
Alexandria.....	*Louis E. Folks, M. D.	City health officer.
Charlottesville.....	*R. L. Robertson, M. D.	Health officer.
Danville.....	*R. W. Garnett, M. D.	Do.
Lynchburg.....	*Mosby G. Perrow	Director of public health.
Newport News.....	*Coleman B. Ransone, M. D.	Health officer.
Norfolk.....	*P. S. Schenck, M. D.	Health commissioner.
Petersburg.....	Robert A. Martin, M. D.	Health officer.
Portsmouth.....	*Lonsdale J. Roper, M. D.	Director of public welfare.
Richmond.....	*C. C. Hudson, M. D.	Health officer.
Roanoke.....	*W. Brownley Foster, M. D.	Do.
Staunton.....	John E. Womack, M. D.	Do.
Washington:		
Aberdeen.....	John B. Kinne, M. D.	Health officer and city physician.
Bellingham.....	W. W. Ballaine, M. D.	City health officer.
Everett.....	I. W. Parsons, M. D.	Do.
Seattle.....	*H. M. Read, M. D.	Commissioner of health.
Spokane.....	*Ralph Hendricks, M. D.	Health officer.
Tacoma.....	*P. H. Brenton, M. D.	Do.
Vancouver.....	J. M. P. Chalmers, M. D. *	City and county health officer.
Walla Walla.....	*E. L. Botts, M. D.	Do.
Yakima.....	*H. H. Smith, M. D.	Do.
West Virginia:		
Bluefield.....	*J. E. Martin, M. D.	Health officer.
Charleston.....	R. A. Ireland, M. D.	Health commissioner.
Clarksburg.....		
Fairmont.....	H. L. Criss, M. D.	Health officer and city physician.
Huntington.....	A. J. Pickering, M. D.	Health officer.
Martinsburg.....	A. Bruce Eagle, M. D. *	Health commissioner.
Morgantown.....	R. H. Edmondson, M. D.	Health officer.
Moundsville.....	J. H. Laikart, M. D.	Do.
Parkersburg.....	W. B. Richardson, M. D.	Do.
Wheeling.....	J. E. Marschner, M. D.	Health commissioner.
Wisconsin:		
Appleton.....	*H. E. Ellsworth, M. D.	Health officer.
Ashland.....	Geo. W. Harrison, M. D.	Health commissioner.
Beloit.....	*Lewis M. Field, M. D.	Health officer.
Eau Claire.....	J. F. Farr, M. D.	Executive officer.
Fond du Lac.....	Arthur C. Dama, M. D.	City health officer.
Green Bay.....	*Fabian J. Gosin, M. D.	City physician and health officer.
Janesville.....	Fred B. Welch, M. D.	City health officer.
Kenosha.....	*G. Windesheim, M. D.	Commissioner of public health.
La Crosse.....	*Anthony Murphy	Health officer.
Madison.....	H. E. Purcell, M. D.	Do.
Manitowoc.....	Max Staehle, M. D.	Commissioner of health.
Marinette.....	S. Burghund, M. D.	Health officer.
Milwaukee.....	*Geo. C. Ruhland, M. D.	Commissioner of health.
Oshkosh.....	*Bertha V. Thomson, M. D.	Do.
Racine.....	*William W. Johnston	Health officer.
Sheboygan.....	H. C. Reich, M. D.	Commissioner of public health.
Stevens Point.....	F. A. Southwick, M. D.	Health officer.
Superior.....	P. G. McGill, M. D.	Do.
Waukesha.....	Geo. F. Peterson, M. D.	Health commissioner.
Wausau.....	*C. D. Partridge, M. D.	Health officer.
West Allis.....	*Samuel C. McCorkle, M. D.	Health commissioner.
Wyoming:		
Casper.....	*Joseph F. O'Donnell, M. D.	County and city health officer.
Cheyenne.....	*Albert B. Tonkin, M. D.	State health officer.

* Also supervisor of public health of Weber County.

* Address Montpelier, Vt.

* Also health officer for Clarke County.

* Also health officer for Berkeley County.

* Also health officer for Natrona County.

PREVALENCE OF DIPHTHERIA AND POLIOMYELITIS.

The accompanying tables give the number of cases of diphtheria and poliomyelitis (infantile paralysis) reported to the Public Health Service by State health officers from July 10 to October 8, 1921, inclusive.^a States omitted are those from which no reports have been received or which have reported no diphtheria or poliomyelitis during the period covered. Leaders indicate that reports were received, but that no cases of these diseases were reported.

Diphtheria—Number of cases of diphtheria occurring in various States, as reported to the Public Health Service by the State health officers in weekly telegraphic or mail reports.

State.	Week ended (1921)—												
	July—			August—				September—				October—	
	16	23	30	6	13	20	27	3	10	17	24	1	8
Alabama.....	16	.....	13	23	18	47	64	55	50	60	58	60	92
Arkansas.....	4	5	14	10	20	19	16	20	9	20	29	17	29
Colorado ¹	32	13	24	7	47	32	9	52	43	33	29	44	47
Connecticut.....	35	44	34	24	19	35	49	57	50	40	66	70	.....
Delaware.....	3	(²)	(²)	1	4	2	1	6	(²)	3	1	9	.....
District of Columbia.....	.....	4	4	1	4	2	1	7	11	17	8	8	.....
Florida.....	11	14	13	10	13	17	12	11	18	29	27	22	18
Georgia.....	16	12	27	38	20	47	46	60	43	46	67	31	91
Idaho.....	(²)	.....	.....	2	4	.....	(²)	(²)	7	3	8	3	2
Illinois.....	106	117	135	137	153	164	170	158	188	235	325	444	617
Indiana.....	32	56	26	75	54	45	68	41	129	116	253	333	592
Iowa.....	21	5	2	30	6	20	26	15	12	31	86	85	96
Kansas.....	22	28	44	77	37	61	56	78	119	166	265	408	493
Kentucky.....	10	21	21	21	25	34	29	52	67	73	124	141	.....
Louisiana.....	19	4	12	10	10	8	2	9	7	24	16	13	25
Maine.....	19	18	17	9	9	11	10	6	4	13	22	19	9
Maryland.....	12	20	24	26	22	24	38	29	30	27	37	41	90
Massachusetts.....	91	112	91	104	118	114	114	115	72	111	141	164	187
Minnesota.....	35	37	49	28	46	35	45	65	60	103	115	166	146
Mississippi.....	15	6	36	30	24	31	40	60	55	67	83	96	75
Missouri.....	20	50	12	26	51	56	73	69	86	86	161	236	182
Montana.....	.....	4	2	4	8	.....	3	3	2	2	4	10	13
Nebraska.....	12	4	6	17	25	20	35	5	19	40	33	40	60
New Jersey.....	79	76	47	90	84	66	71	83	66	80	104	145	132
New Mexico.....	15	22	13	13	14	18	12	13	13	11	27	40	15
New York ¹	78	137	78	131	125	138	159	113	162	146	197	257	281
North Carolina.....	22	39	70	76	96	113	147	192	294	271	263	345	293
South Dakota.....	5	1	3	3	14	2	.....	7	6	10	17	23	8
Texas.....	12	(²)	15	71	24	15	10	30	64	33	17	15	92
Vermont.....	3	2	12	15	3	9	5	2	4	8	8	10	8
Washington.....	16	22	14	18	20	18	9	8	18	11	35	19	32
West Virginia.....	5	5	10	13	10	10	21	17	17	39	44	64	55
Wisconsin.....	45	30	46	44	44	44	52	54	46	69	110	128	157

¹ Exclusive of Denver.

² No report received.

³ Exclusive of New York City.

^a For reports of poliomyelitis for June and the first part of July, see Public Health Reports for Sept. 9, 1921, p. 2221.

Poliomyelitis (infantile paralysis)—Number of cases of poliomyelitis occurring in various States, as reported to the Public Health Service by the State health officers in weekly telegraphic or mail reports.

State.	Week ended (1921)—												
	July—			August—				September—				October—	
	16	23	30	6	13	20	27	3	10	17	24	1	8
Alabama.....					7	7		2	3		1		4
Arkansas.....						9					3		5
California.....	3	6	10	4	7	4	6	9	9	9	12	21	
Colorado ¹				1		2	1	1					
Connecticut.....	2	4	5	1	4	5	6	8	1	5	6	4	(²)
District of Columbia.....	4	3	7	3		2	2		4		1	2	(²)
Florida.....				1									
Georgia.....							1			2		1	1
Idaho.....	(²)						(²)	(²)	10		7	4	1
Illinois.....	15	24	39	38	27	28	25	16	36	39	43	54	39
Indiana.....		6	8	5	2	3	2	7	6	7	7	5	2
Iowa.....	3	1	1	7	6	16	14	8	9	10	13	9	10
Kansas.....	2		1		1	3	3	6	3	10	6	5	5
Kentucky.....	2	1				1	1		1	1	1	1	(²)
Louisiana.....			2										
Maine.....	1		1			1	3	1	4	2	2	2	
Maryland.....		8	7	6	10	16	10	10	5	13	15	16	21
Massachusetts.....	6	4	10	10	12	18	16	14	10	10	18	11	8
Minnesota.....	3	5	101	81	48	62	50	48	34	30	39	23	20
Mississippi.....							1		1		1		
Missouri.....	8	3	4	5	3	2	2	5	2		5	10	8
Montana.....					2			1		3	5	4	1
Nebraska.....	1	2	2		4	5	2	1	1	2		4	2
New Jersey.....	3	1	6	7	6	8	4	12	4	13	19	13	15
New York ³	4	10	15	24	27	41	34	40	53	31	57	43	41
North Carolina.....	1			1	2	2		2	1		1		
South Dakota.....	3			2		1	1		2		1	2	8
Vermont.....	1		3	3	2	4		2	2	1	1	1	2
Virginia.....	2	1	2	(²)	(²)	1	(²)	(²)	11	(²)	31	(²)	(²)
Washington.....						13	39	22				17	17
West Virginia.....				2	3		3	1			2	2	
Wisconsin.....	9	14	12	21	16	15	14	17	15	12	24	11	10

¹ Exclusive of Denver.

² No report received.

³ Exclusive of New York City.

VACCINATION HISTORIES OF SMALLPOX PATIENTS.

DATA FOR THE YEAR 1920 AND FIRST SIX MONTHS OF 1921.

The tables following give the vaccination histories of smallpox patients as furnished the Public Health Service by the State health officers. This information was supplied by eight States for the year 1920 and by seven States for the first six months of 1921.

For the year 1920, the total number of cases in which the histories were given was 16,311, of which 71.3 per cent had never been successfully vaccinated; 4.2 per cent had been vaccinated more than seven years preceding the attack; 2.5 per cent had been vaccinated within seven years of the attack; and in 22 per cent of the cases the vaccination status was not obtained or was uncertain.

For the first six months of 1921, of 18,374 cases reported with history, 60.3 per cent had never been successfully vaccinated; 4.7 per cent had been vaccinated more than seven years preceding the attack; 1.6 per cent had been vaccinated within seven years of the attack; and of 33.4 per cent of the cases the history was not obtained or was uncertain.

Vaccination history of smallpox cases.

YEAR 1920.

State.	New cases reported.	Deaths.	Vaccination history of cases.			
			Number vaccinated within 7 years preceding attack.	Number last vaccinated more than 7 years preceding attack.	Number never successfully vaccinated.	Vaccination history not obtained or uncertain.
California.....	4,474	1	196	315	3,808	153
Florida.....	424		1	1	265	157
Kansas.....	3,770		82	85	1,304	2,299
Massachusetts.....	29			4	25	
Minnesota.....	5,895		98	262	4,788	897
Montana.....	1,086		23	33	1,002	28
New Mexico.....	329		10	15	231	78
New York.....	304		4	22	207	71
Total.....	16,311	1	416	677	11,630	3,588

FIRST SIX MONTHS OF 1921.

California.....	4,010		30	252	3,689	39
Florida.....	1,193		26	19	400	748
Kansas.....	3,973		64	130	1,674	2,103
Massachusetts.....	31		2	9	15	5
Minnesota.....	8,238		162	430	4,456	3,190
Montana.....	838		4	23	802	9
New Mexico.....	91		9		49	42
Total.....	18,374		299	863	11,076	6,136

COURT DECISIONS.**APPOINTMENT OF LOCAL HEALTH OFFICER.**

A late decision ¹ of the New Jersey Supreme Court deals with the matter of appointment of local health officers. The board of health of Paterson, pursuant to statutory authority, appointed one Hagen as health officer for a term of three years ending January 1, 1921. On December 14, 1920, Hagen resigned. His resignation was accepted and on the same day the board, by resolution, appointed Clay, the relator in the case, as health officer for a term of three years. Clay accepted and commenced the performance of his duties. On January 1, 1921, the board passed another resolution rescinding the resolution which appointed Clay and appointing Browne, the respondent in the case, as health officer for a term of five years. Browne took possession of the office and Clay brought proceedings to oust him.

By force of a prior decision of the New Jersey Court of Errors and Appeals, if Clay's appointment was valid, his term of office was fixed by law, and he could not be removed except for cause. Also, in making its decision, the supreme court had to take into consideration the following provision of law:

¹Clay v. Browne, 114 Atl., 808.

"All vacancies in offices in any city of this State arising from or created by any other cause than expiration of term of office shall be filled for the unexpired term only."

The court decided that in the instant case the fixation of the term of office related to the particular incumbent and was not attached to the office itself. Therefore, when Hagen resigned there was no unexpired term left to be filled as required by the above-quoted statutory provision and Clay was held to be entitled to the office.

DEATH CERTIFICATE AS EVIDENCE OF CAUSE OF DEATH.

The Supreme Court of Utah on June 7, 1921, decided that a death certificate is admissible in evidence to show the cause of death.^a

DEATHS DURING WEEK ENDED OCT. 1, 1921.

Summary of information received by telegraph from industrial insurance companies for week ended Oct. 1, 1921, and corresponding week, 1920. (From the Weekly Health Index, Oct. 4, 1921, issued by the Bureau of the Census, Department of Commerce.)

	Week ended Oct. 1, 1921.	Corresponding week, 1920.
Policies in force.....	47, 719, 214	44, 110, 893
Number of death claims.....	6, 900	6, 924
Death claims per 1,000 policies in force.....	7.5	8.2

Deaths from all causes in certain large cities of the United States during the week ended Oct. 1, 1921, infant mortality, annual death rate, and comparison with corresponding week of preceding years. (From the Weekly Health Index, Oct. 4, 1921, issued by the Bureau of the Census, Department of Commerce.)

City.	Estimated population, July 1, 1921.	Week ended Oct. 1, 1921.		Average annual death rate per 1,000. ²	Deaths under 1 year.		Infant mortality rate, week ended Oct. 1, 1921. ³
		Total deaths.	Death rate. ¹		Week ended Oct. 1, 1921.	Previous year or years. ²	
Akron, Ohio.....	227, 195	36	8.2	10.1	12	43	115
Albany, N. Y.....	115, 071	20	9.1	C 14.2	2	C 4	45
Atlanta, Ga.....	207, 473	52	13.1	C 13.9	4	C 10	
Baltimore, Md.....	752, 863	156	10.8	A 15.5	21	A 46	59
Birmingham, Ala.....	186, 133	41	11.5	A 17.1	7	A 7	
Bridgeport, Conn.....	149, 967	24	8.3	A 14.7	3	A 9	38
Buffalo, N. Y.....	519, 608	118	11.8	C 12.4	32	C 32	124
Cambridge, Mass.....	110, 444	33	15.6	A 10.7	3	A 5	54
Camden, N. J.....	113, 672	24	10.5		4		60
Chicago, Ill.....	2, 780, 655	529	9.9	A 12.6	78	A 134	
Cincinnati, Ohio.....	403, 418	75	9.7	C 12.3	10	C 10	66
Cleveland, Ohio.....	831, 138	149	9.3	C 9.5	36	C 40	96
Columbus, Ohio.....	245, 358	54	11.5	C 11.3	8	C 7	93
Dallas, Tex.....	165, 232	31	9.8	A 12.1	6	A 2	
Dayton, Ohio.....	158, 119	29	9.6	C 9.5	2	C 5	33
Denver, Colo.....	263, 152	64	12.7	A 12.6	8		
Detroit, Mich.....	1, 070, 450	176	8.6	C 10.7	41	C 63	77
Fall River, Mass.....	120, 668	25	10.8	C 18.2	8	C 18	120
Grand Rapids, Mich.....	141, 197	33	12.2	C 9.4	8	C 4	135
Houston, Tex.....	144, 340	41	14.8		4		
Indianapolis, Ind.....	325, 215	69	11.1	C 15.6	14	C 18	109
Jersey City, N. J.....	302, 788	60	10.3	C 11.0	11	C 18	76
Kansas City, Kans.....	103, 884	29	14.6	C 14.3	5	C 8	119
Kansas City, Mo.....	336, 157	97	15.0	C 12.2	10	C 21	

¹ Annual rate per 1,000 population.

² "A" indicates data for the corresponding week of the years 1913 to 1917, inclusive. "C" indicates data for the corresponding week of the year 1920.

³ Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1920. Cities left blank are not in the registration area for births.

⁴ Data based on statistics of 1915, 1916, and 1917.

• Bozicevich v. Kenilworth Mercantile Co., 199 Pac., 406.

Deaths from all causes in certain large cities of the United States during the week ended Oct. 1, 1921, infant mortality, annual death rate, and comparison with corresponding week of preceding years. (From the Weekly Health Index, Oct. 4, 1921, issued by the Bureau of the Census, Department of Commerce.)—Continued.

City.	Estimated population, July 1, 1921.	Week ended Oct. 1, 1921.		Average annual death rate per 1,000.	Deaths under 1 year.		Infant mortality rate, week ended Oct. 1, 1921.
		Total deaths.	Death rate.		Week ended Oct. 1, 1921.	Previous year or years.	
Los Angeles, Calif.....	611,921	163	13.9	A 11.4	18	A 11	85
Louisville, Ky.....	236,083	51	11.3	C 11.3	5	C 8	58
Lowell, Mass.....	113,757	22	10.1	A 16.2	4	A 10	64
Memphis, Tenn.....	165,389	52	16.4	C 14.7	5	C 9	...
Milwaukee, Wis.....	468,386	94	10.5	A 11.5	18	A 21	57
Minneapolis, Minn.....	392,815	65	8.6	C 9.4	6	C 13	34
Nashville, Tenn.....	129,036	26	11.1	C 12.3	2	C 4	...
New Bedford, Mass.....	125,012	21	8.8	A 17.1	13	A 16	200
New Haven, Conn.....	167,007	23	7.2	C 10.8	2	C 4	24
New Orleans, La.....	394,657	115	15.2	A 17.0	10	A 12	...
New York, N. Y.....	5,751,867	1,044	9.5	C 10.0	187	C 204	73
Newark, N. J.....	424,885	80	9.8	C 12.6	18	C 17	80
Norfolk, Va.....	121,260	34	14.6	...	9	...	160
Oakland, Calif.....	226,472	25	5.8	A 10.4	5	A 6	63
Omaha, Nebr.....	197,066	49	13.0	...	12	...	139
Paterson, N. J.....	137,463	37	14.0	...	5	...	85
Philadelphia, Pa.....	1,866,212	357	10.0	¹ 13.6	67	¹ 91	81
Pittsburgh, Pa.....	602,452	132	11.4	C 14.7	27	C 35	96
Portland, Oreg.....	264,850	49	9.6	C 10.0	2	C 6	20
Providence, R. I.....	239,645	58	12.6	C 11.4	10	C 9	81
Richmond, Va.....	175,686	43	12.8	C 13.3	7	C 9	85
Rochester, N. Y.....	305,229	70	12.0	C 11.9	13	C 11	101
St. Louis, Mo.....	786,164	156	10.3	C 11.1	17	C 27	...
Salt Lake City, Utah.....	237,781	41	9.0	C 9.7	3	C 4	30
San Francisco, Calif.....	121,595	30	12.9	A 11.3	2	...	31
Seattle, Wash.....	520,546	127	12.7	C 12.2	4	C 5	23
Spokane, Wash.....	327,227	49	7.8	A 7.8	4	A 5	33
Springfield, Mass.....	104,442	23	11.5	C 9.0	2	C 1	44
Syracuse, N. Y.....	135,877	23	8.8	C 7.5	3	C 5	45
Toledo, Ohio.....	177,265	37	10.9	C 13.5	13	C 9	156
Trenton, N. J.....	253,696	57	11.7	A 14.7	8	A 10	81
Washington, D. C.....	122,760	36	15.3	A 19.6	9	A 9	137
Wilmington, Del.....	454,026	96	11.0	A 14.5	27	A 15	158
Worcester, Mass.....	113,408	22	10.1	C 13.1	6	...	54
Yonkers, N. Y.....	184,972	34	9.6	C 14.7	5	C 13	...
Youngstown, Ohio.....	103,324	18	9.1	A 11.5	2	A 5	45
	139,432	31	11.6	C 14.3	7	C 6	89

¹ Data based on statistics of 1915, 1916, and 1917.

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.

Telegraphic Reports for Week Ended Oct. 8, 1921.

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

ALABAMA.		Cases.	CALIFORNIA—continued.		Cases.
Chicken pox.....	1		Lethargic encephalitis:		
Diphtheria:			Daly City.....	1	
Etowah County.....	17		Napa.....	6	
Jefferson County.....	23		Poliomyelitis:		
Scattering.....	52		Oroville.....	1	
German measles.....	1		San Francisco.....	2	
Hookworm disease.....	26		San Mateo County.....	1	
Measles.....	3		Sonoma County.....	1	
Ophthalmia neonatorum.....	1		Smallpox:		
Paratyphoid fever.....	1		Oakland.....	9	
Pneumonia.....	1		Scattering.....	36	
Scarlet fever.....	48		Typhoid fever.....	24	
Smallpox.....	1				
Tuberculosis.....	19				
Typhoid fever.....	29				
Whooping cough.....	6				
ARKANSAS.			COLORADO.		
Chicken pox.....	2		(Exclusive of Denver.)		
Diphtheria.....	29		Chicken pox.....	1	
Influenza.....	5		Diphtheria.....	47	
Malaria.....	244		Measles.....	1	
Pellagra.....	11		Mumps.....	1	
Poliomyelitis.....	4		Pneumonia.....	4	
Scarlet fever.....	11		Scarlet fever.....	13	
Smallpox.....	1		Smallpox.....	4	
Trachoma.....	1		Tuberculosis.....	150	
Tuberculosis.....	7		Typhoid fever.....	18	
Typhoid fever.....	20		Whooping cough.....	1	
Whooping cough.....	1				
CALIFORNIA.			FLORIDA.		
Cerebrospinal meningitis:			Diphtheria.....	18	
Daly City.....	1		Influenza.....	5	
San Francisco.....	1		Malaria.....	17	
Shasta County.....	1		Scarlet fever.....	1	
Influenza.....	7		Smallpox.....	4	
			Typhoid fever.....	6	
			GEORGIA.		
			Chicken pox.....	2	
			Diphtheria.....	91	

GEORGIA—continued.

	Cases.
Dysentery (amebic).....	1
Hookworm disease.....	8
Influenza.....	8
Malaria.....	61
Measles.....	2
Mumps.....	1
Paratyphoid fever.....	2
Pellagra.....	1
Pneumonia.....	5
Polioimyelitis.....	1
Scarlet fever.....	29
Septic sore throat.....	2
Smallpox.....	41
Tuberculosis (pulmonary).....	9
Typhoid fever.....	47
Whooping cough.....	6

IDAHO.

Diphtheria.....	2
Polioimyelitis.....	1
Scarlet fever.....	1

ILLINOIS.

Cerebrospinal meningitis—Chicago.....	1
Diphtheria:	
Aurora.....	23
Chicago.....	259
Cicero.....	25
East St. Louis.....	8
Effingham County—Union Township.....	9
Granville.....	8
Mattoon.....	10
Peoria.....	11
Rockford.....	12
Scattering.....	252
Influenza.....	13
Lethargic encephalitis:	
Chicago.....	2
Macoupin County—Dorchester Township..	1
Pneumonia.....	114
Polioimyelitis:	
Chicago.....	9
De Kalb County—De Kalb Township....	1
Evanston.....	2
Joliet.....	1
La Salle County—	
Hope Township.....	1
Mission Township.....	1
Litchfield.....	1
McDonough County—Macomb Township..	1
Marshall County—Hopewell Township....	2
Mattoon.....	1
Mercer County—	
Preemption Township.....	1
Richland Grove.....	1
Minonk.....	1
Moline.....	1
Morgan County—Arcadia precinct.....	1
Mount Morris.....	1
Oak Park.....	1
Oregon.....	1
Pekin.....	1
Princeton.....	3
Sangamon County—Clear Lake Township..	1
Shelby County—Clarksburg Township....	1
Stephenson County—Ridott Township....	1
Toulon.....	1

ILLINOIS—continued.

	Cases.
Polioimyelitis—Continued.	
Whiteside County—	
Genese Township.....	2
Hahnman Township.....	1
Scarlet fever:	
Chicago.....	83
Marshall.....	8
Peoria.....	11
Rockford.....	12
Scattering.....	110
Smallpox.....	4
Typhoid fever:	
Chicago.....	8
Scattering.....	52
Whooping cough.....	39

INDIANA.

Cerebrospinal meningitis—Henry County.....	1
Diphtheria.....	592
Polioimyelitis:	
Allen County.....	1
Clinton County.....	1
Scarlet fever.....	112
Smallpox.....	4
Typhoid fever.....	41

IOWA.

Diphtheria.....	93
Polioimyelitis.....	10
Scarlet fever.....	94
Smallpox.....	6

KANSAS.

Cerebrospinal meningitis.....	1
Chicken pox.....	2
Diphtheria.....	493
Influenza.....	2
Malaria.....	1
Measles.....	2
Mumps.....	4
Pneumonia.....	1
Polioimyelitis.....	5
Scarlet fever.....	159
Smallpox.....	15
Trachoma.....	3
Tuberculosis.....	36
Typhoid fever.....	28
Whooping cough.....	3

LOUISIANA.

Diphtheria.....	25
Pellagra.....	2
Scarlet fever.....	8
Typhoid fever.....	30
Whooping cough.....	5

MAINE.

Diphtheria.....	9
Lethargic encephalitis.....	1
Pneumonia.....	1
Scarlet fever.....	19
Tuberculosis.....	9
Typhoid fever.....	14
Whooping cough.....	5

MARYLAND. ¹		MISSOURI—continued.	
	Cases.		Cases.
Chicken pox.....	5	Rabies.....	1
Diphtheria.....	90	Scarlet fever.....	99
Dysentery.....	2	Smallpox.....	3
Influenza.....	7	Trachoma.....	1
Lethargic encephalitis.....	1	Tuberculosis.....	39
Malaria.....	44	Typhoid fever.....	42
Measles.....	8	Whooping cough.....	4
Mumps.....	8		
Ophthalmia neonatorum.....	2	MONTANA.	
Paratyphoid fever.....	1	Diphtheria.....	13
Pneumonia (all forms).....	25	Polioimyelitis—Libby.....	1
Polioimyelitis.....	21	Scarlet fever.....	11
Scarlet fever.....	40	Smallpox.....	13
Trachoma.....	1	Typhoid fever.....	8
Tuberculosis.....	43		
Typhoid fever.....	40	NEBRASKA.	
Typhus fever.....	1	Cerebrospinal meningitis.....	1
Whooping cough.....	15	Chicken pox.....	1
		Diphtheria:	
MASSACHUSETTS.		Omaha.....	46
Anthrax.....	1	Scattering.....	14
Chicken pox.....	37	Lethargic encephalitis:	
Conjunctivitis (suppurative).....	14	Liucola.....	1
Diphtheria.....	187	Omaha.....	3
German measles.....	1	Mumps.....	10
Influenza.....	6	Pneumonia.....	1
Lethargic encephalitis.....	2	Polioimyelitis—Hemingford.....	2
Malaria.....	1	Scarlet fever.....	42
Measles.....	44	Smallpox.....	2
Mumps.....	43	Tuberculosis.....	12
Ophthalmia neonatorum.....	18	Typhoid fever.....	6
Pneumonia (lobar).....	47	Whooping cough.....	8
Polioimyelitis.....	8		
Scarlet fever.....	74	NEW JERSEY.	
Trachoma.....	4	Cerebrospinal meningitis.....	5
Tuberculosis (all forms).....	158	Chicken pox.....	12
Typhoid fever.....	32	Diphtheria.....	132
Whooping cough.....	36	Influenza.....	3
		Malaria.....	6
MINNESOTA.		Measles.....	10
Cerebrospinal meningitis.....	2	Paratyphoid fever.....	1
Diphtheria.....	146	Pneumonia.....	49
Measles.....	4	Polioimyelitis.....	15
Pneumonia.....	1	Scarlet fever.....	99
Polioimyelitis.....	20	Typhoid fever:	
Scarlet fever.....	107	Trenton.....	14
Smallpox.....	13	Scattering.....	38
Tuberculosis.....	129	Whooping cough.....	41
Typhoid fever.....	28		
		NEW MEXICO.	
MISSISSIPPI.		Chicken pox.....	1
Cerebrospinal meningitis.....	1	Diphtheria.....	15
Diphtheria.....	75	Influenza.....	2
Scarlet fever.....	11	Paratyphoid fever.....	1
Typhoid fever.....	11	Polioimyelitis.....	2
		Scarlet fever.....	2
MISSOURI.		Trachoma.....	1
Chicken pox.....	4	Tuberculosis.....	97
Diphtheria.....	182	Typhoid fever.....	16
Epidemic sore throat.....	31	Whooping cough.....	1
Influenza.....	2		
Measles.....	3	NEW YORK.	
Mumps.....	4	(Exclusive of New York City.)	
Ophthalmia neonatorum.....	3	Diphtheria.....	281
Polioimyelitis.....	8	Influenza.....	4
		Lethargic encephalitis.....	1

¹ Week ended Friday.

NEW YORK—continued.

	Cases.
Measles.....	32
Pneumonia.....	104
Poliomyelitis.....	41
Scarlet fever.....	171
Smallpox.....	1
Tetanus.....	6
Typhoid fever.....	137
Whooping cough.....	144

OREGON.

Diphtheria:	
Portland.....	24
Scattering.....	14
Influenza.....	2
Pneumonia.....	1
Poliomyelitis:	
La Grande.....	2
Linn.....	1
Pendleton.....	1
Scarlet fever.....	13
Smallpox.....	9
Tuberculosis.....	13
Typhoid fever.....	7
Whooping cough.....	4

SOUTH DAKOTA.

Cerebrospinal meningitis.....	1
Diphtheria.....	8
Pneumonia.....	2
Poliomyelitis.....	8
Scarlet fever.....	24
Smallpox.....	10
Tuberculosis.....	6
Typhoid fever.....	2

TEXAS.

Chicken pox.....	9
Diphtheria.....	92
Pellagra.....	10
Scarlet fever.....	38
Typhoid fever.....	26
Whooping cough.....	11

VERMONT.

Chicken pox.....	9
Diphtheria.....	8
Measles.....	7
Pneumonia.....	2
Poliomyelitis.....	2
Scarlet fever.....	32
Typhoid fever.....	4
Whooping cough.....	5

WASHINGTON.

Cerebrospinal meningitis:	
Centralia.....	1
Cowlitz County.....	1

WASHINGTON—continued.

	Cases.
Chicken pox.....	22
Diphtheria.....	32
Measles.....	4
Mumps.....	5
Poliomyelitis:	
Aberdeen.....	1
Adams County.....	1
Chehalis.....	3
King County.....	1
Seattle.....	4
Snohomish County.....	2
Spokane.....	3
Whatcom County.....	1
Yakima.....	1
Scarlet fever:	
Ralston.....	12
Spokane.....	18
Scattering.....	23
Smallpox.....	13
Tuberculosis.....	17
Typhoid fever.....	20
Whooping cough.....	13

WEST VIRGINIA.

Diphtheria:	
Charleston.....	9
Wheeling.....	10
Scattering.....	36
Scarlet fever.....	13
Typhoid fever.....	9

WISCONSIN.

Milwaukee:	
Chicken pox.....	4
Diphtheria.....	29
German measles.....	2
Measles.....	1
Pneumonia.....	2
Scarlet fever.....	18
Smallpox.....	1
Tuberculosis.....	17
Whooping cough.....	11
Scattering:	
Cerebrospinal meningitis.....	1
Chicken pox.....	6
Diphtheria.....	128
Influenza.....	8
Measles.....	14
Poliomyelitis.....	10
Scarlet fever.....	118
Smallpox.....	12
Tuberculosis.....	11
Typhoid fever.....	27
Whooping cough.....	37

Reports for Week Ended Oct. 1, 1921.

ALABAMA.		DISTRICT OF COLUMBIA—continued.	
	Cases.		Cases.
Chicken pox.....	3	Scarlet fever.....	7
Diphtheria.....	60	Tuberculosis.....	33
Hookworm disease.....	15	Typhoid fever.....	4
Malaria.....	25	Whooping cough.....	13
Pneumonia.....	1		
Scarlet fever.....	11	INDIANA.	
Smallpox.....	6	Cerebrospinal meningitis—St. Joseph County..	1
Trachema.....	1	Diphtheria.....	333
Tuberculosis.....	9	Poliomyelitis:	
Typhoid fever.....	37	Clinton County.....	1
Whooping cough.....	3	Laporte County.....	1
		Marion County.....	1
		Marshall County.....	1
		Wabash County.....	1
		Scarlet fever.....	94
		Smallpox.....	2
		Typhoid fever.....	37
		KENTUCKY.	
CALIFORNIA.		Chicken pox.....	1
Influenza.....	5	Diphtheria:	
Lethargic encephalitis:		Bath County.....	9
San Francisco.....	1	Clark County.....	6
Siskiyou County.....	8	Daviess County.....	32
Poliomyelitis:		Jefferson County.....	41
Amador County.....	1	Scattering.....	50
Modoc County.....	6	Dysentery.....	2
Mare Island.....	1	Influenza.....	4
Sacramento.....	2	Measles.....	9
Sacramento County.....	2	Ophthalmia neonatorum.....	1
San Francisco.....	7	Pneumonia.....	5
Stanislaus County.....	2	Poliomyelitis—Fleming County.....	1
Smallpox.....	19	Scarlet fever.....	22
Typhoid fever.....	22	Smallpox.....	2
		Tonsillitis.....	1
		Trachoma.....	2
		Tuberculosis.....	10
		Typhoid fever.....	33
		Whooping cough.....	13
		MINNESOTA.	
CONNECTICUT.		Cerebrospinal meningitis.....	1
Chicken pox.....	5	Chicken pox.....	4
Diphtheria:		Diphtheria.....	166
Bridgeport.....	8	Measles.....	2
Hartford.....	8	Poliomyelitis.....	23
New Haven.....	14	Scarlet fever.....	77
Scattering.....	40	Smallpox.....	13
German measles.....	3	Tuberculosis.....	48
Influenza.....	3	Typhoid fever.....	70
Malaria.....	2		
Measles.....	5	MISSOURI.	
Mumps.....	3	Anthrax.....	1
Ophthalmia neonatorum.....	1	Cerebrospinal meningitis.....	1
Paratyphoid fever.....	2	Chicken pox.....	2
Pneumonia (lobar).....	7	Diphtheria.....	236
Poliomyelitis.....	4	Epidemic sore throat.....	21
Scarlet fever.....	32	Measles.....	2
Septic sore throat.....	1	Mumps.....	2
Tetanus.....	1	Ophthalmia neonatorum.....	2
Tuberculosis (all forms).....	35	Poliomyelitis.....	10
Typhoid fever.....	6	Scarlet fever.....	74
Whooping cough.....	30	Smallpox.....	12
		Tetanus.....	2
		Trachoma.....	7
		Tuberculosis.....	41
		Typhoid fever.....	33
		Whooping cough.....	12
DELAWARE.			
Diphtheria—Wilmington.....	9		
Poliomyelitis—Lewes.....	1		
Scarlet fever:			
Wilmington.....	12		
Scattering.....	2		
Tuberculosis.....	6		
Typhoid fever.....	4		
DISTRICT OF COLUMBIA.			
Chicken pox.....	4		
Diphtheria.....	8		
Influenza.....	2		
Measles.....	1		
Poliomyelitis.....	2		

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.	Polluxyellitis.	Scarlet fever.	Smallpox.	Typhoid fever.
1921.										
Arkansas (August).....	2	78	10	1,314	3	1,395	16	25	15	266
Delaware (September).....	3	15	1	8	1	1	1	25	23	
Florida (September).....	4	107	42	138	3	24	11	28	53	
Maine (August).....	2	33	3		14		4	62	6	55
Nebraska (September).....	4	184			16		9	88	5	29

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921.**ANTHRAX.**

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

CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Sept. 24, 1921.		City.	Median for previous years.	Week ended Sept. 24, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
California:				New York:			
Los Angeles.....	0	2		New York.....	2	4	3
San Francisco.....	0	1		North Carolina:			
Illinois:				Greensboro.....	0		1
Chicago.....	2	2		Ohio:			
Michigan:				Hamilton.....			2
Flint.....	0		1	Pennsylvania:			
Highland Park.....	0	1		Philadelphia.....	0	1	
Saginaw.....	0	2		Virginia:			
Nebraska:				Danville.....	0		1
Lincoln.....	0	1		West Virginia:			
New Jersey:				Charleston.....	0		1
Jersey City.....	0	1					

DIPHTHERIA.

See p. 2570; also Telegraphic weekly reports from States, p. 2559, and Monthly summaries by States, p. 2564.

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.

INFLUENZA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
California:			Massachusetts:		
Los Angeles.....	2	.....	Boston.....	1	.....
San Francisco.....	3	.....	Webster.....	1	.....
Connecticut:			Worcester.....	1	.....
Bridgeport.....		1	Michigan:		
Florida:			Hamtramck.....		1
Tampa.....	3	.....	Missouri:		
Illinois:			Cape Girardeau.....	1	.....
Chicago.....	2	.....	New Jersey:		
Kewanee.....	1	.....	Newark.....	1	1
Kansas:			New York:		
Topeka.....	1	.....	Mount Vernon.....	1	.....
Louisiana:			New York.....	4	3
New Orleans.....		1	Ohio:		
Maryland:			Cleveland.....	4	.....
Baltimore.....	2	.....	Toledo.....		1
			Wisconsin:		
			La Crosse.....	1	.....

LETHARGIC ENCEPHALITIS.

Nebraska:					
Omaha.....	1	1			

MALARIA.

Alabama:			Louisiana:		
Tuscaloosa.....	3	.....	New Orleans.....	2	1
Arkansas:			Massachusetts:		
Fort Smith.....		1	Boston.....	1	.....
Little Rock.....	3	.....	Michigan:		
Florida:			Battle Creek.....	2	.....
Tampa.....	7	.....	Port Huron.....	1	.....
Georgia:			New York:		
Atlanta.....	3	.....	New York.....	2	.....
Brunswick.....	3	.....	Tennessee:		
Savannah.....	2	1	Memphis.....	4	4
Illinois:			Texas:		
East St. Louis.....	1	.....	Beaumont.....	20	.....
Kentucky:			Dallas.....	3	.....
Louisville.....	1	.....	Waco.....		1

MEASLES.

See p. 2570; also Telegraphic weekly reports from States, p. 2559, and Monthly summaries by States, p. 2564.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Massachusetts:		
Mobile.....	1	.....	Boston.....		1
Montgomery.....	1	1	Pennsylvania:		
Florida:			Philadelphia.....	1	.....
Tampa.....	2	.....	Tennessee:		
Georgia:			Memphis.....	1	.....
Atlanta.....		1	Nashville.....		1
Illinois:			Virginia:		
Chicago.....	1	1	Portsmouth.....		1
Maryland:			Roanoke.....		1
Baltimore.....	1	.....			

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.

PNEUMONIA (ALL FORMS).

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Massachusetts—Continued.		
Birmingham.....		2	Wakefield.....		1
Mobile.....		2	Waltham.....	1	
Arizona:			Watertown.....	1	
Tucson.....		1	Worcester.....		1
California:			Michigan:		
Alameda.....		1	Ann Arbor.....	2	1
Berkeley.....	4	2	Detroit.....	17	10
Long Beach.....		2	Flint.....		1
Los Angeles.....	16	7	Hamtramck.....	3	2
Oakland.....		2	Highland Park.....	2	
Pasadena.....	1		Marquette.....	1	
Sacramento.....		1	Pontiac.....		1
San Bernardino.....		1	Port Huron.....	1	
San Diego.....		4	Minnesota:		
San Francisco.....	5	3	Duluth.....	2	
Colorado:			Minneapolis.....		6
Denver.....		6	St. Paul.....		9
Connecticut:			Missouri:		
Bridgeport.....	1		Cape Girardeau.....		1
Fairfield.....		1	Kansas City.....		6
New London.....	2	1	Montana:		
Stonington.....		1	Great Falls.....		2
Delaware:			Nebraska:		
Wilmington.....		1	Lincoln.....		1
District of Columbia:			Omaha.....		5
Washington.....		3	Concord.....		1
Florida:			New Jersey:		
Tampa.....		1	East Orange.....		1
Georgia:			Elizabeth.....		3
Atlanta.....		5	Hoboken.....		2
Savannah.....		1	Irrington.....	1	
Illinois:			Jersey City.....	1	
Chicago.....	70	19	Newark.....	23	5
Cicero.....	3	1	Perth Amboy.....		1
Elgin.....	1		Trenton.....	2	
Galesburg.....		1	West Hoboken.....		1
Rockford.....		1	West New York.....		1
Indiana:			New Mexico:		
East Chicago.....		3	Albuquerque.....		1
Fort Wayne.....		2	New York:		
Gary.....		2	Albany.....	3	
Indianapolis.....		5	Buffalo.....	6	4
Kokomo.....		1	Elmira.....	1	
Terre Haute.....		1	Lackawanna.....	4	
Iowa:			Lockport.....		1
Burlington.....		1	Mount Vernon.....	1	
Kansas:			Newburgh.....		1
Kansas City.....	1		New York.....	131	50
Kentucky:			Niagara Falls.....	1	
Louisville.....	5	3	Rochester.....	5	1
Louisiana:			Rome.....	1	
New Orleans.....		11	Syracuse.....	2	
Maine:			Troy.....		1
Lewiston.....		1	Yonkers.....	1	
Portland.....		1	Ohio:		
Maryland:			Akron.....	1	
Baltimore.....	11	9	Cincinnati.....		8
Cumberland.....	1		Cleveland.....	11	
Massachusetts:			Columbus.....		4
Amesbury.....		1	Dayton.....	1	
Boston.....		10	Steubenville.....	1	
Cambridge.....		1	Toledo.....		1
Chicopee.....		1	Youngstown.....		3
Fall River.....		2	Oregon:		
Haverhill.....	2		Portland.....		3
Holyoke.....	1		Pennsylvania:		
Lowell.....	1		Philadelphia.....	36	28
Lynn.....	1		Rhode Island:		
Malden.....		1	Newport.....		1
Medford.....	1		Providence.....		5
New Bedford.....		2	South Dakota:		
Pittsfield.....		2	Sioux Falls.....		1
Quincy.....		1	Tennessee:		
Somerville.....	2		Memphis.....		2
Springfield.....	1		Nashville.....		1
Taunton.....		1			

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Texas:			West Virginia:		
El Paso.....		1	Charleston.....	1	.....
Waco.....		1	Huntington.....		1
Utah:			Wheeling.....		2
Salt Lake City.....		1	Wisconsin:		
Vermont:			Green Bay.....		1
Rutland.....		1			
Virginia:					
Norfolk.....		1			
Roanoke.....		1			

POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

City.	Median for pre- vious years.	Week ended Sept. 24, 1921.		City.	Median for pre- vious years.	Week ended Sept. 24, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
California:				Missouri:			
Los Angeles.....	0	1	.....	Kansas City.....	0	1	.....
Oakland.....	0	1	.....	St. Louis.....	0	3	2
Sacramento.....	0	2	1	Montana:			
San Francisco.....	0	3	2	Great Falls.....	0	1	.....
Connecticut:				Missoula.....	0	1	.....
Hartford.....	0		1	Nebraska:			
Milford.....		1	.....	Lincoln.....	0	1	.....
Illinois:				New Jersey:			
Aurora.....	0	1	.....	Bayonne.....	0	6	.....
Chicago.....	5	14	1	Clifton.....		1	.....
Decatur.....	0	1	.....	Englewood.....		2	.....
Mattoon.....		1	.....	Jersey City.....	0	4	.....
Oak Park.....	0	2	1	Perth Amboy.....	0	1	.....
Peoria.....	0	3	1	West New York.....		1	.....
Indiana:				New York:			
La Fayette.....	0	1	.....	Buffalo.....	0	1	.....
South Bend.....	0	1	1	Cohoes.....		1	.....
Iowa:				Geneva.....	0		1
Cedar Rapids.....	0	1	.....	New York.....	4	69	16
Des Moines.....	0	1	.....	Olean.....		2	1
Soux City.....	0	2	.....	Rome.....			3
Kansas:				Saratoga Springs.....	0	1	.....
Atchison.....		1	.....	Syracuse.....	0	3	.....
Kansas City.....	0	2	.....	White Plains.....		1	.....
Topeka.....	0	2	.....	Ohio:			
Maine:				Akron.....	1	1	.....
Portland.....	0	1	.....	Cincinnati.....	0		3
Maryland:				Cleveland.....	1	1	.....
Baltimore.....	1	12	2	Columbus.....	0	1	.....
Massachusetts:				Dayton.....	0	2	.....
Boston.....	1	3	.....	Youngstown.....	0	1	.....
Cambridge.....	1	2	.....	Pennsylvania:			
Haverhill.....	0	1	.....	Philadelphia.....	0	10	1
Holyoke.....	0	1	.....	West Chester.....		1	.....
Lawrence.....	0	3	1	Rhode Island:			
Norwood.....		1	1	East Providence.....	0	1	.....
Michigan:				Virginia:			
Ann Arbor.....	0	1	.....	Portsmouth.....	0	1	.....
Battle Creek.....	0	1	.....	Washington:			
Detroit.....	1	5	.....	Everett.....	0	1	.....
Grand Rapids.....	0	1	.....	Seattle.....	0	2	.....
Hamtramck.....		1	.....	Spokane.....		6	.....
Kalamazoo.....	0	3	1	Tacoma.....	0	6	.....
Minnesota:				West Virginia:			
Minneapolis.....	0	2	.....	Fairmont.....		1	.....
Rochester.....		2	.....	Wisconsin:			
St. Paul.....	0	2	.....	Milwaukee.....	0	4	.....

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.

RABIES IN ANIMALS.

City.	Cases.
New Jersey: Plainfield	1

SCARLET FEVER.

See p. 2570; also Telegraphic weekly reports from States, p. 2559, and Monthly summaries by States, p. 2564.

SMALLPOX.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

City.	Median for pre- vious years.	Week ended Sept. 24, 1921.		City.	Median for pre- vious years.	Week ended Sept. 24, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Missouri:			
Birmingham	1	1	.....	Kansas City	0	8	1
Mobile	0	3	.....	Montana:			
California:				Billings	0	1	.....
Berkeley	0	7	.....	New York:			
Los Angeles	0	2	.....	Jamestown	0	1	.....
Oakland	0	1	.....	Oregon:			
Richmond .....	.....	2	.....	Portland	1	2	.....
Riverside	0	2	.....	Utah:			
Sacramento	0	1	.....	Salt Lake City	3	1	.....
San Diego	0	2	.....	Virginia:			
San Francisco	0	2	.....	Norfolk	0	1	.....
Colorado:				Washington:			
Denver	3	3	.....	Aberdeen	1	1	.....
Connecticut:				Everett	0	1	.....
Bridgeport	0	1	.....	Spokane	2	2	.....
Indiana:				Tacoma	0	2	.....
Bloomington	0	1	.....	Walla Walla	0	2	.....
Marion	0	1	.....	West Virginia:			
Kansas:				Bluefield	0	1	.....
Kansas City	0	1	.....	Wisconsin:			
Michigan:				Manitowoc	0	1	.....
Alpena .....	.....	1	.....	Milwaukee	1	4	.....
Pontiac	0	2	.....	Superior	0	1	.....
Minnesota:							
Duluth	0	3	.....				
St. Paul	1	2	.....				

TETANUS.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
California:			Missouri:		
Los Angeles	3	2	St. Louis .....	.....	1
Illinois:			New Jersey:		
Chicago .....	.....	1	Hackensack .....	.....	1
East St. Louis	1	.....	Newark	1	.....
Kansas:			Plainfield .....	.....	1
Topeka	1	1	New York:		
Kentucky:			New York	2	.....
Louisville .....	.....	2	Pennsylvania:		
Massachusetts:			Philadelphia	1	.....
Boston	2	2	South Carolina:		
Cambridge	1	.....	Charleston .....	.....	1

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.

TUBERCULOSIS.

See p. 2570; also Telegraphic weekly reports from States, p. 2559.

TYPHOID FEVER.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Sept. 24, 1921.		City.	Median for previous years.	Week ended Sept. 24, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Maine:			
Birmingham.....	12	4	.....	Bangor.....	0	1	.....
Montgomery.....	0	1	1	Biddeford.....	0	1	.....
Arizona:				Portland.....	2	1	.....
Tucson.....	0	.....	1	Maryland:			
Arkansas:				Baltimore.....	32	4	2
Little Rock.....	2	4	.....	Cumberland.....	2	3	.....
California:				Massachusetts:			
Berkeley.....	0	1	.....	Adams.....	0	3	.....
Long Beach.....	0	1	.....	Boston.....	6	1	.....
Los Angeles.....	6	4	2	Brookline.....	0	1	.....
Oakland.....	1	5	.....	Fall River.....	8	3	1
Pasadena.....	0	1	.....	Greenfield.....	0	1	.....
Sacramento.....	1	1	.....	Haverhill.....	1	1	.....
San Francisco.....	5	2	.....	Lowell.....	1	2	.....
Colorado:				Lynn.....	1	1	.....
Denver.....	3	6	.....	Newton.....	1	1	.....
Pueblo.....	3	3	.....	North Adams.....	0	1	1
Trinidad.....	0	1	.....	Somerville.....	0	1	.....
Connecticut:				Taunton.....	0	2	.....
Hartford.....	2	1	.....	Waltham.....	0	1	.....
Milford.....	.....	1	.....	Worcester.....	2	7	.....
Delaware:				Michigan:			
Wilmington.....	1	1	.....	Ann Arbor.....	0	1	.....
District of Columbia:				Benton Harbor.....	0	2	.....
Washington.....	13	8	.....	Detroit.....	13	10	1
Florida:				Flint.....	5	1	1
Tampa.....	.....	2	.....	Grand Rapids.....	2	2	.....
Georgia:				Hamtramck.....	.....	.....	1
Atlanta.....	3	3	.....	Kalamazoo.....	1	4	.....
Brunswick.....	0	1	.....	Marquette.....	1	4	.....
Savannah.....	1	3	1	Muskegon.....	.....	1	.....
Valdosta.....	.....	1	.....	Pontiac.....	0	1	.....
Idaho:				Saginaw.....	2	4	1
Boise.....	1	3	.....	Minnesota:			
Illinois:				Rochester.....	.....	2	.....
Chicago.....	17	5	.....	St. Paul.....	3	10	.....
Jacksonville.....	0	3	.....	Missouri:			
Kewanee.....	0	2	.....	Joplin.....	0	4	.....
Rockford.....	1	1	.....	Kansas City.....	2	10	3
Springfield.....	1	2	.....	St. Joseph.....	2	.....	1
Indiana:				St. Louis.....	11	2	1
Elkhart.....	0	1	.....	Springfield.....	0	.....	1
Fort Wayne.....	1	1	.....	Montana:			
Frankfort.....	.....	1	1	Missoula.....	1	1	.....
Hammond.....	0	1	.....	Nebraska:			
Indianapolis.....	5	5	.....	Omaha.....	4	1	.....
Kokomo.....	4	7	.....	New Hampshire:			
La Fayette.....	0	.....	1	Dover.....	0	1	.....
Marion.....	0	1	.....	New Jersey:			
Muncie.....	0	1	.....	Jersey City.....	1	3	.....
Richmond.....	2	3	1	Newark.....	6	5	.....
Iowa:				Paterson.....	1	3	.....
Davenport.....	0	1	.....	West New York.....	0	1	.....
Mason City.....	0	2	.....	New York:			
Kansas:				Buffalo.....	4	7	1
Coffeyville.....	1	2	.....	Cohoes.....	0	1	.....
Kansas City.....	2	3	.....	Elmira.....	0	5	.....
Lawrence.....	0	2	.....	Mount Vernon.....	0	3	.....
Salina.....	.....	1	.....	Newburgh.....	1	1	.....
Wichita.....	1	4	.....	New York.....	65	56	7
Kentucky:				Niagara Falls.....	1	1	.....
Louisville.....	9	7	.....	North Tonawanda.....	1	1	.....
Paducah.....	1	5	.....	Rochester.....	2	.....	1
Louisiana:				Syracuse.....	4	3	3
New Orleans.....	7	7	.....	Troy.....	3	1	.....

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.

TYPHOID FEVER—Continued.

City.	Median for previous years.	Week ended Sept. 24, 1921.		City.	Median for previous years.	Week ended Sept. 24, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
North Carolina:				Pennsylvania—Contd.			
Durham.....	3	1	.....	Reading.....	2	6	.....
Wilmington.....	0	1	.....	Swissvale.....	.....	1	.....
Winston-Salem.....	3	1	.....	Uniontown.....	0	6	.....
Ohio:				Washington.....	2	4	.....
Akron.....	4	1	.....	West Chester.....	0	1	.....
Canton.....	0	1	.....	Wilkes-Barre.....	0	4	.....
Chillicothe.....	1	.....	1	Woodlawn.....	.....	1	.....
Cincinnati.....	2	.....	1	South Carolina:			
Cleveland.....	6	5	.....	Charleston.....	5	6	1
Columbus.....	3	2	.....	Columbia.....	1	1	.....
Coshocton.....	0	1	.....	Tennessee:			
Cuyahoga Falls.....	.....	.....	1	Chattanooga.....	0	1	.....
Dayton.....	3	.....	.....	Knoxville.....	1	2	1
Findlay.....	0	1	1	Memphis.....	3	2	1
Kenmore.....	.....	.....	.....	Nashville.....	10	3	1
Lima.....	1	2	.....	Texas:			
Mansfield.....	2	1	.....	Dallas.....	2	3	.....
Newark.....	0	2	.....	El Paso.....	1	2	.....
Piqua.....	2	2	.....	Waco.....	2	1	.....
Springfield.....	1	1	.....	Utah:			
Toledo.....	5	2	.....	Salt Lake City.....	2	3	.....
Oklahoma:				Virginia:			
Oklahoma City.....	2	4	.....	Alexandria.....	0	6	.....
Oregon:				Norfolk.....	2	1	.....
Portland.....	1	2	.....	Petersburg.....	1	1	.....
Pennsylvania:				Roanoke.....	1	2	.....
Allentown.....	1	1	.....	Washington:			
Bethlehem.....	2	3	.....	Seattle.....	1	2	.....
Bristol.....	.....	1	.....	Walla Walla.....	1	3	.....
Butler.....	0	3	.....	Yakima.....	2	1	.....
Canonsburg.....	.....	1	.....	West Virginia:			
Carlisle.....	0	1	.....	Bluefield.....	0	2	.....
Carnegie.....	0	1	.....	Charleston.....	0	5	.....
Chester.....	2	4	.....	Huntington.....	0	1	1
Erie.....	0	1	.....	Martinsburg.....	0	1	.....
Greensburg.....	0	4	.....	Parkersburg.....	0	1	.....
Monessen.....	0	1	.....	Wheeling.....	0	.....	1
New Castle.....	2	2	.....	Wisconsin:			
North Braddock.....	0	1	.....	La Crosse.....	0	3	.....
Oil City.....	0	1	.....	Milwaukee.....	2	1	.....
Philadelphia.....	28	17	1	Wausau.....	0	1	.....
Pittsburgh.....	4	26	.....				

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:										
Anniston.....	17,734	.....	1	.....	.....	.....	.....	.....	.....	.....
Birmingham.....	178,270	.....	6	.....	.....	.....	3	.....	5	4
Mobile.....	60,151	20	3	.....	.....	.....	.....	.....	.....	4
Montgomery.....	43,464	19	1	.....	.....	.....	1	.....	4	1
Tuscaloosa.....	11,996	.....	1	.....	.....	.....	2	.....	.....	.....
Arizona:										
Tucson.....	20,292	13	.....	.....	.....	.....	.....	.....	.....	6
Arkansas:										
Fort Smith.....	28,811	5	1	1	.....	.....	.....	.....	.....	.....
Little Rock.....	64,997	.....	2	.....	.....	.....	3	.....	.....	.....
California:										
Alameda.....	28,806	7	1	.....	.....	.....	1	.....	.....	.....
Berkeley.....	55,886	11	.....	.....	.....	.....	5	.....	1	1
Eureka.....	12,923	6	1	.....	.....	.....	.....	.....	.....	.....
Long Beach.....	55,593	16	2	.....	.....	.....	.....	.....	1	1
Los Angeles.....	576,673	151	52	1	2	.....	2	.....	54	21
Oakland.....	216,361	41	1	1	.....	.....	4	.....	1	.....
Pasadena.....	45,354	14	.....	.....	.....	.....	1	.....	.....	1
Richmond.....	16,543	3	.....	.....	.....	.....	1	.....	.....	.....

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.

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

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
California—Continued.										
Riverside.....	19,341	8								1
Sacramento.....	65,857	21	5				4		3	2
San Bernardino.....	18,721	6								1
San Diego.....	74,683	28	3				4		2	1
San Francisco.....	506,410	120	29	3	2		7		26	6
Santa Cruz.....	10,917		2	1						
Colorado:										
Denver.....	256,369	58	33				6			10
Greeley.....	10,883	2								
Pueblo.....	42,908		5				1			3
Trinidad.....	10,906								1	
Connecticut:										
Bridgeport.....	143,538	22	10		1		1		2	2
Bristol.....	20,620	1					1		1	
Danbury.....	22,325				2		1			
Derby.....	11,238	3								
Fairfield.....	11,475	3							1	
Greenwich.....	22,123								1	
Hartford.....	133,035	19	5		1		6			
Manchester.....	18,370	2					1			
Meriden.....	29,842		1							
Milford.....	10,193	3	1							
New London.....	25,688	4					2		1	
Norwalk.....	27,700	5								
Stonington.....	10,236	1								
Delaware:										
Wilmington.....	110,168	19					3			1
District of Columbia:										
Washington.....	437,571	92	8	2	2		4		24	12
Florida:										
Tampa.....	51,252	11	4						3	1
Georgia:										
Atlanta.....	200,616	57	16				7	1		3
Brunswick.....	14,413	2							1	1
Savannah.....	83,252	25	4				7		1	2
Valdosta.....	10,783	1	6						1	
Idaho:										
Boise.....	21,393	5								
Illinois:										
Aurora.....	36,397	11	15	1						
Bloomington.....	28,725	9	3						6	
Centralia.....	12,491	6								
Chicago.....	2,701,705	533	142	10	11		49	2	226	47
Cicero.....	44,996	12	4				2			3
Decatur.....	43,818	6	5				1			
East St. Louis.....	66,740	8	6							1
Elgin.....	27,454	6	2							
Evanston.....	37,215	9								
Forest Park.....	10,763	1	1		1					
Freeport.....	19,669	6	2				1			
Galesburg.....	23,834	6								1
Herrin.....	10,986		2							
Jacksonville.....	15,713	5								1
Kewanee.....	16,026	3							1	
La Salle.....	13,050	5	1							
Mattoon.....	13,552	2	2							
Oak Park.....	39,830	6	1							
Pekin.....	12,086		5				1			
Peoria.....	76,121	19	9				5		3	1
Quincy.....	35,978	8							3	
Rockford.....	65,651	10	5	2			9			1
Rock Island.....	35,177	4					3		3	2
Springfield.....	59,183	12	5							
Indiana:										
Bloomington.....	11,595	2	2				2			
Crawfordsville.....	10,139	1								
East Chicago.....	35,967	11								
Elkhart.....	24,277		1	1						
Fort Wayne.....	36,549	30	9						1	2
Frankfort.....	11,585	2								
Gary.....	55,378	15	5	1			1			1
Hammond.....	36,004	6	4	2			5			
Huntington.....	14,000		1				1			
Indianapolis.....	314,194	82	78	3	3		9		3	10

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.

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

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Indiana—Continued.										
Kokomo.....	30,067	9					2			
La Fayette.....	22,486	8	2				1			1
Logansport.....	21,626	6								
Marion.....	23,747	8	2							1
Mishawaka.....	15,195	4	1							1
Muncie.....	36,624	12	1	1			1	1		1
Richmond.....	26,765	2	1				1			
South Bend.....	70,983	16	8				2			3
Terre Haute.....	66,083	15								1
Iowa:										
Burlington.....	24,057	3								
Cedar Rapids.....	45,566						2			
Council Bluffs.....	36,162	7								1
Davenport.....	56,727						2			
Des Moines.....	126,468		9				2	1		
Mason City.....	20,065	4					1			
Muscatine.....	16,068	5								
Kansas:										
Atchison.....	12,630	1					1			
Coffeyville.....	13,452	6	1		1		2			
Fort Scott.....	10,693	1	6				1			
Kansas City.....	101,177	11							4	
Lawrence.....	12,456		3							
Leavenworth.....	16,912	10								
Parsons.....	16,028	5	3							
Salina.....	15,085	2					1			
Topeka.....	50,022	15	62	2			11			
Wichita.....	72,128	28	24				22	1	1	1
Kentucky:										
Covington.....	57,121	10					2		1	1
Lexington.....	41,534	11	1							1
Louisville.....	234,891	64	20	1	5		1		14	5
Louisiana:										
Baton Rouge.....	21,782	3	1							
Monroe.....	12,675	8								
New Orleans.....	387,219	110	9				2			10
Maine:										
Auburn.....	16,985	7	1				1		1	
Bangor.....	25,978								1	
Bath.....	14,731	9								1
Biddeford.....	18,008	6	4							
Lewiston.....	31,791	7	5	1			5		2	
Portland.....	69,272	17	3							
Sanford.....	10,691	3								
Waterville.....	13,351		1							
Maryland:										
Baltimore.....	733,826	186	12		1		12		27	25
Cumberland.....	29,837	6	2				7		1	1
Massachusetts:										
Adams.....	12,967	4					3			1
Amesbury.....	10,036	2	1							
Arlington.....	18,665	4								
Attleboro.....	19,731	5	1							
Belmont.....	10,749	2								
Boston.....	748,069	191	36	3	10		18		39	21
Braintree.....	10,589	5	1		1					1
Brockton.....	66,138		2						3	
Brookline.....	37,743	5							1	1
Cambridge.....	109,694	24	4		1		1		2	4
Chelsea.....	43,184	8					2		1	
Chicopee.....	36,214	7							1	
Clinton.....	12,979	2					1		1	
Dedham.....	10,762	5								
Everett.....	40,120	5	1		1				1	
Fall River.....	120,435	31	4				2		8	3
Frammingham.....	17,033	3							1	
Gardner.....	16,971	4					2		1	
Greenfield.....	15,462	2								
Haverhill.....	53,884	11	4	1			3			
Holyoke.....	60,203	18	1				2			
Lawrence.....	94,270	24	2		1		2		1	1
Leominster.....	19,744	6					5	1		
Lowell.....	112,479	16	4	2					8	
Lynn.....	99,148	15	11		2		3		5	5
Malden.....	49,103	11			1		1		1	2

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.
DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusetts—Continued.										
Medford.....	39,038	14	1						1	
Melrose.....	18,204	0					2			
Methuen.....	15,189	1							3	1
New Bedford.....	121,217	29	4				1		4	4
Newburyport.....	15,618	1								
Newton.....	46,054	12	6				1		1	
North Adams.....	22,232	2	2							
Northampton.....	21,951	4			1				4	1
Norwood.....	12,627	3			1				1	1
Peabody.....	19,552	4							1	
Pittsfield.....	41,751	11	4				1		5	
Plymouth.....	13,045	5								
Quincy.....	47,876	6	4		2				1	
Somerville.....	93,091	14	3		1		1		4	
Southbridge.....	14,245	3								
Springfield.....	129,563	36	5	1			7		3	1
Taunton.....	37,137	15	2							2
Wakefield.....	13,025	2	1		2					
Waltham.....	30,915	5							1	1
Watertown.....	21,457	2							1	1
Webster.....	13,253	51								
Westfield.....	18,604	4					2		1	
Winthrop.....	15,455	0								
Woburn.....	16,574	4								
Worcester.....	179,754	32	3		1		1			
Michigan:										
Alpena.....	11,101		2				2			
Ann Arbor.....	19,516	14								
Battle Creek.....	36,164		10				1			
Benton Harbor.....	12,233		1				1			
Detroit.....	993,739	176	70	6	7	1	30		52	6
Flint.....	91,599	23	32	2			16			
Grand Rapids.....	137,634	25	16				1		1	
Hamtramck.....	48,615	19	14	2			1		1	1
Highland Park.....	46,499	8	5	1			3			
Holland.....	12,166	4	1				2			1
Ishpeming.....	10,500	1	1							1
Kalamazoo.....	48,858	16	18						2	1
Marquette.....	12,718	2								
Muskegon.....	36,570	10	9				4			1
Pontiac.....	34,273	8	5				1			
Port Huron.....	25,944	5							1	1
Saginaw.....	61,903	13	11	1	1		11		1	
Sault Ste. Marie.....	12,096	3					5	1		1
Minnesota:										
Austin.....	10,118	3					1			
Duluth.....	98,917	19	10		1		4	1	1	
Minneapolis.....	380,582	87	48	1			41		39	13
Rochester.....	13,722	11								
St. Paul.....	234,595	52	17				9		9	5
Winona.....	19,143	3	4				2			
Missouri:										
Cape Girardeau.....	10,252	4	2				1			
Independence.....	11,686	3								
Joplin.....	29,855		6						1	
Kansas City.....	324,410	82	30	1	2		8	1		8
St. Joseph.....	77,939	26	1				7			1
St. Louis.....	772,897	143	23		1		6		32	8
Springfield.....	39,631	8								1
Montana:										
Anaconda.....	11,668						1			
Billings.....	15,100	1			1					
Butte.....	41,611	14								1
Great Falls.....	24,121	7								
Missoula.....	12,668	6					1		3	
Nebraska:										
Lincoln.....	54,934	13			1		1			
Omaha.....	191,601	52	33	1	1		2			
Nevada:										
Reno.....	12,016	5							2	2
New Hampshire:										
Berlin.....	16,104	5								
Concord.....	22,167	6					3			1
Dover.....	13,029	3								
Keene.....	11,210	2					2			

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.
DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City..	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
New Jersey:										
Asbury Park.....	12,400	3							2	
Atlantic City.....	50,682	11	1							
Bayonne.....	76,754		5				1		10	
Belleville.....	15,660		1							
Bloomfield.....	22,019	1								
Clifton.....	26,470	3	2							
East Orange.....	50,710	7			1		1		3	
Elizabeth.....	95,632		18	1	2		2		2	
Englewood.....	11,627	2								
Garfield.....	19,381	2								
Hackensack.....	17,667	4							1	
Harrison.....	15,721						1			
Hoboken.....	68,166	11					1			2
Jersey City.....	297,864		9				3		8	
Kearny.....	26,724	4	1				1		2	
Montclair.....	28,810	4								
Morristown.....	12,548	4								
New Brunswick.....	32,779	8	1						1	
Newark.....	414,216	85	14		3		15		18	10
Orange.....	33,268	4					2		1	
Passaic.....	63,824	7	5				1		1	
Paterson.....	135,866		7				1		7	
Perth Amboy.....	41,707	13	3	1			1		1	2
Phillipsburg.....	16,923	3								
Plainfield.....	27,700	2	4				7		4	
Rahway.....	11,042	2	2							
Summit.....	10,174	3								
Trenton.....	119,289	25	1						6	3
Union.....	20,651				1				1	
West Hoboken.....	40,068	3								
West New York.....	29,926	3	1				1			
New Mexico:										
Albuquerque.....	15,157	6	2						5	2
New York:										
Albany.....	113,344		13						7	
Auburn.....	36,192	6	6	1			2			
Binghamton.....	66,800	15	4	1			3		3	2
Buffalo.....	506,775	107	25	1	2		8		31	10
Cohoes.....	22,987	2	1							
Elmira.....	45,305	18	4		1		1		1	1
Geneva.....	14,648	4								
Hudson.....	11,745	4							1	
Jamestown.....	38,917	10	3	1			5		2	2
Lackawanna.....	17,918	3					5		1	
Lockport.....	21,308	9	1		2					
Middletown.....	18,420						1		1	1
Mount Vernon.....	42,726	10	2				2			
Newburgh.....	30,366	7							2	
New York.....	5,621,151	959	109	2	25		54		1,287	176
Niagara Falls.....	50,760	9	6		2		7		3	
North Tonawanda.....	15,482	4	3							
Olean.....	20,506	7								
Peekskill.....	15,868	3							1	1
Port Chester.....	16,573	4	6	1					1	
Rochester.....	295,750	39	11	2			4		2	3
Rome.....	26,341	14	2							
Saratoga Springs.....	13,181	3	1							
Syracuse.....	171,717	47	20	2	3		9		4	5
Troy.....	72,013	19					1		1	3
Watervliet.....	16,073	1								
White Plains.....	21,031	3							1	
Yonkers.....	100,226	16	2	1	1		1			2
North Carolina:										
Durham.....	21,719	4	5							
Greensboro.....	19,861	9								
Raleigh.....	24,418	14	10						1	3
Rocky Mount.....	12,742	5								
Wilmington.....	33,372	5					3			
Winston-Salem.....	48,395	11	1				1		1	3
North Dakota:										
Grand Forks.....	14,010		3							
Ohio:										
Akron.....	208,435	21	33				14		28	
Barberton.....	18,811	4	3				2		1	
Bucyrus.....	10,425	1								

¹ Pulmonary tuberculosis only.

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.
DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

City.	Popula- tion Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Ohio—Continued.										
Canton.....	87,091	18	11		1		7			
Chillicothe.....	15,831	6	1							
Cincinnati.....	401,247	97	15	3	1		4		16	7
Cleveland.....	796,836		46		4		20			
Cleveland Heights.....	15,236		1							
Columbus.....	237,031	42	21				4		4	1
Coshocton.....	10,847		2				3			
Cuyahoga Falls.....	10,200	1								
Dayton.....	152,559	36	14				4			
East Cleveland.....	27,292	2							1	1
Findlay.....	17,021	4								
Hamilton.....	39,675	11	4	1			5			
Ironton.....	14,007	6	13				2			
Lancaster.....	14,706	6					1			
Lima.....	41,306	6	6							1
Mansfield.....	27,824	4								
Marion.....	27,891		7				1			
Middletown.....	23,594	7	10	2						
Newark.....	26,718	4	22				2			2
New Philadelphia.....	10,718		7							
Niles.....	13,080	2								
Norwood.....	24,966	4		1						
Piqua.....	15,044	3								
Sandusky.....	22,897	7	1							1
Springfield.....	60,840	12	36	1			1		1	2
Stuebenville.....	28,508	7	1							
Toledo.....	243,109	41	65	3	2		5		5	2
Youngstown.....	132,358	26	6				6	1		1
Zanesville.....	29,569	8	4				1			1
Oklahoma:										
Oklahoma City.....	91,258	20	6	2			1		2	
Oregon:										
Portland.....	258,288	49	29	1			4		12	2
Pennsylvania:										
Allentown.....	73,502		8							
Altoona.....	60,331		6				1			
Ambridge.....	12,730		1						1	
Berwick.....	12,181		3				1			
Bethlehem.....	50,358		4				2			
Braddock.....	20,879						4		3	
Bristol.....	10,273		1						1	
Butler.....	23,773		1							
Canonsburg.....	10,632						2			
Carnegie.....	11,516		3							
Chambersburg.....	13,171		1				1			
Chester.....	58,030		1							
Coatesville.....	14,515		2							
Columbia.....	10,836						3			
Donora.....	14,131				1					
Dubois.....	18,681		2							
Duquesne.....	19,011						8		1	
Easton.....	33,813		3							
Erie.....	93,372		4				4		8	
Farrell.....	15,596		1				1			
Greensburg.....	15,033		1				1			
Hazleton.....	32,277		3							
Jeannette.....	10,627						2			
Johnstown.....	67,327		10		2					
McKeesport.....	45,975		2		1		3		1	
Monessen.....	18,179						1			
Mount Carmel.....	17,469								1	
Nanticoke.....	22,614		1							
Newcastle.....	44,033		4				2			
North Braddock.....	14,928						1		1	
Oil City.....	21,274						1			
Philadelphia.....	1,823,153	375	32	6	2		50	1	68	30
Pittsburgh.....	588,193		30		1		17		18	
Plymouth.....	16,500		4							
Pottsville.....	21,876		1				1			
Reading.....	107,734		8							
Scranton.....	137,793		5				1		5	
Shamokin.....	21,204		4							
Shenandoah.....	24,726		1							
Steelton.....	13,428		2							
Sunbury.....	15,721		1							
Swissvale.....	10,903		2				1			

CITY REPORTS FOR WEEK ENDED SEPT. 24, 1921—Continued.

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

City.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria		Measles		Scarlet fever		Tuberculosis	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Pennsylvania—Continued.										
Uniontown.....	15,692		1							
Washington.....	21,480						1			
Wilkes-Barre.....	73,833		12				2			
Woodlawn.....	12,495		1							
York.....	47,512		6							
Rhode Island:										
Cranston.....	29,407	7								
Cumberland (town).....	10,077						1			
East Providence (town).....	21,793		1				1			
Newport.....	30,255	3					1			
Pawtucket.....	64,248	16	3				1			
Providence.....	237,595	57	2		1					2
South Carolina:										
Charleston.....	67,957	16					2			
Columbia.....	37,524		6				2			
South Dakota:										
Sioux Falls.....	25,176	6					1			
Tennessee:										
Chattanooga.....	57,895		5				1			
Knoxville.....	77,818		8	1			2		1	1
Memphis.....	162,351	55	20	1			3		7	4
Nashville.....	118,342	42	10	2			3		1	2
Texas:										
Beaumont.....	40,422	6								1
Corpus Christi.....	10,522	3								
Dallas.....	158,976	30	8	1	1		4		4	1
El Paso.....	77,543	24	1							7
Galveston.....	44,255	13								
Waco.....	38,500	12								1
Utah:										
Salt Lake City.....	118,110	26	8		1		5			2
Vermont:										
Barre.....	10,008		1				2			
Burlington.....	22,779	9	6				8			
Rutland.....	14,954	2								
Virginia:										
Alexandria.....	18,060	4	1							
Danville.....	21,539	5	1				1			
Lynchburg.....	29,956	3	1							
Norfolk.....	115,777	8	2						10	
Petersburg.....	31,002	8	4				3			
Portsmouth.....	54,387	12							2	
Roanoke.....	50,842	18	24	2			2			2
Washington:										
Everett.....	27,644		1							
Seattle.....	315,652		1		1		2		17	
Spokane.....	104,437		3		1		25			
Tacoma.....	96,965				3		2			
Walla Walla.....	15,503		20							
West Virginia:										
Bluefield.....	15,282		7				3			
Charleston.....	39,608	14	10				4			2
Fairmont.....	17,851		4							
Huntington.....	50,177	14	4							
Morgantown.....	12,127		1				1			
Moundsville.....	10,669	2	2							
Parkersburg.....	20,050	3	2							
Wheeling.....	54,322	16	10	3			6			
Wisconsin:										
Appleton.....	19,561		3				1			
Beloit.....	21,284	3								
Eau Claire.....	20,880						2			
Fond du Lac.....	23,427	4								
Green Bay.....	31,017	9	1				1			
Janesville.....	18,293	3								
Kenosha.....	40,472		12				3		3	
Madison.....	38,378	5	1	1			2			
Marinette.....	13,610						1			
Milwaukee.....	457,147		47				16		12	
Oshkosh.....	33,162	2	1							
Racine.....	58,593	12	1				16	1		3
Sheboygan.....	30,955		5						1	
Superior.....	39,624	9	1				6			
Wausau.....	18,661		1							
Wyoming:										
Cheyenne.....	13,829	3							1	1

FOREIGN AND INSULAR.

YELLOW FEVER ON VESSEL.

American Barge "*J. S. McGaughy*"—Quarantine Station, Pensacola, Fla., from Tampico, Mex.

Information dated October 6, 1921, reports the occurrence on that date of one case of yellow fever on the barge *J. S. McGaughy* at quarantine station, Pensacola, Fla. The *J. S. McGaughy* cleared from Tampico September 30.

Appropriate treatment was taken against the vessel and contacts.

HAITI.

Dengue—Port au Prince.

Dengue was reported, September 25, 1921, to be unusually prevalent at Port au Prince, Haiti.

HAWAII.

Plague-Infected Rat—Honokaa.

The finding of a plague-infected rat was reported at Honokaa, Hawaii, September 8, 1921.

JAMAICA.

Infectious Disease (Alastrim or Kaffir Pox).

During the week ended September 17, 1921, 55 new cases of alastrim or Kaffir pox were reported in the island of Jamaica.

Typhoid Fever—Kingston and Vicinity.

During the period under report four cases of typhoid fever were reported in Kingston, Jamaica, and 23 cases in the surrounding country.

MEXICO.

Yellow Fever—El Dorado—Manzanillo—Mazatlan.

Under date of October 7, 1921, yellow fever was reported present in El Dorado, Manzanillo, and Mazatlan, on the west coast of Mexico. In El Dorado 40 deaths from yellow fever were reported during the week ended October 1, 1921, and 5 deaths were reported on October 2.

MOROCCO.**Plague—Typhus Fever—Spanish Zone.**

Information received under date of September 29, 1921, shows the epidemic prevalence of plague and typhus fever in the interior of the Spanish Zone in Morocco, Africa.

PORTUGAL.**Plague—Lisbon—July–August, 1921.**

During the period July 29 to August 30, 1921, five cases of plague were reported at Lisbon, Portugal. The dates of occurrence were reported as follows: July 29 and 30, August 5, 27, and 30, 1921.

RUSSIA.**Cholera—January 1–August 10, 1921.¹**

Information received under date of August 18, 1921, through the sanitary and statistical sections of the health commissariat, shows the occurrence throughout the Republic, from January 1 to August 10, 1921, of 78,011 cases of cholera. The distribution by period was reported as follows: January–March, 1921, 369 cases; April, 649; May, 1,755; June and to July 2, 42,208; July, 33,110 (incomplete). On railways, 11,632 cases, of which 5,992 were classed as suspect, were reported; in prisons during June and July, 193 cases; in the Red Army, 2,027 cases. The distribution of cases by districts and Republics was reported as follows:

Districts.—Astrakhan, 5,132 cases; Black Sea region, 3,152; Don Territory, 2,006; Kursk, 1,227; Orel, 1,968; Samara, 5,315; Saratov, 7,201; Simbirsk, 1,160; Tambov, 2,561; Tzaritzyn, 3,028; Ufa, 5,196; Veronezh, 3,621.

Republics.—Bashkir, 1,038 cases; Kirghiz, 5,687; Tartar, 1,178; Tchuvash, 233. In the districts of Moscow, Markstadt, Nizhni-Novgorod, Rjasan, and Tcheljabinsk from 300 to 1,000 cases were reported. In the city of Moscow 289 cases were reported. Additional cases were reported as follows: Territories of Azerbeidjan, 614; Turkestan, 5,583; and in the Ukraine a very large prevalence was reported, of which the reports were stated to be incomplete. In Siberia 1,264 cases were registered.

SPAIN.**Precautions Against Importation of Cholera.**

According to information dated September 5, 1921, vessels arriving from Russian or other ports infected with cholera are required to put in at the nearest quarantine station before being admitted to a port in Spain.

¹ Public Health Reports, Sept. 2, 1921, p. 2189.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.**Reports Received During Week Ended Oct. 14, 1921.¹****CHOLERA.**

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Hongkong.....	Aug. 22-28.....	37	8	Cases: Chinese, 34; foreign, 3. Deaths: Chinese, 5; foreign, 3. July 17-23, 1921: Deaths, 15,223.
Swatow.....	Aug. 14-20.....	1	1	
India:				
Bombay.....	Aug. 7-13.....	16	6	
Karachi.....	Aug. 21-27.....	13	13	
Madras.....	Aug. 14-27.....	2		
Rangoon.....	Aug. 14-20.....	2	2	
Philippine Islands:				
Manila.....	Aug. 21-27.....	3		
Provinces—				
Cavite.....	July 31-Aug. 6....	1	1	
Union.....	Aug. 7-13.....	1		
Russia:				
Districts—				Jan. 1-Aug. 10, 1921: Cases, 78,011. In districts of Moscow, Markstadt, Nizhni-Novgorod, Rjasan, and Tcheliabinsk, from 300 to 1,000 cases reported. City of Moscow cases, 289. On railways cases, 11,632, of which 5,992 suspect; river traffic, 1,140; prisons, in June and July, 193; Red Army, 2,027.
Astrakhan.....	Jan. 1-Aug. 10....	5,132		
Black Sea.....	do.....	3,152		
Don Territory.....	do.....	2,006		
Kursk.....	do.....	1,227		
Orel.....	do.....	1,968		
Samara.....	do.....	5,315		
Saratov.....	do.....	7,201		
Simbirsk.....	do.....	1,160		
Tambov.....	do.....	2,561		
Tzaritzyn.....	do.....	3,028		
Ufa.....	do.....	5,196		
Veronezh.....	do.....	3,621		
Republics—				
Bashkir.....	do.....	1,038		
Kirghiz.....	do.....	5,687		
Tartar.....	do.....	1,178		
Tchuvash.....	do.....	233		
Territories—				
Azerbeidjan.....	do.....	614		
Ukraine.....	do.....	5,583		
Siberia.....	do.....	1,264		
				Very prevalent; reports incomplete. Far Eastern Republic.

PLAGUE.

Algeria:				
Algiers.....	Aug. 1-31.....	1	1	
Ceylon:				
Colombo.....	Aug. 7-13.....	1	1	Plague rats found: 2.
China:				
Hongkong.....	Aug. 7-20.....	3	3	
Hawaii:				
Honokaa.....	.....			Plague rat found, Sept. 8, 1921.
India:				Aug. 7-13, 1921: Cases, 330; deaths, 259.
Bombay.....	Aug. 7-13.....	8	5	
Madras.....	Aug. 20-27.....	1	1	
Madras Presidency.....	Aug. 14-27.....	342	197	
Rangoon.....	Aug. 14-20.....	37	34	
Madagascar:				
Tananarive.....	June 20-July 24..	49	46	Pneumonic.
Morocco:				
Spanish Zone.....	.....			Reported present in epidemic form Sept. 29, 1921.
Portugal:				
Lisbon.....	July 29-Aug. 30..	5		
Portuguese West Africa:				
Angola—				
Loanda.....	July 17-23.....		1	
Straits Settlements:				
Singapore.....	Aug. 14-20.....	1	1	
Turkey:				
Constantinople.....	Sept. 4-10.....		1	

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 Oct. 14, 1921—Continued.****SMALLPOX.**

Place.	Date.	Cases.	Deaths.	Remarks.
Algeria:				
Oran.....	Sept. 1-10.....	1		
Australia:				
Victoria—				
Melbourne.....	July 17-23.....	1	1	Slight epidemic reported.
Brazil:				
Sao Paulo.....	Aug. 1-7.....	2		
China:				
Foochow.....	Aug. 14-27.....			Present.
Nanking.....	do.....			Do.
Cuba:				
Nuevitas.....	Sept. 19-25.....	1		
Dominican Republic:				
Santo Domingo.....	Sept. 1-18.....	10		In surrounding country.
Haiti:				
Cape Haitien.....	Sept. 11-17.....	11		
Port au Prince.....	do.....			Present.
India:				
Bombay.....	Aug. 7-13.....	6	2	
Madras.....	Aug. 14-27.....	15	10	
Java:				
East Java—				
Soerabaya.....	Aug. 1-7.....	1	1	
Jugoslavia.....				May 1-7, 1921: Cases, 102; deaths, 19.
Portugal:				
Lisbon.....	Aug. 21-27.....	2		
Portuguese East Africa:				
Lourenco Marques.....	Aug. 7-13.....	2		
Spain:				
Malaga.....	Aug. 1-31.....		24	
Straits Settlements:				
Singapore.....	Aug. 7-20.....	3	2	
Union of South Africa:				
Natal—				
Durban.....	Aug. 7-20.....	2		Stated to have been imported.

TYPHUS FEVER.

Algeria:				
Algiers.....	Aug. 1-31.....	3	2	
Oran.....	Sept. 1-10.....		1	
Canary Islands:				
Teneriffe.....	Sept. 4-10.....		1	
Egypt:				
Alexandria.....	Aug. 27-Sept. 9...	7	2	
Italy:				
Messina (Province).....	Aug. 29-Sept. 4....	2		In 2 localities.
Jugoslavia.....				May 1-14, 1921: Cases, 44; deaths, 4.
Zagreb.....	Aug. 21-Sept. 3....	13	2	
Morocco:				
Spanish Zone.....				Reported present in epidemic form Sept. 29, 1921.
Turkey:				
Constantinople.....	Sept. 4-10.....	4		
Union of South Africa:				
Cape Province—				
Port Elizabeth.....	Aug. 7-20.....	7		

YELLOW FEVER.

Mexico:				
El Dorado.....	Oct. 7.....			Present, Sept. 25-Oct. 1, 1921; Deaths, 40. Oct. 2: Deaths, 5.
Manzanillo.....	do.....			Present.
Mazatlan.....	do.....			Do.
On vessel:				
Barge J. S. McGaughy.....	Oct. 6.....	1		At quarantine station, Pensacola, Fla. from Tampico, Mexico, Sept. 30.

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

Reports Received from July 2 to Oct. 7, 1921.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy.....	July 3-Aug. 6.....	.....	10	
Shanghai.....	Aug. 1-21.....	24	1	18 Chinese, 6 foreign.
India:				Mar. 6-June 25, 1921: Deaths, 75,281. July 3-16, 1921: Deaths, 14,513.
Bombay.....	May 1-June 18.....	11	10	
Do.....	June 26-Aug. 6.....	38	24	
Calcutta.....	May 8-June 25.....	597	521	
Do.....	June 26-Aug. 20.....	130	110	
Karachi.....	July 10-Aug. 20.....	71	67	
Madras.....	May 15-June 25.....	3	2	
Do.....	June 26-Aug. 13.....	11	6	
Rangoon.....	Apr. 24-June 25.....	18	17	
Do.....	June 26-Aug. 13.....	15	8	
Indo-China:				Jan. 1-31, 1921: Cases, 80; deaths, 15. May 29-June 12, 1921: Cases, 251; deaths, 202.
City—				Not epidemic: disseminated in neighboring Provinces.
Cholon.....	June 6-12.....	5	4	
Saigon.....	May 9-June 12.....	65	44	
Do.....	July 4-31.....	100	91	
Province—				
Anam.....	Jan. 1-31.....	42	.....	In January, 1920: No cases.
Cambodia.....	do.....	8	2	January, 1920: Cases, 27; deaths, 14.
Cochin-China.....	do.....	18	9	January, 1920: Cases, 13; deaths, 10.
Tonkin.....	do.....	12	4	January, 1920: No cases.
Philippine Islands:				
Manila.....	May 22-June 25.....	4	.....	
Do.....	July 3-Aug. 20.....	26	2	
Province—				
Batangas.....	June 12-18.....	2	1	
Do.....	July 3-23.....	7	3	
Cavite.....	July 10-16.....	1	1	
Cebu.....	June 26-July 2.....	1	.....	
Laguna.....	June 19-25.....	1	.....	
Do.....	July 3-6.....	1	1	
Mindoro.....	June 12-18.....	1	1	
Pampanga.....	June 5-11.....	1	1	
Tarlac.....	June 19-25.....	1	1	
Union.....	June 26-Aug. 6.....	2	1	
Poland:				Present.
Baranowicze.....	Aug. 18.....	.....	.....	Do.
Bialystok.....	July 25.....	.....	.....	Do.
Pinsk.....	do.....	.....	.....	Do.
Russia:				Jan. 1-July 13, 1921: Cases, 27,779. Of these, 24,000 reported in June, 1921.
Districts—				
Kazan.....	Jan. 1-July 13.....	434	.....	
Kharkov.....	do.....	257	.....	
Kursk.....	do.....	528	.....	
Moscow.....	do.....	296	.....	City, 192 cases.
Orel.....	do.....	140	.....	Volga region.
Rjasan.....	do.....	129	.....	
Saratov.....	do.....	7,005	.....	Do.
Simbirska.....	do.....	814	.....	
Tambov.....	do.....	1,396	.....	Do.
Voronezh.....	do.....	2,653	.....	
Don Territory.....	do.....	2,356	.....	
Kuban Territory.....	do.....	1,718	.....	Black Sea region.
Petrograd.....	July 6.....	6	.....	
Rostov-on-Don.....	June 1.....	747	.....	Present on Orenburg-Tashkent line, and at Cheljabinsk, Perm, Petropavlovsk, Ufa, and in Smolensk and Vitebsk districts during period under report.
Siam:				
Bangkok.....	Apr. 24-June 11.....	19	4	
Do.....	June 26-July 23.....	3	.....	
Straits Settlements:				
Singapore.....	June 12-18.....	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**Reports Received from July 2 to Oct. 7, 1921—Continued.****PLAGUE.**

Place.	Date.	Cases.	Deaths.	Remarks.
Algeria:				
Aumale district.....	May 31-July 3.....	71	22	Native district about 140 kilometers from Algiers.
Douar Megnine.....	May 31-Aug. 24.....	185	97	
Asia Minor:				
Smyrna.....	June 19-25.....	1	.....	In suburbs.
Do.....	July 3-Sept. 3.....	4	.....	
Azores:				
St. Michael Island—				
Capelas.....	Aug. 6-12.....	1	1	10 miles from port of Ponta Delgada.
Ribeira Grande.....	Aug. 6-Sept. 3.....	22	7	
Brazil:				
Bahia.....	May 15-June 18.....	3	2	Locality 200 miles west of Bahia; plague reported epidemic in August, 1921, with 60 deaths.
Do.....	July 31-Aug. 6.....	1	1	
Maranhao.....	June 23.....	1	1	
Pindobassu.....	.....	.....	.....	
British East Africa:				
Kenya Colony—				
Kisumu.....	Apr. 24-May 21.....	.....	.....	Present.
Do.....	June 26-Aug. 6.....	.....	.....	.....
Uganda.....	Mar. 1-June 30.....	133	101	Reports of native chiefs show 2,709 deaths during same period.
Cape Verde Islands:				
St. Vincent.....	Aug. 12-18.....	6	3	
Ceylon:				
Colombo.....	May 8-June 11.....	2	2	5 cases rodent plague.
Do.....	June 26-July 30.....	3	3	
China:				
Amoy.....	May 15-June 25.....	7	2	Present.
Do.....	July 3-Aug. 27.....	.....	38	
Foochow.....	May 15-21.....	.....	.....	
Hongkong.....	Apr. 24-June 25.....	81	59	
Do.....	June 26-July 25.....	27	19	May 1-7, 1921: Plaguerat found.
Manchuria—				
Harbin.....	May 3-22.....	46	.....	
Ecuador:				
Guayaquil.....	May 1-June 15.....	10	1	Plague rats found: Aug. 1-15, 1921, 18; Aug. 16-31, 1921, 36.
Do.....	July 16-Aug. 31.....	3	1	
Egypt:				
City—				Jan. 1-Sept. 1, 1921: Cases, 266; deaths, 107.
Alexandria.....	May 21-June 24.....	10	3	1 case pneumonic.
Do.....	July 1-Aug. 30.....	36	7	
Port Said.....	June 16-27.....	4	2	
Do.....	July 1-Aug. 20.....	13	6	
Suez.....	May 20-June 30.....	9	5	1 case septicemic.
Do.....	July 1-18.....	5	3	
Province—				
Assiout.....	May 24-June 16.....	9	7	1 case septicemic.
Do.....	July 30.....	1	.....	
Beni-Souef.....	July 10.....	1	.....	
Gharbieh.....	June 2-25.....	7	.....	
Do.....	July 9-Sept. 1.....	9	.....	
Girgeh.....	July 6-13.....	5	4	
Minieh.....	May 23-June 10.....	2	1	
Do.....	July 13-Aug. 18.....	7	3	
Greece:				
Piræus.....	Sept. 23.....	3	.....	
Hawaii:				
Kalapa.....	July 15-19.....	1	1	
Panauhau.....	May 21.....	1	.....	
India:				
Bombay.....	May 1-June 25.....	287	204	May 1-June 25, 1921: Cases, 2,063; deaths, 1,624. June 26-Aug. 6, 1921: Cases, 1,789; deaths, 1,294.
Do.....	June 26-Aug. 6.....	35	26	
Calcutta.....	May 8-June 18.....	11	11	
Do.....	July 24-Aug. 6.....	23	21	
Karachi.....	May 8-June 25.....	18	14	
Do.....	June 26-July 30.....	2	2	
Madras Presidency.....	May 22-June 25.....	112	72	
Do.....	June 26-Aug. 13.....	384	242	
Rangoon.....	Apr. 24-June 25.....	162	142	
Do.....	June 26-Aug. 13.....	318	270	

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

Reports Received from July 2 to Oct. 7, 1921—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Indo-China.....	.....	.....	.....	Jan. 1-31, 1921: Cases, 57; deaths, 51.
Saigon.....	May 23-June 12...	4	1	May 8-15, 1921: 1 plague rat.
Do.....	.....	.....	.....	July 10-31, 1921: Rodent—Cases, 8.
Java:				
East Java—				
Surabaya.....	July 10-16.....	4	2	
Madagascar:				
Tananarive.....	July 11.....	.....	.....	Present.
Mauritius:				
Port Louis.....	Aug. 24.....	.....	.....	Do.
Mesopotamia:				
Bagdad.....	Apr. 1-May 31.....	32	35	
Do.....	July 1-31.....	1	1	
Mexico:				
Ciudad Victoria.....	June 7.....	1	.....	In State of Tamaulipas: Case confirmed June 20, 1921.
Progreso.....	.....	.....	.....	Plague rat reported found Sept. 10, 1921.
Tampico.....	June 11-30.....	36	.....	
Do.....	July 1-Aug. 21.....	21	8	Infected rodents found July 1-Sept. 25, 1921, 146.
Peru.....	.....	.....	.....	Mar. 1-31, 1921: Cases, 76; deaths, 44. Apr. 1-30, 1921: Cases, 43; deaths, 20. June 1-30, 1921: Cases, 14; deaths, 10. July 1-15, 1921: Cases, 9; deaths, 3.
Department—				
Arequipa.....	Mar. 1-31.....	2	.....	At Mollendo.
Callao.....	do.....	7	1	At Callao.
Lambayeque.....	do.....	2	1	At Chiclayo.
Libertad.....	do.....	12	7	In 5 localities.
Lima.....	do.....	32	16	At Lima city, 20 cases, 13 deaths.
Piura.....	do.....	21	19	At Payta, Piura, and Sullana.
Ancachs.....	Apr. 1-30.....	4	1	At Huarmey.
Arequipa.....	do.....	3	3	At Mollendo.
Callao.....	do.....	8	.....	At Callao.
Lambayeque.....	do.....	1	1	At Chiclayo.
Libertad.....	do.....	16	5	In 5 localities.
Lima.....	do.....	6	3	In Lima city, 3 cases, 1 death.
Piura.....	do.....	5	7	At Payta, Sullana, and Talara.
Libertad—				
Salaverry.....	June 1-15.....	1	.....	
Trujillo.....	do.....	2	3	
Lima—				
Lima.....	do.....	2	3	
Piura—				
Piura.....	do.....	1	.....	
Talara.....	do.....	4	3	
Callao—				
Callao.....	June 16-30.....	1	.....	
Do.....	July 1-15.....	5	1	
Lima—				
Lima.....	June 16-30.....	3	1	
Do.....	July 1-15.....	2	2	
Mollendo.....	do.....	2	.....	
Poland.....	.....	.....	.....	Department of Arequipa.
Porto Rico.....	.....	.....	.....	In border Province, Aug. 9, 1921: Cases, 8.
Caguas.....	Aug. 7-20.....	4	2	Total plague-infected rats found from beginning of outbreak to July 9, 1921: 90.
Fajardo.....	.....	.....	.....	Aug. 28-Sept. 3, 1921: One plague rat found.
Manati.....	July 17-23.....	1	1	
Martin Pena.....	July 3-9.....	1	.....	Suburb coextensive with San-turce.
San Juan.....	.....	.....	.....	Plague rat on steamship San Luis, in San Juan harbor, Sept. 9, 1921.
Portuguese West Africa:				
Angola—				
Loanda.....	Apr. 24-June 18...	16	.....	
Russia:				
Siberia—				
Vladivostok.....	May 1-31.....	141	145	
Senegal:				
Dakar.....	May 1-June 30.....	54	47	
Do.....	July 1-31.....	105	84	

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

Reports Received from July 2 to Oct. 7, 1921—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Siam:				
Bangkok.....	Apr. 24-June 18...	7	6	
Do.....	July 24-30.....	1	1	
Straits Settlements:				
Singapore.....	May 8-June 18.....	5	5	
Do.....	June 26-July 30....	3	3	
Syria:				
Alexandretta.....	July 10-Aug. 6.....	18	4	
Beirut.....	May 31-June 30....	2	.....	
Do.....	July 1-Aug. 7.....	9	.....	
Turkey:				
Constantinople.....	July 10-Sept. 3....	4	1	
Union of South Africa.....	.....	.....	.....	January-April, 1921: Cases (white), 6; deaths, 4. Cases (native), 13; deaths, 6. Occurring in the Orange Free State.
On vessels:				
Steamship Kishenev.....	May 2.....	1	.....	At Chefoo, China. Plague death en route. Vessel sent to quarantine, Kentucky Island, where to May 6 a total of 16 deaths was reported. (Public Health Reports, July 1, 1921, p. 1534.)
Steamship Oreland.....	.....	.....	.....	At Genoa, Italy, June 12, 1921; from La Plata, Argentina. Two fatal cases plague in crew en route.
Steamship Ralph Moller...	June 8.....	4	1	At Chefoo, China, from Vladivostok, Siberia. Three fatal cases en route. One case with fatal termination removed at Vladivostok.
Steamship San Luis.....	Sept. 9.....	.....	.....	In harbor, San Juan, Porto Rico, Sept. 9, 1921; 1 plague rat.
Steamship Tenyo Maru.....	.....	.....	.....	En route between Nagasaki and Kobe, Japan, June 28, 1921, 1 fatal case.

SMALLPOX.

Algeria:				
Algiers.....	May 1-June 30....	3	.....	
Asia Minor:				
Smyrna.....	May 22-28.....	1	.....	On the steamship Nicholas.
Do.....	July 24-30.....	2	.....	
Australia:				
Victoria—				
Geelong.....	May 5-16.....	2	.....	Mild.
Do.....	July 12-29.....	2	.....	
Melbourne.....	Apr. 9-23.....	4	1	Mild epidemic.
Bolivia:				
La Paz.....	Apr. 1-30.....	5	4	
Brazil:				
Pernambuco.....	Mar. 28-May 22....	28	4	
Rio de Janeiro.....	May 8-June 18....	11	2	
Do.....	June 26-Aug. 27....	68	13	
Sao Paulo.....	May 23-June 26....	7	2	
Do.....	June 27-July 31....	10	2	
British East Africa:				
Kenya Colony—				
Zanzibar.....	May 8-14.....	12	4	Origin, India.
Bulgaria:				
Sofia.....	May 15-31.....	6	.....	
Canada:				
Alberta—				
Calgary.....	May 26-June 18....	3	.....	
British Columbia—				
Vancouver.....	May 28-June 25....	8	.....	
Manitoba—				
Winnipeg.....	do.....	6	.....	
Do.....	June 26-Sept. 17....	13	.....	

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

Reports Received from July 2 to Oct. 7, 1921—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Canada—Continued.				
New Brunswick—				
Charlotte County.....	July 10-Sept. 10...	9	.....	
Madawaska County.....	Aug. 7-13.....	1	.....	
Restigouche County.....	June 19-25.....	1	.....	
Westmoreland County.....	June 26-July 2.....	2	.....	
Nova Scotia—				
Sydney.....	June 5-18.....	2	.....	
Do.....	June 26-July 2.....	4	.....	
Ontario—				
Fort William and Port Arthur.....	Aug. 7-27.....	2	.....	
Hamilton.....	June 12-18.....	3	.....	
Do.....	July 3-9.....	1	.....	
Kingston.....	June 5-11.....	1	.....	At 2 localities in vicinity, 2 cases.
London.....	June 5-25.....	2	.....	
Montreal.....	June 12-18.....	1	.....	
Do.....	July 17-23.....	1	.....	
North Bay.....	June 11-25.....	3	.....	
Do.....	June 26-July 9.....	2	.....	
Ottawa.....	June 12-25.....	21	.....	
Do.....	June 26-Aug. 13.....	35	.....	
Toronto.....	Aug. 23-Sept. 24.....	3	.....	
Saskatchewan—				
Moose Jaw.....	Sept. 4-10.....	1	.....	
Chile:				
Antofagasta.....	May 16-June 19.....	228	106	
Arica.....	May 31.....	2	.....	
Mejillones.....	May 30-June 5.....	.....	.....	Present. Also at interior nitrate plants.
Valparaiso.....	June 26-July 2.....	.....	4	
China:				
Amoy.....	May 8-June 4.....	.....	4	June 5-25: Present. July 3-Aug. 6: Present.
Do.....	June 26-July 2.....	.....	1	
Antung.....	May 16-June 23.....	12	2	
Canton.....	Apr. 1-30.....	.....	.....	Present. Do. Do. Do.
Chungking.....	May 1-June 25.....	.....	.....	
Do.....	June 23-Aug. 20.....	.....	.....	
Foochow.....	May 8-June 25.....	.....	.....	Do. Do. Do.
Do.....	June 23-Aug. 13.....	.....	.....	
Hankow.....	May 15-21.....	4	1	
Do.....	July 10-16.....	1	.....	
Hongkong.....	Apr. 24-June 25.....	99	84	
Manchuria—				
Dairen.....	May 9-June 23.....	44	5	
Do.....	June 27-Aug. 14.....	8	3	
Harbin.....	May 16-June 13.....	5	.....	
Do.....	June 27-July 10.....	2	.....	
Mukden.....	May 22-June 11.....	.....	.....	Do. Do. Do.
Do.....	July 3-Aug. 20.....	.....	.....	
Nanking.....	May 8-June 25.....	.....	.....	
Do.....	June 23-Aug. 13.....	.....	.....	Do. Do. Do.
Shanghai.....	June 20-25.....	1	.....	
Do.....	July 3-Aug. 6.....	2	1	
Tientsin.....	May 8-June 25.....	31	.....	Mission hospital.
Do.....	June 23-Aug. 20.....	9	1	
Tsingtau.....	May 9-June 12.....	4	1	
Do.....	July 25-31.....	1	.....	
Chosen (Korea):				
Chemulpo.....	May 1-June 30.....	11	3	
Fusan.....	do.....	12	3	
Gensan.....	do.....	5	2	
Seoul.....	do.....	3	.....	
Colombia:				
Santa Marta.....	June 5-25.....	.....	.....	Present. Do.
Do.....	June 26-Aug. 27.....	.....	.....	
Cuba:				
Antilla.....	June 5-25.....	7	.....	
Do.....	June 26-Sept. 10.....	69	.....	
Cienfuegos.....	June 26-Sept. 3.....	3	.....	
Matanzas.....	June 12-18.....	1	1	
Do.....	July 3-31.....	4	2	
Nuevitas.....	July 4-Sept. 18.....	14	.....	6 of these reported found in vicinity.
Santiago.....	June 1-30.....	28	2	
Do.....	July 1-Aug. 31.....	31	1	
Dominican Republic.				
La Ramona.....	Aug. 25.....	.....	.....	In eastern Provinces, Aug. 25, 1921, 2,000 cases, estimated. Cases numerous. On sugar estates in same Province, about 400 cases.
San Pedro de Macoris.....	Aug. 19-25.....	40	2	

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

Reports Received from July 2 to Oct. 7, 1921—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Ecuador:				
Eloy Alfaro.....	Aug. 1-15.....	1	.....	
Guayaquil.....	May 1-June 30.....	31	.....	
Do.....	July 1-Aug. 15.....	22	1	
Egypt:				
Cairo.....	Mar. 19-Apr. 29.....	2	1	
Port Said.....	Apr. 2-May 20.....	10	.....	
Finland:				
Do.....	May 1-15.....	1	.....	
France:				
Brest.....	May 22-June 4.....	18	.....	
Cherbourg.....	Aug. 1-31.....	1	.....	Variceloid.
Paris.....	July 22-31.....	2	1	
Rouen.....	May 1-29.....	2	.....	
Germany:				
Do.....	.....	.....	.....	Apr. 24-May 28, 1921: Cases, 12; Additional, Apr. 17-May 7, 1921: Cases, 57; deaths, 7.
Grear Britain:				
Nottingham.....	May 29-June 4.....	1	.....	
Do.....	July 3-Aug. 27.....	51	.....	Stated Aug. 17 to be epidemic and to have begun about two months previous to date; 57 cases reported.
Queenstown.....	July 3-9.....	1	.....	
Southampton.....	June 26-July 2.....	1	.....	
Greece:				
Saloniki.....	June 6-12.....	.....	1	
Haiti:				
Cape Haitien.....	June 19-25.....	24	2	
Do.....	June 26-Sept. 10.....	166	15	
India:				
Bombay.....	May 1-June 25.....	84	50	Mar. 20-May 21, 1921: Deaths, 3,232. June 5-25, 1921: Deaths, 958. July 3-9, 1921: Deaths, 393.
Do.....	June 26-Aug. 6.....	47	34	
Calcutta.....	May 8-June 25.....	8	8	
Do.....	June 26-Aug. 20.....	5	6	
Karachi.....	May 29-June 25.....	25	17	
Do.....	June 26-July 30.....	8	2	
Madras.....	May 8-June 25.....	33	11	
Do.....	June 26-Aug. 13.....	26	14	
Rangoon.....	Apr. 24-June 4.....	20	3	
Do.....	July 10-Aug. 13.....	4	1	
Indo-China:				
City—				Jan. 1-31, 1921: Cases, 102; deaths, 15.
Saigon.....	May 9-15.....	2	1	
Province—				
Anam.....	Jan. 1-31.....	35	.....	January, 1920: Cases, 16; deaths, 3.
Cambodia.....	do.....	21	3	January, 1920: Cases, 139; deaths, 54.
Cochin China.....	do.....	19	12	January, 1920: Cases, 8; deaths, 1.
Tonkin.....	do.....	27	.....	January, 1920: Cases, 224; deaths 43.
Italy:				
Catania.....				Province: June 6-20, 1921: Cases, 5.
Do.....	July 18-Aug. 14.....	.....	.....	In Province: Cases, 7.
Gonca.....	Apr. 1-May 31.....	11	.....	
Do.....	July 4-10.....	2	.....	
Messina.....	May 23-June 26.....	2	1	
Do.....	July 11-17.....	1	.....	In Province, July 4-17, 1921: Cases, 9.
Palermo.....	May 18-June 21.....	7	1	
Milan.....	Apr. 1-30.....	2	.....	
Do.....	June 29-July 19.....	3	.....	
Japan:				
Kobe.....	May 24-June 26.....	3	.....	
Nagasaki.....	May 23-June 26.....	6	1	
Taiwan Island.....	July 1-10.....	1	.....	
Java:				
East Java—				
Surabaya.....	June 19-25.....	2	.....	
Do.....	July 10-23.....	8	.....	
West Java—				
Bandoeng.....	May 27-June 3.....	1	.....	
Do.....	July 8-21.....	1	.....	
Batavia.....	May 6-June 23.....	17	15	
Do.....	July 1-Aug. 4.....	17	18	
Buitenzorg.....	Apr. 29-June 23.....	16	.....	
Do.....	July 22-Aug. 4.....	2	1	

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

Reports Received from July 2 to Oct. 7, 1921—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Java—Continued.				
West Java—Continued.				
Garoet.....	May 6-12.....	1	.....	
Do.....	July 8-Aug. 4.....	4	.....	
Krawang.....	Apr. 29-June 30.....	33	5	
Do.....	July 22-Aug. 4.....	14	1	
Lebak.....	Apr. 29-May 26.....	12	2	
Pandeglang.....	June 3-30.....	2	1	
Do.....	July 8-14.....	1	.....	
Jugoslavia.....				Mar. 14-May 13, 1921: Cases, 331; deaths, 83. June 27-July 19, 1921: Cases, 111; deaths, 27.
Mesopotamia:				
Bagdad.....	Apr. 1-May 31.....	3	1	
Mexico:				
Guadalajara.....	June 1-30.....	3	.....	
Do.....	July 1-Aug. 31.....	10	3	
Chihuahua.....	May 23-June 27.....	.....	3	
Mexico City.....	May 15-June 25.....	246	.....	Including municipalities in Federal District.
Do.....	June 26-Aug. 27.....	186	.....	Do.
San Luis Potosi.....	July 17-Aug. 6.....	.....	2	
Tampico.....	July 11-20.....	1	.....	
Vera Cruz.....	June 13-19.....	.....	1	
Do.....	July 11-Sept. 11.....	.....	3	
Newfoundland:				
Tilton.....	Aug. 20-26.....	3	.....	
Panama.....				Jan. 1-Sept. 19, 1921: Cases, 205 of which 33 were nonresidents.
Canal Zone.....	Apr. 1-May 31.....	2	.....	
Colon.....	Jan. 1-May 31.....	111	.....	
Do.....	Aug. 30.....	1	.....	From the interior.
• Panama.....	Feb. 1-June 30.....	54	.....	Sept. 4-19: 1 from interior.
Do.....	July 1-Sept. 19.....	4	.....	
Poland.....				Mar. 1-Apr. 30, 1921: Cases, 1,117; deaths, 142.
District—				
Bialystok.....	Mar. 1-Apr. 30.....	3	.....	
Cracovia.....	do.....	56	6	
Kielce.....	do.....	180	26	
Leopol.....	do.....	52	16	
Lodz.....	do.....	72	9	
Lublin.....	do.....	397	30	
Posen.....	do.....	26	2	
Silesia.....	do.....	10	.....	In Teschen.
Stanislawow.....	do.....	30	5	
Tarnopol.....	do.....	156	31	
Warsaw.....	do.....	36	4	
Warsaw City.....	do.....	90	13	
Portugal:				
Lisbon.....	May 15-June 25.....	.....	34	
Do.....	June 26-Aug. 20.....	23	2	
Oporto.....	June 19-25.....	1	.....	
Portuguese East Africa:				
Laurenco Marques.....	May 8-28.....	8	.....	
Do.....	July 10-Aug. 5.....	5	4	(Correction.)
Rumania:				
District—				
Hotin.....	Apr. 1-30.....	40	9	
Orhei.....	Mar. 1-31.....	2	.....	
Russia:				
Province—				
Esthonia.....	Apr. 1-June 30.....	9	.....	
Do.....	July 1-31.....	50	.....	
Latvia—				
Riga.....	Apr. 1-May 31.....	41	.....	
Siberia—				
Vladivostok.....	June 1-30.....	1	.....	
Senegal:				
Dakar.....	May 1-31.....	1	1	
Spain:				
Barcelona.....	May 12-June 22.....	.....	13	
Do.....	July 7-Aug. 24.....	.....	8	
Huelva.....	July 1-31.....	.....	2	
Madrid.....	June 1-30.....	2	.....	
Malaga.....	May 1-June 30.....	.....	57	
Do.....	July 1-31.....	.....	33	
Tarragona.....	May 9-15.....	.....	1	
Valencia.....	May 22-28.....	1	.....	
Do.....	July 2-Aug. 20.....	9	2	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**Reports Received from July 2 to Oct. 7, 1921—Continued.****SMALLPOX—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Straits Settlements:				
Singapore.....	June 12-18.....	1	.....	
Do.....	July 10-23.....	2	1	
Switzerland:				
Zurich.....	May 28-June 11...	10	.....	
Do.....	July 3-Sept. 3.....	4	.....	
Syria:				
Aleppo.....	Apr. 9-16.....	.....	.....	Present.
Beirut.....	May 10-30.....	1	1	
Tunis:				
Tunis.....	May 30-June 17...	2	3	
Do.....	July 2-Sept. 2.....	11	9	
Turkey:				
Constantinople.....	June 12-25.....	5	.....	
Do.....	June 26-Aug. 13...	6	1	
Union of South Africa.....				January-April, 1921: Cases (white), 18; deaths, 1. Cases (native), 192; deaths, 5. May 1-31, 1921: Cases, 65; deaths, 3, all natives. June 1-30, 1921: Cases, 64, of which 1 white.
Cape Province.....	Apr. 24-June 25.....	.....	.....	Outbreaks.
Do.....	June 26-July 31.....	.....	.....	Do.
Natal.....	Apr. 24-June 25.....	.....	.....	Do.
Do.....	July 10-23.....	.....	.....	Do.
Orange Free State.....	May 29-June 25.....	.....	.....	Do.
Southern Rhodesia.....	July 14-20.....	27	.....	
Transvaal.....	May 22-June 18.....	.....	.....	Do.
Do.....	July 3-31.....	.....	.....	Do.
Johannesburg.....	July 1-31.....	2	.....	
On vessel:				
Steamship Niagara.....	June 1.....	1	.....	At Sydney, Australia, from Vancouver via Fiji and New Zealand.

TYPHUS FEVER.

Algeria:				
Algiers.....	May 1-June 30....	109	25	
Do.....	July 1-31.....	19	5	
Oran.....	May 22-June 30....	35	28	
Do.....	July 1-31.....	15	12	
Asia Minor:				
Smyrna.....	June 12-18.....	1	.....	In districts.
Do.....	Aug. 28-Sept. 3.....	1	.....	
Bolivia:				
La Paz.....	Apr. 1-June 30....	50	51	
Do.....	July 1-31.....	19	3	
Brazil:				
Bahai.....	June 19-25.....	1	1	
Porto Alegre.....	do.....	.....	3	
Do.....	Aug. 7-13.....	.....	1	
Canary Islands:				
Teneriffe.....	Aug. 14-20.....	.....	1	
Chile:				
Concepcion.....	Apr. 12-June 20....	.....	8	July 25-Aug. 1, 1921: In hospital, 30 cases; in city, estimated, 100 cases.
Do.....	July 12-Aug. 8.....	.....	10	Prevalent.
Los Angeles.....	July 26-Aug. 8.....	.....	.....	
Valparaiso.....	Mar. 27-May 28.....	.....	4	
Do.....	June 26-July 2.....	.....	2	
China:				
Antung.....	May 30-June 5.....	1	.....	
Do.....	June 27-Aug. 21.....	8	.....	
Hankow.....	May 22-June 11.....	3	.....	
Manchuria—				
Harbin.....	May 23-29.....	1	.....	
Do.....	July 4-10.....	1	.....	
Chosen (Korea):				
Chemulpo.....	June 1-30.....	2	.....	
Fusan.....	May 1-31.....	1	.....	
Gensan.....	May 1-June 30.....	4	.....	
Seoul.....	May 1-31.....	1	.....	
Czechoslovakia:				
Prague.....	June 5-26.....	5	2	

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

Reports Received from July 2 to Oct. 7, 1921—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Egypt:				
Alexandria.....	May 21-June 23....	21	8	
Do.....	June 24-Aug. 26....	26	10	
Cairo.....	Mar. 19-June 24....	235	102	(Correction.)
Port Said.....	Apr. 2-May 13.....	8	2	
Finland.....	May 1-15.....	5		
Germany.....				Apr. 24-June 4, 1921: Cases, 7.
Hamburg.....	May 27-June 4.....	1		
Great Britain:				
Dublin.....	May 29-June 4.....	1		
Greece:				
Sloniki.....	May 23-June 26....	21	6	
Do.....	June 27-Aug. 14....	1	2	
Guatemala:				
Guatemala City.....	July 1-31.....		1	
Hungary.....				Jan. 1-July 13, 1921: Cases, 71; occurring in 4 counties.
Japan:				
Nagasaki.....	May 23-June 5.....	7	2	
Jugoslavia:				Jan. 30-Mar. 26, 1921: Cases, 242 deaths, 36. June 27-July 10, 1921: Cases, 23; deaths, 7.
Belgrade.....	May 1-14.....	6		
Zagreb.....	June 19-25.....	3		
Do.....	July 10-Aug. 20....	24	2	
Mesopotamia:				
Bagdad.....	May 1-31.....	1	3	
Mexico:				
Mexico City.....	May 15-June 25....	102		Including municipalities in Federal District.
Do.....	June 26-Aug. 27....	139		Present.
San Luis Potosi.....	July 31-Aug. 6.....			Mar. 1-Apr. 30, 1921: Cases, 11,489; deaths, 1,131.
Poland:				
District—				
Bialystok.....	Mar. 1-Apr. 30....	833	45	
Cracovia.....	do.....	603	90	
Kielce.....	do.....	848	62	
Leopol.....	do.....	2,508	277	
Lodz.....	do.....	521	53	
Lublin.....	do.....	1,446	83	
Posen.....	do.....	77	5	
Silesia.....	do.....	26		In Teschen.
Stanislawow.....	do.....	1,557	232	
Tarnopol.....	do.....	1,855	194	
Warsaw.....	do.....	972	61	
Warsaw city.....	do.....	223	29	
Portugal:				
Oporto.....	July 12-Aug. 20....	2		
Rumania:				
District—				
Hotin.....	Apr. 1-30.....	107	10	
Kishinev.....	Apr. 1-June 30....	89		
Do.....	July 1-31.....	11		District.
Orhei.....	Mar. 1-May 30....	146		
Russia:				
Province—				
Esthonia.....	Apr. 1-June 30....	113		
Do.....	July 1-31.....	50		
Latvia.....	Apr. 1-June 30....	599		
Siberia—				
Vladivostok.....	Mar. 1-June 30....	5	3	
Spain:				
Madrid.....	May 1-June 30....		3	
Do.....	July 1-31.....		2	
Syria:				
Beirut.....	May 20-June 10....	1	1	
Tunis:				
Tunis.....	June 11-17.....		3	
Do.....	July 30-Aug. 5.....		1	
Turkey:				
Constantinople.....	May 22-June 18....	11		
Do.....	June 26-Sept. 3....	32	1	
Union of South Africa.....				January-April, 1921: Cases (white), 34; deaths, 2. Cases (native), 3,376; deaths, 437. June 1-30, 1921: Cases, 738; deaths, 63.
Cape Province.....				Apr. 24-June 25, 1921: Outbreaks. May 1-31, 1921: Cases, 542; deaths, 51. June 26-July 31, 1921: Outbreaks.
Capetown.....	May 13-19.....	10	3	At native cantonment in vicinity.
East London.....	May 22-June 13....	1	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**Reports Received from July 2 to Oct. 7, 1921—Continued.****TYPHUS FEVER—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Union of South Africa—Contd.				
Natal.....	July 10-23.....			Outbreaks.
Orange Free State.....	.....			Apr. 24-May 28, 1921: Outbreaks.
Do.....	July 10-31.....			Outbreaks.
Venezuela:				
Maracaibo.....	June 21-27.....		1	
On vessel:				
Steamship Norden.....	Aug. 18.....	1		At Marcus Hook Quarantine, Pa., from Tampico, Mexico, via Nuevitas, Cuba.

YELLOW FEVER.

British Honduras:				
Belize.....	Aug. 22-Oct. 1....	17	6	
Mexico:				
Atlixo.....	June 1-30.....	10		State of Vera Cruz.
Do.....	July 19.....	4	1	
Barra de Penn Mex.....	July 17-23.....	1	1	Do.
Casamaloapam.....	do.....	3	1	Do.
Manzanillo.....	Sept. 13.....			Present. June 1 to Sept. 9, 1921: Cases, 18; deaths, 10.
Playa Obispo.....	Aug. 23.....	1		Territory of Quintana Roo.
Tampico.....	July 11-17.....	3	2	State of Tamaulipas.
Tierra Blanca.....	Sept. 19.....	1		Case arrived at Vera Cruz on steamship Monterey from Progreso, Mexico.
Tlacotalpan.....	Sept. 25.....			Present.
Tuxpam.....	July 25.....	1	1	State of Vera Cruz.
Vera Cruz.....	June 13-27.....	7		Do.
Do.....	July 23-Sept. 18.....	1	2	Do.
Zapotlan.....	July 14.....	1	1	Do.
Peru:				Mar. 1-31, 1921: Cases, 66; deaths, 25. Apr. 1-30, 1921: Cases, 106; deaths, 32, in 13 localities.
Department—				June 1-30, 1921: Cases, 25; deaths, 13. July 1-15, 1921: Cases, 2.
Lambayeque—				
Chiclayo.....	Mar. 1-31.....	20	10	
Chongollape.....	do.....	2	2	
Ferrenafe.....	do.....		1	
Lambayeque.....	do.....	15	5	
Monsefu.....	do.....	18	4	
Motupe.....	do.....	1	1	
Pomalca.....	do.....	5	1	
Villa Eten.....	do.....	5	1	
Callao—				
Callao.....	Apr. 1-30.....	1		At quarantine station. From Chiclayo.
Lambayeque—				
Chiclayo.....	do.....	23	5	
Chongollape.....	do.....	10	1	
Jayanca.....	do.....	5	2	
Lambayeque.....	do.....	8	5	
Monsefu.....	do.....	45	11	
Motupe.....	do.....	2	4	
Olmos.....	do.....	2		
Villa Eten.....	do.....	2		
Zana.....	do.....	1		
Libertad—				
Guadalupe.....	do.....	2		
Pueblo Nuevo.....	do.....	1	1	
Trujillo.....	do.....	1	1	Country.
Lambayeque—				
Chiclayo.....	June 1-15.....	4	3	
Monsefu.....	do.....	3		
Pacora.....	do.....	1		
Libertad—				
Casa Grande.....	do.....	1		On farm.
Pacanga.....	do.....	1		
Do.....	June 16-30.....	1	1	
Pacasmayo.....	July 1-15.....	1		
Patjan.....	June 1-30.....	13	7	
Do.....	July 1-15.....	1		

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

Reports Received from July 2 to Oct. 7, 1921—Continued.

YELLOW FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
On vessel:				
Steamship Lurline.....	Aug. 13-27.....	2	1	At Mazatlan, Mexico, from Manzanillo, Mexico. (Public Health Reports, Sept. 16, 1921, p. 2292).
Steamship Monterey.....	Sept. 18.....	1	.....	At Vera Cruz from Progreso, Mexico, Sept. 15, 1921. Patient went to Tierra Blanca.
Steamship Washington.....	Aug. 29.....	1	.....	At Mazatlan, Mexico.