PUBLIC HEALTH REPORTS

VOL. 37 MAY 12, 1922 No. 19

CARBON TETRACHLORIDE.

A Drug Proposed for the Removal of Hookworms, with Special Reference to its Toxicity for Monkeys when Given by Stomach Tube in Repeated Doses.

By G. C. LAKE, Passed Assistant Surgeon, United States Public Health Service.

Hall [1] recently published in the Journal of the American Medical Association an account of experimental work in which he used carbon tetrachloride as an anthelmintic for dogs, and found it highly effective against hookworms. With a large series of dogs he was able to secure expulsion of all the hookworms following a dose by stomach of about 0.3 gm. of the drug per kilogram of the dog's weight. This is the most favorable result Hall has been able to obtain after treating hundreds of dogs with many different anthelmintics, including those in best repute.

Hall found that carbon tetrachloride was not only the most effective drug therapeutically that he had tried as an anthelmintic for hookworms but was also the least toxic of any of the active vermifuges tried. Without any evidence of discomfort, dogs withstood 1.5 c. c. per kg., or five times the effective dose of 0.3 c. c. per kg.

As a further proof of his belief in the low toxicity of carbon tetrachloride, Hall tried the drug on himself, taking the dose of 3 c. c. This is the average dose given a dog, and Hall regards the doses required for dog and man as being about the same. He experienced no unpleasant symptoms. Hall also gave the results of some experiments on monkeys carried out jointly with Shillinger and Lake, in which doses two to five times the dose indicated for man, or 6 to 15 c. c., were given to animals weighing 2.5 to 3.5 kg. The largest dose was 6 c. c. per kg., or, on the basis of cubic centimeters of drug per kilogram of animal's weight, over one hundred times the dose indicated for man. These monkeys showed no definite symptoms of intoxication and, after being held under observation for a month or longer, were used in experiments in poliomyelitis, which usually causes marked changes only in the central nervous system. Post-mortem examination after their death from the poliomyelitis virus

[1] Hall, M. C.: The use of carbon tetrachloride for the removal of hookworms. Jour. Am. Med. Assn. vol. 77, No. 21, Nov. 19, 1921, pp. 1641-1643.

showed no gross changes in the liver or other viscera. Microscopic examinations were not made.

More recently Allen [2] reports the treatment of about 400 fur foxes, for removal of hookworms, with carbon tetrachloride with very satisfactory results.

The experiments here recorded were carried out at the suggestion of Dr. G. W. McCoy, who believed it might be essential to use repeated doses of carbon tetrachloride in man, and hence it would be important to know first the results of repeated doses in monkeys.

Four monkeys were used. The weights of the monkeys were from 2,210 to 2,630 grams. At each dosage monkey No. 1 received, by stomach tube, 1 c. c.; monkey No. 2 received 2 c. c.; monkey No. 3 received 3 c. c.; and monkey No. 4 received 5 c. c. of carbon tetrachloride. These doses were administered on January 24, 27, 30, February 2, 4, 6, 8, 11, 14, 16, 18, and 20, 1922.

On February 23, monkey No. 4, which had received a total of 60 c. c. during a period of 30 days and appeared to be in good health, was inoculated subdurally with monkey brain emulsion believed to contain poliomyelits virus without apparent effect, and on March 6 received a second subdural inoculation of the same material, following which it died March 10. Post-mortem examination showed no gross changes except an abscess in the right cerebral hemisphere, which apparently was the cause of death. Sections from the liver, kidney, spleen, and intestine were studied carefully microscopically, but no changes which could be ascribed to carbon tetrachloride were found.

Monkey No. 3 received 3 c. c. of carbon tetrachloride on February 23, 27, March 3 and 6, in addition to the doses mentioned above, or a total of 48 c. c. during a period of about six weeks. On March 6 this monkey received some of the suspected poliomyelitis virus subdurally and died on March 17. As in the case of monkey No. 4, careful examination of the organs, both grossly and microscopically, failed to show any changes ascribable to carbon tetrachloride, the cause of death being brain abscess.

Monkeys No. 1 and No. 2 received, in addition to the doses mentioned previously, 1 and 2 c. c., respectively, on February 23, 27, March 3 and 6, after which the treatment was discontinued.

Throughout the treatment with the carbon tetrachloride none of the monkeys showed any symptoms of intoxication. They ate well and appeared to be in good health. We endeavored to give the drug on an empty stomach. They were kept under observation until April 11, when they were released for other experiments, being apparently in good condition.

[2] Allen, J. A.: The efficiency of carbon tetrachloride against hookworms in the silver black fox. Jour. Am. Vet. Med. Assn., N. S. vol. 14, No. 1, pp. 31-37.

The only points worth mentioning are that monkey No. 3 occasionally gagged on the passage of the stomach tube, but apparently more from the tube itself than from the drug. He was observed to vomit a small amount of material on two occasions, when he had accidentally been fed a few hours before the treatment. No difficulty whatever was experienced in dosing the other three monkeys, and none of them was ever observed to vomit. Monkey No. 4, during the second and third week of the experiment, passed a much larger quantity of feces than was normal, probably two to three times as much as the other monkeys; they contained a great deal of undigested food and were somewhat frothy at times. During the remainder of the experiment the feces of this animal were again practically normal.

Referring again to Hall's article, the indicated dose of the drug for man is the same as for the average-sized dog (10 kilos), viz, 3 c. c.; this is equivalent to 0.05 c. c. per kilogram for man. On this basis monkey No. 1, receiving the smallest dose given at each treatment, received more than ten times the amount per kilogram indicated for man, and this dose was repeated sixteen times within a period of 6 weeks. Monkey No. 4, receiving the highest dosage given in each treatment, received forty times the indicated dose per kilogram as compared with man, and this dose was repeated twelve times within a period of 30 days. The other two monkeys received doses between these extremes.

In view of the unusually promising results of carbon tetrachloride as an anthelmintic for hookworms in dogs, and dogs have always served as the experimental animal in studying the effects of other anthelmintics, especially thymol and chenopodium, and in view of the *unusually* low toxicity of the drug for monkeys, both when given in single and in repeated doses, the use of carbon tetrachloride in the treatment of hookworm in man is worthy of an extensive trial.

This opinion seems to be further warranted, in view of the fact that it is now conceded by all authorities on the subject that the use of thymol and chenopodium has not been without accidents, a number of fatalities being charged to each.

In man the drug should be given in hard gelatin capsules, the patient having fasted overnight, and should not be accompanied with castor oil. In fact no purgative, either at the time of administration or later, seems to be necessary, as the drug itself tends to increase peristalsis. The logical procedure would be to begin with the dose of 3 c. c. for the average patient, and, if the dosage seems too small, to increase it. It would appear safe to give as much as 10 c. c.

Caution.—Care must be taken to see that the capsules are swallowed promptly. Should one open in the mouth or throat and some of the drug enter the trachea, serious results might follow.

The only reference to the use of carbon tetrachloride for the treatment of hookworm disease in man that the writer can cite is in a

report in the Lancet [3] to the effect that in Suva, Fiji, coolies suffering from ankylostomiasis have been treated with carbon tetrachloride, and that 98 per cent of the worms were removed by a single dose, almost without symptoms.

SUMMARY AND CONCLUSION.

1. Four monkeys received carbon tetrachloride by stomach tube in amounts of 1, 2, 3, and 5 c. c., respectively, at intervals of 2 to 3 days, over a period of from 30 to 41 days, the total number of doses varying from 12 to 16.

2. No symptoms of importance were shown by the monkeys during this period.

3. The two monkeys receiving the larger doses were subsequently used for the testing of suspected poliomyelitis virus and died of brain abscess. In each case gross and microscopic examination of the important organs failed to show any changes indicative of an exogenous poisoning.

4. The doses received by the monkeys at each treatment were from 10 to 40 times greater in cubic centimeters per kilogram of body weight than the dose mentioned by Hall as that indicated for man, and these doses were repeated from 12 to 16 times.

From the data at hand, we must conclude that carbon tetrachloride by stomach has a very low toxicity for monkeys and that it is probable that man may safely be given considerably higher doses than the ones suggested by Hall, and that it might be safe to repeat the dosage several times at proper intervals (one week).

Finally, in view of the unusually promising results that carbon tetrachloride has given as an anthelmintic for hookworms in animals, and in view of its unusually low toxicity for animals, including monkeys, when given by stomach, both in single and in repeated doses, we believe that it deserves an extensive trial in the treatment of hookworm disease in man.

NOTE.—Hall has just informed the writer that he and Doctor Shillinger have given dogs as high as 300 c. c. as a single dose without causing evident toxic symptoms.

[3] Carbon tetrachloride in ankylostomiasis. The Lancet, Vol. CCII, Feb. 25, 1922, p. 391.

PHYSIOLOGICAL EFFECTS OF EXPOSURE TO LOW CONCENTRATIONS OF CARBON MONOXIDE.[1]

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The effect of comparatively low concentrations of carbon monoxide for short periods and under normal air conditions of temperature and humidity, with the subject at rest, was studied by Dr. Yandell Henderson and his coworkers. In making recommendations to the New York and New Jersey Tunnel Commissions,[2] Doctor Henderson advised that if the Hudson River vehicular tunnel be so ventilated that persons passing through the tunnel would be exposed to not more than 4 parts of carbon monoxide in 10,000 parts of air for not longer than 45 minutes, they would experience no ill effects. This advice has been confirmed in supplementary experiments,[3] carried out by us in connection with studies at the Bureau of Mines Experiment Station at Pittsburgh.

In continuing our studies on low concentrations of carbon monoxide, we made a few experiments in a gas chamber where the conditions could be accurately controlled. The following factors were investigated:

1. The effect of long exposure in low concentrations of carbon monoxide.
2. The effect of strenuous exercise.
3. The effect of high temperature and humidity in low concentrations of carbon monoxide.

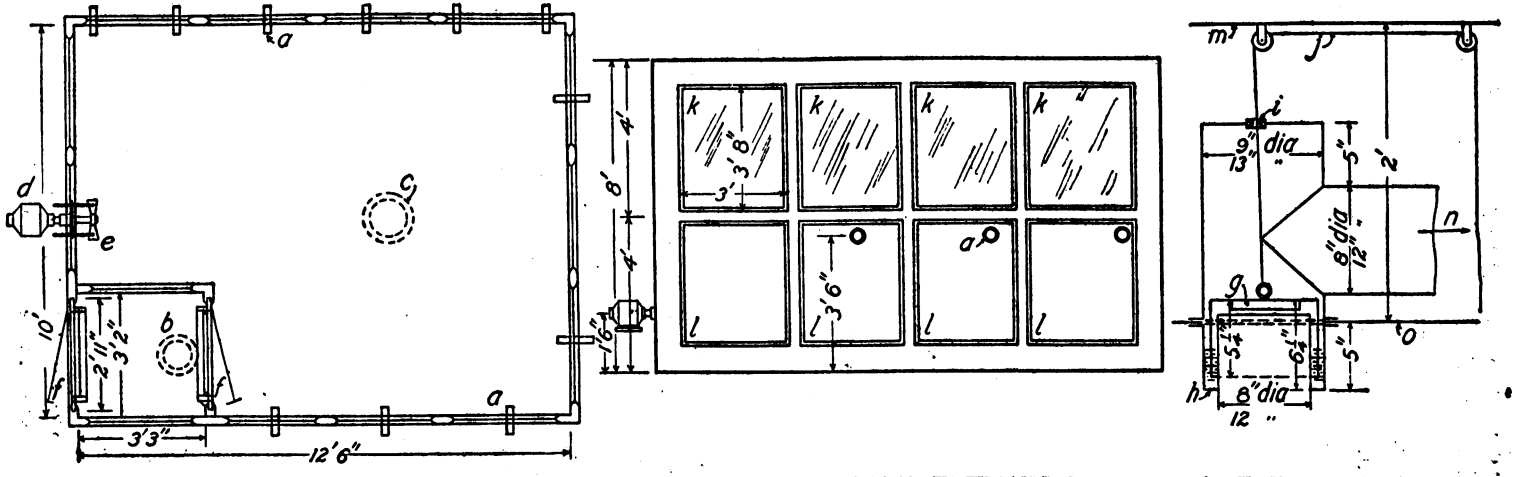
APPARATUS.

The work was conducted at the Pittsburgh Experiment Station, where a specially constructed gas-tight chamber (Pl. 1, A), 10 by 12½ by 8 feet, was available for such experimentation. Figure 1 shows the details of this room or gas chamber. The floor, walls, and ceiling are constructed entirely of sheet metal. The windows are of glass. The wooden doors, such as are made for large refrigerators, are lined on the inside with sheet metal, the edges are bordered with rubber, and the handles exert a clamping effect which fastens the doors tightly against their jambs. All metal joints are soldered. The glass windows are cemented in the metal sash with a putty containing

[1] Work done in cooperation with the U. S. Bureau of Mines.

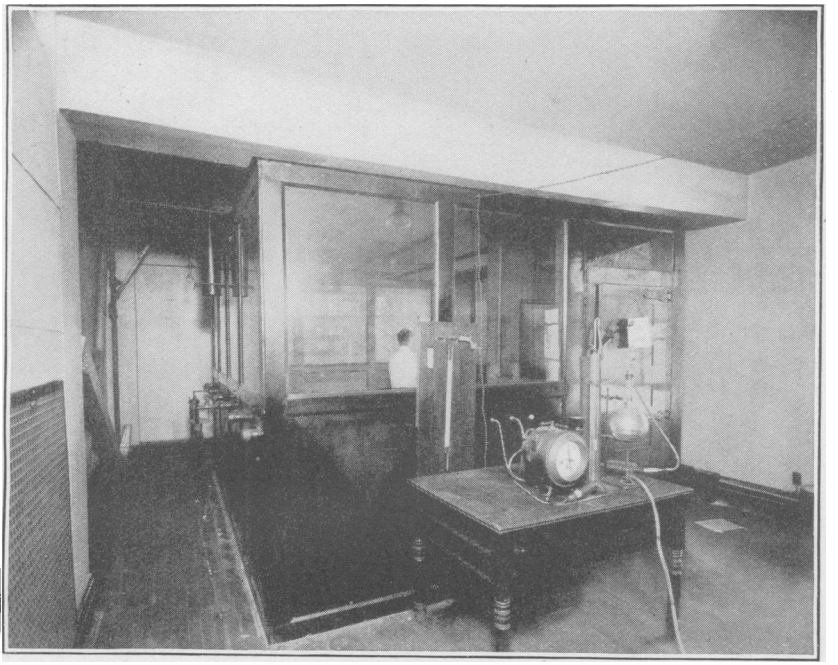
[2] Report of Tunnel Gas Investigations (Problem 2: Physiological Effect of Automobile Exhaust Gases) made by Yandell Henderson, H. W. Haggard, M. C. Teague, A. L. Prince, and Ruth Wunderlich, published by the New York and New Jersey Tunnel Commissions, 1921.

[3] Appendix H, Physiological Data, by R. R. Sayers, H. R. O'Brien, F. V. Meriwether, and W. P. Yant in Report of Tests (Problem 4) Conducted in Experimental Mine Vehicular Tunnel, published by the New York and New Jersey Tunnel Commissions, 1922.

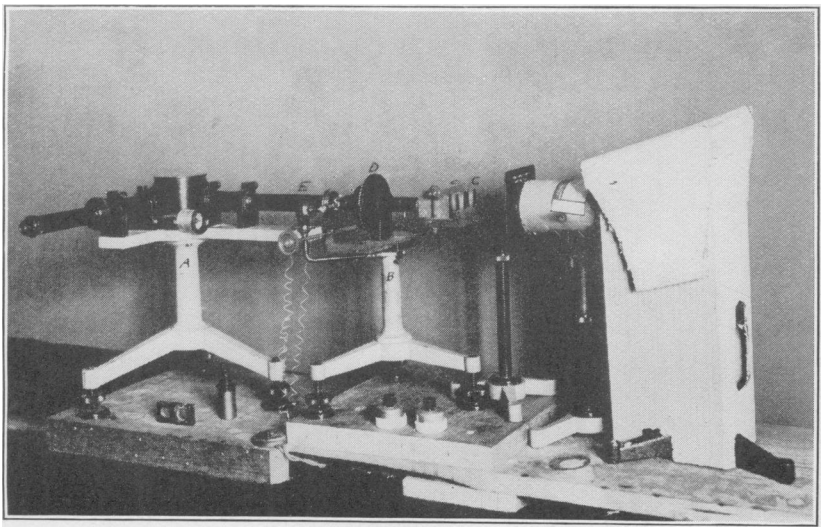


PLAN RIGHT SIDE ELEVATION DETAIL OF FLUE VALVE

Fig. 1.—Details of the gas chamber used for experimental purposes at the Pittsburgh Experiment Station of the U. S. Bureau of Mines.



A. Gas chamber.



B. Spectrophotometer as set up for determination of carbon monoxide in the blood.

linseed oil and red lead, so that the joints between the glass and the metal are air-tight. Special valves are set in the roof for connecting the room with a flue leading to an exhaust fan. Each valve consists of a sheet-iron bell suspended in a tube of slightly larger diameter, which has an annular space containing mercury on the inside at the bottom. When the bell is seated in the annular space, the mercury seal makes the valve gas-tight. A chain attached to the bell runs over pulleys to a point where it may be reached on the outside of the chamber. Raising the bell into a closed space above a T in the pipe permits the gases in the chamber to be exhausted.

Experiments have shown that the room is nearly gas-tight. The interchange of gas between the inside and outside of the closed chamber during 24 hours amounts to less than 10 per cent of the chamber volume.

The "work" was done on a bicycle ergometer and calculated as foot-pounds. The carbon monoxide was made by dropping formic acid into hot concentrated sulphuric acid, and purified by passing through a soda-lime canister. An analysis of the gas used gave 99 per cent CO and 1 per cent air.

ANALYSIS OF BLOOD.

The analysis for the percentage saturation of the blood was made by the spectrophotometric method, described in detail in Appendix I, Report of Tunnel Gas Investigations No. 4, previously mentioned. In brief, this method is based on the observation that hemoglobin in combination with carbon monoxide has a power of absorbing light of certain wave-lengths different from that which it has in combination with oxygen, and that any mixture of the two combinations will show a proportional amount of that difference corresponding to the percentage of each in the mixture. By determining the extinction coefficient ($E = -\log$ transmission) of carbon monoxide hemoglobin and of oxyhemoglobin, we obtain a measure of their difference in absorption ($E_{CO} - E_{O_2}$). Then by finding the extinction coefficient, Ex, due to a mixture of these hemoglobins, such as would be found in the blood of a victim of carbon monoxide poisoning, we can calculate the percentage of each.

Let $E_{CO} - E_{O_2} = M$, a number representing the total increase of extinction due to carbon monoxide, and $Ex - E_{O_2} = N$, or $E_{CO} - Ex = N^1$, N representing value in extinction resulting from some of the hemoglobin having combined with carbon monoxide, or N^1 the value representing the possible extinction increase of that portion of hemoglobin which remained uncombined with carbon monoxide; then $\frac{N}{M} \times 100 =$ percentage of CO–Hb or $\frac{N^1}{M} \times 100 =$ percentage of $O_2 -$ Hb.

The apparatus used for making these measurements of absorption was a Hilger constant deviation wave-length spectrometer with a

Nutting polarization photometer (Pl. 1, B). The spectrometer, A, serves to disperse the light, making it possible to select the wavelength of light wherein a suitable difference of absorption occurs, and where it can best be measured. The photometer, B, measures that absorption and indicates it in the numerical values which serve as a basis for calculation. The values on the apparatus were read directly in extinction coefficients ($E = -\log T$, where E is the extinction coefficient and T the transmission). The technique in making analyses is to place a cell, C, containing the blood, which has been obtained from a puncture wound in the finger, and diluted 1:100 (0.1 c. c. to a volume of 10 c. c.) with 0.4 per cent ammonia, in front of the aperture to the right as viewed in the figure. As observed through the slit eyepiece, the field of vision is vertically tripartite, the upper and lower parts being representative of the light coming through the blood, while the central one represents that coming through a control cell of distilled water in front of the other aperture. The light coming through the distilled water can be reduced in intensity until it just equals that coming through the blood solution. When the three are of equal intensity, as judged by matching them, the extinction coefficient is read on circle D by the aid of a lens and small light E. In this manner a measure of the absorption is taken.

In making analyses, the main work is in reading the extinction coefficients due to the unknowns, then slowly bubbling a stream of O through the blood solution to displace the CO, and again reading the extinction coefficients due to the sample when determined as 100 per cent saturated with O; or by saturating CO and determining as 100 per cent saturated with CO. The former multiplied by or the latter divided by an existing constant $\left(\frac{E_{CO}}{E_{O_2}} = K\right)$ between the hemoglobins will give a result representing the other hemoglobin.

The following typical set of readings will illustrate the method:

Unknown sample.	Extinction coefficient.
Oxygen bubbled for 20 minutes.....	830 (average of three).
Oxygen bubbled for 30 minutes.....	802 (average of three).
Oxygen bubbled for 40 minutes.....	791 (average of three).
	789 (100 per cent saturated with oxygen).

$\frac{E_{CO}}{E_{O_2}} = 1.42$ from previous determination.

Calculation:

$$\frac{(0.830-0.789)}{(0.789\times 1.42-0.789)}\times 100 = 12.4 \text{ per cent saturated with CO hemoglobin.}$$

As a daily check on the factor (1.42), two or three specimens of the oxy-hemoglobin were saturated with carbon monoxide.

PROCEDURE.

In conducting this study of the physiological effects of carbon monoxide, a procedure was followed which, in our opinion, would

afford a satisfactory accumulation of data. Before the subject entered the chamber, an examination was made as to body temperature (rectal), pulse, respiration, and general condition. During the test a similar examination was made, with the addition of the taking of blood samples at sufficient intervals to determine the rate of absorption of the carbon monoxide. At the end of a test the subject was exercised so as to bring out latent symptoms, a record of which was continued until they had abated.

As a control on conditions, the air in the gas chamber was analyzed for carbon monoxide before starting and just before completing an experiment. In some of the tests, determination of the carbon monoxide content was also made at intermediate periods. These analyses were made by the iodine pentoxide liquid air method.[4] Also, oxygen was supplied to compensate for that used by the subject (analyses of O_2 used = 98.5 per cent O_2 − 1.5 per cent N_2), and in the "long exposure," test pans of KOH, to remove the CO_2 given off, were placed on the floor before the circulating fan. An analysis of the air for these constituents was made at the end of the test.

Exposure of blood to 2 parts of CO in 10,000 of air, as calculated by Henderson,[5] may possibly produce 28.5 per cent saturation of hemoglobin when equilibrium is reached; exposure to 3 parts in 10,000 is calculated to cause 37.4 per cent saturation; and 4 parts, according to his calculations, will produce 44.4 per cent saturation. Henderson presupposes that the affinity of CO for hemoglobin is 300 times that of oxygen for hemoglobin. He further uses 15 per cent as being the concentration of oxygen in the air of the lungs. He does not claim that the figures used are more than approximately correct, but that they are sufficiently accurate for indication as to what might take place. He also calls attention to the fact that many hours of exposure are required, and that the time is really indeterminate before the circulating blood would come to complete equilibrium with the CO in air.

In our work, exposure was made to concentrations of from 2 to 4 parts of CO in 10,000 of air for several hours. The conditions and results of these tests are given in Table I. In test No. 1 the subjects were exposed to approximately 2 parts in 10,000 for 6 hours. This caused a saturation of 16 to 20 per cent of the hemoglobin with CO. This was McConnell's first test, and the percentage of hemoglobin combined with CO was somewhat greater than that in either of the other subjects. He had a slight headache, but the subjective symptoms were extremely mild, and there were no symptoms of CO poisoning in any of the subjects after the test.

[4] Teague, M. C.: The Determination of Carbon Monoxide in Air Contaminated with Motor Exhaust Gas. Jour. Ind. & Eng. Chem., vol. 12, October, 1920, pp. 964-968.

[5] Idem.

TABLE I.—*Test for low concentrations of CO without exercise (sitting).*

Subject.	Time in minutes.	Parts CO in 10,000.	Per cent blood saturation with CO.	Respiration.	Temperature.	Pulse rate.	Symptoms. During test (time in minutes).	Symptoms. After test.	Remarks.
TEST NO. 1.									
Sayers	Start.	2.1		14	98.9	76	Before.—Feels O. K.	No symptoms.	Oxygen put in gas chamber during test. Pans containing KOH put in front of stirring fan to remove CO_2.
	60						100.—No symptoms.		
	120		8	12		72	200.—Slight tightness across forehead.		
	180						210.—Yawning.		
	240	1.8	11	15	99.4	78	250.—Slight tightness across forehead.		
	360		16	18		80	360.—All symptoms gone.		
McConnell	Start.	2.1		15	98.7	86	Before.—Feels good	No symptoms.	Analysis of air after test: O_2=20.6; CO_2=0.5.
	60						240.—No symptoms.		
	120		9	14		80	300.—Yawning.		
	180						320.—Eyes hurt, tightness across forehead.		
	240	1.8	14	15	99.2	78	360.—Drowsy, slight headache, increasing on exertion.		
	360		20	18		90			
Moriwether	Start.	2.1		14	98.3	78	Before.—Feels good	No symptoms.	
	60						240.—Yawning.		
	120		5	18		84	310.—Tightness across forehead, sleepy, yawning.		
	180						360.—Sleepy, no headache, feels lazy.		
	240	1.8	14	21	99.0	92			
	360		17	18		92			
TEST NO. 2.									
Sayers	Start.	3.1		16	99.2	74	Before.—Feels good	No ill effects on running up 40 stair steps. Slow in acting, dull nerves. Did not sleep well. Feels good next morning.	Oxygen put in gas chamber during test. Pans containing KOH put in front of stirring fans to remove CO_2. Analysis of air after test: O_2=20.8; CO_2=0.7.
	60	2.7	9				43.—Yawning.		
	120		14				65.—Yawning and sleepy.		
	180	2.8	17				165.—Yawning.		
	240	2.7	22	16	98.9	72	185.—Tightness across forehead. 215.—Slight headache, shortness of breath, fingers cold.		

Meriwether...	Start.	3.1	.....	18	99.4	88	Before.—Slight pain in right frontal sinus.	No ill effects on running up 40 stair steps. Headache increased after walking 11 blocks; of a throbbing basal type; continued until 1 a. m. Dull and irritable following day.	
	60	2.7	12	.....	.....	.....	155.—Yawning and slight frontal headache.		
	120	.....	16	.....	.....	.....	185.—Slight nausea on exertion.		
	180	2.8	20	.....	.....	.....	215.—Dizzy.		
	240	2.7	24	18	99.0	82	.....	.....	

TEST NO. 3.

Sayers.....	Start.	2.9	.....	16	99.0	74	Before.—Feels good.....	Slight dizziness on running upstairs. Increasing headache during night, with chilly sensations, followed by sweating. Did not sleep well.	Oxygen put in gas chamber during test. Pans containing KOH put in front of stirring pans to remove CO_2. Analysis of air after test: O_2=21.1; CO_2=0.6.
	120	3.1	17	.....	.....	68	167.—Stops reading, eyes hurt, skin on forehead feels tight.		
	240	.....	24	16	98.0	80	209.—Headache.		
	300	2.6	27	20	98.6	84	234.—After eating lunch slight temple headache.		
							250.—Headache basal in character, continuing until end of test.		
Meriwether...	Start.	2.9	.....	16	98.4	88	Before.—Slight pain in right frontal sinus.	Headache exaggerated on exertion such as running upstairs. Severe headache all night. Went to hospital for sinus operation next day.	
	120	3.1	16	.....	.....	74	72.—Slight dizziness.		
	240	.....	23	17	98.0	88	87.—Slept 15 minutes.		
	300	2.6	26	18	98.2	88	102.—Severe temple headache, slight dizziness.		
							234.—Ate lunch in gas chamber, headache increased.		
							274.—Occipital headache and very dizzy on rising.		

TEST NO. 4.

Sayers.....	Start.	4.2	.....	17	99.4	84	Before.—Feels good.....	Did not sleep well. Dull headache during night. O. K. next morning.	Analysis of air after test: O_2=20.6; CO=0.5.
	30	.....	8	18	.....	78	40.—Tightness across forehead.....		
	60	.....	15	19	.....	78	60.—Constant desire to yawn.		
	90	.....	18	18	.....	80	80.—Tightness across forehead, increasing to headache on walking, feels very dull, slightly dizzy.		
	120	3.5	21	18	99.2	80	120.—Slightly dizzy, on climbing stairs palpitation and puffing. Frontal headache and dizziness.		
McConnell....	Start.	4.2	.....	14	99.4	84	Before.—Feels O. K.....	Throbbing headache lasting until 10.30. Irritable and dull. Didn't feel like working.	
	30	.....	10	15	.....	88	60.—Slight headache.		
	60	.....	19	18	.....	88	85.—Dull headache on walking.		
	90	.....	.....	19	.....	88	120.—Headache, after going to bed, puffing, palpitation, and dizziness.		
	120	3.5	28	19	99.4	88			

TABLE I.—*Test on low concentrations of CO without exercise (sitting)*—Continued.

Subject.	Time in minutes.	Parts CO in 10,000.	Per cent blood saturation with CO.	Respiration.	Temperature.	Pulse rate.	Symptoms. During test (time in minutes).	Symptoms. After test.	Remarks.
					TEST NO. 4—continued.				
Meriwether...	Start.	4.2	.....	15	99.0	86	Before.—Feels O. K.....	After-symptoms lasting until 2 or 3 o'clock a. m. Dull and irritable next day.	
	30	.....	6	17	.....	84	60.—Tightness across forehead.		
	60	.....	15	19	.....	90	90.—Slight temple headache on walking or shaking head.		
	90	.....	19	21	.....	90	105.—Slight dizziness.		
	120	3.5	23	21	98.8	92	320.—All symptoms exaggerated on going upstairs. Palpitation and puffing quite noticeable.		

In test No. 2 (Table I) the subjects were exposed to approximately 3 parts of CO in 10,000 of air for four hours, remaining at rest during the entire test, at the end of which time the blood saturation was from 22 to 24 per cent. The symptoms were mild in character. The after effects were also very mild in one subject, whereas the other had symptoms, due chiefly, if not entirely, to a frontal sinus infection.

Test No. 3 (Table I) was practically a check on No. 2, with the variation of having a lunch after an exposure of 3 hours and 45 minutes, and an exposure for 5 instead of 4 hours. The lunch caused an increase in the heart rate and emphasized the symptoms of headache and slight dizziness. At the end of the test, 26 to 27 per cent of the hemoglobin of the blood was saturated with CO.

It will be noted that the blood saturation with CO at the end of four hours' exposure in test No. 3 was practically the same (22 to 24 per cent) as at the end of No. 2. It will also be noted that the rate of saturation is very much more rapid (about double) during the first hour than during any succeeding hour. After the first hour, the rate of saturation of the hemoglobin with CO was practically uniform.

The effects of exercise, after the test was completed, were noticeably more pronounced after five hours in test No. 3 than after four hours in test No. 2, due apparently to an increased hemoglobin saturation of 2 to 5 per cent and to the subject having eaten a lunch.

The subjects did not sleep well after either of the two tests, but Sayers felt practically normal the following morning. Meriwether's symptoms and after effects were probably exaggerated by or due chiefly to a frontal sinus infection for which he went to the hospital for treatment after test No. 3.

In test No. 4 (Table I) three subjects were exposed to an average of 4 parts of CO in 10,000 of air for two hours. All felt well before beginning the test, and mild symptoms, such as persistent yawning and slight headache, were noticed at the end of the first hour. After one and one-half hours' exposure, all were somewhat dizzy, and walking caused a more noticeable headache. At the end of the test (after two hours), all were somewhat dizzy, and climbing stairs caused palpitation of the heart and panting. The after symptoms were persistent headache, irritability, and inability to sleep well. On the following day the subjects were still somewhat irritable and dull. Of the hemoglobin of the blood of two subjects, 21 to 23 per cent was saturated with CO, which is no higher than in test No. 2, but the symptoms were more severe than in test No. 2. The third subject had a blood saturation of 28 per cent, which is comparable to that of subjects in test No. 3. This indicates, but of course does not definitely show, that the higher concentration of CO in air produces more severe symptoms even when the blood saturation with CO is no greater.

For any given concentration of CO in air, the rate of saturation of the hemoglobin with that gas should be much more rapid when a man is exercising than when he is at rest. This is due to the greater lung ventilation, which gives fresh and more abundant supply of CO to the blood, and to the more frequent exposure of the red blood cells to the CO, due to the more rapid circulation of the blood through the lungs.

That the above is true is borne out by the data which are given in Table II. Strenuous exercise was taken at intervals during exposure to concentrations ranging from 2½ to 4 parts of CO in 10,000 of air. The exercise, as stated earlier in this report, was taken on a bicycle ergometer, and the amount of work done was calculated in foot-pounds. While there was a great difference in the amount of work done by the subjects, the amount represents strenuous exercise for the individual working. Both men worked at the same rate—about 4,500 foot-pounds per minute—but one was able to continue the work for a full five minutes, whereas the other could work only about half as long. After each working period the subjects rested for about 15 minutes. In test No. 1 (Table II), the subjects were exposed to 2½ parts of CO in 10,000, which caused a saturation of from 14 to 16 per cent of the hemoglobin with CO at the end of one hour. The symptoms during the first half of the test were probably due chiefly to the severe exercise; during the latter half they were probably due to oxygen want in the tissues caused by both the exercise and the fact that a distinct portion of the hemoglobin combined with the CO. The subject doing the lesser amount of work in this test had more severe symptoms. This may have been caused by the fact that it was his first test of this nature, and the psychic effects emphasized the symptoms; but it was more likely due to the fact that he was in a less physically fit condition than the other subject as he was developing a frontal sinusitis.

TABLE II.—*Test on low concentrations of CO with exercise.*

Subject.	Time in minutes.	Parts CO in 10,000.	Per cent of blood saturation with CO.	Respiration.	Temperature.	Pulse rate.	Work done (in foot-pounds).	Symptoms. During test (time in minutes).	Symptoms. After test.	Remarks.
TEST NO. 1.										
Sayers.....	Start.	2.5	.....	16	99.4	78	67,272	Before.—Feels good.....	Pain in eyes, dull headache, head heavy.	Oxygen put in gas chamber during test. Analysis of air after test: O_2=21; CO_2=0.5
	15	2.6	3	30	.....	130	.....	15.—Slight headache, little dizzy, feels effects of exercise; sweating.		
	30	2.6	8	26	.....	144	.....	30.—Headache gone, dizzy on moving.		
	45	.....	.....	28	.....	138	.....	60.—No other symptoms during test.		
	60	.....	14	.....	.....	.....	.....			
	After.	.....	.....	20	104.0	82	.....			
Meriwether..	Start.	2.5	.....	17	99.4	96	33,826	Before.—Feels good.....	Breathed oxygen for 30 minutes; all symptoms gone except lassitude and dullness.	
	15	2.6	4	30	.....	134	.....	15.—Yawning, dizzy, nauseated.		
	30	2.6	7	28	.....	126	.....	30.—Very dizzy, nauseated on moving; weak, air hunger, sweating profusely.		
	45	.....	.....	28	.....	120	.....			
	60	.....	16	.....	.....	.....	.....	45.—Dizzy, nauseated, weak, cold hands, feels faint.		
	After.	.....	.....	20	99.8	90	.....	60.—No additional symptoms.		
TEST NO. 2.										
Sayers.....	Start.	3.6	.....	17	98.8	76	67,195	Before.—Feels good.....	On running upstairs headache becomes basic. Just perceptible dizziness; did not sleep well.	Oxygen put in gas chamber during test. Analysis of air after test: O_2=20.7; CO_2=0.5.
	15	.....	.....	24	.....	134	.....	50.—Slight headache.		
	30	3.3	11	24	.....	96	.....			
	45	.....	.....	24	.....	106	.....			
	60	3.3	17	.....	.....	105	.....			
	After.	.....	.....	18	99.4	96	.....			
Meriwether..	Start.	3.6	.....	18	98.8	90	32,700	Before.—Frontal headache due to sinus.	Severe headache lasting until going to sleep 1.00 a. m. Feels good next morning.	
	15	.....	.....	34	.....	136	.....	35.—Slight headache, dizziness.		
	30	3.3	13	20	.....	90	.....	60.—Slightly nauseated.		
	45	.....	.....	32	.....	144	.....			
	60	3.3	17	26	.....	156	.....			
	After.	.....	.....	22	99.6	90	.....			

TABLE II.—*Test on low concentrations of CO with exercise*—Continued.

Subject.	Time in minutes.	Parts CO in 10,000.	Per cent of blood saturation with CO.	Respiration.	Temperature.	Pulse rate.	Work done (in foot-pounds).	Symptoms. (During test (time in minutes).	Symptoms. After test.	Remarks.
					TEST NO. 3.					
Sayers.....	Start.	4.4	.....	17	98.8	72	62,292	Before.—Feels good.....	Basal headache of moderate severity.	No oxygen added.
	15	.....	.....	24	99.2	106	.....	30.—Tight feeling across forehead.		No analysis of air after test made.
	30	.....	16	30	99.4	110	.....	40.—Sleepy, drowsy, and yawning.		
	60	3.7	22	30	99.6	120	.....	42.—Slightly dizzy on quick moving.		
								50.—Puffing, shortness of breath, palpitation of heart.		
								60.—Slight basal headache.		

In test No. 2 (Table II) the subjects were exposed to 3.3 parts of CO in 10,000 and were working at the same rate as in test No. 1. At the end of 1 hour, 17 per cent of the hemoglobin was combined with CO. The symptoms were somewhat more pronounced at the end of this test than at the end of two hours' exposure, with the subject at rest, to a slightly less concentration (test No. 3, Table I), which produced a similar saturation of the hemoglobin with CO.

Only one subject was exposed in test No. 3 (Table II) to an average of about 4 parts of CO in 10,000. The total work was slightly less than that done by this subject in either of the previous tests, but was still very strenuous. At the end of the test 23 per cent of the hemoglobin was saturated with CO. This is practically the same percentage as resulted from the exposure of the same subject at rest for two hours to a similar concentration (test No. 4, Table I), but the symptoms, as would be predicted, were somewhat more pronounced. The after effects were of moderate severity, but were more marked than they were in case of exposure to 3.3 parts of CO in test No. 2, Table II.

The effects of temperature and humidity are usually neglected when a study is being made of the physiological effects of CO, as the experiments are generally made with those factors practically normal. As it is well known that high temperature and high humidity induce greater lung ventilation and more rapid circulation of the blood, it would appear that there should be a more rapid absorption of CO by the hemoglobin when these factors are present.

Table III gives the results of the effect of very extreme conditions of temperature and humidity. A temperature of 102° to 113° F., accompanied by the high humidity used in this experiment, may produce all the symptoms recorded in this test, with the possible exception of headache, which is unusual after exposure to high temperature and humidity alone.

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TABLE III.—*Test on low concentrations of CO with heat and humidity.*

Subject.	Time, in minutes.	Parts CO in 10,000.	Per cent blood saturation with CO.	Respiration.	Temperature.	Pulse rate.	Symptoms. During test (time in minutes).	Symptoms. After test.	Remarks.
Sayers.....	Start..	3.1	.....	17	98.8	72	Before.—Feels good	Basal headache, moderate severity....	No oxygen used during test. No analysis of air after test. No work done.
	10	.....	.....	.....	.....	.....	5.—Sweating freely.		
	30	.....	10	30	101.4	110	24.—Sweating profusely.		
	60	3.2	16	30	102.8	120	27.—Room very uncomfortable, dizzy on rising.		
							38.—Room very comfortable.		
							40.—Sweating profusely, weak, dizzy, head feels full, slight headache.		
							50.—Shortness of breath, palpitation of the heart.		
							52.—Dull frontal headache.		
							60.—Slight basal headache.		

Temperature and humidity.

Time, in minutes.	Wet bulb.	Dry bulb.	Relative humidity.
Start	95.0	113	52
15	97.5	113	.....
30	99.0	111	65
45	99.0	108	72
48	97.5	107	.....
60	97.0	102	83

During the entire test the subject remained seated in a current of air moving at about 250 linear feet per minute. He wore only a suit of overalls and a pair of shoes. At the end of one hour, 16 per cent of the hemoglobin was combined with CO. This saturation is approximately equal to that found after 2 hours' exposure to a like concentration of CO (3 parts in 10,000), as that given in tests 2 and 3 (Table I), and is comparable to the effects of strenuous exercise in similar concentration as shown by Table II.

Only one test was carried out with high temperature and humidity, as the results are in concordance with those observed by the writers under similar conditions in the tests with automobile exhaust gases,[6] and the results are considered sufficiently reliable and adequate to serve as a basis for conclusions.

SUMMARY OF PHYSIOLOGICAL EFFECTS OF LOW CONCENTRATIONS OF CARBON MONOXIDE UNDER VARYING CONDITIONS.

With the subject at rest.

1. The exposure for 6 hours to 2 parts of CO in 10,000 of air caused—
   - *a.* Saturation of 16 to 20 per cent of the hemoglobin of the blood with CO.
   - *b.* Very mild subjective symptoms of CO poisoning at the end of the test.
   - *c.* No noticeable effects after the test.
2. The exposure to 3 parts of CO caused—
   - *a.* Saturation of 22 to 24 per cent of the hemoglobin with CO after 4 hours, and 26 to 27 per cent after 5 hours.
   - *b.* Symptoms at the end of 2 hours absent; after 4 hours, mild effects attributed to CO poisoning; and after 5 hours, moderate effects.
   - *c.* After effects of 4 hours' exposure mild; of 5 hours' exposure, moderate.
3. The exposure to 4 parts of CO in 10,000 caused—
   - *a.* Saturation of 15 to 19 per cent of the hemoglobin with CO at the end of 1 hour, and 21 to 28 per cent at the end of 2 hours.
   - *b.* After effects, moderate to marked.

With the subject exercising strenuously.

1. The exposure for 1 hour to 2½ parts of CO in 10,000 caused—
   - *a.* Saturation of 14 to 16 per cent of the hemoglobin with CO.
   - *b.* Moderate symptoms of CO poisoning at the end of the test.
   - *c.* After effects mild to moderate.

[6] Teague, M. C.: The Determination of Carbon Monoxide in Air Contaminated with Motor Exhaust Gas. Jour. Ind. and Eng. Chem., vol. 12, October, 1920, pp. 964-968.

2. The exposure for 1 hour to 3.3 parts of CO in 10,000 caused—
   a. Saturation of 17 per cent of the hemoglobin with CO.
   b. Mild to moderate symptoms of CO poisoning.
   c. After effects mild to moderate.
3. The exposure for 1 hour to 4 parts of CO in 10,000 caused—
   a. Saturation of 23 per cent of the hemoglobin with CO.
   b. Moderate symptoms of CO poisoning.
   c. Moderate after effects.

With the subject at rest. Temperature and humidity high.

1. The exposure for 1 hour to 3.1 parts of CO in 10,000 caused—
   a. Saturation of 16 per cent of the hemoglobin with CO.
   b. Mild symptoms of CO poisoning.
   c. Mild to moderate after effects.

CONCLUSIONS.

1. The combination of CO with hemoglobin takes place slowly when the subject is exposed to low concentrations and remains at rest, many hours being required before equilibrium is reached.

2. The rate of combination of CO with hemoglobin takes place much more rapidly during the first hour of exposure than during any succeeding hour, with the subject remaining at rest.

3. Strenuous exercise causes much more rapid combination of CO with hemoglobin than when the subject remains at rest. The symptoms of CO poisoning are emphasized by exercise.

4. High temperature and humidity, with a given concentration of CO, cause more rapid combination of CO with hemoglobin than do normal conditions of temperature and humidity.

All symptoms and effects described in this paper are called acute in character. None of the subjects has shown any permanent deleterious effects from the exposure to CO.

Acknowledgments.—Acknowledgment is made of the services of Dr. William J. McConnell, Passed Assistant Surgeon (R.), United States Public Health Service; Messrs. S. H. Katz and J. J. Bloomfield; the chemists of the gas analysis section, under G. W. Jones; and Messrs. G. S. McCaa and J. H. Zorn, of the Safety Service Section, all of the Pittsburgh Experiment Station, who willingly assisted in making the above study.

REGULATIONS GOVERNING ALLOTMENT OF FUNDS FOR VENEREAL DISEASE PREVENTION WORK.

PROMULGATED BY THE SECRETARY OF THE TREASURY UNDER AUTHORITY PROVIDED IN SECTION 6, CHAPTER XV, OF THE ACT APPROVED JULY 9, 1918 (CH. 143, 40 STAT. L. 886), AND IN ACCORDANCE WITH DECISION OF THE COMPTROLLER GENERAL DATED APRIL 10, 1922 (A. D. 6573).

Public No. 145, Sixty-seventh Congress (H. R. 9724), "An act making appropriations for the Treasury Department for the fiscal year ending June 30, 1923, and for other purposes," contains the following paragraph:

> "For the maintenance and expenses of the Division of Venereal Diseases, established by sections 3 and 4, Chapter XV, of the act approved July 9, 1918, including personal and other services in the field and in the District of Columbia, $400,000, of which sum $225,000 shall be allotted to the States for cooperative work in the prevention and control of such diseases."

The method of paying allotments to the several States shall be as follows:

> "The statute requires that the allotment to each State shall be in the proportion which its population bears to the population of the continental United States, exclusive of Alaska and the Canal Zone, according to the last preceding United States census, the term "State" to be held to include the District of Columbia, such allotment to be conditioned upon appropriation of a like amount by the State for the prevention, control, and treatment of venereal diseases.
>
> "Upon qualification by a State, one-fourth of the amount due this State to be paid to the State treasurer by accounting officer's settlement upon certification by the Surgeon General of the Public Health Service to the effect that the State has qualified for its allotment in accordance with the provisions set forth in the preceding paragraph.
>
> "The remainder of the allotment due the State to be paid to the State treasurer in a similar manner at the beginning of each subsequent quarter of the fiscal year."

State boards or departments of health receiving their respective allotments shall agree to the following cooperative measures under which their appropriation shall be expended:

1. To have in operation, through a legislative enactment or a State board of health regulation having the effect of law, regulations in conformity with the suggestions approved by the Surgeon General of the Army, Navy, and United States Public Health Service, for the prevention of venereal diseases. The minimum requirements of these rules are—

(*a*) Venereal diseases must be reported to the local health authorities in accordance with State regulations approved by the United States Public Health Service.

(*b*) Penalty to be imposed upon physicians or others required to report venereal infections for failure to do so.

(*c*) Cases to be investigated, so far as practicable, to discover and control sources of infection.

(*d*) The spread of venereal diseases should be declared unlawful.

(*e*) Provision to be made for control of infected persons who do not cooperate in protecting others from infection.

(*f*) The travel of venereally infected persons within the State to be controlled by State boards of health by definite regulations that will conform in general to the interstate quarantine regulations.

(*g*) Patients to be given a printed circular of instructions informing them of the necessity of measures to prevent the spread of infection and of the importance of continuing treatment.

2. A representative of the Public Health Service shall be assigned to each State receiving allotments, for the general purpose of cooperating with the State health officer in supervising the venereal control work in the State. This representative to be selected by the State health authorities and to be approved and recommended for appointment by the Surgeon General of the Public Health Service. The salary of this representative will be paid from State funds, except a nominal salary which will be paid by the United States Public Health Service. The general plan of work for the State bureau of venereal diseases will be:

(*a*) Securing reports of venereal infections from physicians and others required to report in accordance with State laws.

(*b*) Suppressive measures, including the isolation and treatment in detention hospitals of infected persons who are unable or unwilling to take measures to prevent themselves from becoming a menace to others; the establishment of free clinics for the treatment of venereal diseases; and the elimination of conditions favorable to the spread of venereal infections.

(*c*) Extension of facilities for early diagnosis and treatment through laboratory facilities for exact diagnosis and scientific determination of condition before release as noninfectious in accordance with recognized procedure.

(*d*) Educational measures to include informing the general public, as well as infected individuals, in regard to the nature and manner of spread of venereal diseases and the measures that should be taken to combat them.

(*e*) Cooperation with local civil authorities in their efforts to suppress public and clandestine prostitution. The clinics referred to under (*b*) will form centers from which the other measures may be conducted by discovering the presence of infections, the securing of data for enforcing the regulations for reporting these diseases, and the institution of educational measures appropriate to particular communities.

(f) Accurate detailed records must be kept of all the activities of the venereal disease work. These will include careful records of each case treated, amount of arsphenamine used, final results, and disposition made of patients. Copies of these records must be forwarded to the Surgeon General, United States Public Health Service, as a report, at such intervals as they may be requested, and in accordance with instructions regarding the form of report.

3. Local funds that may be available, or that may become available from legislative appropriations or any other source, for venereal disease control, shall be used by the State or city health authorities having jurisdiction, for the extension of the work, and such local funds must not be conserved through the expenditure of the funds that are allotted by the Congress through the United States Public Health Service.

4. In extension of the educational measures, the State's health authorities shall exert their efforts and influence for the organization of a State venereal disease control committee or other organization that will be unofficial in character, but a valuable cooperative agency for furthering the comprehensive plan for nation-wide venereal disease control.

5. The State health authorities shall take such measures as may be found practicable and decided upon in conference between the Public Health Service and State boards of health representatives for the purpose of securing such additional legislation as may be required to control the spread of venereal infections. Action shall be taken to limit or suppress the activities of advertising "specialists" and quacks by prosecuting them under State laws, or such other measures as may be applicable and effective.

6. In expending the sum allotted a State, protection from venereal diseases of the military and naval forces located within each particular State shall receive proper consideration.

7. The State allotment and the amount of State funds used to secure the allotment shall be expended along general standard lines by all States approximately as follows:

(a) For treatment of infected persons in hospitals, clinics, and other institutions, including arsphenamine and other drugs, 50 per cent of the allotment.

(b) In carrying out educational measures, 20 per cent.

(c) In carrying out repressive measures, 20 per cent.

(d) In general administration and other activities of venereal-disease control work, 10 per cent.

(This distribution is provisional and subject to modification after conference and agreement between each State and the United

States Public Health Service to meet best the needs of the particular State.)

8. In carrying out the general venereal disease control program the administrative organization of the United States Public Health Service will be available at all times to State organizations in cooperative work, and assistance will be given to States whenever possible through the detail of employees, the securing of arsphenamine, providing sample literature for educational measures, and in other practicable ways.

(Signed) A. W. MELLON,
Secretary of the Treasury.

WASHINGTON, *May 1, 1922.*

INTERFERENCE WITH MILK SUPPLY OF NEW YORK CITY RESTRAINED.

The following is the opinion of Judge Guy of the New York Supreme Court at special term, New York County, in the case of Gottlieb *v.* Matckin, reported in 191 New York Supplement, 777. A motion to restrain the defendants from interfering with the milk supply of New York City was granted.

Uninterrupted delivery of the milk supply to the people of this city is so vital for the preservation of the general health of the community, and especially children and invalids, that any organized effort to interfere therewith must be regarded as an act of hostility to the public weal, and such an unlawful purpose as calls for the exercise of the full authority of the courts and police authorities. Whatever may be the right or wrong of the present wage controversy, the health of this entire community can not be made subservient thereto. Picketing and other acts alleged against the defendants have been held not to be unlawful under ordinary conditions, but when linked with a purpose inimical to the welfare of the community they become unlawful. This court would hesitate in an ordinary wage dispute to grant the relief asked for herein, but feels that it is its duty to assert the full power of the court under the circumstances to protect the lives and health of the people of New York. The motion to restrain the defendants is therefore granted, with notice to the defendants that any disobedience of the order herein will be visited with the fullest measure of punishment within the power of this court.

THE COMPARATIVE ANTISCORBUTIC VALUES OF MILK—CORRECTIONS TO TABLES.

In the article, "The Comparative Antiscorbutic Values of Milk," Public Health Reports, April 28, 1922, pages 989–1021, the figures representing the weights of certain guinea pigs should have been indicated as follows:

Table II, p. 995, pigs Nos. 48–64, p. 996, pigs Nos. 73–98; Table III, p. 999, pigs Nos. 142–166; Table IV, p. 1000, pigs Nos. 113–116 and 133–156; and Table V, p. 1001, pigs Nos. 146–171, weights are "initial" and "maximum." Table XIV, p. 1009, pigs Nos. 257–262; Table XV, p. 1009, pigs Nos. 265–298, weights are "initial" and "final;" pig No. 297, "initial," "minimum," and "final;" pigs Nos. 305, 308, and 313, "initial" and "final." Table XVI, p. 1010, pigs Nos. 268–287; Table XVII, p. 1010, pigs Nos. 273–310 and 291–304; Table XVIII, p. 1011, pigs Nos. 278–281, weights are "initial" and "final."

DEATHS DURING WEEK ENDED APR. 29, 1922.

Summary of information received by telegraph from industrial insurance companies for week ended Apr. 29, 1922, and corresponding week, 1921. (From the Weekly Health Index, May 2, 1922, issued by the Bureau of the Census, Department of Commerce.)

	Week ended Apr. 29, 1922.	Corresponding week, 1921.
Policies in force	49,096,129	46,697,361
Number of death claims	9,519	8,410
Death claims per 1,000 policies in force, annual rate	10.1	9.4

Deaths from all causes in certain large cities of the United States during the week ended Apr. 29, 1922, infant mortality, annual death rate, and comparison with corresponding week of 1921. (From the Weekly Health Index, May 2, 1922, issued by the Bureau of the Census, Department of Commerce).

City.	Estimated population July 1, 1922.	Week ended Apr. 29, 1922. Total deaths.	Week ended Apr. 29, 1922. Death rate.[1]	Annual death rate per 1,000, corresponding week, 1921.	Deaths under 1 year. Week ended Apr. 29, 1922.	Deaths under 1 year. Corresponding week, 1921.	Infant mortality rate, week ended Apr. 29, 1922.[2]
Total	27,855,509	7,103	13.3	12.4	989	893	.....
Akron, Ohio	[3] 208,435	25	6.3	5.7	8	4	85
Albany, N. Y.	116,223	54	24.2	13.6	3	1	67
Atlanta, Ga.	220,047	67	15.9	16.3	10	7	.....
Baltimore, Md.	762,222	180	12.3	12.5	20	22	56
Birmingham, Ala.	191,017	37	10.1	15.4	5	10	.....
Boston, Mass.	764,017	240	16.4	14.0	28	27	75
Bridgeport, Conn.	[3] 143,555	34	12.3	10.1	5	3	62
Buffalo, N. Y.	528,163	126	12.4	13.4	16	26	63
Cambridge, Mass.	110,944	39	18.3	16.5	0	2	0
Camden, N. J.	121,915	43	18.4	7.8	8	1	122
Chicago, Ill.	2,833,288	721	13.3	11.8	153	94	.....
Cincinnati, Ohio	404,865	116	14.9	14.3	9	13	60
Cleveland, Ohio	854,003	149	9.1	10.6	22	24	57
Columbus, Ohio	253,455	61	12.5	11.5	3	4	32
Dallas, Tex.	171,974	42	12.7	11.7	4	6	.....
Dayton, Ohio	161,824	28	9.0	11.5	8	5	136
Denver, Colo.	267,591	73	14.2	13.9	6	5	.....
Detroit, Mich.	[3] 993,678	233	12.2	10.3	42	52	81
Fall River, Mass.	120,790	36	15.5	11.7	11	4	154
Fort Worth, Tex.	114,717	26	11.8	.....	2	.....	.....
Grand Rapids, Mich.	143,572	32	11.6	10.3	3	2	50
Houston, Tex.	150,087	37	12.9	13.4	10	4	.....
Indianapolis, Ind.	333,257	99	15.5	11.8	14	11	107
Jersey City, N. J.	305,911	77	13.1	11.4	15	12	96
Kansas City, Kans.	105,688	29	14.3	10.0	3	2	69
Kansas City, Mo.	343,988	92	13.9	13.8	10	9	.....
Los Angeles, Calif.	634,866	190	15.6	15.7	18	17	75
Louisville, Ky.	236,877	79	17.4	17.2	9	4	97
Lowell, Mass.	114,423	25	11.4	9.2	4	2	67

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1921. Cities left blank are not in the registration area for births.
[3] Enumerated population Jan. 1, 1920.

Deaths from all causes in certain large cities of the United States during the week ended Apr. 29, 1922, infant mortality, annual death rate, and comparison with corresponding week of 1921. (From the Weekly Health Index, May 2, 1922, issued by the Bureau of the Census, Department of Commerce)—Continued.

City.	Estimated population July 1, 1922.	Week ended Apr. 29, 1922.		Annual death rate per 1,000, corresponding week, 1921.	Deaths under 1 year.		Infant mortality rate, week ended Apr. 29, 1922.
		Total deaths.	Death rate.		Week ended Apr. 29, 1922.	Corresponding week, 1921.	
Memphis, Tenn	167,862	58	18.0	16.1	6	4	.....
Milwaukee, Wis	476,603	99	10.8	11.0	21	21	103
Minneapolis, Minn	400,970	94	12.2	11.2	13	12	71
Nashville, Tenn	122,832	46	19.5	20.9	4	3	.....
New Bedford, Mass	127,542	33	13.5	9.2	7	5	104
New Haven, Conn	169,987	54	16.6	10.9	4	1	49
New Orleans, La	399,616	93	12.1	17.0	7	11	.....
New York, N. Y	5,839,746	1,503	13.4	12.0	206	208	80
Newark, N. J	431,792	111	13.4	12.0	16	15	71
Norfolk, Va	124,915	19	7.9	10.3	6	3	106
Oakland, Calif	233,279	67	15.0	11.1	12	5	151
Omaha, Nebr	200,739	48	12.5	9.5	4	3	43
Paterson, N. J	138,521	29	10.9	12.5	3	4	46
Philadelphia, Pa	1,894,500	482	13.3	13.9	47	68	56
Pittsburgh, Pa	607,902	161	13.8	15.1	27	23	86
Portland, Oreg	269,240	53	10.3	10.2	3	3	30
Providence, R. I	241,011	69	14.9	13.7	10	5	79
Richmond, Va	178,365	45	13.2	11.9	5	9	61
Rochester, N. Y	311,548	79	13.2	11.6	15	9	115
St. Louis, Mo	795,008	195	12.8	11.9	16	17	.....
St. Paul, Minn	239,836	57	12.4	10.1	9	4	84
Salt Lake City, Utah	123,918	26	10.9	11.1	6	8	89
San Francisco, Calif	529,792	135	13.3	14.1	8	13	46
Seattle, Wash	[a] 315,312	55	9.1	9.9	6	5	51
Spokane, Wash	104,445	33	16.5	15.0	5	2	107
Springfield, Mass	140,052	31	11.5	10.0	2	4	30
Syracuse, N. Y	181,012	49	14.1	13.2	8	7	96
Toledo, Ohio	260,717	59	11.8	12.5	9	7	88
Trenton, N. J	125,075	53	22.1	13.6	14	5	214
Washington, D. C	[a] 437,571	135	16.1	13.3	18	11	103
Wilmington, Del	115,568	32	14.4	14.3	5	6	97
Worcester, Mass	188,449	49	13.6	11.8	4	1	43
Yonkers, N. Y	105,422	25	12.4	7.6	8	5	167
Youngstown, Ohio	144,970	36	12.9	13.1	6	13	79

[a] Enumerated population Jan. 1, 1920.

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 May 6, 1922.

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

ARKANSAS.

	Cases.
Cerebrospinal meningitis	1
Chicken pox	3
Diphtheria	1
Influenza	39
Malaria	31
Measles	2
Pellagra	5
Poliomyelitis	1
Scarlet fever	1
Smallpox	3
Trachoma	1
Tuberculosis	20
Typhoid fever	3
Whooping cough	6

CALIFORNIA.

Cerebrospinal meningitis:	
Pomona	1
San Francisco	1
San Joaquin County	1
Tulare County	1
Diphtheria	108
Influenza	66
Leprosy—Los Angeles	1
Lethargic encephalitis:	
Colton	1
Los Angeles	1
Modesto	1
Oakland	1
San Francisco	1
Measles	13
Scarlet fever	76
Smallpox	34
Typhoid fever	10

CONNECTICUT.

Anthrax	1
Cerebrospinal meningitis	5

CONNECTICUT—continued.

	Cases.
Chicken pox	32
Conjunctivitis (infectious)	1
Diphtheria:	
Bridgeport	10
Scattering	26
German measles	10
Influenza	17
Lethargic encephalitis	2
Measles:	
Bridgeport	21
Cromwell	8
East Haven	10
Hartford	103
New Haven	72
New London	13
Norwich	9
Stamford	21
West Haven	18
Scattering	39
Mumps	10
Pneumonia (lobar)	45
Poliomyelitis	1
Scarlet fever:	
Ansonia	8
Bridgeport	8
Stamford	13
Scattering	34
Septic sore throat	1
Smallpox	13
Tetanus	1
Tuberculosis (all forms)	42
Typhoid fever	1
Whooping cough	19

FLORIDA.

Diphtheria	18
Influenza	27
Malaria	18

FLORIDA—continued.

	Cases.
Pneumonia	46
Poliomyelitis	2
Scarlet fever	1
Smallpox	4
Typhoid fever	18

GEORGIA.

Cerebrospinal meningitis	1
Chicken pox	9
Diphtheria	5
Dysentery (amebic)	1
Dysentery (bacillary)	9
Hookworm disease	8
Influenza	33
Malaria	17
Measles	1
Mumps	2
Pellagra	1
Pneumonia	4
Scarlet fever	7
Septic sore throat	1
Smallpox	12
Tuberculosis (pulmonary)	10
Typhoid fever	4
Whooping cough	1

ILLINOIS.

Cerebrospinal meningitis:	
Canton	1
Centralia	1
Chicago	3
Plano	1
Diphtheria:	
Chicago	114
Scattering	67
Influenza	30
Lethargic encephalitis:	
Chicago	2
Moline	1
Pneumonia	333
Scarlet fever:	
Chicago	58
Scattering	69
Smallpox	26
Typhoid fever	15
Whooping cough	102

INDIANA.

Cerebrospinal meningitis—Henry County	1
Diphtheria	56
Poliomyelitis—Allen County	1
Rabies in animals:	
Johnson County	1
Marion County	1
Scarlet fever	64
Smallpox	66
Typhoid fever	7

IOWA.

Diphtheria	13
Scarlet fever	52
Smallpox	19

KANSAS.

	Cases.
Cerebrospinal meningitis	2
Chicken pox	64
Diphtheria	39
German measles	1
Influenza	12
Lethargic encephalitis	1
Measles	20
Mumps	7
Pneumonia	18
Poliomyelitis	1
Scarlet fever	45
Smallpox	16
Trachoma	1
Tuberculosis	62
Typhoid fever	3
Whooping cough	24

LOUISIANA.

Diphtheria	11
Influenza	27
Scarlet fever	3
Smallpox	12
Typhoid fever	17

MARYLAND.[1]

Cerebrospinal meningitis	1
Chicken pox	55
Diphtheria	32
German measles	3
Influenza	42
Lethargic encephalitis	2
Malaria	3
Measles	335
Mumps	139
Ophthalmia neonatorum	1
Paratyphoid fever	1
Pneumonia (all forms)	72
Scarlet fever	45
Septic sore throat	3
Tuberculosis	62
Typhoid fever	8
Whooping cough	49

MASSACHUSETTS.

Cerebrospinal meningitis	3
Chicken pox	62
Conjunctivitis (suppurative)	15
Diphtheria	137
Dysentery	1
German measles	17
Hookworm disease	1
Influenza	12
Lethargic encephalitis	9
Measles	815
Mumps	94
Ophthalmia neonatorum	26
Pneumonia (lobar)	96
Scarlet fever	183
Septic sore throat	1
Tetanus	3
Trachoma	5
Tuberculosis (all forms)	160
Typhoid fever	9
Whooping cough	87

[1] Week ended Friday.

MINNESOTA.

	Cases1
Cerebrospinal meningitis	3
Chicken pox	15
Diphtheria	50
Influenza	3
Measles	105
Pneumonia	5
Scarlet fever	105
Smallpox	51
Tuberculosis	115
Typhoid fever	4
Whooping cough	10

MISSISSIPPI.

Diphtheria	9
Smallpox	3
Typhoid fever	12

MISSOURI.

Chicken pox	42
Diphtheria	37
Epidemic sore throat	7
Influenza	20
Measles	19
Mumps	14
Ophthalmia neonatorum	1
Pneumonia	26
Scarlet fever	51
Smallpox	24
Tuberculosis	41
Typhoid fever	9
Whooping cough	13

MONTANA.

Diphtheria	11
Rocky Mountain spotted or tick fever:	
Clara	1
Roundup	1
Scarlet fever	5
Smallpox	14
Typhoid fever	1

NEBRASKA.

Cerebrospinal meningitis—Omaha	1
Chicken pox	14
Diphtheria	8
Influenza	20
Lethargic encephalitis—Omaha	1
Measles:	
Fillmore County	9
Lincoln	56
Omaha	30
Scattering	13
Mumps	10
Pneumonia	1
Scarlet fever	18
Smallpox	19
Tuberculosis	13
Whooping cough	3

NEW JERSEY.

Anthrax	1
Cerebrospinal meningitis	4
Chicken pox	113
Diphtheria	103
Influenza	15
Malaria	4
Measles	967
Pneumonia	105
Poliomyelitis	1
Scarlet fever	230
Typhoid fever	3
Whooping cough	114

NEW MEXICO.

Chicken pox	2
Conjunctivitis	1
Diphtheria	24
Influenza	1
Malaria	1
Measles	1
Mumps	3
Pneumonia	9
Scarlet fever	10
Smallpox	2
Tuberculosis	18
Whooping cough	3

NEW YORK.

(Exclusive of New York City.)

Diphtheria	129
Influenza	68
Lethargic encephalitis	5
Measles	726
Pneumonia	324
Poliomyelitis	1
Scarlet fever	223
Typhoid fever	32
Whooping cough	174

NORTH CAROLINA.

Cerebrospinal meningitis	4
Chicken pox	70
Diphtheria	17
German measles	3
Measles	86
Scarlet fever	22
Septic sore throat	2
Smallpox	22
Typhoid fever	9
Whooping cough	189

OREGON.

Chicken pox	14
Diphtheria	10
Measles	3
Mumps	9
Pneumonia	1 11
Scarlet fever	7
Septic sore throat	1
Smallpox:	
Portland	9
Scattering	8
Tuberculosis	6
Typhoid fever	1 1
Whooping cough	2

SOUTH DAKOTA.

Chicken pox	7
Diphtheria	5
Influenza	1
Measles	6
Pneumonia	10

1 Deaths.

SOUTH DAKOTA—continued.

	Cases.
Scarlet fever	30
Smallpox	18
Tuberculosis	5
Typhoid fever	1

TEXAS.

Chicken pox	76
Diphtheria	33
Influenza	101
Pellagra	7
Pneumonia	40
Scarlet fever	21
Smallpox	90
Typhoid fever	7

VERMONT.

Chicken pox	12
Diphtheria	3
Measles	34
Mumps	8
Pneumonia	2
Scarlet fever	35
Typhoid fever	2
Whooping cough	29

WASHINGTON.

Chicken pox	29
Diphtheria	18
Mumps	46
Pneumonia	2
Scarlet fever	23
Septic sore throat	1
Smallpox:	
Spokane	11
Scattering	17
Tuberculosis	48
Typhoid fever	5
Whooping cough	26

WEST VIRGINIA.

	Cases.
Diphtheria	16
Measles:	
Martinsburg	11
Moundsville	10
Scattering	6
Scarlet fever	15
Smallpox	5
Tuberculosis:	
Wheeling	54
Scattering	2

WISCONSIN.

Milwaukee:	
Cerebrospinal meningitis	1
Chicken pox	32
Diphtheria	9
German measles	1
Influenza	1
Measles	5
Pneumonia	5
Scarlet fever	13
Smallpox	3
Tuberculosis	17
Whooping cough	97
Scattering:	
Cerebrospinal meningitis	1
Chicken pox	54
Diphtheria	18
German measles	9
Influenza	124
Measles	16
Ophthalmia neonatorum	1
Pneumonia	17
Scarlet fever	77
Smallpox	59
Tuberculosis	24
Typhoid fever	3
Whooping cough	52

Delayed Reports for Week Ended Apr. 29, 1922.

ALABAMA.

	Cases.
Chicken pox	18
Diphtheria	8
Hookworm disease	41
Influenza	24
Malaria	5
Pellagra	3
Pneumonia	5
Scarlet fever	2
Septic sore throat	3
Smallpox	16
Tuberculosis	25
Typhoid fever	9

CALIFORNIA.

Cerebrospinal meningitis:	
Los Angeles County	1
Diphtheria	52
Influenza	57
Lethargic encephalitis:	
Tulare County	1
Measles	22
Scarlet fever	84
Smallpox	32
Typhoid fever	3

CONNECTICUT.

	Cases.
Cerebrospinal meningitis	3
Chicken pox	40
Conjunctivitis (infectious)	3
Diphtheria:	
Bridgeport	11
Scattering	32
Dysentry (bacillary)	1
German measles	14
Influenza	13
Lethargic encephalitis	3
Measles:	
Bridgeport	15
Cheshire	10
Hartford	80
New Haven	59
New London	17
Stamford	27
West Haven	9
Scattering	41
Mumps	14
Pneumonia (lobar)	32
Scarlet fever:	
Bridgeport	22
Scattering	36

CONNECTICUT—continued.

	Cases.
Septic sore throat	1
Smallpox:	
Westport	8
Scattering	11
Trachoma	2
Tuberculosis (all forms)	30
Typhoid fever	5
Whooping cough	31

DELAWARE.

Chicken pox	11
Influenza	1
Measles	2
Pneumonia	4
Scarlet fever:	
Wilmington	23
Scattering	10
Tuberculosis	6

DISTRICT OF COLUMBIA.

Chicken pox	31
Diphtheria	11
Influenza	3
Measles	14
Scarlet fever	8
Smallpox	1
Tuberculosis	32
Whooping cough	6

INDIANA.

Cerebrospinal meningitis:	
Steuben County	1
Diphtheria	31
Poliomyelitis:	
Jasper County	1
Rabies in animals:	
Greene County	1
Hamilton County	1
Marion County	1
Scarlet fever	44
Smallpox	36
Typhoid fever	5

KENTUCKY.

Cerebrospinal meningitis:	
Hardin County	1
Jefferson County	1
Chicken pox	5
Diphtheria	9
German measles	1
Influenza	6
Measles:	
Jefferson County	9
Scattering	21
Pneumonia	14
Scarlet fever	6
Septic sore throat	2
Smallpox	5
Tonsillitis	1
Trachoma	8

KENTUCKY—continued.

	Cases.
Tuberculosis:	
Jefferson County	38
Scattering	6
Typhoid fever	4
Whooping cough	18

MAINE.

Chicken pox	6
Diphtheria	8
German measles	1
Influenza	20
Measles	5
Pneumonia	6
Poliomyelitis	1
Scarlet fever	57
Septic sore throat	2
Tuberculosis	8
Typhoid fever	6
Whooping cough	6

MINNESOTA.

Chicken pox	24
Diphtheria	44
Influenza	11
Measles	78
Pneumonia	9
Poliomyelitis	1
Scarlet fever	96
Smallpox	59
Tuberculosis	73
Typhoid fever	2
Whooping cough	2

MISSOURI.

Anthrax	1
Cerebrospinal meningitis	1
Chicken pox	16
Diphtheria	43
Influenza	29
Measles	11
Mumps	19
Pneumonia	20
Scarlet fever	43
Smallpox	2
Tuberculosis	41
Typhoid fever	3
Whooping cough	29

WYOMING.

Cerebrospinal meningitis	1
Chicken pox	9
Influenza	76
Measles	1
Mumps	12
Pneumonia	23
Scarlet fever	5
Smallpox	17
Tuberculosis	6
Typhoid fever	2
Whooping cough	2

CITY REPORTS FOR WEEK ENDED APR. 22, 1922.

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 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Apr. 22, 1922.	
		Cases.	Deaths.
California:			
San Diego	0	1	1
San Francisco	1	1	
Santa Ana		1	1
Connecticut:			
Bridgeport	0	1	
Illinois:			
Chicago	1	8	4
Iowa:			
Sioux City	0	1	
Massachusetts:			
Brockton	0	1	1
Michigan:			
Detroit	2		1
Minnesota:			
Duluth	0	1	
New Hampshire:			
Dover	0		1
New York:			
New York	8	4	1
Niagara Falls	0	1	
North Carolina:			
Rocky Mount	0		1
Pennsylvania:			
Philadelphia	1	1	
Pittsburgh	1	1	
Texas:			
Fort Worth	0	1	1
West Virginia:			
Huntington	0		1
Wisconsin:			
Milwaukee	2	2	

DIPHTHERIA.

See p. 1161; also Telegraphic weekly reports from States, p. 1149.

INFLUENZA.

City.	Cases.		Deaths, week ended Apr. 22, 1922.
	Week ended Apr. 23, 1921.	Week ended Apr. 22, 1922.	
Alabama:			
Birmingham			1
California:			
Berkeley	1		
Los Angeles	2	16	4
Oakland			1
Pasadena	1	4	1
Sacramento	1		
San Diego		2	1
San Francisco	4	15	1
Santa Cruz	4		
Stockton	1		
Colorado:			
Denver			4
Bridgeport	1	2	1
Connecticut:			
New Britain	3		
Stonington	5		
District of Columbia:			
Washington	1		1
Florida:			
Tampa			1
Georgia:			
Albany		1	
Atlanta		3	3
Augusta		9	
Brunswick	4		
Rome		2	
Savannah			2
Illinois:			
Chicago	62	30	6
Decatur		1	
Evanston	1		
Galesburg	1		
Oak Park	1		
Indiana:			
Anderson			1
Gary			1
Kansas:			
Coffeyville	1		
Kentucky:			
Louisville		1	
Louisiana:			
New Orleans		3	3
Maine:			
Lewiston			1
Maryland:			
Baltimore	9		
Massachusetts:			
Boston	3	2	
Braintree		1	
Cambridge		1	
Everett		1	1
Fall River			1
Haverhill	13		1
Leominster		1	
Lynn	1		
North Adams	2		
Somerville	1	1	
Waltham	1		
Winthrop		1	
Michigan:			
Detroit	4	3	4
Kalamazoo		1	1
Marquette		1	
Muskegon	1		
Minnesota:			
Faribault			1
Minneapolis			7
St. Paul			1

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

INFLUENZA—Continued.

City.	Cases.		Deaths, week ended Apr. 22, 1922.
	Week ended Apr. 23, 1921.	Week ended Apr. 22, 1922.	
Missouri:			
Kansas City	6	3	3
Montana:			
Great Falls			1
New Jersey:			
Belleville	3		
Harrison		5	
Kearny	2	1	
Newark	8		
New York:			
Albany	3	2	
Binghamton	1		
Buffalo	1	2	
Cohoes	3		
Glens Falls		1	
Jamestown	1		
New York	59	25	8
Rochester			1
Saratoga		1	
Ohio:			
Akron		1	
Cincinnati			4
Cleveland	2		
Columbus			1
Findlay		1	
Mansfield		1	
Ohio—Continued.			
Toledo			1
Youngstown			2
Pennsylvania:			
Philadelphia	3	8	7
Rhode Island:			
Providence			1
Tennessee:			
Nashville			1
Texas:			
Austin			2
Dallas	4	1	1
El Paso			3
Galveston			1
Houston			3
Virginia:			
Danville			1
Richmond			1
Roanoke	3		
Washington:			
Seattle	4		
Spokane	4		
West Virginia:			
Charleston		1	
Huntington			1
Wisconsin:			
Milwaukee		3	

LEPROSY.

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

LETHARGIC ENCEPHALITIS.

Illinois:		
La Salle		1
Massachusetts:		
Chelsea	1	
Waltham	1	
New Hampshire:		
Portsmouth	1	1
Wisconsin:		
Milwaukee	2	

MALARIA.

Alabama:		
Montgomery	1	
Tuscaloosa	2	
Arkansas:		
Little Rock	1	
North Little Rock	1	
Florida:		
Tampa	3	
Georgia:		
Brunswick	1	
Valdosta	1	
Kansas:		
Kansas City	1	
Kentucky:		
Owensboro	1	
New York:		
New York	1	
Tennessee:		
Memphis	2	

MEASLES.

See p. 1161; also Telegraphic weekly reports from States, p. 1149.

CITY REPORTS FOR WEEK ENDED APR. 22, 1922.—Continued.

PELLAGRA.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alabama:			Louisiana:		
Birmingham		2	New Orleans	1	1
California:			North Carolina:		
San Bernardino		1	Charlotte		1
Georgia:			South Carolina:		
Augusta		1	Charleston		1
Savannah		3	Texas:		
			Fort Worth	1	1

PNEUMONIA (ALL FORMS).

Alabama:			Indiana:		
Birmingham		4	Anderson		1
Montgomery		3	East Chicago		1
Arkansas:			Fort Wayne		2
Fort Smith		1	Hammond		1
Little Rock	1		Indianapolis		14
California:			Logansport		1
Alameda		1	Mishawaka		1
Bakersfield		1	South Bend		1
Long Beach		1	Terre Haute		2
Los Angeles	45	14	Iowa:		
Oakland	6	3	Burlington	2	
Pasadena	2	1	Council Bluffs		2
Riverside		2	Muscatine		1
Sacramento		4	Kansas:		
San Bernardino		1	Hutchinson	4	1
San Diego		2	Kansas City	4	
San Francisco	12	6	Lawrence		1
Santa Ana	1		Parsons	1	
Santa Barbara		1	Topeka	8	4
Santa Cruz	2	1	Wichita	2	1
Stockton		4	Kentucky:		
Colorado:			Covington		3
Denver		4	Louisville	17	10
Connecticut:			Louisiana:		
Bridgeport	5		New Orleans	1	
Bristol	4		Maine:		
Fairfield		2	Bangor	1	
Greenwich	2		Portland		3
Hartford	3	1	Maryland:		
Manchester	2		Cumberland	1	
Meriden	1		Massachusetts:		
New London		1	Arlington	3	1
District of Columbia:			Beverly		1
Washington		12	Boston		20
Florida:			Brockton	6	
Tampa		1	Brookline	1	
Georgia:			Cambridge		3
Atlanta		6	Chelsea	3	1
Augusta		2	Chicopee		4
Rome	3		Clinton	2	
Savannah		1	Fall River		2
Illinois:			Gardner		1
Alton	2		Haverhill	5	1
Aurora		1	Holyoke		2
Bloomington		1	Lawrence	3	1
Chicago	270	82	Lowell		7
Chicago Heights		1	Lynn		2
Cicero		1	Malden		5
Danville	5	2	Medford		1
Decatur		2	Melrose		1
East St. Louis		3	Methuen		1
Evanston	3		New Bedford		7
Forest Park	1		Newburyport		1
Freeport		1	Newton		2
Galesburg	1		Quincy		1
Jacksonville		1	Salem	1	
Kewanee	6	1	Somerville	2	1
La Salle		1	Southbridge		1
Oak Park	4		Springfield	4	2
Peoria		3	Taunton		2
Rock Island	1		Wakefield	1	
Rockford		5	Waltham	4	2
Springfield		1	Winthrop	2	

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

PNEUMONIA (ALL FORMS)—Continued.

City.	Cases.	Deaths.
Massachusetts—Continued.		
Woburn		1
Worcester		2
Michigan:		
Ann Arbor	4	2
Detroit	71	32
Flint		3
Grand Rapids	4	1
Hamtramck		1
Highland Park	4	
Ironwood		2
Jackson	3	
Kalamazoo	2	1
Marquette	1	
Muskegon	2	
Pontiac		1
Sault Ste. Marie	1	
Minnesota:		
Duluth	4	1
Hibbing		3
Minneapolis		2
St. Paul		2
Missouri:		
Independence		2
Jefferson City		1
Kansas City	17	16
Montana:		
Anaconda		1
Billings	1	
Missoula		1
Nebraska:		
Omaha		7
Nevada:		
Reno	1	
New Hampshire:		
Concord		2
New Jersey:		
Atlantic City	2	
Clifton		2
East Orange	2	1
Elizabeth		2
Englewood	5	1
Garfield	1	
Harrision	1	
Hoboken		2
Jersey City	2	
Montclair	1	
Orange	3	
Passaic	1	
Paterson	7	
Perth Amboy		2
Phillipsburg		1
Plainfield	1	
Rahway		1
Summit		1
Trenton		2
West New York		1
New York:		
Albany	15	
Buffalo	26	14
Cortland		1
Elmira	10	1
Geneva		1
Glens Falls	1	
Hudson	2	
Ithaca	1	
Jamestown	3	2
Lackawanna	4	1
Middletown	3	
Mount Vernon	5	
Newburgh	1	
New York	372	200
Niagara Falls	2	1
Ogdensburg		1
Olean	1	
Peekskill	1	
Port Chester	2	1
Poughkeepsie	3	2
Rochester	17	8
Rome	2	1
New York—Continued.		
Saratoga Springs	2	
Schenectady	5	1
Syracuse	8	2
Troy	5	3
Watertown	1	
Watervliet		2
Yonkers		1
North Carolina:		
Charlotte		1
Raleigh		5
Salisbury		1
Wilmington		1
Winston-Salem		1
Ohio:		
Akron	10	
Alliance	2	
Ashtabula		1
Canton		2
Cincinnati		15
Cleveland	2	
Columbus		4
Dayton	1	
East Cleveland	1	
East Youngstown		1
Findlay	2	
Hamilton	2	1
Ironton	1	
Mansfield	2	
Middletown	2	1
Newark		1
Norwood		1
Piqua		2
Steubenville	1	
Toledo		3
Youngstown		5
Zanesville		1
Oklahoma:		
Oklahoma		1
Oregon:		
Portland		3
Pennsylvania:		
Philadelphia	76	51
Rhode Island:		
Pawtucket		5
Providence		5
Tennessee:		
Memphis		4
Nashville		2
Texas:		
Austin		2
Dallas		7
El Paso		8
Fort Worth		3
Galveston		2
Houston		1
Waco		1
Utah:		
Salt Lake City		1
Vermont:		
Burlington		2
Virginia:		
Norfolk		1
Petersburg		1
Portsmouth		2
Richmond		4
West Virginia:		
Bluefield		2
Charleston		2
Hunington		2
Wheeling		1
Wisconsin:		
Janesville		4
Kenosha		4
Milwaukee	15	
Racine		1
Sheboygan	2	
Wyoming:		
Cheyenne	2	1

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

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 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Apr. 22, 1922.	
		Cases.	Deaths.
Illinois:			
Chicago	0	1	.....
Massachusetts:			
Boston	0	1	1
Michigan:			
Detroit	0	1	.....
Highland Park	0	1	.....
Minnesota:			
St. Paul	0	.....	1
New York:			
New York	1	1	.....
Poughkeepsie	0	.....	1
Troy	0	1	.....
Pennsylvania:			
Pittsburgh	0	1	.....

RABIES IN ANIMALS.

City.	Cases.
California:	
Pasadena	2
Riverside	1
Georgia:	
Savannah	2
Missouri:	
Kansas City	1
Virginia:	
Alexandria	1

RABIES IN MAN.

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

SCARLET FEVER.

See p. 1161; also Telegraphic weekly reports from States, p. 1149.

SMALLPOX.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Apr. 22, 1922.	
		Cases.	Deaths.
Alabama:			
Mobile	2	2	.....
California:			
Bakersfield	1	2	.....
Long Beach	2	1	.....
Los Angeles	2	1	.....
San Francisco	5	1	.....
Stockton	0	2	.....
Colorado:			
Denver	22	9	3
Connecticut:			
Bridgeport	0	2	1
Fairfield	.....	2	.....
Milford	.....	3	.....
District of Columbia:			
Washington	1	3	.....
Georgia:			
Albany	.....	1	.....
Atlanta	7	3	.....
Augusta	0	9	.....
Savannah	0	2	.....
Illinois:			
Centralia	0	1	.....
Chicago	2	3	.....
Peoria	6	15	.....
Indiana:			
Indianapolis	12	2	.....
La Fayette	0	1	.....

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

SMALLPOX—Continued.

City.	Median for previous years.	Week ended Apr. 22, 1922.	
		Cases.	Deaths.
Iowa:			
Burlington	1	2	.....
Council Bluffs	1	1	.....
Des Moines	7	1	.....
Muscatine	0	6	.....
Sioux City	5	1	.....
Kansas:			
Coffeyville	0	2	.....
Kansas City	3	2	.....
Topeka	5	2	.....
Wichita	11	5	.....
Michigan:			
Alpena	0	1	.....
Detroit	18	2	.....
Grand Rapids	1	4	.....
Muskegon	0	1	.....
Port Huron	0	1	.....
Minnesota:			
Faribault	.....	4	.....
Hibbing	0	2	.....
Mankato	0	1	.....
Minneapolis	21	6	.....
St. Paul	8	19	.....
Missouri:			
Kansas City	8	4	.....
Montana:			
Great Falls	3	5	.....
Missoula	1	1	.....
Nebraska:			
Lincoln	4	2	.....
Omaha	15	1	.....
North Carolina:			
Charlotte	0	1	.....
Durham	1	2	.....
North Dakota:			
Fargo	0	2	.....
Ohio:			
Alliance	0	3	.....
Canton	2	3	.....
Ohio—Continued.			
Chillicothe	0	3	.....
Cincinnati	2	1	.....
Dayton	0	1	.....
Marion	1	1	.....
Springfield	0	9	.....
Oklahoma:			
Oklahoma	5	7	.....
Oregon:			
Portland	2	13	.....
Pennsylvania:			
Homestead	.....	1	.....
South Dakota:			
Sioux Falls	0	2	.....
Tennessee:			
Nashville	0	1	.....
Texas:			
Dallas	4	1	.....
El Paso	1	2	1
Fort Worth	5	3	.....
Utah:			
Salt Lake City	6	4	.....
Virginia:			
Roanoke	1	1	.....
Washington:			
Bellingham	0	4	.....
Everett	0	1	.....
Seattle	10	4	.....
Spokane	11	4	.....
Yakima	2	2	.....
West Virginia:			
Bluefield	0	1	.....
Wisconsin:			
Janesville	0	3	.....
Milwaukee	5	2	.....
Superior	1	5	.....
Waukesha	.....	1	.....
Wausau	0	2	.....

TETANUS.

City.	Cases.	Deaths.
California:		
San Bernardino	.....	2
Indiana:		
Terre Haute	.....	1
Louisiana:		
New Orleans	1	.....
New York:		
New York	1	1
Pennsylvania:		
Philadelphia	1	.....
Virginia:		
Petersburg	1	1

TUBERCULOSIS.

See p. 1161; also Telegraphic weekly reports from States, p. 1149.

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

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 1921, inclusive. In instances in which data for the full seven years are incomplete, the median is that for the number of years for which information is available.

City.	Median for previous years.	Week ended Apr. 22, 1922.	
		Cases.	Deaths.
Alabama:			
Birmingham	2	1	...
California:			
Oakland	0	...	1
Stockton	0	1	1
Colorado:			
Denver	0	1	...
Pueblo	0	1	1
Connecticut:			
Danbury	2	1	...
District of Columbia:			
Washington	3	1	...
Georgia:			
Albany	...	3	...
Brunswick	0	1	...
Macon	0	1	...
Illinois:			
Chicago	4	8	...
Indiana:			
Hammond	0	1	...
Iowa:			
Waterloo	0	1	...
Kansas:			
Atchison	0	1	...
Kansas City	0	1	...
Wichita	0	1	1
Kentucky:			
Louisville	0	1	...
Owensboro	...	1	...
Louisiana:			
New Orleans	2	1	...
Massachusetts:			
Boston	2	2	...
Cambridge	0	1	...
Danvers	0	1	...
Springfield	0	1	...
Michigan:			
Detroit	4	2	1
Grand Rapids	0	1	...
Minnesota:			
Minneapolis	2	1	...
Missouri:			
St. Louis	3	1	1
New York:			
Albany	2	1	...
Lockport	0	...	1
New York	12	9	...
Saratoga Springs	0	1	...
Ohio:			
Cincinnati	1	2	...
Dayton	0	1	...
Ironton	0	1	...
Toledo	1	1	...
Oregon:			
Portland	0	3	...
Pennsylvania:			
Philadelphia	7	9	...
Pittsburgh	2	2	...
Uniontown	0	1	...
South Carolina:			
Charleston	1	1	...
Columbia	0	1	...
Tennessee:			
Knoxville	0	1	1
Texas:			
Houston	0	...	2
Utah:			
Salt Lake City	0	1	...
Virginia:			
Norfolk	0	...	1
West Virginia:			
Charleston	0	1	...
Wisconsin:			
Fond du Lac	0	3	...
Green Bay	0	1	...
Kenosha	0	...	1
Oshkosh	0	1	...

CITY REPORTS FOR WEEK ENDED APR. 22, 1922 —Continued.

DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:										
Birmingham	178,270	37	1		6				4	6
Mobile	60,151	17	1							1
Montgomery	43,464	17					1			
Arkansas:										
Fort Smith	28,811	9	1				1			1
Hot Springs	11,695	4								
Little Rock	64,997		2				1		4	
California:										
Alameda	28,806	8					2			
Bakersfield	18,638	7					1			
Eureka	12,923	4			3		1		1	1
Glendale	13,536	8								1
Long Beach	55,593	14	6	1			1			1
Los Angeles	576,673	191	27	1	6		14	1	102	25
Oakland	216,361	37	15	1	2		3		2	2
Pasadena	45,354	16					2		6	2
Richmond	16,843	2								
Riverside	19,341	12								4
Sacramento	65,857	22	3	1	1		1		6	3
San Bernardino	18,721	16								3
San Diego	74,683	39	4				9		10	9
San Francisco	508,410	145	17		4		8		35	11
Santa Ana	15,485	5	1						1	
Santa Barbara	19,441	5					1		2	
Santa Cruz	10,917	6								
Stockton	40,296	19	3				1			
Vallejo	21,107	2								1
Colorado:										
Denver	256,369	70	15		1		11			12
Pueblo	42,908						3			
Connecticut:										
Bridgeport	143,538	32	9	1	6		8	3	9	2
Bristol	20,620	1	1				3			
Danbury (city)	18,943	6			1				1	
Derby	11,238	3								
Fairfield (town)	11,475	3	1		2		1		3	
Greenwich (town)	22,123		1		1		2		1	
Hartford	138,036	41	10		60		4		1	4
Manchester (town)	18,370	3			5					
Meriden (city)	29,842				1				1	
Milford (town)	10,193	1			1					
New London	25,688	7			17					1
Norwalk	27,700	6								
Norwich (city)	22,304	5			8		1			
District of Columbia:										
Washington	437,571	140	11		21		7		28	18
Florida:										
Tampa	51,252	20	5		1				2	3
Georgia:										
Atlanta	200,616	59							3	6
Augusta	52,548				1					2
Brunswick	14,413	3								
Macon	52,995		1		2					
Savannah	83,252	37	2				1		4	3
Valdosta	10,783	3								
Idaho:										
Boise	21,393	6					2			
Pocatello	15,601	3								
Illinois:										
Alton	24,682	4	2							
Aurora	36,397	13			14				1	1
Bloomington	28,725	8					1		7	
Blue Island	11,424	7			4				1	1
Centralia	12,491	7	1							
Champaign	15,873				1					
Chicago	2,701,705	692	100	10	338	4	81	4	178	42
Chicago Heights	19,653	6								
Cicero	44,995	10	2				1			1
Danville	33,750	8	1		1		1		3	1
Decatur	43,818	12	1		1					
East St. Louis	66,740	11	3		1					
Elgin	27,454	5					3			1
Evanston	37,215	11			16				1	

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

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

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Illinois—Continued.										
Freeport	19,669	3	1				4			
Galesburg	23,834	5	1						1	
Jacksonville	15,713	11	1				12			1
Kewanee	16,026	7			1		1			
La Salle	13,050	7							1	
Mattoon	13,552	5								
Oak Park	39,830	14			20		1	1		1
Peoria	76,121	25	1		1		2			2
Rockford	65,651	17			5		4			
Rock Island	35,177	6		1					2	1
Springfield	59,183	16	2				2			1
Indiana:										
Anderson	29,767	3			1		1			1
Bloomington	11,595	3								
Clinton	10,962	7								
Crawfordsville	10,139	2								
East Chicago	35,967	5	2		3		7		1	
Fort Wayne	86,549	21	3		2		3			2
Frankfort	11,385	1			1					
Gary	55,378	10	1		2					2
Hammond	36,004	9	2							
Huntington	14,000	3								
Indianapolis	314,194	96	4		49		7		1	6
La Fayette	22,486	4					1			1
Logansport	21,626	3	1							
Mishawaka	15,195	5					4		3	
Muncie	36,624	4	1							2
South Bend	70,983	13							6	1
Terre Haute	66,083	19	3		1		2			
Iowa:										
Burlington	24,057	4					1		2	
Clinton	24,151		9				2			
Council Bluffs	36,162	19	2		3		1			1
Davenport	56,727		1		1					
Des Moines	126,468		2		1		5			
Dubuque	39,141						1			
Iowa City	11,267						1			
Marshalltown	15,731						2			
Mason City	20,065	5	2				1			
Muscatine	16,083	7					2			
Sioux City	71,227		7				2			
Waterloo	36,230				1		4			
Kansas:										
Coffeyville	13,452	8	1							
Fort Scott	10,693	3	2				1			
Hutchinson	23,393	1	1							
Kansas City	101,177		1		1		1		6	
Lawrence	12,456	3								
Parsons	16,028	4					1			
Salina	15,085	4								
Topeka	50,022	16	2						3	
Wichita	72,128	36		1			3		1	4
Kentucky:										
Covington	57,121	13			9					1
Louisville	234,891	61	7		8	1	1		21	7
Owensboro	17,424		1							
Paducah	24,735				1		2			
Louisiana:										
New Orleans	387,219	121	10				6		17	13
Maine:										
Auburn	16,985	4					3			1
Bangor	25,978						1		1	
Bath	14,731	4								
Biddeford	18,008	7								
Lewiston	31,791	11		1			3		3	
Portland	69,272	22	4				7			1
Sanford	10,691	1								
Maryland:										
Cumberland	29,837	10		1			1			
Massachusetts:										
Adams	12,967	1								
Amesbury	10,036	2								
Arlington	18,665	7					1		1	

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

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

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Massachusetts—Continued.										
Attleboro	19,731	6								
Beverly	22,561	2	3		1		3		2	
Boston	748,060	223	57	2	256	2	42	1	79	20
Braintree	10,580	3								2
Brockton	66,133	15	4		26		19		1	1
Brookline	37,748	9			37		3		3	
Cambridge	109,694	28	8		74		4		7	3
Chelsea	43,184	12	2		7		2		3	1
Chicopee	36,214	7	1		3				2	
Clinton	12,979	4			2					
Danvers	11,108								1	
Dedham	10,792	2					2			
Everett	40,120	9	1		15		5		3	
Fall River	120,485	36	5		2		3			6
Gardner	16,971	5					1			
Greenfield	15,462	3			1					
Haverhill	53,884	15	7		1				1	2
Holyoke	60,203	10			16		1		1	
Lawrence	94,270	17			22		2		1	
Leominster	19,744	1	1						1	1
Lowell	112,479	30			2		2		3	1
Lynn	99,148	25	4		6		3		3	3
Malden	49,103	13	1	2	2		2		4	
Medford	39,038	7	4		7		1			
Melrose	18,204	4			1		3			
Methuen	15,189	6			17		3			
Natick	10,907						2			
New Bedford	121,217	42	8	1			2		2	2
Newburyport	15,618	4			13					
Newton	46,054	14	1		15		5			
North Adams	22,282	5								1
Northampton	21,951	3	1	1	21				1	
Pittsfield	41,751	11					1		1	1
Plymouth	13,045	3								
Quincy	47,876	5	3		21		4		2	1
Salem	42,529	9	1	1	55		3	1		
Somerville	93,091	19			34		3		5	
Southbridge	14,245	1			1					
Springfield	129,563	35	2		30		7		1	1
Taunton	37,137	18					1			1
Wakefield	13,025	2			3		1			
Waltham	30,915	6			3		3			
Watertown	21,457	2	1		2					
West Springfield	13,443	0								
Westfield	18,604	5			15				2	1
Winthrop	15,455	2					2			
Woburn	16,574	5								
Worcester	179,754	43	5	1			5		3	1
Michigan:										
Ann Arbor	19,516	12		1					1	1
Battle Creek	36,164		1		41		4			
Benton Harbor	12,233	2								
Detroit	993,739	213	48	3	382	10	36	1	30	21
Flint	91,599	22	3		4		5			1
Grand Rapids	137,634	33	4		2		3		6	1
Hamtramck	48,615	1	5		7		2			
Highland Park	46,499	13			107		2			1
Holland	12,166	2								2
Ironwood	15,739	7								
Ishpeming	10,500	0								
Jackson	48,374	15	5		1		1	1	1	1
Kalamazoo	48,858	16	2				3		2	
Marquette	12,718	1								
Muskegon	36,570	6			1					3
Pontiac	34,273	12			59					
Port Huron	25,944	6	1		5		1			1
Sault Ste. Marie	12,096	1					1		2	
Minnesota:										
Duluth	98,917	16	4						1	4
Faribault	11,089	2								
Hibbing	15,089	6	2				1			
Mankato	12,469						3			
Minneapolis	380,582	70	14		46	1	49		28	8

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

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

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Minnesota—Continued.										
Rochester	13,722	9	1						1	1
St. Cloud	15,873		1						2	
St. Paul	234,595	64	6	1	40		19	2	10	4
Winona	19,143						1			
Missouri:										
Cape Girardeau	10,252		1				2			
Independence	11,686	10								1
Jefferson City	14,490	2								
Joplin	29,855		1							
Kansas City	324,410	110	2	3	2		3		5	6
Saint Joseph	77,939	17	2				3			
Saint Louis	772,897	199	31	2	7		18		24	9
Montana:										
Anaconda	11,668	3								
Billings	15,100	2					1			
Great Falls	24,121	9	7						1	
Missoula	12,668	6	1						1	
Nebraska:										
Lincoln	54,934	9			25					
Omaha	191,601	70	5		21		1			7
Nevada:										
Reno	12,016	2							1	
New Hampshire:										
Berlin	16,104	1							2	
Concord	22,167	10			1		1			
Dover	13,029	4			3					
Keene	11,210	3								
Portsmouth	13,569		1		1					
New Jersey:										
Asbury Park	12,400	2			1					
Atlantic City	50,682	18	3		3		6		2	1
Bayonne	76,754				38		2		3	
Belleville	15,660				21		1			
Bloomfield	22,019	2			24		3			
Clifton	26,470	7			4		4			
East Orange	50,710	12			56		4		1	1
Elizabeth	95,682		11	1	3		11			3
Englewood	11,627	2	2		4		1			
Garfield	19,381	2	1				3		2	
Hackensack	17,667	7	1		7		2			
Harrison	15,721		2		11				1	
Hoboken	68,166	19	4		22	1			2	
Jersey City	297,864		21		55		11		7	
Kearny	26,724	8	1		48		3		1	
Montclair	28,810	3			3				1	1
Morristown	12,548	9						1		
Orange	33,268	4			3		3		1	
Passaic	63,824	16	4		9				1	3
Paterson	135,866		4		74		6		4	
Perth Amboy	41,707	6	3		2		2			
Phillipsburg	16,923	2								
Plainfield	27,700	10	1		3		9		3	2
Rahway	11,042	2	1		3					
Summit	10,174	1			4		1			
Trenton	119,289	48	4		50	1	6		5	3
Union	20,651				9		3		1	
West Hoboken	40,068	8	1		18		3			
West New York	29,926	6	1		16		1			1
West Orange	15,573	5	1		30		1			
New Mexico:										
Albuquerque	15,157	8	1				2			5
New York:										
Albany	113,344		2		2				3	
Auburn	36,192	13	2	1			2		2	
Buffalo	506,775	133	9	1	3		21		23	7
Cortland	13,294	9								1
Elmira	45,305	12			44		1		5	1
Geneva	14,648	5								
Glens Falls	16,638	6							1	
Hornell	15,025	2			13					
Hudson	11,745	1			2		1			
Ithaca	17,004	11	3				1			
Jamestown	38,917	13	2		12		3			

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

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

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
New York—Continued.										
Lackawanna	17,918	3	1	.....	.....	.....	.....	.....	1	.....
Lockport	21,308	7	3	.....	.....	.....	1	.....	.....	.....
Middletown	18,420	.....	1	.....	1	.....	.....	.....	1	.....
Mount Vernon	42,726	6	1	.....	24	.....	2	.....	1	.....
Newburgh	30,366	10	1	1	2	.....	.....	.....	.....	2
New York	5,621,151	1,445	270	28	2,403	56	275	7	[1] 278	[1] 107
Niagara Falls	50,760	18	3	.....	11	.....	6	.....	.....	1
North Tonawanda	15,482	2	2	.....	.....	.....	2	.....	.....	.....
Ogdensburg	14,609	4	.....	.....	.....	.....	.....	.....	.....	.....
Olean	20,506	6	3	.....	.....	.....	.....	.....	2	.....
Peekskill	15,868	6	3	.....	2	.....	6	.....	1	.....
Port Chester	16,573	5	.....	.....	.....	.....	1	.....	.....	.....
Poughkeepsie	35,600	11	.....	.....	10	.....	1	.....	1	.....
Rochester	295,750	65	6	.....	25	1	.....	.....	25	3
Rome	26,341	14	1	.....	.....	.....	3	.....	.....	1
Saratoga Springs	13,181	2	.....	.....	.....	.....	1	.....	.....	.....
Schenectady	88,723	16	1	.....	.....	.....	.....	.....	1	.....
Syracuse	171,717	48	16	2	.....	.....	10	.....	1	.....
Troy	72,013	20	7	.....	.....	.....	4	.....	2	.....
Watertown	31,285	6	.....	.....	.....	.....	.....	1	.....	.....
Watervleit	16,073	6	.....	1	.....	.....	.....	.....	.....	.....
White Plains	21,031	4	1	.....	17	.....	1	.....	.....	.....
Yonkers	100,226	27	4	2	77	1	6	.....	.....	3
North Carolina:										
Charlotte	46,338	15	.....	.....	.....	.....	3	.....	6	3
Durham	21,719	4	.....	.....	.....	.....	.....	.....	1	.....
Greensboro	19,861	2	.....	.....	.....	.....	.....	.....	.....	.....
Raleigh	24,418	18	.....	.....	.....	.....	.....	.....	.....	3
Rocky Mount	12,742	3	.....	.....	.....	.....	.....	.....	.....	.....
Salisbury	13,884	5	.....	.....	.....	.....	.....	.....	.....	1
Wilmington	33,372	10	.....	.....	.....	.....	.....	.....	.....	2
Winston-Salem	48,395	8	.....	.....	2	.....	.....	.....	4	.....
North Dakota:										
Fargo	21,961	0	.....	.....	.....	.....	.....	.....	.....	.....
Ohio:										
Akron	208,435	28	5	.....	92	.....	2	.....	.....	.....
Alliance	21,603	7	.....	.....	3	.....	2	.....	1	1
Ashtabula	22,082	6	1	.....	.....	.....	1	.....	.....	1
Barberton	18,811	3	.....	.....	.....	.....	.....	.....	13	1
Bucyrus	10,425	3	.....	.....	.....	.....	.....	.....	.....	.....
Cambridge	13,104	4	1	.....	5	.....	.....	.....	.....	.....
Canton	87,091	16	4	.....	39	1	1	.....	.....	1
Chillicothe	15,831	3	.....	.....	.....	.....	.....	.....	.....	.....
Cincinnati	401,247	142	7	2	174	2	4	.....	.....	14
Cleveland Heights	15,236	.....	.....	.....	4	.....	1	.....	.....	.....
Columbus	237,031	60	9	1	13	.....	3	.....	4	3
Dayton	152,559	40	.....	.....	.....	.....	3	.....	5	.....
East Cleveland	27,292	3	1	.....	5	.....	1	.....	.....	1
East Youngstown	11,237	6	.....	.....	.....	.....	.....	.....	.....	.....
Findlay	17,021	4	1	.....	.....	.....	.....	.....	.....	.....
Fremont	12,468	2	.....	.....	.....	.....	.....	.....	.....	.....
Hamilton	39,675	12	.....	.....	8	.....	1	.....	.....	2
Ironton	14,007	4	.....	.....	.....	.....	.....	.....	.....	1
Kenmore	12,683	.....	.....	.....	2	.....	.....	.....	.....	.....
Lima	41,306	10	.....	.....	.....	.....	.....	.....	.....	.....
Lorain	37,295	.....	.....	.....	1	.....	4	.....	1	.....
Mansfield	27,824	7	.....	.....	.....	.....	.....	.....	4	3
Marion	27,891	.....	2	.....	.....	.....	.....	.....	1	.....
Martins Ferry	11,634	3	.....	.....	.....	.....	.....	.....	.....	.....
Middletown	23,594	4	.....	.....	.....	.....	1	.....	3	1
Newark	26,718	5	4	.....	.....	.....	2	.....	.....	.....
Niles	13,080	1	.....	.....	.....	.....	1	.....	3	1
Norwood	24,966	7	.....	.....	15	.....	.....	.....	.....	.....
Piqua	15,044	5	.....	.....	.....	.....	.....	.....	1	.....
Salem	10,305	0	1	.....	2	.....	.....	.....	.....	.....
Sandusky	22,897	2	.....	.....	.....	.....	.....	.....	.....	.....
Springfield	60,840	11	.....	.....	.....	.....	3	.....	1	2
Steubenville	28,508	4	.....	.....	.....	.....	.....	.....	.....	.....
Toledo	243,109	44	9	.....	65	.....	3	.....	1	4
Youngstown	132,358	30	4	2	15	.....	1	.....	13	1
Zanesville	29,569	13	3	.....	1	.....	6	.....	4	3

[1] Pulmonary tuberculosis only.

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

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

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Oklahoma:										
Oklahoma City	91,258	17	1				1		1	
Tulsa	72,075		1		12		3			
Oregon:										
Portland	258,288	58	10		2		3		3	6
Pennsylvania:										
Allentown	73,502		3		1				3	
Altoona	60,331		2				1			
Ambridge	12,730				1					
Beaver Falls	12,802		3				1			
Berwick	12,181				28					
Bethlehem	50,358		4		2		1			
Braddock	20,879		1		3				1	
Bristol	10,273				8					
Carlisle	10,916				16					
Carnegie	11,516		1							
Carrick	10,504		1							
Chambersburg	13,171				1					
Dubois	13,681		2				2			
Duquesne	19,011				1					
Easton	33,813		1		13		1			
Erie	93,372		4				4		11	
Harrisburg	75,917		3		1					
Hazleton	32,277		2		9					
Homestead	20,452		3							
Johnstown	67,327				9		1			
Lancaster	53,150		4				3		3	
Lebanon	24,643						3		1	
McKeesport	45,975		1		2				1	
McKee's Rocks	16,713		1				1			
Mahanoy City	15,599				1		1			
Mount Carmel	17,469		2		1		1			
Nanticoke	22,614		1		2					
New Castle	44,938		1		25					
New Kensington	11,987				5					
Norristown	32,319						2			
North Braddock	14,928				1					
Philadelphia	1,823,158	444	48	3	78	1	131	2	74	38
Pittsburgh	588,193		17		87		28		11	
Pittston	18,497		2		3					
Plymouth	16,500				10					
Pottstown	17,431				1					
Pottsville	21,876		1		3				1	
Reading	107,784		9		6				3	
Scranton	137,783		8		15		2		6	
Shamokin	21,204				10					
Sharon	21,747				9		1			
Shenandoah	24,726		1		27				1	
Steelton	13,428						6			
Sunbury	15,721				26					
Swissvale	10,908		1		2		1			
Tamaqua	12,363		1		4		2			
Uniontown	15,692				2		1			
Warren	14,256		1							
Washington	21,480				1					
Wilkes-Barre	73,833		1		16		2			
Wilkinsburg	24,403				1		1			
Williamsport	36,198		1		8		4			
York	47,512						3		1	
Rhode Island:										
Cranston	29,407	5								
Pawtucket	64,248	17	1							1
Providence	237,595	59	3		5					3
South Carolina:										
Charleston	67,957	21					4			2
Columbia	37,524						1			
Greenville	23,127	3								1
South Dakota:										
Sioux Falls	25,176	6					1			
Tennessee:										
Chattanooga	57,895		1				1			
Knoxville	77,818				7		1		3	3
Memphis	162,351	57	3				1		15	4
Nashville	118,342	33							4	3

CITY REPORTS FOR WEEK ENDED APR. 22, 1922—Continued.

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

City.	Population January 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Texas:										
Austin	34,876	23								7
Beaumont	40,422	9			1					
Corpus Christi	10,522	4								
Dallas	158,976	42	6		79		1		7	4
El Paso	77,543	49	2				4			6
Fort Worth	106,482	23	2						3	2
Galveston	44,255	10								4
Houston	138,076	45								5
Waco	38,500	15	1							1
Utah:										
Salt Lake City	118,110	15	6	1	1		1			
Vermont:										
Barre	10,008		1							
Burlington	22,779	9	1				1			
Virginia:										
Alexandria	18,060	4								
Danville	21,539	7								
Lynchburg	29,956	7			1		1			1
Norfolk	115,777				1		3		3	
Petersburg	31,002	10							3	1
Portsmouth	54,387	7	2							1
Richmond	171,667	40	2		87		1		10	9
Roanoke	50,842	17	4				1		5	
Washington:										
Everett	27,644				1		4			
Seattle	315,652				4		7		29	
Spokane	104,437		2				3			
Tacoma	96,965		2				2			
Yakima	18,539						1			
West Virginia:										
Bluefield	15,282	8								1
Charleston	39,608	12								
Clarksburg	27,869	4	1				1			1
Fairmont	17,851						2		1	
Huntington	50,177	20		1						
Martinsburg	12,515				11					
Moundsville	10,669	4	1		10		3			
Parkersburg	20,050	9	1							
Wheeling	54,322	19	1				1		4	1
Wisconsin:										
Beloit	21,284	2					7		1	1
Eau Claire	20,880						1			
Fond du Lac	23,427	8					1			
Janesville	18,293	4							1	
Kenosha	40,472	7	1		7				3	
La Crosse	30,363						2		1	
Madison	38,378				2				1	
Manitowoc	17,563								1	
Marinette	13,610				1		1			
Milwaukee	457,147		11		2		9		16	
Oshkosh	33,162	5	1				1			
Racine	58,593	9					5		2	2
Sheboygan	30,955		5							
Superior	39,624	7					3			
Waukesha	12,558						1			
Wyoming:										
Cheyenne	13,829	8							1	1

FOREIGN AND INSULAR.

SMALLPOX ON VESSEL.

Steamship "Empire State"—At Honolulu.

On April 7, 1922, a case of smallpox developed at Honolulu, Hawaii, in a Chinese woman who arrived at Honolulu, March 31, 1922, on the steamship *Empire State* from ports in China and Japan. The history of the case showed that the patient embarked at Hongkong, March 15, 1922, without having been vaccinated; arrived at Shanghai March 19, but stated that she did not go ashore; reached Kobe March 22; left Yokohama March 24, the trip being thus within the incubation period of smallpox. The patient was passed upon inspection on arrival, developed fever April 5, and was isolated April 8, 1922. The contacts were sent to quarantine. The case was of the confluent type.

AUSTRALIA.

Plague—Sydney.

During the week ended April 29, 1922, a case of plague was reported at Sydney, Australia.

BERMUDA.

Epidemic Measles.

Measles has been reported present in epidemic form in Bermuda from about January 7 to April 18, 1922. The disease was reported epidemic, October 21, 1921, and was present during the month of December, 1921.[1]

CANADA.

Communicable Diseases—Ontario—March, 1922.

The following table shows the number of cases of communicable diseases occurring in the Province of Ontario, Canada, during the month of March, 1922, as compared with the number reported for the corresponding month of the year 1921. The number of deaths from these diseases is also shown. Population, estimated, 2,523,200.

Disease.	February, 1922.		February, 1921.	
	Cases.	Deaths.	Cases.	Deaths.
Cerebrospinal meningitis	8	7	.....	5
Diphtheria	320	32	447	47
Influenza (pneumonic)	.....	84	.....	42
Measles	695	4	238	4
Pneumonia	.....	409	.....	315
Poliomyelitis	.....	.....	.....	6
Scarlet fever	446	18	436	16
Smallpox	113	.....	526	4
Tuberculosis	172	136	181	134
Typhoid fever	21	11	30	11
Whooping cough	61	13	237	19

[1] Public Health Reports, Dec. 9, 1921, p. 3054, and Dec. 23, 1921, p. 3165.

MEXICO.

Epidemic Smallpox—Monterey.[1]

Under date of April 28, 1922, epidemic smallpox was reported to be still seriously prevalent at Monterey, Mexico, with an estimated daily occurrence of about 16 deaths from the disease.

Plague-Infected Rodents—Vera Cruz.

The finding of two plague-infected rodents at Vera Cruz, Mexico, was reported April 20 and April 21, 1922, making a total of three infected rodents found from April 4 to 21, 1922.[2]

RUSSIA.

Communicable Diseases—Esthonia.

Communicable diseases were reported in Esthonia, Russia, during the month of February, 1922, as follows:

Disease.	Cases.	Remarks.
Cerebrospinal meningitis	3	
Diphtheria	63	
Measles	388	
Paratyphoid fever	3	
Scarlet fever	51	
Smallpox	1	
Tuberculosis	126	
Typhoid fever	47	
Typhus fever	12	Recurrent typhus, 4 cases.

Population officially estimated, 1,300,000.

SWITZERLAND.

Influenza—Zurich.

Influenza has been reported in Zurich as follows: November 13 to December 31, 1921.—Cases, 116; deaths, 3. January 1 to April 8, 1922.—Cases, 4,884; deaths, 61.

UNION OF SOUTH AFRICA.

Smallpox—Typhus Fever—January, 1922.

During the month of January, 1922, smallpox and typhus fever were reported in the Union of South Africa as follows: *Smallpox*—37 cases with 3 deaths, occurring among the native population. *Typhus fever*—520 cases with 84 deaths occurring among the native population, and 12 cases with two deaths among the white population. (For distribution according to State, see Table, p. 1172.)

[1] Public Health Reports, Apr. 21, 1922, p. 972.
[2] Public Health Reports, Apr. 28, 1922, p. 1043.

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

Reports Received During Week Ended May 12, 1922.[1]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India:				
Calcutta	Mar. 19-25	46	34	
Philippine Islands:				
Province—				
Bulacan	Feb. 19-25	1	1	

PLAGUE.

Australia:				
Sydney	Apr. 23-29	1		
Ceylon:				
Colombo	Mar. 5-18	4	4	
China:				
Hongkong	Apr. 16-22	77	56	Chinese.
Ecuador:				
Guayaquil	Mar. 16-31	6	2	Rats examined, 3,200; found infected, 100.
India				Feb. 26-Mar. 11, 1922: Cases, 6,518; deaths, 5,230. Nov. 27-Dec. 3, 1921: Cases, 1,280; deaths, 1,055. Dec. 11-17, 1921: Cases, 1,259; deaths, 952.
Bombay	Feb. 26-Mar. 4	49	36	
Calcutta	Mar. 19-25	9	9	
Karachi	do	39	27	
Madras Presidency	do	193	132	
Java				Including island of Madoera: Feb. 1-28, 1922—deaths, 1,595.
East Java—				
Soerabaya	Feb. 26-Mar. 4	1	1	
Mesopotamia:				
Bagdad	Feb. 1-28	2	1	
Mexico:				
Vera Cruz				2 plague-infected rodents found, Apr. 21 and 28, 1922.
Portuguese West Africa:				
Angola—				
Loanda	Jan. 29-Feb. 4		2	
Straits Settlements:				
Singapore	Mar. 12-18	3	3	

SMALLPOX.

Algeria:				
Algiers	Mar. 1-31	1		
Bolivia:				
La Paz	Feb. 1-28	17	12	
Brazil:				
Rio de Janeiro	Mar. 26-Apr. 1	16	8	
Canada:				
Manitoba—				
Winnipeg	Apr. 2-8	3		
Ontario				Mar. 1-31, 1922: Cases, 113.
Niagara Falls	Apr. 9-22	7		
Chile:				
Concepcion	Feb. 28-Mar. 13		21	
China:				
Antung	Mar. 19-26	1		
Hongkong	Mar. 12-18	3	3	
Mukden	Mar. 19-25			Present.
Shanghai	Mar. 20-Apr. 2		5	Chinese.
Tsingtau	Feb. 27-Mar. 19	4	3	
Cuba:				
Cienfuegos	Apr. 16-22	6		
Nuevitas	Apr. 10-16	3		Found at Senado, a point 25 miles distant from Nuevitas.
Dominican Republic:				
Santo Domingo	Apr. 2-15			In vicinity: Cases, 25; deaths, 8.
Ecuador:				
Guayaquil	Mar. 16-31	1		
Finland				Mar. 1-15, 1922: Cases, 13.
France:				
Bordeaux	Mar. 31-Apr. 6		1	
Great Britain:				
Nottingham	Mar. 19-25	7		
Haiti				Apr. 2-8, 1922: A few cases.

[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 May 12, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
India				Jan. 15-28, 1922: Deaths, 371.
Bombay	Feb. 26-Mar. 4	4	1	
Calcutta	Mar. 12-18	95	61	
Karachi	Mar. 19-25	41	11	
Madras	do	146	61	
Japan:				
Kobe	Mar. 28-Apr 3	1	1	
Java:				
West Java—				
Batavia	Mar. 10-23	3		Batavia Province.
Mesopotamia:				
Bagdad	Feb. 1-28	6	4	
Mexico:				
Guadalajara	Feb. 26-Mar. 4	4	1	
Mexico City	Mar. 19-25	22		
Monterey				Apr. 28, 1922: Epidemic; estimated about 16 deaths daily.
Saltillo	Apr. 2-8		1	Confluent. From Tampico.
Portugal:				
Lisbon	Jan. 29-Apr. 15	127	8	One death in February and 7 in March.
Rumania:				
Chisinau	Feb. 1-28	17		District.
Russia:				
Esthonia	do	1		
Spain:				
Corunna	Apr. 2-8		1	In very young child.
Straits Settlements:				
Singapore	Mar. 5-18	54	7	
Switzerland:				
Zurich	Apr. 2-8	1		
Syria:				
Aleppo	do			Present.
Beirut	Mar. 13-27	4	2	
Tunis:				
Tunis	Apr. 2-8		1	
Turkey:				
Constantinople	Mar. 26-Apr. 8	11	4	
Union of South Africa				Jan. 1-31, 1922: Cases, 37; deaths, 3; among natives.
Cape Province	Feb. 19-Mar. 11			Outbreaks.
Natal	Feb. 19-25			Do.
Orange Free State	do			Do.
Southern Rhodesia	Mar. 2-15	83		
Transvaal	Feb. 19-25			Do.
On vessel:				
S. S. Empire State	Apr. 7	1		At Honolulu, Hawaii, Mar. 31. In Chinese woman, embarked at Hongkong; unvaccinated; arrived Shanghai Mar. 15; states did not go ashore; at Kobe Mar. 22; left Yokohama Mar. 24. Case was passed on inspection; developed Apr. 7, 1922.

TYPHUS FEVER.

Algeria:				
Algiers	Mar. 1-31	7	1	
Egypt:				
Port Said	Apr. 2-8	1		
Mesopotamia:				
Bagdad	Feb. 1-28	1		
Mexico:				
Mexico City	Mar. 19-25	21		Including municipalities in Federal district.
Palestine:				
Jerusalem	Apr. 4-10	1		
Portugal:				
Oporto	Apr. 2-8	3		
Rumania:				
Chisinau	Feb. 1-28	10		District.
Russia:				
Esthonia	do	12		Recurrent typhus, 4 cases.

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

Reports Received During Week Ended May 12, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Turkey:				
Constantinople	Mar. 26–Apr. 8	24	1	
Union of South Africa				Jan. 1–31, 1922: Cases, 530; deaths, 84; occurring in native population; 12 cases with 2 deaths occurring in white population.
Cape Province	Feb. 12–18			Outbreaks. Jan. 1–30, 1922: Cases, 331; deaths, 49 (colored); cases, 9; deaths, 3 (among white population).
Natal				Jan. 1–30, 1922: Cases, 96; deaths, 10 (colored). Among white population, 3 cases.
Orange Free State	Feb. 12–Mar. 11			Outbreaks. Jan. 1–30, 1922: Cases, 133; deaths, 25.
Transvaal				Jan. 1–30, 1922: Cases, 20 (colored).
Yugoslavia:				
Croatia—				
Zagreb	Mar. 19–25	1		

Reports Received from Dec. 31, 1921, to May 5, 1922.

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India				Oct. 2–Dec. 31, 1921: Deaths, 37,749. (Corrected report.) Jan. 1–28, 1922: Deaths, 2,838.
Bombay	Oct. 30–Nov. 5	1		
Do	Jan. 29–Feb. 4	1	1	
Calcutta	Oct. 23–Dec. 31	71	69	
Do	Jan. 1–Mar. 18	286	245	
Karachi	Nov. 6–12		1	
Madras	Dec. 11–31	4	1	
Do	Jan. 1–Feb. 4	10	7	
Rangoon	Oct. 1–Dec. 31	30	24	
Do	Jan. 1–Feb. 25	30	25	
Indo-China:				
Saigon	Nov. 6–12	1	1	
Do	Jan. 29–Feb. 18	24	23	Including 100 km. surrounding country.
Java:				
West Java—				
Batavia	Nov. 1–7	2	2	At Lebak.
Philippine Islands:				
Manila	Nov. 13–Dec. 31	49	18	
Do	Jan. 1–Mar. 11	82	27	
Province—				
Bulacan	Dec. 25–31	1		
Do	Feb. 12–18	1	1	
Cavite	Jan. 1–7	1	1	
Cebu	Jan. 8–14	1		
Pampanga	Dec. 25–31	1		
Rizal	Jan. 15–28	18	12	
Zambales	Dec. 11–31	31	18	
Do	Jan. 1–7	5	4	
Poland				Aug. 14–Sept. 10, 1921: Cases, 4; deaths, 1.
Russia:				
Kharkoff	Jan. 28			Present.
Kief	Dec. 15–Jan. 11	259		
Latvia—				
Riga				At quarantine station in October, 1921: One case.
Lithuania				Present. Feb. 19, 1922, with 30 cases and mortality of 33 per cent, Kovno and vicinity.
Odessa	Jan. 28			Present.
Siam:				
Bangkok	Oct. 23–Dec. 24	8	4	
Do	Jan. 29–Mar. 4	7	3	

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

PLAGUE.

Place.	Date.	Cases.	Deaths.	Remarks.
Asia Minor:				
Smyrna	Nov. 27-Dec. 3	1	1	
Australia:				
New South Wales—				
Sydney	do	2	1	Dec. 7-13: 4 plague rats. Jan. 15-21, 1922: 1 plague rat.
Do	Jan. 29-Apr. 22	14	2	
Queensland—				
Aramac	Mar. 19-25	1	1	Inland town on railroad about 150 miles from coast.
Brisbane	Oct. 30-Dec. 31	27	20	Total, Aug. 22-Dec. 31, 1921: Cases, 41; deaths, 27: Total infected rats, 54. Total cases, Jan. 1-Mar. 18, 1922: 10. Total infected rats, 10.
Do	Jan. 1-Mar. 18	10	.....	
Bundaberg	Mar. 5-11	1	.....	
Cairns	Oct. 30-Dec. 31	6	3	Plague rats, 9.
Do	Jan. 1-7	.....	1	Pestis minor.
Cooktown	Oct. 30-Nov. 5	1	.....	
Ingham	.....	.....	.....	Nov. 6-Dec. 24, 1921: Plague rats, 14. Jan. 1-14, 1922: 2 plague rats.
Inisfail	.....	.....	.....	Nov. 27-Dec. 3, 1921: 1 plague rat.
Ipswich	Dec. 11-17	1	1	
Port Douglas	Nov. 13-19	1	1	
Townsville	Nov. 20-Dec. 3	2	2	Total cases, 27; deaths, 18.
Do	Jan. 1-14	.....	2	To Jan. 14, 1922: Cases, 32; deaths, 21.
Azores:				
Islands—				
Fayal	Jan. 16-22	2	2	
St. Michael	.....	.....	.....	Nov. 27-Dec. 31, 1921: Cases, 23; deaths, 9. Jan. 1-21, 1922: Cases, 13; deaths, 8. Jan. 22-Apr. 1, 1922: Cases, 62; deaths, 31; occurring at Arrifes, Capelas, Fenaes, Ribeira Grande, and Santo Antonio; distance from port of Ponta Delgada, 3 to 9 miles.
Arrifes	Dec. 25-31	1	1	3 miles from port
Do	Jan. 1-7	1	.....	
Fenaes d'Ajuda	Nov. 27-Dec. 3	.....	.....	Present. 6 miles from port.
Do	Jan. 15-21	3	2	
Ribeira Grande	Nov. 13-Dec. 10	19	8	9 miles from port.
Do	Jan. 8-14	9	6	
Livramonto	Dec. 4-10	2	.....	Vicinity of Ponta Delgada.
Ponta Delgada	do	1	.....	
Brazil:				
Bahia	Oct. 30-Dec. 31	13	12	
Do	Jan. 1-Mar. 2	14	11	
Para	Feb. 6-12	.....	1	
Pernambuco	Feb. 26-Mar. 4	1	1	
Porto Alegre	Feb. 12-18	3	2	
Rio de Janeiro	Jan. 22-28	1	1	
British East Africa:				
Uganda	Aug. 1-Dec. 31	256	229	Aug. 1-Oct. 31, 1921: Reports of inspectors, deaths, 343; reports of chiefs, deaths, 651.
Cape Verde Islands:				
St. Vincent	Mar. 16	.....	.....	Present; no plague mortality reported during previous 5-month period. August, 1921: Cases, 6; deaths, 3.
Ceylon:				
Colombo	Oct. 30-Dec. 31	13	10	Oct. 30-Dec. 24, 1921: Rodent plague, 6.
Do	Jan. 1-Mar. 4	23	21	Infected rats, 11.
Chile:				
Antofogasta	.....	.....	.....	Mar. 5-11, 1922: 1 plague rat.
China:				
Amoy	Feb. 18-Mar. 4	.....	.....	Present in surrounding country.
Hongkong	Nov. 20-Dec. 17	6	.....	
Do	Jan. 1-Apr. 15	138	78	

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Ecuador:				
Guayaquil	Nov. 16-Dec. 31	18	6	Rats examined, 2,958; found infected, 90. Total, July-Dec. 15, 1921: Cases, 28. Jan. 1-Mar. 15, 1922: Rats examined, 14,800; found infected, 375.
Do	Jan. 1-Mar. 15	36	13	
Naranjito	Mar. 1-15	1		
Egypt				Jan. 1-Dec. 31, 1921: Cases, 356; deaths, 153. Jan. 1-Mar. 30, 1922: Cases, 56; deaths, 26.
City—				
Alexandria	Dec. 5-30	7	2	
Do	Jan. 17-Mar. 16	8	5	
Port Said	Dec. 20	1		Feb. 12-18, 1922: 1 plague rodent. Mar. 12-16, 1922: One case, one death, septicemic.
Do	Mar. 15-21	2	2	
Suez	Nov. 22-Dec. 31	16	9	
Do	Jan. 2-Mar. 30	11	5	
Province—				
Assiout	Mar. 25	1	1	Septicemic.
Assouan	Feb. 28	1	1	Do.
Fayoum	Feb. 17-Mar. 9	5	1	
Gharbieh	Feb. 17-Mar. 27	5	1	
Girgeh	Jan. 12-Mar. 30	5		Do.
Keneh	Dec. 1	1		Do.
Do	Jan. 21-Feb. 28	5	3	Pneumonic, 1 case, 1 death; septicemic, 1 case.
Minieh	Feb. 21-Mar. 9	3	3	Septicemic.
France:				
Dunkirk	Mar. 24		1	In hospital, from S. S. City of Genoa from Bombay.
Great Britain:				
Liverpool				Mar. 31, 1922: Finding of 3 plague-infected rats reported; place, warehouse in which material from steamship Warwickshire was stored.[1]
Greece:				
Preveza	Feb. 8			Outbreak. Port on the Ionian Sea.
India				Oct. 23-Dec. 31, 1921: Cases, 8,690 deaths, 6,458 (reports, weeks; ended Dec. 3 and 17, 1921, missing). Jan. 1-Feb. 25, 1922: Cases, 18,711; deaths, 14,543.
Bombay	Oct. 23-Dec. 24	7	6	
Do	Jan. 1-Feb. 25	68	48	
Calcutta	Jan. 29-Mar. 18	7	7	
Karachi	Nov. 6-Dec. 31	5	5	
Do	Jan. 1-Mar. 18	137	102	
Madras	Dec. 11-17	1		
Madras Presidency	Nov. 13-Dec. 31	2,047	1,438	
Do	Jan. 1-Mar. 18	3,703	2,656	
Rangoon	Oct. 1-Dec. 31	139	129	
Do	Jan. 1-Feb. 25	257	231	
Indo-China:				
Saigon				Nov. 6-Dec. 24, 1921: Rodent plague, 10. Jan. 8-Feb. 4, 1922: Rodent plague, 8.
Italy:				
Catania	Nov. 27	1	1	Total, Oct. 16-Nov. 27, 1921: Cases, 8 (of which 1 doubtful); deaths, 5. Jan.-Feb., 1922: 28 plague-infected rats found.
Naples (Province)—				
Torre Annunziata	Oct. 22-Dec. 27	2		17 miles from city of Naples.
Venice	Oct. 27	1		
Java				Islands of Java and Madoera; Nov. 1-Dec. 31, 1921: Deaths, 1,781. Jan. 1-31, 1922: Deaths, 976.
East Java—				
Soerabaya	Oct. 30-Dec. 10	11	12	
Do	Jan. 1-Feb. 18	6	6	
Madagascar:				
Tananarive	Jan. 23-Feb. 19	26	15	Bubonic, pneumonic and septicemic.
Mauritius (Island)				Jan. 23-Feb. 6, 1922: Cases, 12; deaths, 3.
Port Louis	Oct. 29-Dec. 30	241	142	Plague-infected rats, 176; plague-infected cats, 36. (Corrected report.) Dec. 1-30, 1921: Dead rats found, 155; dead cats, 4.
Do	Dec. 31-Jan. 22	16	6	Dead rats found, Dec. 31, 1921-Jan. 11, 1922, 17.
Mesopotamia:				
Bagdad	Oct. 1-31	1	1	

[1] Public Health Reports, Mar. 31, 1922, p. 784.

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Mexico:				
Tampico	Mar. 26–Apr. 1	1		Dec. 18–31, 1921: Infected rodents found, 5; total, Jan. 1–Dec. 31, 1921, infected rodents, 322; Jan. 1–Apr. 8, 1922, 14 plague-infected rodents.
Vera Cruz				One infected rodent caught Dec. 5, 1921. Apr. 4, 1922: 1 plague-infected rodent found.
Peru				Nov. 17–Dec. 31, 1921: Cases, 94; deaths, 35. Occurring in Callao, Huacho, Huaras, Lima, Magdalena Vieja, Paita, Salaverry, and Sechura, Jan. 1–Feb. 28, 1922: Cases, 141; deaths, 62. (Corrected report to Feb. 15, 1922.)
Localities—				
Bambamarca	Jan. 1–15			Present. Rural.
Barranco	Jan. 16–31	1		
Callao	Jan. 1–Feb. 28	7	4	Rural. Year, 1921: Deaths, 30.
Casma	Feb. 1–28	11	3	
Chiclayo	Jan. 16–Feb. 28	19	16	
Chilca	Jan. 16–Feb. 15	11	2	
Cutervo	Jan. 1–15	1		Rural.
Guadalupe	Jan. 1–31	7	2	
Huacho	Jan. 1–Feb. 15	3		
Hualgayoc	Jan. 16–31			Province. Present.
Huaral	Jan. 1–15	2		
Jayanca	do			Present.
Lambayeque	Jan. 16–Feb. 15	3	1	
Lima	Jan. 1–Feb. 28	14	4	In district, 20 cases, 6 deaths.
Mollendo	Feb. 1–28	3		
Pacasmayo	do	1		
Payta	Jan. 1–Feb. 28	28	21	
Piura	Feb. 1–15	1		
Salaverry	Jan. 16–31	1		
San Pedro	Jan. 1–15	1		
Sullana	Jan. 1–Feb. 28	3	3	
Trujillo	Feb. 1–15			Present.
Tumbez	do	4		
Portugal:				
Lisbon	Dec. 15	1	1	
Portuguese West Africa:				
Angola—				
Loanda	Oct. 9–Nov. 5		2	
Mossamedes	Feb. 14			Present. In vicinity Mar. 1–22, 1922: Cases, 11. No cases reported in city since Feb. 28, 1922.
Rhodes (Island) (Aegean Sea)	Oct. 13	3	1	
Senegal:				
Dakar	Feb. 1–28	2		Jan. 1–31, 1922: 1 rodent plague.
Siam:				
Bangkok	Oct. 23–Dec. 31	7	6	
Do	Jan. 8–Mar. 4	35	26	
Straits Settlements:				
Singapore	Nov. 6–Dec. 31	3	3	
Do	Jan. 15–Mar. 4	34	15	
Syria:				
Beirut	Oct. 9–Nov. 20	10	4	
Turkey:				
Constantinople	Jan. 1–7	1		Mar. 26–Apr. 1, 1922: One death.
Union of South Africa:				
Orange Free State—				
Boschrand Farm	Jan. 25	3	3	10 miles from Kroonstad.
Bothaville	Nov. 19			Plague-infected mouse found.
Geluksfontein Farm	Feb. 25			Plague mortality among rodents.
Hoopstad	Dec. 4–10	1		In native herd boy.
Klipfontein Farm	Feb. 10	1	1	12 miles from Bothaville. Plague infection found in rats on adjoining farm, week ended Feb. 4, 1922.
Rientfontein Farm	Feb. 17			Plague-infected squirrel found.

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
On vessel:				
S. S. City of Genoa	Mar. 9–15	4	2	At Suez and Port Said, Egypt, from Karachi and Bombay, India, for Plymouth, England. One fatal case at sea en route to Suez; 1 case on arrival. At Port Said, 2 cases, of which 1 fatal. At Dunkirk, France, Mar. 24, 1922: Several cases, one fatal case in hospital at Dunkirk.
S. S. Polycarp	Feb. 3	1		At Para, Brazil, from Ceara, via Manaos, Maranham, and Para; for New York.
S. S. Tango Maru	Dec. 31	1		At Thursday Island Quarantine, Australia, from Kobe, via Nagasaki, Hongkong, Manila, and Zamboanga.
S. S. Warwickshire	Feb. 12			At Liverpool, England, from Rangoon. Plague rats, 27; 1 plague mouse.

SMALLPOX.

Algeria:				
Algiers	Jan. 1–Mar. 31	4		
Arabia:				
Aden	Dec. 25–31		1	
Do	Jan. 8–14		1	
Asia Minor:				
Smyrna	Jan. 15–21	1		In district.
Bolivia:				
La Paz	Aug. 1–Dec. 31	60	41	
Do	Jan. 1–31	15	9	
Brazil:				
Bahia	Nov. 6–Dec. 17	4		
Do	Jan. 8–Feb. 4	2		
Rio de Janeiro	Nov. 13–Dec. 31	13	2	
Do	Jan. 1–Mar. 11	34	8	
Santos	Feb. 20–26		1	
Sao Paulo	Oct. 31–Dec. 25	11		
Do	Dec. 26–Jan. 8	2		
British Africa:				
Uganda	Aug. 1–Dec. 31	33	6	
Canada:				
British Columbia—				
Vancouver	Dec. 25–31	3		
Do	Jan. 29–Feb. 4	1		
Victoria	Mar. 12–18	1		
Manitoba				Year 1921: Cases, 71.
Winnipeg	Nov. 20–Dec. 3	2		
New Brunswick—				
Charlotte County				Dec. 17, 1921: 31 cases previously reported, occurring at Andersonville and Blacks Harbor. Dec. 18–24, 1921: Cases, 3. Dec. 25–31, 1921: Cases, 2. Feb. 19–20, 1922: Cases, 2.
St. Stephen	Dec. 11–17	2		
Restigouche County				Dec. 11–31, 1921: Cases, 3. Feb. 12–25, 1922: Cases, 4.
Charlo	Feb. 19–25	2		20 miles from Campbellton.
Westmoreland County	Mar. 5–Apr. 1	16		
York County	Dec. 11–17	1		
Do	Jan. 29–Feb. 4	1		
Ontario				Dec. 1–31, 1921: Cases, 128. Jan. 1–31, 1922: Cases, 170; Feb. 1–Mar. 31, 1922: Cases, 298.
Fort William and Port Arthur	Jan. 1–21	3		
Hamilton	Jan. 22–Mar. 25	4		
Kingston	Jan. 17–Feb. 11	5		Jan. 16–20, 1922: Two cases reported.
Niagara Falls	Dec. 11–24	2		
Do	Jan. 15–Apr. 8	40		
North Bay	Feb. 12–18	1		
Ottawa	Dec. 11–24	17		
Do	Jan. 1–Apr. 15	34		
Sault Ste. Marie	Jan. 15–21	1		

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Canada—Continued.				
Ontario—Continued.				
Toronto	Dec. 11-24	4		
Do	Jan. 1-Apr. 8	54		
Windsor	Jan. 8-Mar. 4	3		
Quebec—				
Montreal	Dec. 11-24	1		
Saskatchewan—				
Regina	Jan. 1-Feb. 11	4		
Saskatoon	Dec. 1-18	6		
Do	Feb. 5-18	3		
Canal Zone:				
Ancon				Admitted to hospital by transfer from Panama, Nov. 30, 1921, 1 case. Arrived on sailing vessel from a village on south coast.
Ceylon:				
Colombo	Nov. 27-Dec. 3	1		Port case.
Do	Jan. 29-Mar. 4	5		One port case.
Chile				Jan.-Sept., 1921: Cases, 5,500 (approximately); deaths, 2,500 (approximately. Nov. 15-21, 1921: Diffused in southern provinces; not epidemic.
Concepcion	Nov. 23-Dec. 26		25	Nov. 15-21, 1921: Present. In vicinity, at Hualqui, cases, 32; deaths, 5. Dec. 4-17, 1921: Present.
Do	Dec. 27-Jan. 30		21	
Coronel	Nov. 15-Dec. 17			Present.
Curanilahue	Nov. 15-21	4		
Lota				Oct. 28, 1921-Jan. 31, 1922: Cases, 879; deaths, 338.
Ollague	Mar. 12-25	1		Reported Mar. 16.
Osorno				From beginning of outbreak to Feb. 15, 1922: Cases, 87.
Talcahuano	Nov. 15-Dec. 24	6		Jan. 8-28, 1922: Present.
Do	Jan. 29-Feb. 18	5		From beginning of outbreak to Feb. 15, 1922: Cases, 122.
Temuco	Nov. 15-21	9		
Valparaiso	Oct. 23-Dec. 31		94	
Do	Jan. 1-Mar. 25		39	
China:				
Amoy	Nov. 16-Dec. 31		7	Nov. 23-29, 1921: Present. Jan. 22-28, 1922: Present.
Do	Jan. 1-Mar. 18		13	
Antung	Nov. 28-Dec. 18	4	1	
Canton	Dec. 1-31			Present.
Changsha	Jan. 16-22	1		
Chungking	Nov. 6-Dec. 31			Do.
Do	Jan. 1-Mar. 4			Do.
Foochow	Nov. 6-Dec. 31			Do.
Do	Jan. 1-Mar. 18			Do.
Hankow	Nov. 13-Dec. 31			Do.
Do	Jan. 1-21	2		
Harbin	Nov. 14-Dec. 11	5		
Do	Dec. 26-Mar. 12	4		
Hongkong	Dec. 3-31	5		
Do	Jan. 1-Mar. 11	50	36	
Mukden	Nov. 20-Dec. 31			Do.
Do	Jan. 15-Mar. 18			Do.
Nanking	Nov. 20-Dec. 17			Do.
Do	Jan. 15-Mar. 15			Do.
Shanghai	Oct. 31-Dec. 31	23	194	Cases, foreign; deaths, Chinese and foreign. Population: Native, 790,000; foreign, 24,000. Corrected report.
Do	Jan. 2-Mar. 19	34	501	Cases, foreign; deaths, native. Jan. 14, 1922: Seriously prevalent.
Tientsin	Dec. 11-17	2		In Mission Hospital.
Tsingtau	Jan. 1-Feb. 19	31	11	
Chosen (Korea):				
Fusan	Dec. 1-31	3	1	
Do	Jan. 1-Feb. 28	80	19	
Gensan	Feb. 1-28	1		
Seoul	Jan. 1-Feb. 28	8	3	
Colombia:				
Cartagena	Nov. 22-28		1	
Santa Marta	Feb. 19-25			Present.

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Cuba				Dec. 4–31, 1921: Cases, 361. Jan. 1–31, 1922: Case, 257.
Antilla	Dec. 12–31	3		At Preston.
Do	Jan. 8–Feb. 4	13	1	
Cienfuegos	Jan. 22–Apr. 1	10	1	Two cases from outside city limits.
Santiago	Jan. 1–Feb. 28	8	1	
Dominican Republic				Oct. 1–31, 1921: Cases, 653; deaths, 54. Jan. 2–Feb. 4, 1922: Cases, 6,922; deaths, 185.
Puerto Plata	Jan. 13	100	5	In district, widely diffused, with 1,000 estimated cases with 100 deaths.
San Pedro de Macoris	Nov. 20–Dec. 31	31	1	Estimate of about 500 cases of smallpox in the district of Macoris; of these, 50 within the city limits.
Do	Jan. 14–Feb. 4	122		In surrounding country. Feb. 12–25: 66 cases. Feb. 26–Apr. 1: About 60 cases.
Santo Domingo	Nov. 15–Dec. 5			In district, 401 cases estimated. Dec. 17–24, 1921: Present in vicinity. Jan. 9–16, 1922: In surrounding country, 1,745 cases(estimated). Mar. 19–Apr. 1, 1922: About 20 cases, with 1 death, in surrounding country.
Ecuador:				
Guayaquil	Nov. 16–Dec. 3	7		And vicinity.
Do	Jan. 1–Feb. 28	3		
Egypt:				
Alexandria	Nov. 26–Dec. 2	1	1	
Cairo	do	2		
Port Said	Dec. 20–26	1		Dec. 16–23, 1921: 1 case.
Do	Jan. 22–28	1		
Finland				Nov. 16–30, 1921: 1 case.
Do				Feb. 1–15, 1922: Cases, 19.
Fiume				Dec. 27, 1921–Jan. 2, 1922: Cases, 2.
Great Britain:				
Manchester	Jan. 1–7	4		
Nottingham	Dec. 4–31	18		
Do	Jan. 8–28	3		
Swansea	Jan. 17–23	2		Imported on vessel from Persian Gulf.
Haiti				Jan. 22–Mar. 25, 1922: A few cases
Cape Haitien	Dec. 11–24	8		
Do	Jan. 1–Feb. 18	21	1	
Port au Prince	Dec. 11–31			Present.
Do	Jan. 15–21	2		
India				Oct. 2–8, 1921: Deaths, 28. Oct. 23–Nov. 19, 1921: Deaths, 266. Nov. 27–Dec. 31, 1921: Deaths, 533. Jan. 1–28, 1922: Deaths, 700.
Bombay	Oct. 23–Dec. 31	3	2	
Do	Jan. 1–Feb. 25	12	2	
Calcutta	Nov. 13–Dec. 31	37	28	
Do	Jan. 1–Mar. 11	199	146	
Karachi	Nov. 11–Dec. 31	28	9	
Do	Jan. 1–Mar. 18	102	66	
Madras	Nov. 13–Dec. 31	183	59	
Do	Jan. 1–Mar. 18	812	278	
Rangoon	Oct. 1–Dec. 31	6		
Do	Jan. 15–Feb. 25	85	1	
Indo-China:				
Saigon	Dec. 18–24	1	1	City and district.
Do	Jan. 8–Feb. 18	8	3	Do.
Italy:				
Catania	Feb. 20–26	1		In Province.
Genoa	Nov. 10–20	1		
Messina—				
Messina	Nov. 28–Dec. 4	1		
Pettineo	Nov. 1[illegible]–Dec. 4	2		
Venice	Jan. 30–Feb. 5	2		
Japan:				
Kobe	Jan. 23–29	3	1	
Nagasaki	Mar. 13–19	1		
Taiwan Island	Dec. 1–31	2	1	
Do	Feb. 14–Mar. 10	2	1	
Yokohama	Jan. 9–29	3		Corrected report.

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Java:				
East Java—				
Soerabaya	Jan. 1-7	4		
West Java—				
Bandoeng	Nov. 18-Dec. 8	2		
Batavia	Nov. 18-Dec. 22	11	9	City and Province.
Do	Dec. 30-Mar. 2	5	3	In Province: Cases, 23; deaths, 4; 13 cases, with 3 deaths, not locally stated. Feb. 3-Mar. 2, 1922: Cases, 15; deaths, 2.
Buitenzorg	Nov. 25-Dec. 8	7	1	
Krawang	Nov. 18-24	1		
Lebak	Nov. 18-Dec. 8	7	4	
Pandeglang	Nov. 25-Dec. 1		1	
Tangerang	Nov. 18-Dec. 8	5	1	
Liberia:				
Grand Bassa County	Nov. 30			Present at Lower Buchannan.
Mesopotamia:				
Bagdad	Oct. 1-Nov. 30	117	50	Epidemic with high mortality November, 1921.
Mexico:				
Chihuahua	Dec. 5-11		1	
Do	Jan. 23-Feb. 19		2	
Guadalajara	Nov. 1-Dec. 31	6		
Do	Jan. 1-Feb. 28	31	5	
Mexico City	Nov. 20-Dec. 31	64		Including municipalities in Federal District.
Do	Jan. 1-Mar. 18	186		Do.
Monterey	Apr. 12		2	Epidemic.
Saltillo	Jan. 29-Feb. 4		1	From San Salvador, Zacatecas.
San Luis Potosi	Dec. 18-24		2	
Do	Jan. 8-Apr. 1		18	
Torreon	Dec. 1-31		134	
Do	Jan. 1-Feb. 28		82	
Newfoundland:				
St. Johns	Feb. 4-10	1		
Nicaragua:				
Managua	Mar. 5			Present.
Palestine:				
Jerusalem	Jan. 10-Feb. 20	27		
Panama:				
Bocas del Toro Province—				
Sursuba	Jan. 18-Feb. 8	11		Village 24 miles from Almirante.
Chiriqui Province	Dec. 22			Present.
Do	Jan. 26			Present with center of prevalence at Boquete Bajo. At Boquete Bajo, Jan. 22-Mar. 23, 1922, 50 admissions to lazaretto: On Mar. 20, 1922, 16 cases of smallpox, confluent type.
Panama	Dec. 14	1		On Dec. 21, 1921: 1 additional case from country district of Sabanas admitted to hospital. Total admissions, Jan. 1-Dec. 21, 1921, 207.
Peru:				
Lima	Nov. 1-Dec. 31		3	
Poland				Aug. 14-Dec. 31, 1921: Cases, 578; deaths, 146. Exclusive of Brest-Litovsk, Minsk, and Wilno districts.
Portugal:				
Lisbon	Nov. 13-Dec. 31	48	12	
Do	Jan. 1-28	46	1	
Portuguese East Africa:				
Lourenco Marques	Oct. 1-Nov. 5	2	4	
Portuguese West Africa:				
Angola—				
Loanda	Oct. 9-Dec. 31		7	
Do	Jan. 1-14		3	
Rumania:				
Bucharest	Nov. 1-30		33	
Chisinau	Dec. 1-31	33		District.
Russia:				
Esthonia	Oct. 1-Dec. 31	38		
Lettonia	do	75		Name of country officially changed from Latvia to Lettonia.
Do	Jan. 1-Feb. 28	38		
Senegal:				
Dakar	do	5	3	

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Serbia:				
Belgrade	Oct. 2–Nov. 26	16	4	
Siam:				
Bangkok	Oct. 23–Nov. 5	1		
Siberia:				
Vladivostok	Feb. 22–28	1	1	
Spain:				
Barcelona	Jan. 8–14		1	
Huelva	Oct. 1–Dec. 31		3	
Do	Jan. 1–31	1	1	
Malaga	Nov. 1–Dec. 31		60	
Do	Jan. 1–31		8	
Seville	Nov. 16–Dec. 31		7	
Do	Jan. 8–Mar. 25		55	
Valencia	Jan. 22–Mar. 25	5	1	
Straits Settlements:				
Singapore	Nov. 6–Dec. 24	49	13	
Do	Jan. 1–Mar. 4	135	30	
Switzerland:				
Glarus, Canton	Dec. 10			Epidemic.
Lucerne	Feb. 1–28	12		
St. Gall	Feb. 12–18	1		
Zurich	Dec. 10	2		In vicinity.
Do	Mar. 12–18	5		
Syria:				
Adana	Dec. 18–24			Present.
Do	Jan. 1–14			Do.
Aleppo	Dec. 18–24			Do.
Do	Jan. 1–Mar. 4			Do.
Alexandretta	....do			Do.
Beirut	Oct. 9–Nov. 13	5	2	
Do	Jan. 8–Feb. 25	20	9	Dec. 29, 1921–Jan. 4, 1922: Cases, 14; deaths, 2.
Cilicia	Jan. 8–Feb. 4			Present.
Diarbekir	Dec. 18–24			Do.
Do	Jan. 1–Feb. 4			Do.
Mersina	Dec. 18–24			Do.
Do	Jan. 1–7			Do.
Urfa	Dec. 18–24			Do.
Do	Jan. 1–Feb. 4			Do.
Tunis:				
Tunis	Nov. 26–Dec. 23	17	15	
Do	Jan. 1–Feb. 4	4	5	
Turkey:				
Constantinople	Nov. 27–Dec. 24	20	4	
Do	Jan. 15–Mar. 25	104	21	
Union of South Africa				Nov. 1–Dec. 31, 1921: Cases, 326; deaths, 6 (colored). White, 10 cases.
Cape Province	Nov. 5–Dec. 31			Outbreaks, Nov. 1–Dec. 31, 1921: Cases, 42; deaths, 1 (colored).
Do	Jan. 8–Feb. 11			Outbreaks.
Natal	....do			Outbreaks, Nov. 1–Dec. 31, 1921: Cases, 209; deaths, 5 (colored).
Orange Free State	Oct. 23–Dec. 24			Outbreaks, Nov. 1–Dec. 31, 1921: Cases, 8 (colored).
Do	Feb. 5–11			Outbreaks.
Southern Rhodesia	Dec. 29–Feb. 22	149		Natives.
Transvaal	Oct. 23–Dec. 31			Outbreaks.
Do	Jan. 1–Feb. 11			Outbreaks, Dec., 1921: Cases, 15. Nov. 1–Dec. 31, 1921: Cases, 22 (colored). Among white population, 8 cases, State not designated.
Johannesburg District	Dec. 1–31	1		
Do	Jan. 1–7			Outbreaks.
Venezuela:				
Ciudad Bolivar	Mar. 22	3		
Yugoslavia				July 3–30, 1921: Cases, 37.
Bosnia Herzegovina	July 3–9	2		
Croatia Slavonia	....do	1		
Dalmatia	....do	1		
Serbia	....do	3		
Belgrade	Dec. 11–17	4		
Do	Jan. 1–Feb. 18	6		
Slovenia	July 3–9	1		
Vojvodina	....do	3		

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
On vessel:				
S. S. Victoria	Jan. 16	1	1	At Thursday Island Quarantine, Australia. Vessel left Hongkong Jan. 3; case isolated Jan. 10. Vessel left for Townsville, Sydney, and Melbourne. Released at Melbourne Feb. 4, 1922.
S. S. West O'Rowa	Jan. 5-8	3	1	At Kobe, Japan, from Shanghai, China.
S. S. ——	Jan. 17-23	2		At Swansea, Wales, from Persian Gulf.

TYPHUS FEVER.

Algeria:				
Algiers	Nov. 1-Dec. 31	3		
Do	Jan. 11-Mar. 31	9		
Oran	Dec. 21-31	1		
Do	Jan. 1-Mar. 31	24	11	
Asia Minor:				
Brousa	Jan. 15-21	1		
Austria:				
Vienna	Dec. 4-31	10		
Do	Jan. 1-28	9	1	
Bolivia:				
La Paz	Aug. 1-Dec. 31	121	98	
Do	Jan. 1-31	15	12	
Brazil:				
Sao Paulo	Feb. 6-12	12	2	
Bulgaria:				
Sofia	Dec. 18-24	1		
Do	Feb. 12-Mar. 18	2		
Chile:				
Concepcion	Nov. 22-Dec. 26		3	
Do	Jan. 3-30		3	
Talcahuano	Jan. 29-Feb. 18	3		
Valparaiso	Oct. 23-Nov. 26		6	
Do	Jan. 1-7		1	
China:				
Antung	Dec. 26-Jan. 1	1		
Do	Feb. 6-12	1		
Harbin	Nov. 7-Dec. 25	12		
Do	Dec. 26-Mar. 19	37		Jan. 23, 1922: Reported extending from Soviet Russia along railway line to maritime provinces.
Czechoslovakia:				
Prague	Jan. 22-Feb. 18	3		
Danzig (free city)	Feb. 23	1		In district, at Zoppot. In merchant from Warsaw.
Egypt:				
Alexandria	Nov. 19-Dec. 31	3	1	
Do	Jan. 15-Apr. 1	20	5	
Cairo	Oct. 1-Dec. 31	18	14	
Do	Jan. 1-Feb. 11	10	5	
Port Said	Jan. 22-Feb. 11	2		
Finland:				
Helsingfors	Jan. 1-31	1		In courier from Moscow.
Germany:				
Breslau	Dec. 25-31	2	1	
Do	Jan. 1-Feb. 5	55	8	Including district.
Frankfort-on-Oder	Feb. 16	26		In persons returning from Russia.
Hamburg	Dec. 11-17	4		
Great Britain:				
Birkenhead	Apr. 6	13	3	Vicinity of Liverpool.
Glasgow	Dec. 25-31	1		
London	Apr. 29	1		Stated to have probably been contracted in Warsaw.
Greece:				
Saloniki	Jan. 23-29	1		
Italy:				
Palermo	Jan. 15-28	3	1	
Mesopotamia:				
Bagdad	Oct. 1-Dec. 31	3	9	

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Mexico:				
Mexico City	Nov. 20-Dec. 31	242		Including municipalities in Federal District.
Do	Jan. 1- Mar. 18	254		Do.
San Luis Potosi	Dec. 18-24		1	Dec. 25-31, 1921: Present.
Do	Jan. 8-Feb. 25			Present. One death.
Palestine:				
Jerusalem	Dec. 27-Mar. 27	12		
Poland				Aug. 14-Nov. 5, 1921: Cases, 2,399; deaths, 173. Nov. 6-Dec. 3, 1921: Cases, 1,512; death 105. Nov. 20-Dec. 10, 1921: Cases, 1,162; deaths, 89. Dec. 4-31, 1921: Cases, 3,600; deaths, 313. Jan. 1-7, 1922: Cases, 1,322.
District—				
Bialystok	Nov. 20-Dec. 10	116	3	All statistics are exclusive of Brest-Litovsk, Minsk, and Wilno districts.
Do	Jan. 1-7	253		
Galicia—				
Lemberg	Jan. 3	229		Jan. 1-7, 1922: Cases, 61.
Kielce	Nov. 20-Dec. 10	31	8	
Do	Jan. 1-7	23		
Krakow	Nov. 20-Dec. 10	45	6	
Do	Jan. 1-7	53		
Lodz	Nov. 20-Dec. 10	67		
Do	Jan. 1-7	41		
Lublin	Nov. 20-Dec. 10	59		
Do	Jan. 1-7	147		
Lwow	Nov. 20-Dec. 10	121	16	
Nowogrod	do	249	15	
Polesia	do	83	5	
Do	Jan. 1-7	450		
Posen	do	1		
Stanislawow	Nov. 20-Dec. 10	88	8	
Do	Jan. 1-7	54		
Tarnopol	Nov. 20-Dec. 10	86	17	
Do	Jan. 1-7	28		
Volhynia	Nov. 20-Dec. 10	89	4	
Do	Jan. 1-7	107		
Warsaw	Nov. 20-Dec. 10	81	2	
Do	Jan. 1-7	32		
Warsaw City	Nov. 20-Dec. 10	47	5	
Do	Jan. 1-7	67		
Portugal:				
Oporto	Jan. 8-Apr. 1	24	2	
Rumania:				
Bucharest	Nov. 1-30	3		
Cahul	Jan. 1-31	6		
Chisinau	Nov. 1-Dec. 31	28		District. Dec. 1-31, 1921: Recurrent typhus; cases, 19.
Russia				Nov. 28-Dec. 10, 1921: In Soviet Russia, cases, 7,681.
Esthonia	Oct. 1-Dec. 31	53		Recurrent typhus, 29 cases.
Do	Jan. 1-31	36		(Corrected report) Oct. 1-Nov. 30, 1921; Cases, 127.
Lettonia	Oct. 1-Dec. 31	341		
Do	Jan. 1-Feb. 28	456		
Libau	Jan. 15-Feb. 1	4		
Lithuania	Jan. 1-31	814	73	Recurrent typhus: Cases, 357; deaths, 12. Typhus: Feb. 19, 1922, 400 cases, vicinity of Kovno, with mortality of 7 per cent.
Perm	Nov. 23-Dec. 10	1,408		Oct. 1-31, 1921: Cases, 839. Nov. 1-30, 1921: Cases, 2,389.
Saratov District—				
Markstadt				Sept. 1-Dec. 31, 1921: Cases, 1,987; mortality, about 10 per cent; hospital cases.
Serbia:				
Belgrade	Oct. 2-Nov. 26	3	2	
Siberia				Jan. 23, 1922: Present in western districts.
Chita	Dec. 26			Epidemic.
Vladivostok	Dec. 25-31	5	1	
Spain:				
Madrid	Dec. 1-31	1		
Do	Jan. 1-31	2		

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Syria:				
Aleppo	Mar. 19–25			Present.
Diarbekir	Mar. 5–Apr. 1			Do.
Mardin	do			Do.
Tunis:				
Tunis	Feb. 5–Mar. 25	4	3	
Turkey:				
Constantinople	Nov. 20–Dec. 31	19		
Do	Jan. 1–Mar. 25	98		
Union of South Africa				Nov. 1–Dec. 31, 1921: Cases, 1,368; deaths, 205 (colored). White, 20 cases; deaths, 4.
Cape Province				Oct. 23 – Dec. 24, 1921: Outbreaks. Nov. 1–Dec. 31, 1921: Cases, 1,053; deaths, 158 (colored). Among white population, 19 cases, 3 deaths.
Do				Jan. 1–Feb. 11, 1922: Outbreaks.
East London	Oct. 30–Dec. 24	3		One death in European at Jensenville, Dec. 6, 1921.
Do	Jan. 29–Feb. 11	2		Natives.
Natal	Nov. 5–Dec. 17			Outbreaks. Stated to be prevalent only in Newcastle District. Nov. 1–Dec. 31, 1921: Cases, 135; deaths, 25 (colored).
Orange Free State	Nov. 13–Dec. 31			Outbreaks. Nov. 1 – Dec. 31, 1921: Cases, 158; deaths, 21, (colored).
Do	Jan. 1–Feb. 11			Outbreaks.
Durban	Jan. 15–21	1		Imported.
Transvaal	Jan. 8–Feb. 11			Outbreaks. Nov. 1–Dec. 31, 1921: Cases, 35; deaths, 4 (colored). White, 1 case, 1 death.
Johannesburg District	Jan. 12–18	26	4	
Venezuela:				
Maracaibo	Dec. 20–26		1	
Yugoslavia				July 3–30, 1921: Cases, 13.
Bosnia Herzegovina	July 3–9	1		
Croatia Slavonia—				
Zagreb	Jan. 1–Feb. 25	3		
Montenegro	July 3–9	3		

YELLOW FEVER.

Brazil:				
Pernambuco	Feb. 19–Mar. 4	2	1	
Mexico				Year 1921: Cases, 115; deaths, 53.
Colima (State)				Year 1921: Cases, 7; deaths, 4.
Colima	Oct. 27	4	3	
Manzanillo	Aug. 21	3	1	
Jalisco (State)				Year 1921: Cases, 13; deaths, 7.
Guadalajara	Nov. 1–30	1	1	Imported.
Puerta Vallarta (Las Penas).	Oct. 5–Dec. 17	13	5	
Do	Jan. 31		1	
Tonila	Aug. 31	1	1	
Quintana Roo (Territory)—				
Payo Obispo	Aug. 8	1	1	
Sinaloa (State)				Year 1921: Cases: 18; deaths, 9.
Culiacan	Sept. 17	4	1	
Guamuchil	Oct. 10	1		
Mazatlan	Aug. 21	1	1	Imported.
Palmar de los Leales	Sept. 30	12	7	
Tamaulipas (State)				Year 1921: Cases, 1; deaths, 1.
Tampico	Jan. 11	1	1	
Vera Cruz (State)				Year 1921: Cases, 75; deaths, 31.
Alamo	June 21	4	1	Oil camp.
Alvarado	July 3	1	1	
Barra de Penn	July 18	1	1	
Cordoba	Sept. 22	5	3	
Cosamaloapam	July 18	14	6	
Nogales	Oct. 28	1	1	
Orizaba	do	1		
Papantla	Jan. 14	6	3	

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

Reports Received from Dec. 31, 1921, to May 5, 1922—Continued.

YELLOW FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Mexico—Continued.				
Vera Cruz—Continued.				
Providencia	Oct. 28	3		
Purga	Feb. 7	1	1	
Rancho de Santa Rosa	Oct. 8	2		
Rancho "El Jaguey"	Sept. 14	2	2	
San Pablo (Papantla)	Sept. 12	1		
San Ildefonso	Oct. 17	2		
Tierra Blanca	Sept. 24-Nov. 12	4	3	
Tlacotalpan	Sept. 14	1	1	
Tuxpam	Jan. 3	8	2	
Vera Cruz	Jan. 15	18	7	Two of these cases imported. Dec. 20-26, 1921: Cases, 1; deaths, 1. Imported. March, 1922: One case on plantation 105 miles from port of Vera Cruz.