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BASAL METABOLISM BEFORE AND AFTER EXPOSURE TO HIGH TEMPERATURES AND VARIOUS HUMIDITIES.¹

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The increased body metabolism of inhabitants living in cold climates as compared with that for persons living in warmer climates is frequently referred to in the literature, but, according to Hill and Campbell,⁵ the evidence for this has, as far as they know, been empirical, resting upon increase of appetite of an individual on journeying to an Alpine or an Arctic region.

Contrary to what might be expected, metabolism also increases with exposure to high temperatures. Recently this fact has been generally recognized; but the evidence is largely drawn from experiments made on small animals. Although the little work that has been done on human beings substantiates this belief, the relation between the metabolic rate and external temperature conditions remains yet to be found. Probably, the main difficulty in establishing this relation lies in the fact that in high temperatures the wet-bulb temperature of the air becomes a much more important factor than the dry-bulb temperature, in considering the thermal properties of the human body. The difficulty in evaluating the relative importance to be attached to these measurements is obvious. Air movement should also be considered, as there can be no adequate ventilation and constancy in temperature conditions without air motion.

With the development of the effective temperature scale it becomes an easy matter to study the effect of heat upon body metabolism. Effective temperature is an index of the intensity of heat felt by the human body as a result of external temperature, humidity, and air movement. In other words, it takes care of all three physical factors of the air, and therefore, reduces the relation to its simplest form involving only two variables.

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⁵ Hill, Leonard, and Campbell, J. A.: Observations on Metabolism During Rest and Work with Special Reference to Atmospheric Cooling Power. * Med. Res. Council, S. R. Series No. 73, Part 6, pp. 145-186.

As part of the general program of the investigation of the physiological effects of high temperatures with various humidities undertaken by the United States Public Health Service and the United States Bureau of Mines, cooperating with the American Society of Heating and Ventilating Engineers in its laboratory at the Pittsburgh Experiment Station of the Bureau of Mines, a series of experiments was conducted for the purpose of establishing a direct correlation between the various factors pertaining to metabolism and external temperature conditions. An attempt was also made to correlate the metabolic rate to the principal physiological body reactions, as represented by body temperature and pulse rate, in an effort to find a body index for the rate of metabolism.

Although a large number of observations were made, many of them, on account of complicating influences such as eating within a few hours before the test, and unusual exertion on the part of the subject, were discarded. Although samples for analyses were collected from ten subjects, the large majority were collected from two subjects who became trained in the method used. Table 1 gives the average normal measurements for the subjects employed in the experiments, from which the body surface was determined by means of DuBois standard chart. The clothing worn by the subjects during the experiments consisted of light weight union underwear, work pants and shirt, socks and shoes.

TABLE 1.—*Measurements of subjects of experiments.*

Subject.	Weight in kilograms.	Height in centimeters.	Body surface, square meters.
W. J.	61.6	163.0	1.66
C. A. H.	64.5	183.1	1.84
R. L.	69.5	191.0	1.97
F. C. H.	72.0	171.3	1.84
C. P. Y.	59.2	167.0	1.68
W. E. M.	59.4	172.8	1.72
B. T.	71.1	174.7	1.86

PROCEDURE.

The first hundred samples were collected from subjects without any preliminary instructions. These samples were taken while the subjects were in a sitting position. Under these conditions, although the CO₂ produced and O₂ consumed invariably increased after exposure to high temperatures⁶, it became quite impossible to disentangle the various factors which entered into the experiments. The remainder of the observations were made under the greatest degree of simplification, attained as follows:

Each subject refrained from eating breakfast on the morning of the test. On entering the primary room they assumed a recumbent

⁶ McConnell, W. J., and Houghten, F. C.; *Some Physiological Reactions to High Temperatures and Humidities*. Jour. Amer. Soc. Heat. and Vent. Engr., vol. 29, No. 2, March 1923, pp. 141-144.

posture, and maintained a condition of rest as absolute as possible for a period of two hours before the first sample was taken. Frequently the subjects slept during that period. After the sample was taken, each subject was carried into the chamber where he continued to rest in the same position. In the chamber he was exposed to a constant high temperature and humidity over a period of time varying with his ability to endure the condition. At the end of this period another sample (sometimes two or three samples) was taken before the subject left the chamber. All experiments were conducted in still air.

METHOD OF COLLECTING SAMPLES.

The apparatus used in this work was constructed by the Bureau of Mines, and consists of a graduated gasometer, connected with a mouthpiece by means of 1¼-inch rubber tubing. A quick-acting valve controls the inlet of the gasometer. The bell of the gasometer is maintained in equilibrium with the incoming air. Considerable difficulty was experienced in obtaining a mouthpiece with valves suited for the tests. Several types of valves are available which, though satisfactory for use in certain breathing apparatus, could not be used in these experiments either because of a small amount of air leakage, or because of the impractical position in which the valve had to be held in order to function.

After some experimentation a valve⁷ was developed and successfully used in the collection of the samples.

In order to become accustomed to the apparatus, the subject breathed through the gasometer for several minutes before the sample was taken, while at the same time the exhalations forced out the stagnant air in the system. Approximately 60 liters of expired air were collected from the subject in each sample. This was determined by multiplying the factor (which was found by calibration to be 0.0992 liter per centimeter rise on the meter stick) of the gasometer by the number of centimeter rise of the bell. All volumes were reduced to 0°C. temperature and dry, and 760 mm. barometric pressure. The ventilation rate or volume per minute was obtained by dividing the total volume by the time in minutes. From each sample collected, an average sample was analyzed on a Haldane apparatus⁸ for CO₂ and O₂, from which the heat developed within the body, under the various external conditions, was computed, using Zung's table of calorific equivalents of 1 liter of oxygen.

⁷ Fulton, W. B.: An Improved Air Valve for Apparatus Used in Basal Metabolic Work. Arch. Int. Med. vol. 33, April 1924, pp. 497-499.

⁸ Burrell, G. A., and Seibert, F. M.: The Sampling and Examination of Mine Gases and Natural Gas. Bull. 42, Bureau of Mines, 116 pp. Revised in 1924 by G. W. Jones. (In press.)

DATA AND RESULTS.

Although it is not the purpose of this paper to discuss the general principles of the science of metabolism or to review the enormous amount of literature on the subject which has been collected from many sources, the reader's attention is invited to some recent investigations in this subject. Moss⁹, who is making a study of the subject, found an increase in food consumption with increase in temperature, and contemplates further experimentation on the exact cause of the increased metabolism. Barcroft and Marshall¹⁰ have also carried on some recent experiments to determine the effect of exposure to heat. Under the conditions of these latter experiments, no commensurate rise in the metabolism was found. Unfortunately, the severity of the exposure is expressed in dry-bulb readings only; but judging from the pulse rates obtained, the wet-bulb readings were low, and, therefore, the effective temperature was low. Under these conditions a noticeable increase in metabolism would not be expected.

The data and results of the present series of experiments are presented in Table 2. With the exception of few experiments, initial samples were taken in the primary room, the temperature conditions of which are given in the left of column 3. The test chamber, or secondary room, conditions are given in the right of the same column, and the time of exposure before taking samples is shown in column 4. Columns 5 and 6 give, respectively, the CO₂ produced and the O₂ absorbed in liters per hour at 0°C temperature and 760 mm. of mercury barometric pressure. The computed ratio of the former to the latter, or respiratory quotient, is given in column 7. The total number of calories developed per hour is given in column 8, from which is calculated the heat produced within the body per square meter of body surface per hour, given in column 9. Columns 10 and 11 give the average physiological measures recorded during the period of time in which the samples were taken.

⁹ Moss, Prof. K. Neville: Some Effects of High Air Temperature Upon the Miner. Sixth Report to Committee on the Control of Atmospheric Conditions in Hot and Deep Mines. Annual general meeting, Institution of Mining Engineers (England), Nov. 29, 1923.

¹⁰ Barcroft, Jos., and Marshall, E. K., Jr.: Note on the Effect of External Temperature on the Circulation in Man. *Jour. of Physiology*, vol. LVIII, Nos. 2 and 3, Dec. 28, 1923, pp. 145-156.

TABLE 2.—Data and results.

Test No. and date.	Subject.	Test room conditions.						Exposure before taking sample.				CO ₂ output, liters per hour.	O ₂ consumed, liters per hour.	Respiratory quotient.	Total calories per hour.	Calories per square meter of body surface per hour.	Rectal temperature, °F.	Pulse rate, beats per minute.
		Primary.			Secondary.			Primary room.		Secondary room.								
		Dry bulb.	Wet bulb.	Effective temperature.	Dry bulb.	Wet bulb.	Effective temperature.	Hours.	Minutes.	Hours.	Minutes.							
37 A. S. 8-4-23.	W. J.	75.0	66.8	70.5	105.6	104.2	104.3	2	0			9.60	10.92	0.879	53.5	32.6	98.0	72
		75.0	66.8	70.5	105.6	104.2	104.3	2	20	2	0	22.14	22.50	0.934	113.1	69.2	102.1	158
38 A. S. 8-8-23.	W. J.	76.4	64.2	70.0	105.6	104.2	104.3	2	0	0	56	31.74	31.44	1.009	158.9	44.3	98.4	64
		76.4	64.2	70.0	100.0	100.0	100.0	2	25	1	37	11.76	13.38	0.878	81.1	39.5	102.5	158
39 A. S. 8-8-23.	C. A. H.	76.4	64.2	70.0	99.9	99.9	99.9	2	25	1	14	16.86	15.84	1.063	81.1	49.4	101.7	132
		77.0	69.0	72.5	95.0	95.0	95.0	2	0	1	54	12.48	13.44	0.929	66.7	36.8	98.2	60
40 A. S. 8-11-23.	W. J.	77.0	69.0	72.5	95.0	95.0	95.0	2	20	1	54	13.20	13.74	0.961	68.6	41.9	99.3	96
		77.0	69.0	72.5	95.0	95.0	95.0	2	20	2	1	11.88	13.08	0.908	64.6	35.6	99.0	76
40 A. S. 8-27-23.	W. J.	76.0	67.0	71.0	104.6	104.6	104.6	1	30	1	2	11.22	12.60	0.890	61.9	37.4	98.4	72
		76.0	67.0	71.0	104.6	104.6	104.6	1	50	0	54	29.82	26.34	1.130	137.5	83.8	102.0	140
41 A. S. 8-29-23.	C. A. H.	79.5	63.0	70.6	104.6	104.6	104.6	1	30	1	0	15.66	16.32	0.963	81.5	69.5	101.8	70
		79.5	63.0	70.6	105.3	105.3	105.3	1	30	0	54	24.48	25.44	0.978	127.8	83.5	101.8	145
42 A. S. 7-2-23.	W. J.	79.5	63.0	70.6	105.3	105.3	105.3	1	30	1	0	10.32	10.56	0.978	52.9	32.1	98.0	74
		79.5	63.0	70.6	105.3	105.3	105.3	1	55	1	20	23.16	22.26	1.040	113.5	68.7	100.8	114
43 A. S. 7-2-23.	C. A. H.	77.2	65.3	70.7	105.3	105.3	105.3	1	30	0	54	23.22	22.50	1.032	114.4	73.3	99.0	136
		77.2	65.3	70.7	105.1	105.1	105.1	1	30	0	58	18.45	16.80	0.965	61.9	37.7	97.8	128
44 A. S. 7-6-23.	W. J.	77.2	65.3	70.7	105.1	105.1	105.1	1	30	0	58	18.45	16.80	0.965	61.9	37.7	97.8	80
		77.2	65.3	70.7	105.1	105.1	105.1	1	50	1	18	33.36	27.84	1.200	147.1	88.6	102.3	136
45 A. S. 7-6-23.	C. A. H.	79.7	72.8	75.5	105.1	105.1	105.1	1	30	0	53	29.88	26.88	1.112	139.3	43.3	101.6	82
		79.7	72.8	75.5	140.0	93.2	100.1	1	30	1	21	12.48	14.04	0.890	69.0	35.2	98.0	64
46 A. S. 7-6-23.	R. L.	79.7	72.8	75.5	140.0	93.2	100.1	1	30	1	21	16.68	16.02	1.041	81.6	41.7	101.1	105
		79.7	72.8	75.5	140.0	93.2	100.1	1	50	2	10	21.36	19.20	1.112	99.4	50.7	102.3	112
47 A. S. 7-10-23.	C. A. H.	80.7	69.8	74.3	140.0	93.2	100.1	1	50	1	21	15.12	15.90	0.951	79.3	43.2	98.0	72
		80.7	69.8	74.3	140.0	93.2	100.1	2	0	1	21	21.78	21.48	1.013	108.6	59.1	101.1	114
48 A. S. 7-10-23.	F. C. H.	79.7	69.8	74.3	104.8	104.8	104.8	2	0	1	15	11.58	12.30	0.942	61.2	33.3	99.0	70
		79.7	69.8	74.3	104.8	104.8	104.8	1	1	1	15	23.70	17.94	1.331	196.7	55.2	101.6	172
49 A. S. 7-10-23.	F. C. H.	79.7	69.8	74.3	104.8	104.8	104.8	1	1	1	15	23.70	17.94	1.331	196.7	55.2	101.6	172
		79.7	69.8	74.3	104.8	104.8	104.8	1	1	1	15	23.70	17.94	1.331	196.7	55.2	101.6	186

TABLE 2.—Data and results—Continued.

Test No. and date.	Subject.	Test room conditions.				Exposure before taking sample.				CO ₂ output, liters per hour.	O ₂ consumed, liters per hour.	Respiratory quotient.	Total calories per hour.	Calo-ries per square meter of body surface per hour.	Rectal temperature, °F.	Pulse rate, beats per minute.
		Primary.		Secondary.		Primary room.		Secondary room.								
		Dry bulb.	Wet bulb.	Effective temperature.	Dry bulb.	Wet bulb.	Effective temperature.	Hours.	Min-utes.							
46 A. S. 7-13-23.	C. A. H.	81.8	70.8	75.1	105.3	105.3	105.3	2	0				68.9	38.1	98.6	66
		82.1	68.2	74.0	105.3	105.3	105.3	1	35				140.3	69.8	101.7	134
49 A. S. 7-20-23.	C. A. H.	82.1	68.2	74.0	100.0	99.9	99.9	1	55				126.3	47.6	102.4	140
					100.0	99.9	99.9						108.0	47.3	100.3	104
50 A. S. 7-23-23.	W. J.				65.3	64.2	64.9	3	16				143.9	51.2	99.7	153
					65.3	64.2	64.9	0	47				143.9	51.2	99.7	153
50 A. S. 7-23-23.	C. P. Y.				65.3	64.2	64.9	3	46				143.9	51.2	99.7	153
					65.3	64.2	64.9	0	18				143.9	51.2	99.7	153
50 A. S. 7-23-23.	W. E. M.				65.3	64.2	64.9	3	3				143.9	51.2	99.7	153
					65.3	64.2	64.9	0	14				143.9	51.2	99.7	153
51 A. S. 7-24-23.	W. J.				75.2	74.7	75.0	1	31				143.9	51.2	99.7	153
					75.2	74.7	75.0	4	26				143.9	51.2	99.7	153
51 A. S. 7-24-23.	R. L.				75.2	74.7	75.0	1	55				143.9	51.2	99.7	153
					75.2	74.7	75.0	5	5				143.9	51.2	99.7	153
51 A. S. 7-24-23.	W. E. M.				75.2	74.7	75.0	2	5				143.9	51.2	99.7	153
					75.2	74.7	75.0	5	4				143.9	51.2	99.7	153
52 A. S. 7-25-23.	W. E. M.				84.7	68.3	75.0	2	3				143.9	51.2	99.7	153
					84.7	68.3	75.0	2	3				143.9	51.2	99.7	153
52 A. S. 7-25-23.	W. E. M.				84.7	68.3	75.0	3	59				143.9	51.2	99.7	153
					84.7	68.3	75.0	4	27				143.9	51.2	99.7	153
52 A. S. 7-25-23.	R. L.				84.7	68.3	75.0	4	1				143.9	51.2	99.7	153
					84.7	68.3	75.0	3	45				143.9	51.2	99.7	153
53 A. S. 7-27-23.	R. L.				84.7	68.3	75.0	4	43				143.9	51.2	99.7	153
					84.7	68.3	75.0	2	32				143.9	51.2	99.7	153
53 A. S. 7-27-23.	R. L.				102.3	77.8	85.0	2	5				143.9	51.2	99.7	153
					102.3	77.8	85.0	2	5				143.9	51.2	99.7	153
53 A. S. 7-27-23.	W. E. M.				102.3	77.8	85.0	2	4				143.9	51.2	99.7	153
					102.3	77.8	85.0	2	4				143.9	51.2	99.7	153
54 A. S. 7-28-23.	R. L.				85.0	85.0	85.0	1	4				143.9	51.2	99.7	153
					85.0	85.0	85.0	1	4				143.9	51.2	99.7	153
54 A. S. 7-28-23.	W. E. M.				85.0	85.0	85.0	1	4				143.9	51.2	99.7	153
					85.0	85.0	85.0	1	4				143.9	51.2	99.7	153

1 E.	74.5	62.5	68.2	67.6	64.3	66.0	1	30	0	50	10.56	11.76	0.897	57.9	35.3	98.2	72
7-10-24	74.5	62.5	68.2	67.6	64.3	66.0	1	40	2	21	10.02	11.22	0.893	55.2	33.6	97.7	64
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	26	10.50	12.12	0.897	57.4	35.0	97.5	60
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	2	48	11.28	13.26	0.851	58.8	32.0	98.9	62
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	11.76	13.86	0.848	67.3	35.1	98.2	58
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	11.58	13.44	0.862	65.6	38.7	98.4	78
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	12.24	13.86	0.893	68.0	40.3	98.4	70
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	12.54	14.46	0.897	70.7	41.8	98.2	69
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	12.84	15.06	0.895	73.0	43.3	98.0	72
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	13.14	15.66	0.897	75.3	44.8	98.4	59
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	13.44	16.26	0.895	77.6	46.3	98.4	52
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	13.74	16.86	0.897	79.9	47.8	98.4	54
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	14.04	17.46	0.895	82.2	49.3	98.4	70
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	14.34	18.06	0.897	84.5	50.8	98.4	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	14.64	18.66	0.895	86.8	52.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	14.94	19.26	0.897	89.1	53.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	15.24	19.86	0.895	91.4	55.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	15.54	20.46	0.897	93.7	56.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	15.84	21.06	0.895	96.0	58.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	16.14	21.66	0.897	98.3	59.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	16.44	22.26	0.895	100.6	61.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	16.74	22.86	0.897	102.9	62.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	17.04	23.46	0.895	105.2	64.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	17.34	24.06	0.897	107.5	65.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	17.64	24.66	0.895	109.8	67.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	17.94	25.26	0.897	112.1	68.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	18.24	25.86	0.895	114.4	70.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	18.54	26.46	0.897	116.7	71.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	18.84	27.06	0.895	119.0	73.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	19.14	27.66	0.897	121.3	74.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	19.44	28.26	0.895	123.6	76.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	19.74	28.86	0.897	125.9	77.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	20.04	29.46	0.895	128.2	79.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	20.34	30.06	0.897	130.5	80.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	20.64	30.66	0.895	132.8	82.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	20.94	31.26	0.897	135.1	83.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	21.24	31.86	0.895	137.4	85.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	21.54	32.46	0.897	139.7	86.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	21.84	33.06	0.895	142.0	88.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	22.14	33.66	0.897	144.3	89.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	22.44	34.26	0.895	146.6	91.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	22.74	34.86	0.897	148.9	92.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	23.04	35.46	0.895	151.2	94.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	23.34	36.06	0.897	153.5	95.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	23.64	36.66	0.895	155.8	97.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	23.94	37.26	0.897	158.1	98.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	24.24	37.86	0.895	160.4	100.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	24.54	38.46	0.897	162.7	101.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	24.84	39.06	0.895	165.0	103.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	25.14	39.66	0.897	167.3	104.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	25.44	40.26	0.895	169.6	106.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	25.74	40.86	0.897	171.9	107.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	26.04	41.46	0.895	174.2	109.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	26.34	42.06	0.897	176.5	110.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	26.64	42.66	0.895	178.8	112.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	26.94	43.26	0.897	181.1	113.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	27.24	43.86	0.895	183.4	115.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	27.54	44.46	0.897	185.7	116.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	27.84	45.06	0.895	188.0	118.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	28.14	45.66	0.897	190.3	119.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	28.44	46.26	0.895	192.6	121.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	28.74	46.86	0.897	194.9	122.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	29.04	47.46	0.895	197.2	124.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	29.34	48.06	0.897	199.5	125.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	29.64	48.66	0.895	201.8	127.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	29.94	49.26	0.897	204.1	128.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	30.24	49.86	0.895	206.4	130.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	30.54	50.46	0.897	208.7	131.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	30.84	51.06	0.895	211.0	133.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	31.14	51.66	0.897	213.3	134.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	31.44	52.26	0.895	215.6	136.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	31.74	52.86	0.897	217.9	137.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	32.04	53.46	0.895	220.2	139.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	32.34	54.06	0.897	222.5	140.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	32.64	54.66	0.895	224.8	142.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	32.94	55.26	0.897	227.1	143.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	33.24	55.86	0.895	229.4	145.3	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	33.54	56.46	0.897	231.7	146.8	97.7	68
	74.5	62.5	68.2	67.6	64.3	66.0	1	50	1	49	33.84	57.06	0.895	234.0	148.3	97.7	68
	74.5</																

An examination of Table 2 will disclose that both the CO_2 output and the O_2 consumed, increase with exposure to either higher or lower temperature than the normal atmospheric condition. The range of temperature employed in the experiments varied from about 55° to 130° effective temperature, but the table includes results only up to about 105° effective temperature. To obtain a fair sample it was found necessary that the subjects be exposed to the constant temperature conditions for a period of at least an hour before the respiration samples were taken. For temperatures higher than 105° effective temperature, the subjects of the experiments could not endure the condition an hour, and the results obtained at these higher temperatures were comparatively low. Apparently the human mechanism did not have enough time to adjust itself to the temperature environ-

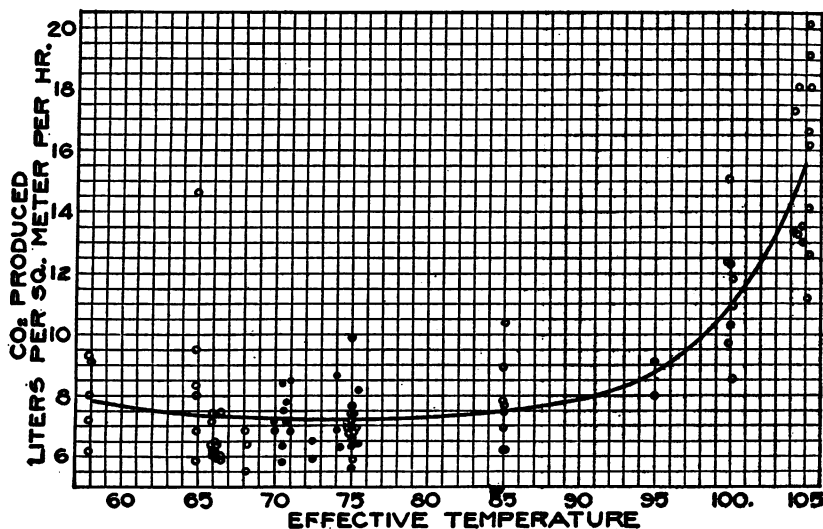


FIG. 1.

ment; and for this reason a number of samples that were taken after a short period of exposure were discarded. Figures 1 and 2 show, respectively, the variation of CO_2 produced and O_2 consumed, with effective temperature. To afford a uniform basis of comparison, these two quantities are expressed in liters per square meter of body surface per hour. Black circles represent observations made in the primary room, and the white or open circles those made in the secondary or test room. It will be observed that the graphs are very similar and have the same characteristics. They both attain a minimum value of 7.2 liters per square meter of body surface per hour, within a temperature zone between 70° and 85° effective temperature, where the rate of gaseous exchange is practically constant. Above and below this zone both quantities increase at an accelerated rate. At the normal temperature of 65° effective temperature the figures

show an average of 7.3 liters of CO_2 expired and 7.7 liters of O_2 consumed per square meter of body surface per hour. This corresponds to a respiratory quotient of 0.948.

It is of interest to note that the rate of gaseous exchange increases rapidly above 85° effective temperature, and to a still greater extent after the body temperature is passed.

The respiratory quotient in these experiments varied from about 0.84 to 1.55. Figure 3 shows the relation of this ratio to effective temperature as computed from the average values given in Figures 1 and 2. As the temperature increases, the respiratory quotient increases approximately at the same rate, until at about 80° effective temperature it becomes unity. In other words, the CO_2 produced becomes equal to the O_2 consumed in respiration. From 80° to about

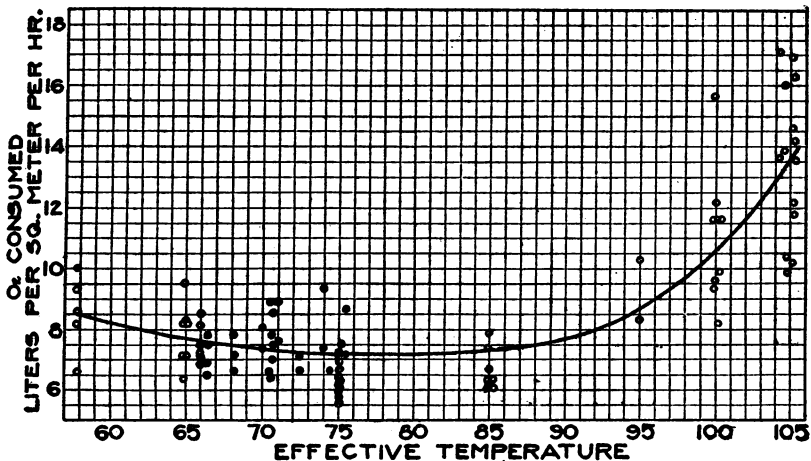


FIG. 2.

body temperature the variation in the respiratory quotient is rather small; but when the latter temperature is surpassed, a very sudden increase is apparent, according to the limited results available at these high temperatures. For this reason this portion of the curve is shown dotted.

Ordinarily the respiratory quotient recorded by various investigators, within the normal range of temperature conditions, seldom exceeds unity. The question now arises as to what effect high temperatures have upon the chemical changes within the body so as to raise the respiratory quotient over unity. Theoretical considerations suggest that free oxygen is available in the body through its liberation during the transformation of carbohydrates into fats. A study of the respiratory exchanges of animals which are rapidly laying on a store of fat at the expense of a carbohydrate diet indicates that oxygen is set free. Thus the marmot, toward the end of the summer, eats

large quantities of carbohydrate food, and very rapidly lays on a thick layer of subcutaneous fat to last it during the winter.

Starling¹¹ points out that in the formation of fat from carbohydrate a considerable loss of oxygen is incurred. For example, he states that if glucose were entirely oxidized in the body, the amount of O₂

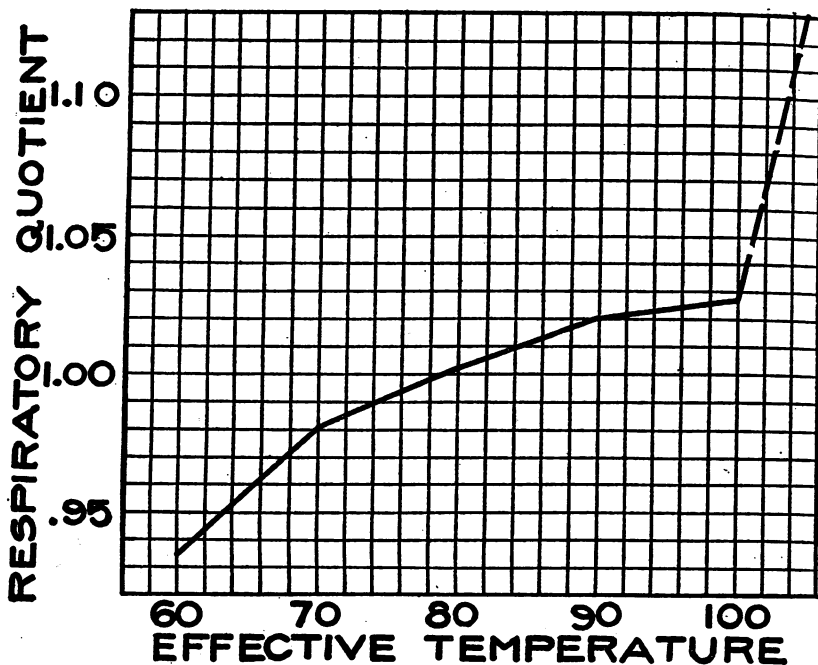
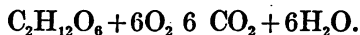


FIG. 3.

absorbed would be exactly equal to the amount of CO₂ involved. Thus



In this case the respiratory quotient would be

$$\frac{6 \text{ CO}_2}{6 \text{ O}_2} = 1.$$

If, however, O₂ is being set free by the conversion of part of the carbohydrate into fat, this O₂ will be available for the oxidation of other portions of the carbohydrates. The animal will not require so much O₂ from external sources for the production of the same amount of CO₂, and therefore the CO₂ output of the animal will be greater than its O₂ intake. Starling states that Pambrey¹² has shown that under this condition the respiratory quotient may be as high as 1.50.

¹¹ Starling, Ernest H.: Principles of Human Physiology, 3rd edition, 1920, section III, pp. 826-838.

¹² Work cited, p. 830.

Figure 4 shows the calories of heat produced within the body per square meter of body surface plotted against effective temperature.

The variation of this quantity with effective temperature is similar to that observed in Figures 1 and 2. At the normal temperature of 65° the average subject of the experiments developed 38.2 calories per square meter of body surface per hour. This value checks very closely with DuBois standard for basal metabolism—namely, 38.6 calories—but the curve shows that it is by no means the minimum metabolism.

It will be observed that there is a temperature zone of minimum metabolism, between 75° and 83° effective temperature, within which a lowest value of 36 calories per square meter per hour is

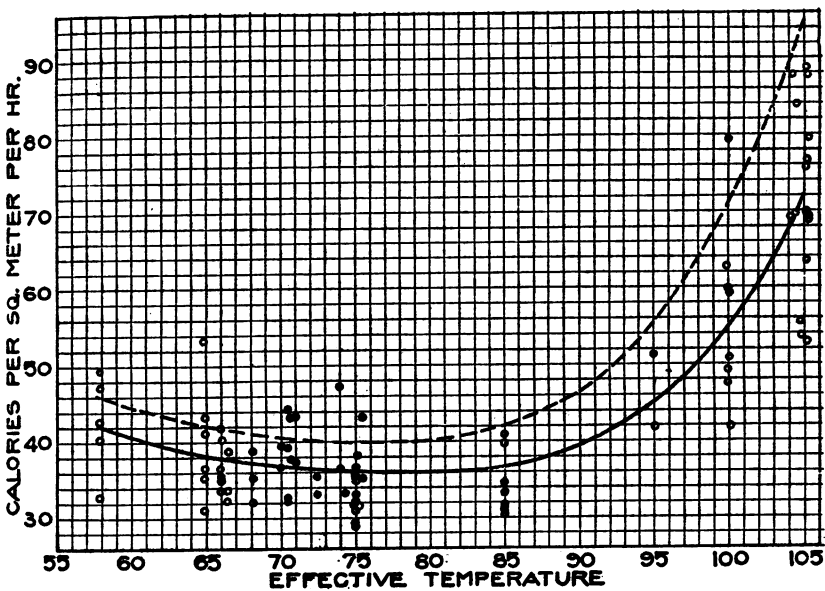


FIG. 4.

reached. It is the writers' belief that basal metabolism should be measured within this zone. The fact is substantiated from results of various other investigators who recorded values well below DuBois standard, depending upon the temperature in which the observations were made.

Apparently little importance has been attributed to the surrounding temperature conditions of the subjects of previous experiments, and this is one of the points the writers propose to emphasize through the evidence presented herein.

Attention is called to the range of successful operation of the body thermostatic control, which adjusts the heat production well within reasonable limits, according to the temperature of the environment. This is represented by the flat portion of the curve for ordinary

atmospheric conditions. Above 85° effective temperature, however, there is apparently a strain on the mechanism. The body makes strenuous efforts to resist rise in its temperature by promoting evaporation of perspiration from its surface, but the limit of action of the thermostatic control is reached, and the latter fails above 90° effective temperature. This is indicated by the rapid increase of heat production at the higher temperatures. At 105° effective temperature the heat production is twice as great as at the normal temperature of 65°.

A tendency for an increase in heat production is also shown below 65° effective temperature, which is necessary to keep the body warm in cold weather.

It is of interest to introduce here an analysis made by one of the writers, of the results of previous investigators, including those obtained very recently in the psychrometric chambers of the Research Laboratory of the American Society of Heating and Ventilating Engineers.¹³ The upper dotted curve in Figure 4 represents the normal metabolism of various individuals exposed to different temperatures, humidities, and air velocities. The last three factors are represented here by the effective-temperature index. As the experiments under consideration were conducted practically under the same conditions as those presented in this paper, the difference in heat production between the two curves represents the increase in metabolism due to food and sitting position. The two curves are practically parallel within the ordinary range of temperature, and their difference amounts to about 4 calories. In other words, the metabolism at the normal temperature of 65° effective temperature increased by 11 per cent over the basal value when the subjects partook of their regular diet and were sitting comfortably on chairs.

For higher temperatures exceeding 80° effective temperature the increase in metabolism due to food and sitting position is not constant, but is accelerated, as shown by the divergence of the two curves. The reason for this may probably be due to the fact that in one case the basal metabolism is at the expense of substances in store within the body, while in the other case there is additional material in the form of food available for chemical transformation.

An examination of Table 2 will show that wherever more than one sample was taken in the test chamber the heat production invariably increased with the time of exposure. This is to be expected when considering that the physiological reactions vary with temperature and time of exposure. Accordingly, an attempt was made to correlate the rate of metabolism to rectal temperature and pulse rate in Figures 5 and 6, respectively.

¹³ Yagloglou, C. P.: The Heat given up by the Human Body and its Effect on Heating and Ventilating Problems. Jour. Amer. Soc. Heat. & Vent. Engrs., vol. 30, No. 8, Aug., 1924, pp. 597-609.

Figure 5 shows that heat production is minimum at a body temperature of about 98.4° F., and that it increases both above and below this temperature. It stands to reason that metabolism should increase when there is a drop in body temperature to keep the body warm. The increase for the higher temperatures is attributed to the warming up of the cells, and the marked rapid increase for temperatures above 100° is apparently due to the breaking down of the human thermostatic control.

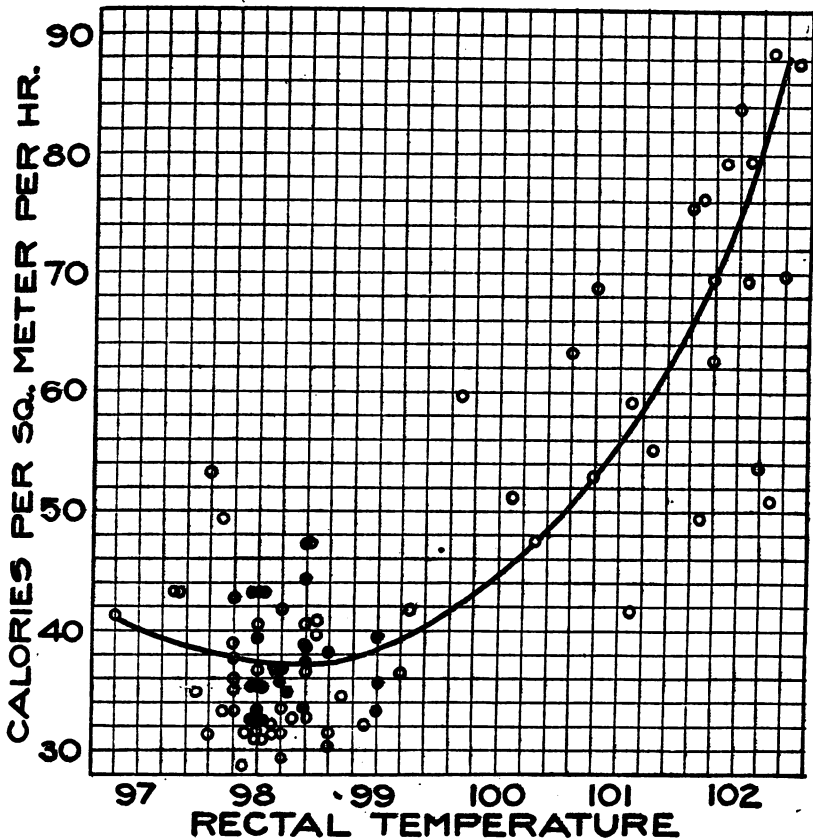


FIG. 5.

Similarly in Figure 6 we find that the heat production attains a minimum value of about the same magnitude as in the previous figure, namely, 37.0 calories per square meter per hour, at a pulse rate of 68 beats per minute. Metabolism again increases with higher or lower pulse rates, but the rate of increase is not as great as it is with change in temperature. A comparison of the two figures shows that the pulse curve is much flatter than that for temperature, indicating that pulse rate is a more dependable index of the metabolic rate.

SUMMARY.

In summarizing the results of these experiments the writers wish to emphasize the significance of the dry- and wet-bulb temperature, and velocity of air, if any. These three factors should be combined into one index, called "effective temperature," which is determined from the above three readings, using an effective-temperature chart or table. The problem is thus greatly simplified and the effect of various other factors can be studied independently of temperature.

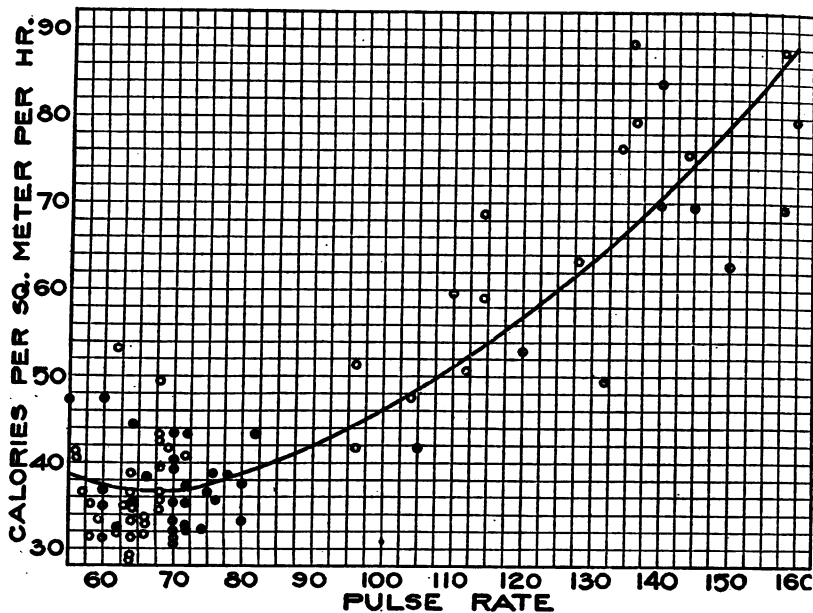


FIG. 6.

The following are some of the important conclusions drawn from this study:

1. Carbon dioxide produced and oxygen consumed increase with exposure to high and low temperature.
2. Heat production increases with exposure to high and low temperature.
3. There is a zone of minimum metabolism between 75° and 83° effective temperatures within which basal metabolism should be measured.
4. The metabolic rate becomes excessive when the temperature of the environment exceeds the body temperature.

CURRENT WORLD PREVALENCE OF DISEASE.

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT FOR OCTOBER 15, 1924, ISSUED BY THE HEALTH SECTION OF THE LEAGUE OF NATIONS' SECRETARIAT.

By EDGAR SYDENSTRICKER, Statistician, United States Public Health Service.

The most encouraging feature of the Monthly Epidemiological Report of the Health Section, League of Nations' Secretariat, for October 15, 1924, is the fact that there is no indication of a pandemic condition. On the contrary, a comprehensive summarization of reports on disease prevalence from practically all parts of the world where such reports are available, show more favorable health conditions than have been indicated for a good many years past.

The data included in these monthly reports are almost altogether confined to morbidity records, except for a few countries and for the cities. A confirmation of the favorable condition indicated by morbidity reports is given by the statistics of deaths from all causes in the principal cities of the world. As has been pointed out in these reviews, the Monthly Epidemiological Report publishes by months the latest available death rates for a large number of cities well scattered throughout the world; and the generally favorable condition may be illustrated by simply comparing the latest death rates available for 1924 with those for a corresponding period of 1923, as is done in the table.

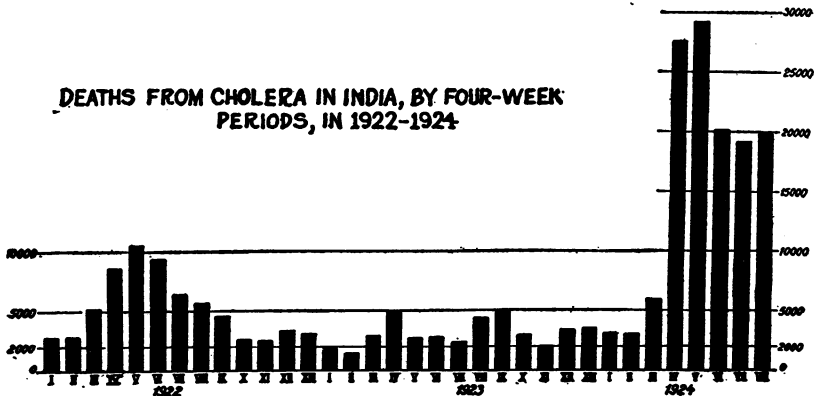
TABLE 1.—Death rates in certain large cities of the world for the latest period in 1924 available, compared with those for the corresponding period of 1923.¹

City.	Population (000 omitted).	Period, 1924.	Annual mortality rate per 1,000.	
			1923.	1924.
105 English cities.....	19,264	Sept. 14-20.....	9.8	9.1
London.....	4,564	do.....	10.2	8.9
Dublin.....	4,435	do.....	12.9	13.7
Paris.....	2,906	Sept. 1-10.....	12.1	9.8
Antwerp.....	800	July 20-26.....	10.0	6.9
Amsterdam.....	707	Sept. 1-6.....	6.5	7.4
Copenhagen.....	574	do.....	7.6	9.3
Christiania.....	259	do.....	10.0	8.6
Stockholm.....	430	do.....	10.8	7.6
Gothenburg.....	228	Aug. 24-30.....	8.4	10.4
46 German cities.....	16,687	Sept. 1-6.....	11.3	9.7
Berlin.....	4,018	do.....	10.4	9.5
26 Swiss cities.....	1,098	do.....	10.9	11.5
Vienna.....	1,866	Aug. 3-9.....	11.0	11.4
Prague.....	697	July 13-26.....	12.1	11.6
Warsaw.....	956	Sept. 1-6.....	12.2	14.9
Dantzig.....	190	do.....	17.0	15.6
Budapest.....	952	Aug. 17-23.....	19.6	16.4
Milan.....	851	July 1-31.....	14.2	12.8
Leningrad.....	1,043	July 20-26.....	19.1
Alexandria.....	477	June 22-28.....	37.4	35.2
Cairo.....	804	do.....	61.8	46.9
Capetown.....	109	Aug. 10-16.....	14.6	10.5
Johannesburg.....	160	Aug. 24-30.....	10.9	9.1
Calcutta.....	896	Aug. 10-16.....	31.0	29.6
Bombay.....	1,240	do.....	29.7	33.0
Madras.....	527	do.....	29.9	43.6
65 cities in United States.....	27,000	Oct. 27-Nov. 1.....	11.7	12.0
New York.....	5,620	do.....	10.0	11.6
Rio de Janeiro.....	1,316	June 29-July 5.....	17.5	15.7
Perth.....	172	July 20-26.....	9.3	8.8

¹ Compiled from the Monthly Epidemiological Report of the Health Section of the Secretariat, League of Nations, Oct. 15, 1924, p. 658. The data for American, German, and Swiss cities include deaths of nonresidents; the data for British cities are adjusted to exclude, as far as possible, nonresidents and include residents dying outside the city.

It will be noted that in the majority of cities and groups of cities the death rate shows either no significant increase or a decrease, in some cases the decrease being quite marked. This is true especially of the 46 German cities, in which the 1923 death rate has been lower constantly during the present year, except for a short period in March, when it rose above the 1923 level because of an epidemic of influenza. The same is true of the English cities, except for the first four months of 1924, when an influenza epidemic of considerable proportions affected mortality unfavorably. In the larger cities of the United States the death rate generally has been lower in 1924 than in 1923. The weekly rates vary, of course, and too specific conclusions should not be drawn from the figures given above. The reader is referred to the current statistics as published in the Monthly Epidemiological Report for more complete information. At the same time it is quite evident that there is a tendency for the death rates for cities in all parts

DEATHS FROM CHOLERA IN INDIA, BY FOUR-WEEK PERIODS, IN 1922-1924



of the world, with the exception of a very few, to be confined to rather narrow limits, taking the season of the year into account; these exceptions are Alexandria, Cairo, Calcutta, Bombay, and Madras, where the death rates are so much in excess of the rates in other cities that they are striking.

The improvement in the infant mortality rate in the German cities continues, the rate per thousand births for the four weeks ending September 6, 1924, being only 101 as compared with 167 for the corresponding period of 1923.

Plague.—The usual plague spots of the world are represented in the countries included in the October report, but for the most part the incidence of plague is at its minimum in all of the endemic centers. In India, the great epidemic center of disease, the "annual minimum was reached at the end of July, or a few weeks later than during the preceding years," the delay being due to the fact that the plague centered this year in the Punjab, where the seasonal curve is always about a month later than in the remainder of India. In the Dutch East

Indies the minimum incidence appears to have been passed in the middle of June, and by August 11 it had shown the usual increase.

Cholera.—Cholera in India this year has been very much in excess of what it was in the previous years. It apparently had reached its peak in May, but toward the end of July it began to increase again. The situation is shown by the accompanying diagram, which is reproduced from the Monthly Epidemiological Report. The increase is due principally to the rather severe epidemic in Bihar and Orissa and, to a less extent, in the Madras Presidency. It is also noted that several hundred cases are reported from the Punjab, which is usually free from cholera. Various localities in Indo-China, Siam, and the Philippine Islands report cases, all of which appear to have occurred during June and July.

Typhus and relapsing fever.—It is pointed out that "the typhus situation in general has been far more favorable [in 1924] than during any year since the war." It has now reached its annual minimum incidence in all the countries where it has been prevalent. The following summarization for the period January to August, 1924, is taken from the Monthly Epidemiological Report:

TABLE 2.—Cases of typhus notified in various countries, January—August, 1924.

Country.	Janu- ary.	Febru- ary.	March.	April.	May.	June.	July.	August.
Russia ¹	11, 645	11, 124	13, 524	11, 110	8, 730	5, 844	-----	-----
Estonia.....	0	0	11	23	9	5	2	0
Latvia.....	35	13	81	39	43	26	9	-----
Lithuania.....	53	83	218	88	93	21	24	-----
Poland ²	719	1, 016	1, 302	1, 260	1, 150	651	364	246
Rumania.....	357	588	612	622	535	192	-----	-----
Hungary.....	15	27	39	90	38	12	0	0
Bulgaria.....	17	25	36	43	54	16	3	-----
Spain ²	2	1	0	3	2	2	3	-----
Egypt ²	80	60	151	276	283	247	134	102
Algeria.....	39	89	102	90	70	44	18	17
Tunis.....	13	5	34	79	24	14	9	3
Union of South Africa.....	199	215	121	136	87	74	92	-----
Mexico City.....	50	41	40	25	45	32	-----	-----

¹ Without Ukraine.

² Four-week periods.

³ Deaths only.

Smallpox.—"The smallpox situation is, for the time being, decidedly favorable," states the Report, which adds: "Northern Europe, including Scotland and Ireland, as well as the Baltic Republics, and central Europe as far south as Rumania, are quite free from smallpox, and it is declining rapidly nearly everywhere else where it has been prevalent." It is also interesting to note that the incidence of the disease is low in all the African countries bordering on the Mediterranean, and that a similar and marked decline from May to July is indicated by the data for the Union of South Africa and Basutoland. In India the disease has continued to decline and apparently is not above the level of the preceding year. Even in the Far East the prevalence of the disease is apparently favorable, a decline being

indicated in Japan and Korea. An increase, however, is reported in Java, particularly in the Province of Madura.

Enteric fever and dysentery.—Typhoid and the paratyphoid fevers, which are included under the general term "enteric," appear to have been more prevalent in 1924 than in 1923 in many countries, and it is noted that the pre-war decline has not been continued in the years since the war in these countries.

The excess over last year appears to be especially marked in the Baltic region, where ordinarily the disease is not extremely prevalent. In Germany the incidence is higher than in 1923, which in turn had shown an increase over 1922. Even in Japan a high incidence is shown this year as compared with the previous year.

The July and August returns for dysentery show somewhat higher figures than for the previous months, but the relative increase from week to week did not indicate any danger of important epidemics in any country for which reports are available.

Influenza.—No epidemic conditions are indicated in the Northern Hemisphere, and in the Southern Hemisphere there is an absence of the disease everywhere except in the Union of South Africa, where a mild epidemic occurred in August, and in Mauritius where, in July, 2,570 cases and 196 deaths were recorded.

Diseases of the central nervous system.—New cases of lethargic encephalitis continue to be reported in England and Wales, 182 being notified during the four weeks ending September 27 as against 237 during the preceding four weeks. In Sweden 22 cases were notified in August, and the reports from other countries indicate only sporadic cases.

Acute poliomyelitis does not appear to be prevalent in 1924. An interesting report is noted from Iceland, where an outbreak of the disease appeared in January and culminated in July. Up to the end of August, 176 cases with pronounced paralysis had been reported in this island, 65 of which were fatal. Abortive cases were stated to be very common, and the epidemic had spread over most of the island, but was most severe in the northern and western regions. When it is recalled that the total population of Iceland is only 95,000 this epidemic is relatively a very severe one.

A special report on the bacteriological investigation of cerebrospinal meningitis cases notified in Prussia in 1923 and 1924 is summarized in this issue of the Monthly Epidemiological Report. It is shown that the meningococcus was proved in only 13 per cent of the spinal fluids examined for this purpose in Prussia in 1923. Of the 61 cases notified as cerebrospinal meningitis in Berlin in 1923, 59 were investigated and the diagnoses were confirmed in 47 cases. This investigation was undertaken to check up certain reports of the dis-

ease which were being received some months ago from Germany. A similar investigation, it is understood, is in progress in Denmark.

Other diseases.—Scarlet fever and diphtheria, which reached their minimum prevalence in the summer, have already shown signs of the usual seasonal increase in several countries. All of the important outbreaks of measles which occurred in Europe are definitely at an end, and the incidence of the disease everywhere is low. The only epidemics to be reported in recent months were those in Spain (where 658 deaths were registered in July), in Egypt, and Iraq.

The malaria situation in Russia, exclusive of the Ukraine, continues to be relatively favorable, the June reports showing a decline in the number of cases over May; in the Ukraine, however, the reported incidence is considerably higher than in 1923.

DIGEST OF CURRENT PUBLIC HEALTH COURT DECISION.

Maintenance of municipal garbage disposal plant within the limits of another municipality (Supreme Court of Ohio).—Where a municipality, in the exercise of powers specifically conferred upon it by law, acquired property for, and established and maintained, a garbage disposal plant outside its corporate limits, and subsequently the site of the disposal plant was embraced within the limits of another municipality, the latter municipality can not prevent the maintenance, improvement, enlargement, and rebuilding of the garbage disposal plant where the improved and enlarged plant would employ the most efficient methods known for the elimination of offensive gases, odors, and liquids in the process of reduction. (Hecker, Inspector of Buildings, *v. State ex rel. City of Cleveland*, 144 N. E. 700.)

DEATHS DURING WEEK ENDED NOVEMBER 22, 1924.

Summary of information received by telegraph from industrial insurance companies for week ended November 22, 1924, and corresponding week of 1923. (From the Weekly Health Index, November 25, 1924, issued by the Bureau of the Census, Department of Commerce.)

	Week ended Nov. 22, 1924.	Corresponding week, 1923.
Policies in force.....	57, 785, 487	54, 110, 177
Number of death claims.....	10, 605	10, 126
Death claims per 1,000 policies in force, annual rate..	9. 6	9. 8

Deaths from all causes in certain large cities of the United States during the week ended November 22, 1924, infant mortality, annual death rate, and comparison with corresponding week of 1923. (From the Weekly Health Index, November 25, 1924, issued by the Bureau of the Census, Department of Commerce.)

City.	Week ended Nov. 22, 1924.		Annual death rate per 1,000 corresponding week, 1923.	Deaths under 1 year.		Infant mortality rate, week ended Nov. 22, 1924. ²
	Total deaths.	Death rate. ¹		Week ended Nov. 22, 1924.	Corresponding week, 1923.	
Total (64 cities).....	6,350	12.3	12.0	774	878	
Akron.....	30			3	8	32
Albany.....	38	16.7	17.3	3	3	68
Atlanta.....	66	15.1	22.2	5	11	
Baltimore.....	215	14.3	14.3	27	25	80
Birmingham.....	64	16.6	11.7	12	7	
Boston.....	182	12.2	13.1	26	27	72
Bridgeport.....	33			7	7	112
Buffalo.....	131	12.5	13.3	23	21	97
Cambridge.....	24	11.2	12.6	2	4	35
Camden.....	35	14.4	13.4	8	3	131
Chicago.....	600	10.6	9.9	69	75	64
Cincinnati.....	134	17.1	15.4	19	10	119
Cleveland.....	176	10.1	13.0	18	22	46
Columbus.....	76	14.9	12.6	5	1	47
Dallas.....	38	10.5	12.0	9	7	
Dayton.....	31	9.6	11.3	2	4	33
Denver.....	62			13	5	
Des Moines.....	30	10.8	10.0	3	0	
Detroit.....	210			30	35	56
Duluth.....	13	6.3	10.8	3	3	65
Erie.....	26			1	5	21
Fall River.....	31	13.4	14.2	4	8	56
Flint.....	18			3	5	52
Fort Worth.....	12	4.2	8.3	1	1	
Grand Rapids.....	35	12.3	12.5	2	1	31
Houston.....	46			8	7	
Indianapolis.....	92	13.7	14.1	13	10	96
Jacksonville, Fla.....	24	12.2	13.6	4	2	
Jersey City.....	72	12.0	12.3	8	6	57
Kansas City, Kans.....	30	13.3	17.1	5	2	96
Kansas City, Mo.....	90	13.0	12.6	6	6	
Los Angeles.....	209			18	35	56
Louisville.....	65	13.1	16.6	6	4	56
Lowell.....	32	14.4	13.1	5	4	89
Lynn.....	21	10.6	9.1	3	1	76
Memphis.....	70	21.2	17.8	7	8	
Milwaukee.....	93	9.9	9.4	13	16	62
Minneapolis.....	106	13.2	8.9	10	8	54
Nashville.....	27	11.4	14.5	2	3	
New Bedford.....	28	11.0	13.6	2	7	31
New Haven.....	48	14.2	11.8	7	0	92
New Orleans.....	134	17.1	18.7	18	16	
New York.....	1,380	12.0	11.0	168	148	68
Bronx Borough.....	156	9.3	7.6	5	10	18
Brooklyn Borough.....	457	10.9	9.8	65	54	69
Manhattan Borough.....	610	14.1	13.2	84	60	85
Queens Borough.....	121	11.4	10.4	10	13	50
Richmond Borough.....	36	14.4	16.4	4	2	73
Newark, N. J.....	96	11.2	8.1	18	12	84
Norfolk.....	27	8.6	10.5	2	5	36
Oakland.....	41	8.7	11.3	5	4	63
Oklahoma City.....	17	8.5		3		
Omaha.....	56	14.0	14.5	9	7	96
Paterson.....	31	11.5	14.2	3	2	51
Philadelphia.....	444	11.9	12.4	54	46	69
Pittsburgh.....	194	16.2	12.6	17	26	58
Portland, Oreg.....	62	11.6	12.2	5	3	52
Providence.....	72	15.4	10.3	15	2	122
Richmond.....	55	15.6	13.5	9	14	109
Rochester.....	69	11.1		4		32
St. Louis.....	194	12.4	13.0	18	16	
St. Paul.....	71	15.2	10.6	7	1	60
Salt Lake City.....	29	11.8	14.9	3	5	60

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 1923. Cities left blank are not in the registration area for births.

³ Data for 62 cities.

⁴ Deaths for week ended Friday, Nov. 21, 1924.

Deaths from all causes in certain large cities of the United States during the week ended November 22, 1924, infant mortality, annual death rate, and comparison with corresponding week of 1923. (From the Weekly Health Index, November 25, 1924, issued by the Bureau of Census, Department of Commerce)—Continued.

City.	Week ended Nov. 22, 1924.		Annual death rate per 1,000 corresponding week, 1923.	Deaths under 1 year.		Infant mortality rate, week ended Nov. 22, 1924.
	Total deaths.	Death rate.		Week ended Nov. 22, 1924.	Corresponding week, 1923.	
San Antonio.....	62	16.9	13.3	13	6	91
San Francisco.....	140	13.3	13.6	15	11	89
Schenectady.....	22	11.4	7.4	3	2	29
Seattle.....	65			3	6	0
Somerville.....	16	8.3	7.9	0	1	88
Spokane.....	26			4	1	68
Springfield, Mass.....	37	13.0	9.4	4	3	50
Syracuse.....	43	11.9	11.9	4	5	48
Tacoma.....	11	5.6	10.3	2	1	66
Toledo.....	50	9.4	10.6	7	3	83
Trenton.....	45	18.1	19.6	5	4	65
Utica.....	25	12.4	10.6	3	4	104
Washington, D. C.....	126	13.5	13.3	18	11	70
Waterbury.....	21			3	5	89
Wilmington, Del.....	24	10.4	12.0	4	3	44
Yonkers.....	17	8.1	9.2	2	2	83
Youngstown.....	31	10.4	10.1	6	5	

PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

UNITED STATES.

CURRENT WEEKLY STATE REPORTS.

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

Reports for Week Ended November 29, 1924.

ALABAMA.		CALIFORNIA—continued.	
	Cases.		Cases.
Cerebrospinal meningitis.....	1	Diphtheria.....	193
Chicken pox.....	47	Influenza.....	23
Diphtheria.....	30	Leprosy: San Francisco.....	1
Dysentery.....	4	Lethargic encephalitis:	
Influenza.....	83	Glendale.....	1
Malaria.....	20	Los Angeles.....	3
Measles.....	21	Measles.....	21
Mumps.....	46	Poliomyelitis:	
Ophthalmia neonatorum.....	1	Alameda.....	2
Pellagra.....	6	Benicia.....	1
Pneumonia.....	79	Berkeley.....	1
Scarlet fever.....	25	Contra Costa County.....	5
Smallpox.....	86	San Francisco.....	3
Tuberculosis.....	31	Scarlet fever.....	144
Typhoid fever.....	16	Smallpox:	
Whooping cough.....	12	Gridley.....	11
		Los Angeles.....	34
ARKANSAS.		Scattering.....	28
Chicken pox.....	28	Typhoid fever:	
Diphtheria.....	5	Stockton.....	10
Hookworm disease.....	2	Scattering.....	11
Influenza.....	47		
Malaria.....	38		
Measles.....	8		
Mumps.....	3		
Pellagra.....	2		
Scarlet fever.....	7		
Smallpox.....	21		
Trachoma.....	3		
Tuberculosis.....	5		
Typhoid fever.....	15		
Whooping cough.....	6		
CALIFORNIA.			
Cerebrospinal meningitis:			
Fresno.....	1		
Glendale.....	1		
Los Angeles.....	1		
		COLORADO.	
		(Exclusive of Denver.)	
		Cerebrospinal meningitis.....	1
		Chicken pox.....	63
		Diphtheria.....	15
		Influenza.....	1
		Measles.....	3
		Mumps.....	12
		Pneumonia.....	5
		Scarlet fever.....	27
		Smallpox.....	1
		Tuberculosis.....	13
		Typhoid fever.....	4
		Whooping cough.....	8

CONNECTICUT.

	Cases.
Cerebrospinal meningitis.....	1
Chicken pox.....	50
Conjunctivitis (infectious).....	4
Diphtheria.....	53
German measles.....	8
Influenza.....	7
Lethargic encephalitis.....	2
Measles.....	3
Mumps.....	10
Ophthalmia neonatorum.....	1
Pneumonia (lobar).....	28
Scarlet fever.....	109
Tuberculosis (pulmonary).....	14
Typhoid fever.....	9
Whooping cough.....	54

DELAWARE.

Chicken pox.....	2
Diphtheria.....	4
Measles.....	1
Mumps.....	1
Pneumonia.....	1
Scarlet fever.....	4
Tuberculosis.....	2

FLORIDA.

Diphtheria.....	35
Influenza.....	5
Lethargic encephalitis.....	1
Malaria.....	40
Paratyphoid fever.....	1
Pneumonia.....	32
Scarlet fever.....	1
Typhoid fever.....	24

GEORGIA.

Chicken pox.....	20
Diphtheria.....	13
Dysentery (amebic).....	1
Hookworm disease.....	4
Influenza.....	1
Malaria.....	4
Measles.....	1
Mumps.....	7
Pneumonia.....	2
Scarlet fever.....	13
Septic sore throat.....	1
Smallpox.....	4
Tuberculosis.....	8
Typhoid fever.....	8
Whooping cough.....	3

ILLINOIS.

Cerebrospinal meningitis:	
Adams County.....	1
Johnson County.....	1
Stephenson County.....	1
Diphtheria:	
Cook County.....	97
Sangamon County.....	8
Scattering.....	53
Influenza.....	22
Lethargic encephalitis—Tazewell County.....	1
Measles.....	101
Pneumonia.....	190

ILLINOIS—continued.

	Cases.
Poliomyelitis:	
Christian County.....	1
Cook County.....	4
Du Page County.....	1
Fulton County.....	1
Marshall County.....	1
Scarlet fever:	
Cook County.....	191
Greene County.....	8
Jackson County.....	11
Scattering.....	98
Smallpox.....	11
Tuberculosis.....	220
Typhoid fever.....	27
Whooping cough.....	282

IOWA.

Diphtheria.....	13
Poliomyelitis—Davenport.....	1
Scarlet fever.....	36
Smallpox.....	31

KANSAS.

Cerebrospinal meningitis.....	1
Chicken pox.....	134
Diphtheria.....	57
Influenza.....	1
Lethargic encephalitis.....	1
Measles.....	3
Mumps.....	81
Pneumonia.....	29
Scarlet fever.....	90
Smallpox.....	3
Trachoma.....	1
Tuberculosis.....	43
Typhoid fever.....	14
Whooping cough.....	11

LOUISIANA.

Diphtheria.....	29
Influenza.....	13
Malaria.....	6
Pneumonia.....	17
Scarlet fever.....	8
Smallpox.....	1
Tuberculosis.....	24
Typhoid fever.....	20
Whooping cough.....	10

MAINE.

Chicken pox.....	53
Diphtheria.....	12
Influenza.....	8
Measles.....	4
Mumps.....	49
Pneumonia.....	13
Poliomyelitis.....	4
Scarlet fever.....	22
Tetanus.....	1
Tuberculosis.....	3
Typhoid fever.....	4
Vincent's angina.....	2
Whooping cough.....	6

MARYLAND.¹

	Cases.
Cerebrospinal meningitis.....	2
Chicken pox.....	59
Diphtheria.....	64
Dysentery.....	1
German measles.....	2
Influenza.....	42
Measles.....	36
Mumps.....	8
Pneumonia (all forms).....	84
Poliomyelitis.....	1
Scarlet fever.....	54
Septic sore throat.....	3
Tetanus.....	1
Tuberculosis.....	69
Typhoid fever.....	12
Whooping cough.....	87

MASSACHUSETTS.

Cerebrospinal meningitis.....	2
Chicken pox.....	281
Conjunctivitis (suppurative).....	17
Diphtheria.....	125
German measles.....	16
Influenza.....	17
Lethargic encephalitis.....	3
Measles.....	120
Mumps.....	109
Ophthalmia neonatorum.....	10
Pneumonia (lobar).....	119
Poliomyelitis.....	2
Scarlet fever.....	261
Septic sore throat.....	2
Trachoma.....	2
Tuberculosis (all forms).....	111
Typhoid fever.....	14
Whooping cough.....	74

MICHIGAN.

Diphtheria.....	125
Measles.....	115
Pneumonia.....	60
Scarlet fever.....	243
Smallpox.....	25
Tuberculosis.....	170
Typhoid fever.....	16
Whooping cough.....	60

MINNESOTA.

Chicken pox.....	205
Diphtheria.....	113
Influenza.....	1
Lethargic encephalitis.....	1
Measles.....	15
Pneumonia.....	2
Poliomyelitis.....	5
Scarlet fever.....	206
Smallpox.....	120
Trachoma.....	3
Tuberculosis.....	49
Typhoid fever.....	3
Whooping cough.....	28

MISSISSIPPI.

Cerebrospinal meningitis.....	1
Diphtheria.....	23
Scarlet fever.....	11
Smallpox.....	5
Typhoid fever.....	12

MISSOURI.

	Cases.
Cerebrospinal meningitis.....	1
Chicken pox.....	56
Diphtheria.....	43
Influenza.....	5
Measles.....	2
Mumps.....	17
Ophthalmia neonatorum.....	1
Pneumonia.....	8
Poliomyelitis.....	2
Scarlet fever.....	218
Septic sore throat.....	4
Smallpox.....	12
Tuberculosis.....	16
Typhoid fever.....	7
Whooping cough.....	7

MONTANA.

Diphtheria.....	10
Scarlet fever.....	22
Smallpox.....	11
Typhoid fever.....	5

NEW JERSEY.

Cerebrospinal meningitis.....	3
Chicken pox.....	180
Diphtheria.....	84
Influenza.....	9
Measles.....	36
Paratyphoid fever.....	2
Pneumonia.....	114
Poliomyelitis.....	3
Scarlet fever.....	149
Smallpox.....	6
Typhoid fever.....	27
Whooping cough.....	64

NEW MEXICO.

Cerebrospinal meningitis.....	1
Chicken pox.....	16
Diphtheria.....	7
Influenza.....	2
Lethargic encephalitis.....	1
Measles.....	49
Pneumonia.....	17
Poliomyelitis.....	1
Scarlet fever.....	9
Smallpox.....	1
Tuberculosis.....	25
Typhoid fever.....	8

NEW YORK.

(Exclusive of New York City.)

Cerebrospinal meningitis.....	4
Diphtheria.....	111
Influenza.....	20
Lethargic encephalitis.....	2
Measles.....	86
Pneumonia.....	177
Poliomyelitis.....	10
Scarlet fever.....	230
Smallpox.....	6
Typhoid fever.....	38
Whooping cough.....	250

¹ Week ended Friday.

NORTH CAROLINA.

	Cases.
Cerebrospinal meningitis.....	1
Chicken pox.....	121
Diphtheria.....	92
German measles.....	6
Measles.....	26
Poliomyelitis.....	1
Scarlet fever.....	48
Smallpox.....	20
Typhoid fever.....	15
Whooping cough.....	65

OKLAHOMA.

(Exclusive of Oklahoma City and Tulsa.)

Diphtheria.....	17
Smallpox.....	1
Typhoid fever.....	20

OREGON.

Cerebrospinal meningitis.....	11
Chicken pox.....	29
Diphtheria:	
Portland.....	18
Lane County.....	8
Scattering.....	13
Influenza.....	2
Lethargic encephalitis.....	2
Measles.....	1
Mumps.....	3
Pneumonia.....	12
Poliomyelitis.....	2
Scarlet fever:	
Portland.....	8
Scattering.....	25
Smallpox.....	8
Tuberculosis.....	13
Typhoid fever.....	11

SOUTH DAKOTA.

Chicken pox.....	23
Diphtheria.....	2
Influenza.....	1
Measles.....	1
Mumps.....	2
Poliomyelitis.....	2
Scarlet fever.....	21
Smallpox.....	12
Whooping cough.....	3

TEXAS.

Chicken pox.....	56
Dengue.....	6
Diphtheria.....	42
Dysentery.....	3
Influenza.....	71
Mumps.....	24
Paratyphoid fever.....	2
Pellagra.....	2
Pneumonia.....	7
Poliomyelitis.....	1
Scarlet fever.....	12
Smallpox.....	12
Trachoma.....	5
Tuberculosis.....	40
Typhoid fever.....	8
Whooping cough.....	4

1 Deaths.

VERMONT.

	Cases.
Chicken pox.....	57
Diphtheria.....	8
Measles.....	13
Mumps.....	13
Scarlet fever.....	19
Whooping cough.....	56

VIRGINIA.

Cerebrospinal meningitis—Buckingham County.....	2
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WASHINGTON.

Chicken pox.....	52
Diphtheria.....	19
Measles.....	9
Mumps.....	15
Poliomyelitis:	
Kitsap County.....	2
Snohomish County.....	3
Everett.....	1
Seattle.....	2
Spokane.....	1
Scarlet fever.....	31
Smallpox.....	14
Tuberculosis.....	19
Typhoid fever.....	4
Whooping cough.....	5

WEST VIRGINIA.

Diphtheria.....	19
Scarlet fever.....	19
Smallpox.....	3
Typhoid fever.....	4

WISCONSIN.

Milwaukee:	
Chicken pox.....	72
Diphtheria.....	11
German measles.....	36
Measles.....	38
Mumps.....	15
Pneumonia.....	4
Scarlet fever.....	10
Tuberculosis.....	7
Typhoid fever.....	1
Whooping cough.....	17
Scattering:	
Cerebrospinal meningitis.....	3
Chicken pox.....	268
Diphtheria.....	43
German measles.....	1
Influenza.....	7
Lethargic encephalitis.....	1
Measles.....	19
Mumps.....	62
Ophthalmia neonatorum.....	1
Pneumonia.....	11
Poliomyelitis.....	3
Scarlet fever.....	123
Smallpox.....	18
Trachoma.....	1
Tuberculosis.....	23
Typhoid fever.....	4
Whooping cough.....	107

Reports for Week Ended November 22, 1924.

DISTRICT OF COLUMBIA.		NEBRASKA—Continued.	
	Cases.		Cases.
Chicken pox.....	34	Smallpox.....	9
Diphtheria.....	7	Whooping cough.....	1
Influenza.....	1		
Lethargic encephalitis.....	1	NORTH DAKOTA.	
Polio-myelitis.....	1	Cerebrospinal meningitis.....	2
Scarlet fever.....	23	Chicken pox.....	43
Tuberculosis.....	31	Diphtheria.....	5
Typhoid fever.....	3	German measles.....	4
Whooping cough.....	3	Lethargic encephalitis.....	1
		Measles.....	13
		Mumps.....	1
		Pneumonia.....	8
		Polio-myelitis.....	6
		Scarlet fever.....	37
		Smallpox.....	15
		Trachoma.....	2
		Tuberculosis.....	6
		Typhoid fever.....	2
		Whooping cough.....	18
NEBRASKA.			
Chicken pox.....	43		
Diphtheria.....	25		
Influenza.....	3		
Measles.....	2		
Mumps.....	1		
Pneumonia.....	1		
Scarlet fever.....	43		

SUMMARY OF MONTHLY REPORTS FROM STATES.

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

State.	Cerebro-spinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Polio-myelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
<i>October, 1924.</i>										
Delaware.....		9			1			28		10
Iowa.....		94			1		8	130	64	3
Kansas.....	2	408	13	1	12	0	2	380	7	61
Maine.....	1	37	1		10	1	38	94	1	45
Michigan.....		504	4		324		159	833	56	94
Mississippi.....	1	205	1,100	7,126	98	344	4	64	36	297
Montana.....	2	56	1		7		38	87	38	22
Oregon.....		203	3	2	8		37	107	29	26
South Dakota.....	1	39			4		12	164	31	25
Washington.....	1	160	0	0	23	0	205	163	71	67

SMALLPOX IN FRESNO, CALIF.

Under date of November 21, 1924, an outbreak of smallpox was reported at Fresno, Calif., to which date 150 cases and 17 deaths had occurred.

PLAGUE IN LOS ANGELES, CALIF.

No new case of plague was reported in Los Angeles, Calif., during the week ended November 22, 1924. To that date 26 plague-infected rats had been reported.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES.

Diphtheria.—For the week ended November 15, 1924, 35 States reported 2,210 cases of diphtheria. For the week ended November 17, 1923, the same States reported 3,544 cases of this disease. One hundred and four cities, situated in all parts of the country and having an aggregate population of nearly 28,800,000, reported 1,110 cases of diphtheria for the week ended November 15, 1924. Last year, for the corresponding week, they reported 1,584 cases. The estimated expectancy for these cities was 1,553 cases of diphtheria. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Measles.—Thirty States reported 830 cases of measles for the week ended November 15, 1924, and 4,626 cases of this disease for the week ended November 17, 1923. One hundred and four cities reported 322 cases of measles for the week this year, and 1,160 cases last year.

Scarlet fever.—Scarlet fever was reported for the week as follows: Thirty-five States—this year, 2,668 cases; last year, 3,059 cases. One hundred and four cities—this year, 1,094 cases; last year, 1,121 cases; estimated expectancy, 867 cases.

Smallpox.—For the week ended November 15, 1924, 35 States reported 587 cases of smallpox. Last year, for the corresponding week, they reported 526 cases. One hundred and four cities reported smallpox for the week as follows: 1924, 192 cases; 1923, 134 cases; estimated expectancy, 59 cases. These cities reported 9 deaths from smallpox for the week this year, 8 of which occurred at Minneapolis.

Typhoid fever.—Four hundred and six cases of typhoid fever were reported for the week ended November 15, 1924, by 34 States. For the corresponding week of 1923 the same States reported 386 cases. One hundred and four cities reported 106 cases of typhoid fever for the week this year, and 112 cases for the week last year. The estimated expectancy for these cities was 100 cases.

Influenza and pneumonia.—Deaths from influenza and pneumonia (combined) were reported for the week by 104 cities as follows: 1924, 717 deaths; 1923, 669 deaths.

City reports for week ended November 15, 1924.

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

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1915 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city.	Chick- en pox, cases re- ported.	Diphtheria.		Influenza.		Meas- les, cases re- ported.	Mumps, cases re- ported.	Pneu- monia, deaths re- ported.	Scarlet fever.	
		Cases, esti- mated expect- ancy.	Cases re- ported.	Cases re- ported.	Deaths re- ported.				Cases, esti- mated expect- ancy.	Cases re- ported.
NEW ENGLAND.										
Maine:										
Lewiston.....	3	2	0	0	0	1	0	0	0	0
Portland.....	14	2	1	0	0	1	17	2	1	1
New Hampshire:										
Concord.....	0	0	0	0	0	0	0	0	1	1
Manchester.....	-----	4	1	0	0	0	-----	0	2	44
Vermont:										
Barre.....	-----	0	-----	-----	-----	-----	-----	-----	1	-----
Burlington.....	6	1	0	0	0	0	0	2	1	0
Massachusetts:										
Boston.....	43	66	47	8	0	28	4	16	30	62
Fall River.....	2	5	3	1	0	0	0	2	1	4
Springfield.....	8	8	5	1	0	3	4	3	6	21
Worcester.....	27	7	5	0	0	1	0	4	9	10
Rhode Island:										
Pawtucket.....	1	2	3	0	0	0	0	1	1	5
Providence.....	0	15	6	0	0	3	0	2	7	10
Connecticut:										
Bridgeport.....	0	12	10	1	0	1	1	3	6	4
Hartford.....	2	11	2	0	0	1	0	1	6	2
New Haven.....	11	7	0	0	0	3	0	1	4	14
MIDDLE ATLANTIC.										
New York:										
Buffalo.....	33	30	10	0	0	27	3	10	16	15
New York.....	186	186	162	52	6	32	17	199	96	122
Rochester.....	14	14	1	0	0	5	16	3	8	25
Syracuse.....	10	16	10	0	0	0	1	2	12	4
New Jersey:										
Camden.....	5	5	4	0	0	0	0	3	1	12
Newark.....	30	21	5	9	0	21	5	10	13	20
Trenton.....	2	8	1	0	2	1	0	3	2	4
Pennsylvania:										
Philadelphia.....	87	82	86	-----	6	22	21	37	46	76
Pittsburgh.....	12	41	28	-----	3	27	23	26	22	52
Reading.....	6	6	5	0	0	0	7	1	2	0
Scranton.....	5	5	0	0	0	1	0	7	3	0
E. NORTH CENTRAL.										
Ohio:										
Cincinnati.....	14	27	27	0	0	1	2	8	14	21
Cleveland.....	102	52	37	0	1	1	4	22	28	30
Columbus.....	6	15	1	0	0	0	0	6	9	6
Toledo.....	25	21	16	0	0	4	0	5	14	8
Indiana:										
Fort Wayne.....	3	3	13	0	0	0	0	1	1	4
Indianapolis.....	65	28	5	0	0	1	6	7	12	5
South Bend.....	4	3	3	0	0	1	0	2	3	3
Terre Haute.....	0	4	0	0	0	0	0	0	2	6
Illinois:										
Chicago.....	168	199	80	7	3	59	16	37	118	109
Cicero.....	0	3	0	0	0	0	0	0	3	2
Springfield.....	3	3	8	1	1	0	0	1	2	0

Division, State, and city.	Chick- en pox, cases re- ported.	Diphtheria.		Influenza.		Meas- les, cases re- ported.	Mumps, cases re- ported.	Pneu- monia, deaths, re- ported.	Scarlet fever.	
		Cases, esti- mated expect- ancy.	Cases re- ported.	Cases re- ported.	Deaths re- ported.				Cases, esti- mated expect- ancy.	Cases re- ported.
E. NORTH CENTRAL—contd.										
Michigan:										
Detroit.....	80	88	51	0	0	6	16	24	65	42
Flint.....	10	16	1	0	0	1	2	0	11	7
Grand Rapids..	8	9	4	0	0	1	0	1	8	11
Wisconsin:										
Madison.....	21	2	1	0	0	0	23	0	1	0
Milwaukee.....	72	33	16	0	0	31	17	6	30	7
Racine.....	0	2	0	0	0	0	2	0	5	0
Superior.....	1	2	0	0	0	0	0	1	1	0
W. NORTH CENTRAL.										
Minnesota:										
Duluth.....	27	6	0	0	0	0	0	0	4	19
Minneapolis....	69	26	37	0	0	2	0	9	24	31
St. Paul.....	41	21	25	0	0	4	16	4	10	8
Iowa:										
Davenport.....		1	3	0	0	0	0	0	1	0
Des Moines.....		9	0	0	0	0	0	0	11	0
Sioux City.....	2	3	4	0	0	0	0	0	4	0
Waterloo.....	0	1	0	0	0	0	0	0	3	0
Missouri:										
Kansas City....	12	18	11	0	0	2	1	13	9	25
St. Joseph.....	3	5	1	0	0	0	0	0	4	4
St. Louis.....	21	82	51	0	0	2	2	0	29	120
North Dakota:										
Fargo.....	13	1	0	0	0	0	0	0	2	1
Grand Forks....	0	2	0	0	0	0	0	0	2	0
South Dakota:										
Aberdeen.....	7		0	0	0	0	0	0	0	0
Sioux Falls.....	1	1	1	0	0	0	0	0	2	0
Nebraska:										
Lincoln.....	4	2	4	0	0	0	0	0	1	1
Omaha.....	3	9	10	0	0	0	0	4	4	3
Kansas:										
Topeka.....	0	4	3	0	0	0	12	0	2	7
Wichita.....	5	10	4	0	0	0	1	2	4	2
SOUTH ATLANTIC.										
Delaware:										
Wilmington.....		3	3	0	0	0	0	2	3	5
Maryland:										
Baltimore.....	42	36	36	12	2	2	0	24	18	13
Cumberland.....		1	0	0	0	0	0	3	1	0
Frederick.....	0	1	0	0	0	0	0	0	1	0
District of Col.:										
Washington.....	12	26	15	1	1	0	0	8	15	12
Virginia:										
Lynchburg.....	2	2	7	0	0	0	13	1	0	0
Norfolk.....	13	6	3	0	0	0	13	5	2	3
Richmond.....	5	14	20	0	1	1	0	5	8	4
Roanoke.....	2	3	8	0	0	0	2	0	3	3
West Virginia:										
Charleston.....	13	5	1	0	0	0	8	3	2	2
Huntington.....	5	5	0	0	0	0	0	0	1	2
Wheeling.....	25	4	0	0	0	0	0	1	2	11
North Carolina:										
Raleigh.....	3	3	1	0	0	1</				

City reports for week ended November 15, 1924—Continued.

Division, State, and city.	Chick- en pox, cases re- ported.	Diphtheria.		Influenza.		Meas- les, cases re- ported.	Mumps, cases re- ported.	Pneu- monia, deaths re- ported.	Scarlet fever.	
		Cases, esti- mated expect- ancy.	Cases re- ported.	Cases re- ported.	Deaths re- ported.				Cases, esti- mated expect- ancy.	Cases re- ported.
EAST SOUTH CEN- TRAL.										
Kentucky:										
Covington.....	3	4	4	1	0	0	0	0	1	0
Lexington.....	1	4	3	0	0	0	0	2	1	1
Louisville.....	2	15	7	1	0	0	0	12	4	5
Tennessee:										
Memphis.....	6	12	9	0	1	0	5	12	4	3
Nashville.....	1	8	0	0	1	0	0	5	4	1
Alabama:										
Birmingham.....	2	8	4	7	2	0	0	12	5	4
Mobile.....	0	2	1	0	0	0	0	5	0	1
Montgomery.....	1	2	1	0	0	2	1	0	1	0
WEST SOUTH CEN- TRAL.										
Arkansas:										
Fort Smith.....	3	2	3	0	0	1	4	1	2	3
Little Rock.....	1	4	4	0	0	0	0	1	3	0
Louisiana:										
New Orleans.....	1	12	18	14	6	0	0	12	5	4
Shreveport.....	1	2	2	0	0	0	0	9	1	1
Oklahoma:										
Oklahoma.....	0	5	0	0	0	0	0	3	4	3
Tulsa.....	0	7	2	0	0	0	0	3	3	1
Texas:										
Dallas.....	13	16	17	0	0	0	0	5	4	4
Galveston.....	0	1	0	0	0	0	0	0	1	1
Houston.....	2	5	8	0	1	0	0	6	0	4
San Antonio.....	1	5	7	0	0	0	0	1	1	1
MOUNTAIN.										
Montana:										
Billings.....	15	1	1	0	0	0	0	1	1	0
Great Falls.....	2	2	1	0	0	1	0	0	1	5
Helena.....	0	0	0	0	0	0	0	0	0	0
Missoula.....	0	7	0	0	0	0	0	0	1	0
Idaho:										
Boise.....	6	1	1	0	0	0	0	0	1	1
Colorado:										
Denver.....	37	17	16	0	1	1	14	9	8	5
Pueblo.....	14	5	1	0	0	0	2	0	2	2
New Mexico:										
Albuquerque.....	1	1	2	0	0	0	0	1	0	0
Arizona:										
Phoenix.....	0	0	0	0	0	0	0	0	2	2
Utah:										
Salt Lake City.....	32	3	9	0	0	2	16	0	3	4
Nevada:										
Reno.....	0	0	0	0	0	0	0	0	0	3
PACIFIC.										
Washington:										
Seattle.....	47	6	12	0	0	1	9	7	7	3
Spokane.....	14	5	2	0	0	13	0	7	7	7
Tacoma.....	0	3	6	0	0	0	2	2	2	1
Oregon:										
Portland.....	29	5	20	0	0	0	0	4	7	8
California:										
Los Angeles.....	28	38	51	5	5	9	16	19	15	16
Sacramento.....	1	3	3	0	0	0	1	2	2	2
San Francisco.....	11	23	20	0	0	0	14	5	8	11

City reports for week ended November 15, 1924—Continued

Division, State, and city.	Popula- tion July 1, 1923, estimated.	Smallpox.			Tuberculosis, deaths re- ported.	Typhoid fever.			Whooping cough, cases reported.	Deaths, all causes.
		Cases, estimated expectancy.	Cases reported.	Deaths reported.		Cases, estimated expectancy.	Cases reported.	Deaths reported.		
NEW ENGLAND.										
Maine:										
Lewiston.....	33,790	0	0	0	1	1	0	0	0	12
Portland.....	73,129	0	0	0	0	1	1	0	1	14
New Hampshire:										
Concord.....	22,408	0	0	0	0	0	0	0	0	11
Manchester.....	81,383	0	0	0	0	1	0	0	0	12
Vermont:										
Barre.....	110,008	0	0	0	0	0	0	0	0	0
Burlington.....	23,613	0	0	0	0	0	0	0	3	3
Massachusetts:										
Boston.....	770,400	0	0	0	12	2	0	0	13	236
Fall River.....	120,912	0	0	0	2	2	1	0	4	22
Springfield.....	144,227	0	0	0	2	0	0	0	1	28
Worcester.....	191,927	0	0	0	4	0	0	0	0	55
Rhode Island:										
Pawtucket.....	68,799	0	0	0	0	0	0	0	0	17
Providence.....	242,378	0	0	0	4	0	1	0	3	55
Connecticut:										
Bridgeport.....	143,555	0	0	0	1	1	0	0	0	26
Hartford.....	138,036	0	0	0	1	0	1	0	2	25
New Haven.....	172,967	0	0	0	2	1	1	0	22	33
MIDDLE ATLANTIC.										
New York:										
Buffalo.....	536,718	1	0	0	9	1	2	0	26	121
New York.....	5,927,625	0	0	0	79	20	21	2	137	1,295
Rochester.....	317,867	0	0	0	3	1	0	0	9	70
Syracuse.....	184,511	0	0	0	0	1	0	0	1	39
New Jersey:										
Camden.....	124,157	0	0	0	1	1	1	0	2	38
Newark.....	438,699	0	0	0	5	2	0	0	51	106
Trenton.....	127,390	0	0	0	2	1	0	0	8	28
Pennsylvania:										
Philadelphia.....	1,922,788	0	0	0	44	6	6	2	94	475
Pittsburgh.....	613,442	0	0	0	6	2	3	1	13	144
Reading.....	110,917	0	0	0	0	1	0	0	5	27
Scranton.....	140,636	0	0	0	0	0	1	0	3	0
EAST NORTH CENTRAL.										
Ohio:										
Cincinnati.....	400,312	0	0	0	7	1	2	0	8	107
Cleveland.....	888,519	2	0	0	11	3	1	0	31	150
Columbus.....	261,082	0	0	0	4	1	1	1	8	63
Toledo.....	268,338	1	2	0	3	1	0	0	17	48
Indiana:										
Fort Wayne.....	93,573	1	0	0	4	0	0	0	0	28
Indianapolis.....	342,718	1	5	0	6	1	0	1	1	103
South Bend.....	76,709	1	0	0	0	0	0	0	0	9
Terre Haute.....	68,939	0	1	0	2	0	0	0	0	18
Illinois:										
Chicago.....	2,886,121	1	0	0	43	6	3	1	111	602
Cicero.....	55,968	0	0	0	0	0	0	0	1	9
Springfield.....	61,833	1	0	0	1	0	0	0	0	20
Michigan:										
Detroit.....	995,668	2	3	0	21	4	3	1	25	237
Flint.....	117,968	0	2	0	3	1	0	0	0	23
Grand Rapids.....	145,947	1	0	0	1	0	0	0	2	30
Wisconsin:										
Madison.....	42,519	0	0	0	0	0	0	0	8	0
Milwaukee.....	484,595	2	0	0	2	0	1	1	20	83
Racine.....	64,393	0	0	0	1	0	0	0	2	10
Superior.....	139,671	1	0	0	0	0	0	1	0	13

1 Population Jan. 1, 1920.

2 Pulmonary only.

City reports for week ended November 15, 1924—Continued

Division, State, and city	Popula- tion July 1, 1923, estimated	Smallpox			Tubercu- losis, deaths re- ported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
		Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL.										
Minnesota:										
Duluth.....	106,289	1	0	0	0	0	1	0	0	10
Minneapolis.....	409,125	3	67	8	4	0	0	0	0	103
St. Paul.....	241,891	8	24	0	1	1	0	0	9	42
Iowa:										
Davenport.....	61,262	0	3	—	—	0	0	—	—	—
Des Moines.....	140,923	1	2	—	—	0	0	—	—	—
Sioux City.....	79,662	1	0	—	—	0	0	—	1	—
Waterloo.....	39,667	1	2	—	—	0	0	—	0	—
Missouri:										
Kansas City.....	351,819	2	0	0	9	1	2	0	0	103
St. Joseph.....	78,232	1	0	0	1	0	0	0	0	17
St. Louis.....	803,853	1	3	0	11	3	0	0	10	200
North Dakota:										
Fargo.....	24,841	0	0	0	0	0	0	0	0	2
Grand Forks.....	14,547	0	0	—	—	0	0	—	0	—
South Dakota:										
Aberdeen.....	15,829	—	0	—	—	—	0	—	0	—
Sioux Falls.....	29,206	1	0	0	0	0	0	0	0	7
Nebraska:										
Lincoln.....	58,761	1	0	0	1	0	0	0	5	18
Omaha.....	204,382	2	4	0	3	0	0	0	0	46
Kansas:										
Topeka.....	52,555	0	0	0	0	0	0	0	6	12
Wichita.....	79,261	1	0	0	1	0	0	0	16	25
SOUTH ATLANTIC.										
Delaware:										
Wilmington.....	117,728	0	0	0	1	1	1	0	—	17
Maryland:										
Baltimore.....	773,580	0	0	0	10	4	0	1	68	226
Cumberland.....	32,361	0	0	0	1	1	0	0	—	17
Frederick.....	11,301	0	0	0	0	0	0	0	0	1
District of Columbia:										
Washington.....	1,437,571	1	1	0	9	2	0	0	13	111
Virginia:										
Lynchburg.....	30,277	0	0	0	0	0	0	0	2	8
Norfolk.....	159,089	0	0	0	0	1	0	0	0	—
Richmond.....	181,044	0	0	0	7	1	0	3	0	61
Roanoke.....	55,502	0	0	0	1	1	2	0	0	10
West Virginia:										
Charleston.....	45,597	0	0	0	3	0	0	0	3	13
Huntington.....	57,918	0	2	—	—	1	0	—	0	—
Wheeling.....	156,208	0	0	0	0	0	1	0	0	16
North Carolina:										
Raleigh.....	29,171	0	0	0	0	0	0	0	3	7
Wilmington.....	35,719	0	1	0	1	1	1	0	1	9
Winston-Salem.....	56,230	0	3	0	0	1	2	0	1	19
South Carolina:										
Charleston.....	71,245	1	0	0	1	1	0	0	0	23
Columbia.....	39,688	0	0	0	1	0	0	0	6	18
Greenville.....	25,789	0	2	0	0	0	1	0	2	4
Georgia:										
Atlanta.....	222,963	1	0	0	6	1	2	1	0	63
Brunswick.....	15,937	0	0	0	0	0	0	0	0	1
Savannah.....	89,448	0	0	0	0	1	0	0	0	26
Florida:										
St. Petersburg.....	24,403	0	0	0	0	0	0	1	0	12
Tampa.....	56,050	0	—	—	—	0	—	—	—	—
EAST SOUTH CENTRAL.										
Kentucky:										
Covington.....	57,877	0	0	0	1	0	0	0	0	16
Lexington.....	43,673	0	0	0	2	0	1	0	0	17
Louisville.....	257,671	0	1	0	6	2	3	0	1	84

¹ Population Jan. 1, 1920.

City reports for week ended November 15, 1924—Continued.

Division, State, and city.	Popula- tion July 1, 1923, estimated.	Smallpox.			Tuberculosis, deaths re- ported.	Typhoid fever.			Whooping cough, cases reported.	Deaths, all causes.
		Cases, estimated expectancy.	Cases reported.	Deaths reported.		Cases, estimated expectancy.	Cases reported.	Deaths reported.		
EAST SOUTH CENTRAL—continued.										
Tennessee:										
Memphis.....	170,067	0	0	0	4	2	11	1	0	78
Nashville.....	121,128	0	0	0	3	1	3	0	0	42
Alabama:										
Birmingham.....	195,901	0	11	0	5	1	1	0	2	72
Mobile.....	63,858	0	0	0	0	0	2	0	0	18
Montgomery.....	45,383	0	0	0	0	0	0	0	0	14
WEST SOUTH CENTRAL.										
Arkansas:										
Fort Smith.....	30,635	0	0	0	1	1	0	1	3	---
Little Rock.....	70,916	0	0	0	1	1	2	1	0	---
Louisiana:										
New Orleans.....	404,575	1	0	0	9	3	5	1	0	126
Shreveport.....	54,590	---	0	0	1	---	1	0	0	32
Oklahoma:										
Oklahoma.....	101,150	0	0	0	1	1	0	0	0	19
Tulsa.....	102,018	0	0	0	---	1	2	---	0	---
Texas:										
Dallas.....	177,274	0	0	0	2	1	0	0	2	41
Galveston.....	46,877	0	0	0	1	0	3	0	0	15
Houston.....	154,970	0	8	0	2	0	0	0	0	48
San Antonio.....	184,727	0	0	0	7	0	0	0	0	42
MOUNTAIN.										
Montana:										
Billings.....	16,927	0	0	0	0	0	0	0	0	5
Great Falls.....	27,787	1	1	0	0	0	3	0	2	3
Helena.....	12,087	0	0	0	0	0	0	0	0	2
Missoula.....	12,668	0	5	0	0	0	0	0	---	5
Idaho:										
Boise.....	22,806	0	0	0	0	0	0	0	0	5
Colorado:										
Denver.....	272,031	5	0	0	15	1	2	0	3	83
Pueblo.....	43,519	1	0	0	0	0	0	0	0	7
New Mexico:										
Albuquerque.....	16,648	0	0	0	3	1	2	0	0	7
Arizona:										
Phoenix.....	33,890	---	0	0	5	---	0	0	0	21
Utah:										
Salt Lake City.....	126,241	2	1	0	3	0	3	1	1	20
Nevada:										
Reno.....	12,420	0	0	0	0	0	0	0	0	3
PACIFIC.										
Washington:										
Seattle.....	315,685	2	4	---	---	2	0	---	2	---
Spokane.....	104,573	7	1	---	---	1	1	---	3	---
Tacoma.....	101,731	0	1	---	---	0	1	---	0	---
Oregon:										
Portland.....	273,621	4	0	0	6	1	1	0	0	---
California:										
Los Angeles.....	666,853	1	29	0	27	3	4	1	15	221
Sacramento.....	69,950	0	10	1	1	0	0	0	0	17
San Francisco.....	539,038	0	2	0	10	1	0	0	3	132

¹ Population Jan. 1, 1920.

City reports for week ended November 15, 1924.—Continued.

Division, State, and city.	Cerebro-spinal meningitis.		Lethargic encephalitis.		Pellagra.		Polio-myelitis (infantile paralysis).			Typhus fever.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases, est. expectancy.	Cases.	Deaths.	Cases.	Deaths.
NEW ENGLAND.											
Massachusetts:											
Boston.....	0	0	0	0	0	0	1	2	0	0	0
MIDDLE ATLANTIC.											
New York:											
New York.....	1	1	13	5	0	0	3	15	5	0	0
New Jersey:											
Newark.....	0	0	2	1	0	0	0	0	0	0	0
EAST NORTH CENTRAL.											
Ohio:											
Cincinnati.....	0	0	1	0	0	0	0	0	0	0	0
Cleveland.....	1	0	0	0	0	0	1	1	0	0	0
Toledo.....	0	0	0	0	0	0	0	1	0	0	0
Indiana:											
South Bend.....	0	0	0	0	0	0	0	1	0	0	0
Illinois:											
Chicago.....	0	0	2	1	0	0	2	1	0	0	0
Chicago.....	1	1	0	0	0	0	0	0	0	0	0
Michigan:											
Detroit.....	1	0	0	0	0	0	0	8	2	0	0
Flint.....	0	0	0	0	0	0	0	1	0	0	0
Grand Rapids.....	0	0	0	0	0	0	0	1	0	0	0
WEST NORTH CENTRAL.											
Minnesota:											
Minneapolis.....	0	0	0	0	0	0	0	1	0	0	0
St. Paul.....	0	0	1	0	0	0	0	3	0	0	0
Iowa:											
Davenport.....	0	0	0	0	0	0	0	1	0	0	0
Missouri:											
St. Louis.....	1	0	0	0	0	0	1	0	0	0	0
Kansas:											
Topeka.....	1	1	0	0	0	0	0	0	0	0	0
SOUTH ATLANTIC.											
West Virginia:											
Charleston.....	1	1	0	0	0	0	0	0	0	0	0
Huntington.....	0	0	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL.											
Alabama:											
Montgomery.....	0	0	0	0	1	0	0	0	0	0	0
WEST SOUTH CENTRAL.											
Arkansas:											
Little Rock.....	0	0	0	0	1	0	0	0	0	0	0
Louisiana:											
New Orleans.....	0	0	0	0	1	1	0	0	0	0	0
Texas:											
San Antonio.....	0	1	0	0	0	0	0	0	0	0	0
MOUNTAIN.											
Montana:											
Helena.....	0	0	0	0	0	0	0	1	0	0	0
Colorado:											
Denver.....	0	0	0	0	0	0	0	2	0	0	0
PACIFIC.											
Washington:											
Seattle.....	0	0	0	0	0	0	2	0	0	0	0
Oregon:											
Portland.....	0	0	2	0	0	0	0	1	0	0	0
California:											
Los Angeles.....	3	0	0	0	0	0	0	1	0	2	0
San Francisco.....	0	0	0	1	0	0	0	0	0	0	0

The following table gives a summary of the reports from 105 cities for the 10-week period ended November 15, 1924. The cities included in this table are those whose reports have been published for all 10 weeks in the Public Health Reports. Eight of these cities did not report deaths. The aggregate population of the cities reporting cases was estimated at nearly 29,000,000 on July 1, 1923, which is the latest date for which estimates are available. The cities reporting deaths had more than 28,000,000 population on that date. The number of cities included in each group and the aggregate population are shown in a separate table below.

Summary of weekly reports from cities, September 7 to November 15, 1924.

DIPHTHERIA CASES.

	1924, week ended—									
	Sept. 13	Sept. 20	Sept. 27	Oct. 4	Oct. 11	Oct. 18	Oct. 25	Nov. 1	Nov. 8	Nov. 15
Total	521	643	779	757	883	936	988	965	1,128	1,113
New England.....	¹ 35	56	55	56	77	82	89	88	78	¹ 83
Middle Atlantic.....	139	177	255	198	209	259	228	235	304	312
East North Central.....	88	² 125	151	134	174	176	176	211	279	247
West North Central.....	91	90	92	116	126	136	149	127	123	147
South Atlantic.....	³ 73	94	89	97	142	121	172	131	148	⁴ 109
East South Central.....	7	13	22	20	28	42	41	27	35	26
West South Central.....	18	13	24	23	26	28	36	40	46	59
Mountain.....	12	15	18	24	14	18	23	28	38	36
Pacific.....	53	60	73	89	87	74	74	78	72	94

MEASLES CASES.

Total	102	94	104	134	130	193	197	241	310	322
New England.....	¹ 14	9	15	15	21	25	23	32	36	¹ 41
Middle Atlantic.....	40	36	38	65	56	97	92	112	144	135
East North Central.....	25	² 38	29	29	22	42	55	70	91	102
West North Central.....	4	2	7	9	5	7	3	7	7	10
South Atlantic.....	³ 11	8	3	2	10	4	2	6	13	⁴ 4
East South Central.....	1	0	2	1	2	1	0	0	2	2
West South Central.....	0	1	1	2	2	2	1	0	1	1
Mountain.....	4	0	3	2	0	5	2	3	2	4
Pacific.....	3	10	6	9	12	10	14	11	14	23

SCARLET FEVER CASES.

Total	359	455	586	570	774	795	938	1,021	1,153	1,099
New England.....	¹ 33	38	46	55	89	99	121	96	114	¹ 135
Middle Atlantic.....	43	97	128	129	154	168	213	238	354	330
East North Central.....	97	² 99	123	128	178	176	214	256	270	262
West North Central.....	104	142	172	148	218	227	253	216	225	262
South Atlantic.....	³ 24	32	36	29	46	48	57	57	67	⁴ 60
East South Central.....	6	14	17	13	21	11	14	24	29	14
West South Central.....	10	10	8	13	17	16	17	15	25	18
Mountain.....	10	9	16	18	15	19	13	19	19	20
Pacific.....	27	14	40	37	36	31	36	40	50	40

¹ Figures for Barre, Vt., estimated. Report not received at time of going to press.

² Figures for Superior, Wis., estimated.

³ Figures for Wilmington, Del., and Tampa, Fla., estimated.

⁴ Figures for Tampa, Fla., estimated.

Summary of weekly reports from cities, September 7 to November 15, 1924—Contd.

SMALLPOX CASES.

	1924, week ended—									
	Sept. 13	Sept. 20	Sept. 27	Oct. 4	Oct. 11	Oct. 18	Oct. 25	Nov. 1	Nov. 8	Nov. 15
Total.....	64	86	84	86	72	99	134	134	138	192
New England.....	¹ 0	0	0	0	0	0	0	0	0	¹ 0
Middle Atlantic.....	2	3	6	8	3	0	5	2	4	0
East North Central.....	16	² 14	27	23	21	30	19	16	6	11
West North Central.....	11	23	19	15	21	27	64	70	82	100
South Atlantic.....	³ 2	1	3	6	2	0	3	1	3	⁴ 7
East South Central.....	3	8	5	6	2	15	11	9	8	12
West South Central.....	4	3	1	0	0	3	2	2	2	8
Mountain.....	0	2	1	1	0	2	3	0	1	7
Pacific.....	26	32	22	27	23	22	27	34	32	47

TYPHOID FEVER CASES.

Total.....	229	195	281	217	214	159	136	106	124	107
New England.....	¹ 9	12	11	9	16	8	6	5	7	¹ 5
Middle Atlantic.....	59	54	59	67	45	47	40	35	23	33
East North Central.....	31	² 25	39	25	15	17	14	11	14	11
West North Central.....	19	21	17	15	16	11	5	9	9	3
South Atlantic.....	³ 47	32	50	35	23	20	22	13	21	⁴ 10
East South Central.....	25	15	51	29	17	12	21	12	14	20
West South Central.....	15	15	17	7	15	12	12	6	18	11
Mountain.....	9	8	18	18	58	23	10	5	9	8
Pacific.....	15	13	19	12	9	9	6	10	9	6

INFLUENZA DEATHS.

Total.....	6	7	18	20	21	20	18	35	38	43
New England.....	¹ 0	1	1	0	1	1	1	1	5	¹ 0
Middle Atlantic.....	2	1	5	10	13	11	9	21	23	17
East North Central.....	3	² 0	2	4	4	3	5	5	5	5
West North Central.....	0	1	1	1	0	2	0	0	0	0
South Atlantic.....	³ 1	1	3	1	1	1	2	3	3	⁴ 4
East South Central.....	0	0	3	1	0	1	0	1	1	4
West South Central.....	0	3	1	1	1	1	0	3	1	7
Mountain.....	0	0	1	1	1	0	0	0	0	1
Pacific.....	0	0	1	1	0	0	1	1	0	5

PNEUMONIA DEATHS.

Total.....	306	308	372	438	494	497	479	593	636	676
New England.....	¹ 16	12	20	29	39	28	27	42	33	¹ 35
Middle Atlantic.....	120	125	152	178	217	221	227	270	305	294
East North Central.....	53	² 67	82	94	84	90	77	95	109	116
West North Central.....	23	22	18	16	25	23	20	28	29	32
South Atlantic.....	³ 37	37	42	52	50	50	65	87	75	⁴ 83
East South Central.....	15	9	14	22	15	19	13	21	24	46
West South Central.....	10	13	13	11	31	16	17	21	22	34
Mountain.....	10	8	11	11	15	22	16	6	8	10
Pacific.....	22	15	20	25	18	28	17	23	31	26

¹ Figures for Barre, Vt., estimated. Report not received at time of going to press.² Figures for Superior, Wis., estimated.³ Figures for Wilmington, Del., and Tampa, Fla., estimated.⁴ Figures for Tampa, Fla., estimated.

Number of cities included in summary of weekly reports and aggregate population of cities in each group, estimated as of July 1, 1923.

Group of cities.	Number of cities reporting cases.	Number of cities reporting deaths.	Aggregate population of cities reporting cases.	Aggregate population of cities reporting deaths.
Total	105	97	28,898,350	28,140,934
New England.....	12	12	2,098,746	2,098,746
Middle Atlantic.....	10	10	10,304,114	10,304,114
East North Central.....	17	17	7,032,535	7,032,535
West North Central.....	14	11	2,515,330	2,381,454
South Atlantic.....	22	22	2,566,901	2,566,901
East South Central.....	7	7	911,885	911,885
West South Central.....	8	6	1,124,564	1,023,013
Mountain.....	9	9	546,445	546,445
Pacific.....	6	3	1,797,830	1,275,841

FOREIGN AND INSULAR.

CANARY ISLANDS.

Mortality—Las Palmas—July–September, 1924.

During the three-month period ended September 30, 1924, 451 deaths from all causes were notified at Las Palmas, Canary Islands. Of these, 287 were in children of four years or under, 134 deaths being stated to be from enteritis and diarrhea. Other causes of death were: Cancer, 20; meningitis, 22; tuberculosis, 32. Population, estimated, 66,461.

Plague—September, 1924.

During the month of September, 1924, two cases of plague were reported at Las Palmas.

MADAGASCAR.

Plague—Tananarive Province—September 1–15, 1914.

During the period September 1 to 15, 1924, 47 cases of plague with 42 deaths were reported in the Province of Tananarive, Madagascar.

PANAMA CANAL.

Communicable Diseases—October, 1924.

During the month of October, 1924, communicable diseases were reported in the Canal Zone, and at Colon and Panama, as follows:

Disease.	Canal Zone.	Colon.	Panama.	Non-resident.	Total.
Chicken pox.....	6	1	6		13
Diphtheria.....			5		5
Dysentery.....	1		2	2	5
Hookworm.....	8	5	33	25	71
Leprosy.....				1	1
Malaria.....	53	3	6	23	85
Measles.....	4	1	9		14
Meningitis.....			1		1
Mumps.....	8	1	1		10
Pneumonia.....		2	14		16
Poliomyelitis.....			1		1
Tuberculosis.....	4	6	15		25
Typhoid fever.....			1		1
Whooping cough.....	9	5	1		15

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

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

Reports Received During Week Ended December 5, 1924.¹

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay.....	Sept. 28-Oct. 4.....	2	-----	
Madras.....	Oct. 19-25.....	2	2	
Rangoon.....	Oct. 4-11.....	1	1	

PLAGUE.

British East Africa:				
Kenya.....	Oct. 4-10.....	5	-----	
Tanganyika Territory.....	Sept. 28-Oct. 4.....	-----	9	
Uganda.....	do.....	11	-----	
Canary Islands:				September, 1924: Cases, 2.
Las Palmas.....				
Ceylon:				
Colombo.....	Oct. 12-18.....	2	1	
India:				
Karachi.....	Oct. 19-25.....	3	1	
Madras Presidency.....	Oct. 21-25.....	67	49	
Rangoon.....	Oct. 5-18.....	8	6	
Madagascar:				Sept. 1-15, 1924: Cases, 47;
Province—				deaths, 42.
Tananarive.....	Sept. 1-15.....	47	42	

SMALLPOX.

British South Africa:				
Northern Rhodesia.....	Sept. 23-Oct. 6.....	13	-----	
Canada:				
British Columbia—				
Fernie.....	Nov. 9-15.....	1	-----	
Saskatchewan—				
Regina.....	Oct. 5-Nov. 11.....	3	-----	
China:				
Antung.....	Oct. 13-19.....	7	-----	
Egypt:				
Alexandria.....	Oct. 22-28.....	-----	1	
Gibraltar.....	Oct. 27-Nov. 2.....	-----	1	
Great Britain:				Oct. 5-Nov. 1, 1924: Cases, 223.
England and Wales.....				
London.....	Oct. 26-Nov. 1.....	1	-----	
India:				
Bombay.....	Sept. 28-Oct. 4.....	4	4	
Madras.....	Oct. 18-25.....	16	4	
Rangoon.....	Oct. 5-18.....	8	3	
Indo-China:				
Saigon.....	Sept. 27-Oct. 4.....	2	-----	Including 100 sq. km. of surrounding country.
Mexico:				
Vera Cruz.....	Nov. 2-16.....	-----	8	
Portugal:				
Oporto.....	Oct. 26-Nov. 1.....	-----	1	
Spain:				
Malaga.....	Oct. 19-Nov. 8.....	-----	31	
Tunis:				
Tunis.....	Oct. 28-Nov. 3.....	6	5	

TYPHUS FEVER.

Argentina:				
Rosario.....	Sept. 1-30.....	1	-----	
Ireland:				
Ballinasloe.....	Nov. 2-8.....	1	-----	
Mexico:				
Mexico City.....	Nov. 2-8.....	15	-----	

YELLOW FEVER.

British Honduras.....	Nov. 22.....	-----	-----	Prevalent in Stann Creek District near Belize.
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¹ From medical officers of the Public Health Service, American consuls, and other sources.

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

Reports Received from June 28 to November 28, 1924.¹

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Manchuria—				
Dairen.....	August, 1924.....	3		
Shanghai.....	Aug. 2-Sept. 6.....	1		
India:				
Do.....				Apr. 20-June 28, 1924: Cases, 81,035; deaths, 56,740.
Bombay.....	May 4-10.....	1		June 29-Sept. 27, 1924: Cases, 98,405; deaths, 58,555.
Do.....	June 29-Sept. 20.....	46	23	
Calcutta.....	May 11-June 28.....	293	259	
Do.....	June 29-Sept. 27.....	182	150	
Madras.....	June 1-21.....	7	6	
Do.....	June 29-Oct. 11.....	47	26	
Rangoon.....	May 11-June 28.....	98	76	
Do.....	June 29-Aug. 23.....	24	22	
Indo-China:				
Province—				Jan. 1-June 30, 1924: Cases, 107; deaths, 52.
Anam.....	June 1-30.....	4	1	July 1-31, 1924: Cases, 20; deaths, 10. Corresponding period 1923: Cases, 42; deaths, 30.
Do.....	July 1-31.....	3	1	
Cambodia.....	June 1-30.....	7	4	
Do.....	July 1-31.....	7	4	
Cochin-China.....	June 1-30.....	9	6	
Do.....	July 1-31.....	7	5	
Saigon.....	Apr. 27-June 28.....	6	4	Including 100 square kilometers of surrounding country.
Do.....	June 29-Sept. 13.....	8	5	Do.
Tonkin.....	June 1-30.....	9	4	
Do.....	July 1-31.....	3	1	
Persia:				
Bushire.....	June 1-30.....	1	1	
Philippine Islands:				
Manila.....	June 22-28.....	1		June 15-28, 1924: 32 cases, 22 deaths, including suspects.
Do.....	July 6-12.....	1	1	June 29-July 5, 1924: 5 cases, 4 deaths.
Provinces—				Suspect. Occurring in a non-resident.
Batangas.....	July 1-12.....	4	3	
Bulacan.....	June 21.....	1	1	
Do.....	June 28-July 26.....	4	2	
Angat.....	July 20-26.....	1	1	
Malolos and Paombog.....	July 13-19.....	2	1	
Cagayan.....	Mar. 30-Apr. 5.....	1	1	
Laguna.....	May 18-24.....	1	1	
San Pablo.....	July 13-19.....	1	1	
Pangasinan Lingayen.....	Oct. 3.....	1	1	
Rizal.....	July 3.....	1	1	
Santo Tomas.....	July 6-12.....	1	1	
Russia:				
Don Province.....				Summer of 1924: Cases, 9.
Kuban.....				7 cases at Rostov and Nakhichevan.
Moscow Province.....				1 case, Black Sea district.
Rostov-on-Don.....	Aug. 5-7.....	3		1 case in Kolomensky Uyezd.
Siam:				
Bangkok.....	May 4-June 28.....	21	18	
Do.....	June 29-Oct. 4.....	12	6	
Straits Settlements:				
Penang.....	June 1-7.....	1	1	
Singapore.....	June 15-28.....	9	6	
Do.....	June 29-July 5.....	2	1	
On vessel:				
S. S. Argalia.....		1		At Bassein, Lower Burma, India. Case in European member of crew. Case removed to hospital. Vessel left May 16, 1924, arrived June 8 at Durban, South Africa; left Durban June 10 for Trinidad and Cuba

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

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

Reports Received from June 28 to November 28, 1924—Continued.

PLAGUE.

Place.	Date.	Cases.	Deaths.	Remarks.
Algeria:				
Mostaganem.....	July 21-28.....	4	-----	Seaport.
Argentina:				
Chaco Territory.....		-----	-----	April, 1924: Cases reported.
Azores:				
St. Michael's.....	Sept. 21-Oct. 4....	4	-----	Suburbs of city: Arrifes, one case; Faja de Cima, three cases.
Brazil:				
Porto Alegre.....	July 6-12.....	-----	1	
British East Africa:				
Kenya—				
Kisumu.....	July 13-Sept. 20....	2	1	
Tanganyika Territory..	Feb. 24-June 7....	1	2	
Do.....	June 26-July 3....	3	2	
Uganda:				
Entebbe.....	Feb. 1-Apr. 30....	59	54	May 1-June 30, 1924: Cases, 125; deaths, 107.
Canary Islands:				
Las Palmas.....	Sept. 8.....	1	-----	
Teneriffe—				
La Laguna.....	June 20.....	1	-----	
Celebes:				
Macassar and Menando...	July 27-Aug. 2....	-----	-----	1 plague rat.
Ceylon:				
Colombo.....	May 11-June 28....	11	7	10 plague rodents.
Do.....	June 29-Sept. 13...	19	18	Plague-infected rodents, 17.
Chile:				
Antofagasta.....	June 1-16.....	4	-----	
China:				
Amoy.....	June 15-28.....	-----	4	
Do.....	June 29-Aug. 9....	-----	13	
Chungking.....	Oct. 5-11.....	-----	-----	Present.
Foochow.....	May 4-June 21....	-----	25	Cases not reported.
Nanking.....	July 20-Oct. 18....	-----	-----	Present.
Ecuador:				
Eloy Alfaro.....	May 16-31.....	1	-----	
Do.....	Sept. 16-30.....	1	-----	
Guayaquil.....	May 16-June 30....	5	1	Rats taken, 23,717; found infected, 107.
Do.....	July 1-Sept. 30....	2	-----	Rats taken, 44,489; found plague-infected, 188.
Posorja.....	July 1-15.....	1	-----	
Puna.....	July 16-31.....	1	-----	
Egypt.....				July 1-Sept. 5, 1924: Cases, 19. Total Jan. 1-Sept. 5, 1924—cases, 354; deaths, 177; corresponding period, preceding year—cases, 1,337.
City—				
Alexandria.....		1	1	First case, Apr. 2; last, Apr. 2.
Ismailia.....		1	1	First case, July 6; last, July 6.
Port Said.....		5	2	First case, Apr. 24; last, Aug. 26.
Suez.....		16	8	First case, Jan. 2; last, Sept. 23.
Province—				
Assiout.....		44	35	First case, Apr. 1; last, Aug. 27.
Behera.....		1	1	First case, Aug. 9; last, Aug. 9.
Beni-Suef.....		3	3	First case, June 21; last, June 21.
Charkieh.....		1	1	First case, Jan. 31; last, Jan. 31.
Fayoum.....		106	33	First case, Feb. 18; last, July 18.
Gharbia.....		3	2	First case, Apr. 21; last, Aug. 22.
Ghirga.....		10	3	First case, Jan. 17; last, May 13.
Kalioubiah.....		10	1	First case, Jan. 6; last, May 22.
Kena.....		44	26	First case, Apr. 9; last, May 17.
Menoufieh.....		49	32	First case, Jan. 2; last, June 28.
Minia.....		58	28	First case, Feb. 5; last, Aug. 1.
France:				Aug. 1-31, 1924: Cases, 3.
Paris.....	Oct. 1-31.....	2	-----	Bubonic, occurring in suburbs, St. Medard and St. Ouen.
Gold Coast.....				January-June, 1924: Cases, 173; deaths, 104. July-August, 1924: Cases, 142; deaths, 104.
Greece:				
Kalamata.....		-----	-----	Reported July 15, 1924: Cases, 29; deaths, 6.
Patras.....	July 7.....	36	-----	
Saloniki.....	July 3-4.....	2	-----	
Symi, Island of.....	Aug. 26.....	11	2	

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

Reports Received from June 28 to November 28, 1924—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Hawaii.....				July 15, 1924: Near Kukuiahele, Island of Hawaii, 1 plague rat.
Honokaa.....				Aug. 19-Sept. 10, 1924: 5 plague-infected rodents found in vicinity. In vicinity, at Paauhau sugar plantation, Oct. 11, 1924, 1 plague rat (trapped).
India.....				Apr. 20-June 28, 1924: Cases, 102,874; deaths, 84,656.
Do.....				June 29-Sept. 27, 1924: Cases, 8,247; deaths, 6,216.
Bombay.....	May 4-June 21.....	50	44	
Do.....	June 29-Aug. 30.....	20	16	
Calcutta.....	May 11-June 14.....	10	10	
Karachi.....	May 18-June 21.....	16	13	
Do.....	Aug. 17-Sept. 20.....	7	7	
Madras Presidency.....	May 18-31.....	7	2	
Do.....	Aug. 3-Oct. 18.....	259	193	
Rangoon.....	May 11-June 28.....	77	72	
Do.....	June 29-Oct. 4.....	219	187	
Indo-China.....				Jan. 1-June 30, 1924: Cases, 734; deaths, 486. July 1-31, 1924: Cases, 26; deaths, 22. Corresponding period, 1923: Cases, 34; deaths, 30.
Province—				
Anam.....	June 1-30.....	6	5	June, 1923: Cases, 11; deaths, 10.
Do.....	July 1-31.....	4	4	
Cambodia.....	June 1-30.....	18	18	June, 1923: Cases, 140; deaths, 121.
Do.....	July 1-31.....	9	9	
Cochin-China.....	June 1-30.....	4	4	June, 1923: Cases, 14; deaths, 10.
Do.....	July 1-31.....	13	9	
Saigon.....	May 4-June 28.....	10	2	Including 100 square kilometers of surrounding country.
Do.....	July 20-Aug. 9.....	3	1	Do.
Iraq:				
Bagdad.....	Apr. 20-June 28.....	125	62	
Do.....	June 29-Aug. 9.....	7	4	
Italy:				
Naples.....	Sept. 15.....	3	1	Including suburb of Portici, 1 case. On Sept. 12 a plague-infected rat was found in port of Naples.
Japan.....				July 1-31, 1924: 1 case, 1 death.
Shizuoka Prefecture—				Jan.-July, 1924: Cases, 4; deaths, 3.
Higashi.....				To June 20, 1924: Cases, 2; death, 1.
Java:				
East Java—				
Soerabaya.....	June 8-21.....	14	14	
Do.....	Aug. 31-Sept. 6.....	1	1	
West Java—				
Batavia.....				
Residency	Aug. 19-Sept. 15.....	2	2	
Cheriboo.....				
Pekalongan Residency,	do.....		8	
Pekalongan.....				
Madagascar:				
Diego Suarez.....	June 22-Sept. 23.....	50	42	Seaport.
Fort Dauphin.....	Sept. 3-24.....	6	4	
Moramanga.....	June 1-30.....	1	1	Interior.
Tamatave.....	June 6-30.....	5	4	Bubonic.
Tananarive Province.....				Apr. 1-June 30, 1924: Cases, 138; deaths, 128; bubonic, pneumonic, septicemic. July 1-Aug. 31, 1924: Cases, 91, deaths, 88.
Tananarive Town.....	Apr. 1-June 30.....	12	12	
Do.....	July 1-Aug. 31.....	6	6	
Other localities.....	Apr. 1-May 31.....	105	97	
Do.....	July 1-Aug. 31.....	64	63	
Mauritius Island.....				Dec. 30, 1923-June 28, 1924: Cases, 35; deaths, 29. June 29-Sept. 6, 1924: Cases, 9; deaths, 8.
Morocco.....				Jan.-June, 1924: Cases, 53; deaths, 3.

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

Reports Received from June 28 to November 28, 1924—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Nigeria.....				July, 1924: Cases, 1; deaths, 1.
Palestine:				
Jaffa.....	Oct. 16.....	1		Bubonic.
Jerusalem.....	Oct. 14-20.....	1		
Persia:				
Abadan.....	May 1-31.....	20	12	
Bander Abbas.....	do.....	11	6	
Bushire.....	do.....	1	1	Landed at quarantine.
Mohammerah.....	do.....	111	78	
Peru.....				May 1-June 30, 1924: Cases, 9; deaths, 6.
Do.....				July 1-31, 1924: Cases, 6; deaths, 3.
Callao.....	June 1-30.....	1		
Do.....	July 1-31.....	2		
Huaral.....	June 1-30.....	1		
Do.....	July 1-31.....	1		
Lima (city).....	May 1-June 30.....	5	5	
Do.....	July 1-31.....	3	2	
Lima (country).....	May 1-June 30.....	1		
Do.....	July 1-31.....		1	
Mollendo.....	May 1-31.....	1	1	
Russia.....				Jan.-June, 1924: Cases, 252.
Don Cossack Territory—Salsky District.....				Aug. 8, 1924: Reported present in marmots in 6 localities.
Siam:				
Bangkok.....	May 4-June 14.....	3	3	
Do.....	July 13-Sept. 27.....	5	4	
Siberia:				
Transbaikalia—Dauria.....	Aug. 9.....	2	2	At Substation 83, vicinity of Dauria.
Harenor.....	Sept. 18.....			Bubonic and pneumonic. On line of Chinese and Trans-Siberian Railway. In workers in tarabagan (marmot), skins.
South Nigeria (West Africa):				
Lagos.....	Sept. 8.....			Present.
Syria:				
Beirut.....	July 10-Aug. 20.....	7		
Tunis:				
Tunis.....	Sept. 23-29.....	1	1	
Union of South Africa.....				Apr. 27-June 7, 1924: Cases, 28; deaths, 14. Dec. 16, 1923, to May 31, 1924: Cases, 347; deaths, 208 (white, 51 cases, 26 deaths; native, 209 cases, 182 deaths). July 1-Aug. 31, 1924: Cases, 5; deaths, 2.
Cape Province—Ulitenhage District.....				Sept. 29-Oct. 4, 1924: Plague-infected mouse found on Haarhof's Kraal farm. Plague reported on this farm in September and October, 1924.
Orange Free State.....				May 11-June 14, 1924: Cases, 21; deaths, 9. June 22-28, 1924: Plague-infested mouse found in Kroonstad District.
Philippolis District.....	Aug. 24-30.....	1	1	
Smithfield District.....	July 13-19.....	2		In natives on two farms.
On vessel:				
S. S. Amboise.....	July 10.....	1		At Marseille, France; removed to quarantine station. Case occurred in an Arab fireman embarked at Aden. Vessel left Yokohama May 30 and Colombo, Ceylon, June 22, 1924.

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

Reports Received from June 28 to November 28, 1924—Continued.

SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
Arabia:				
Aden.....	July 20-26.....	-----	1	
Bolivia:				
La Paz.....	May 1-June 30.....	10	9	
Do.....	July 1-Sept. 30.....	28	21	
Brazil:				
Bahia.....	May 18-24.....	1	-----	
Porto Alegre.....	May 18-June 28.....	1	2	
Do.....	July 6-Aug. 2.....	-----	3	
Rio de Janeiro.....	May 18-24.....	2	-----	
Do.....	July 20-Aug. 30.....	5	-----	
British East Africa:				
Kenya.....				
Mombasa.....	May 4-31.....	3	-----	
Tanganyika Territory.....	June 15-21.....	1	-----	
Do.....	Aug. 17-23.....	1	-----	
Uganda.....				
Entebbe.....	Feb. 1-29.....	2	-----	
British South Africa:				
Northern Rhodesia.....	May 6-June 30.....	74	1	Natives.
Do.....	July 1-Sept. 22.....	50	-----	
Canada:				
British Columbia.....	Sept. 12-Oct. 18.....	29	-----	
Fernie.....	Nov. 2-8.....	1	-----	
Vancouver.....	June 15-28.....	11	-----	
Do.....	June 29-Nov. 1.....	59	-----	Not including suburbs
Victoria.....	Aug. 3-9.....	1	-----	
Manitoba—				
Winnipeg.....	July 13-Aug. 1.....	3	-----	
New Brunswick—				
Restigouche County.....	June 1-30.....	7	-----	
Do.....	July 6-Sept. 6.....	21	-----	Year ended Oct. 31, 1924: Cases, 36; deaths, 1.
Westmoreland County.....	Aug. 17-23.....	1	-----	June 1-30, 1924: Cases, 24; July 1-Oct. 25, 1924: Cases, 93.
Ontario.....				Corresponding period, 1923: Cases, 23.
Chatham Township.....	Sept. 28-Oct. 25.....	31	-----	
Chatham.....	do.....	3	-----	
Harwich Township.....	do.....	2	-----	
Howard Township.....	do.....	14	-----	
Macauley Township.....	do.....	1	-----	
Sarnia.....	July 20-26.....	1	-----	
Toronto.....	Sept. 28-Oct. 25.....	1	-----	
Whitnet.....	do.....	21	-----	Unorganized.
Windsor.....	June 22-28.....	1	-----	
Quebec.....				
Montreal.....	June 8-14.....	1	-----	
Do.....	Sept. 14-20.....	1	-----	
Ceylon:				
Colombo.....	July 6-12.....	1	-----	
Chile:				
Antofagasta.....	June 11.....	-----	-----	Under treatment at lazaretto, 2 cases.
Do.....	Aug. 24-30.....	1	-----	
Valparaiso.....	June 1-7.....	-----	1	This report covers the two principal districts of Valparaiso.
China:				
Amoy.....	May 11-June 28.....	-----	-----	Present.
Do.....	June 29-Oct. 11.....	-----	1	Do.
Antung.....	June 9-29.....	41	3	
Do.....	July 7-13.....	4	-----	
Chungking.....	May 11-June 28.....	-----	-----	Do.
Do.....	June 29-Oct. 11.....	-----	-----	Do.
Foochow.....	May 18-June 28.....	-----	-----	Do.
Do.....	July 6-Oct. 11.....	-----	-----	Do.
Hongkong.....	May 4-June 28.....	30	24	
Do.....	June 29-July 12.....	3	3	
Manchuria—				
Darien.....	May 12-June 28.....	22	7	
Do.....	June 29-Aug. 23.....	5	1	
Harbin.....	May 13-June 23.....	2	-----	
Nanking.....	May 18-June 28.....	-----	-----	Do.
Do.....	July 6-Oct. 11.....	-----	-----	Do.
Shanghai.....	May 25-31.....	-----	1	
Tientsin.....	May 4-June 28.....	11	1	British municipality.
Chosen:				
Fusan.....	May 1-31.....	1	-----	
Do.....	July 25-31.....	1	-----	
Colombia:				
Barranquilla.....	Aug. 3-9.....	-----	1	

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

Reports Received from June 28 to November 28, 1924—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Cuba:				
Matanzas.....	Sept. 1-30.....	1		
Czechoslovakia				Apr. 1-June 30, 1924: Cases, 7; deaths, 2.
State—				
Bohemia.....	Apr. 1-June 30.....	6	2	
Russia.....	do.....	1		
Denmark:				
Copenhagen.....	May 18-31.....	3	1	
Dominican Republic:				
La Romana.....	Aug. 24-30.....	2		
Egypt:				
City—				
Alexandria.....	June 4-10.....	1		
Do.....	Sept. 3-Oct. 21.....	4		
Cairo.....	Feb. 19-June 24.....	163	45	
Do.....	June 25-Aug. 19.....	20	5	
Port Said.....	June 18-24.....	1	2	
Do.....	June 25-Sept. 9.....	4		
France:				
Limoges.....	Apr. 1-May 31.....		2	
Marseille.....	May 1-31.....		1	
Paris.....	May 21-31.....	2		
Gibraltar.....	July 21-Oct. 26.....	10		
Great Britain:				
England and Wales				May 25-June 28, 1924: Cases, 342; June 29-Oct. 4, 1924: Cases, 695.
Counties—				
Derby.....	May 25-June 28.....	159		
Do.....	June 29-Oct. 4.....	159		
Hull.....	Oct. 26-Nov. 1.....	2		
London.....	June 29-Aug. 30.....	3		
Northumberland.....	May 25-June 28.....	61		
Do.....	June 29-Oct. 4.....	134		
Nottingham.....	May 25-June 28.....	29		
Do.....	June 19-Oct. 4.....	103		
Yorks (North Riding).....	May 25-June 28.....	54		
Do.....	June 29-Oct. 4.....	118		
Yorks (West Riding).....	May 25-June 28.....	5		
Do.....	June 29-Oct. 4.....	44		
Liverpool.....	Aug. 28.....	1		Mild. Admitted to port hospital from Lower Bebington district. 2 miles from docks.
Greece:				
Athens.....	Sept. 21-30.....		2	
Saloniki.....	Apr. 21-June 29.....	7	21	
Do.....	June 30-Oct. 4.....		41	
Haiti:				
Port au Prince.....	July 6-12.....	2		Developed at Cape Haitien.
Hungary:				
Budapest.....	July 20-Aug. 2.....	11		
India.....				
Do.....				Apr. 20-June 28, 1924: Cases, 28,396; deaths, 6,753. June 29-Sept. 27, 1924: Cases, 12,284; deaths, 3,042.
Bombay.....	May 4-June 28.....	432	299	
Do.....	June 29-Sept. 27.....	203	130	
Calcutta.....	May 11-June 28.....	36	32	
Do.....	July 6-Sept. 27.....	78	63	
Karachi.....	May 18-June 28.....	51	18	
Do.....	June 29-Sept. 13.....	35	16	
Madras.....	May 18-June 28.....	32	10	
Do.....	June 29-Oct. 18.....	192	64	
Rangoon.....	May 11-June 28.....	53	21	
Do.....	June 29-Oct. 4.....	37	13	
Indo-China.....				Jan. 1-June 30, 1924: Cases, 4,934; deaths, 1,413. July 1-31, 1924: Cases, 119; deaths, 51. Corresponding period, 1923: Cases, 268; deaths, 106.
Province—				
Anam.....	June 1-30.....	23	2	June, 1923: Cases, 2.
Do.....	July 1-31.....	11	7	
Cambodia.....	June 1-30.....	35	21	June, 1923: Cases, 156.
Do.....	July 1-31.....	28	13	
Cochin-China.....	June 1-30.....	145	55	June, 1923: Cases, 70; deaths, 35.
Do.....	July 1-31.....	73	31	
Saigon.....	Apr. 27-June 28.....	145	79	Including 100 square kilometers of surrounding country.
Do.....	June 29-Sept. 27.....	68	27	Do.
Tonkin.....	June 1-30.....	31	2	
Do.....	July 1-31.....	7		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**Reports Received from June 28 to November 28, 1924—Continued.****SMALLPOX—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Iraq:				
Bagdad.....	Apr. 20-May 24....	8	1	
Do.....	July 27-Aug. 2....	1		
Italy:				
Messina.....	May 26-June 1....	1		
Jamaica.....				June 1-28, 1924: Cases, 141; June 29-Oct. 25, 1924: Cases, 269. (Reported as alastrim.)
Kingston.....	June 1-28.....	6		Reported as alastrim.
Do.....	June 29-Oct. 25....	27		Do.
Japan:				July 1-31, 1924: Cases, 51; deaths, 9; Jan. 1-July 31, 1924: Cases, 1,693; deaths, 264.
Kobe.....	May 26-June 21....	3		
Nagoya.....	June 8-14.....	2		
Tokyo.....	do.....	1		
Java:				
East Java—				
Madoera Residency—				
Sampang.....	May 22.....			Epidemic.
Malang.....	May 25-31.....	5	1	
Paseroean Residency—	July 4-Sept. 2....	7		Epidemic in some localities.
Rembang.....	Aug. 29-Sept. 2....			Do.
Soerabaya.....	Apr. 13-June 28....	501	143	
Do.....	June 29-Sept. 20....	1,151	315	Epidemic Aug. 10, 1924, in 4 localities.
West Java—				
Batavia.....	May 31-June 27....	3		
Do.....	July 6-Aug. 22....	6		Province.
Brebes.....	Aug. 26-Sept. 15....	4	1	
Cheribon.....	Aug. 19-25.....	1		
Pekalongan Province—				
Pekalongan.....	Aug. 19-Sept. 15....	14	3	Aug. 19-25, 1924: Cases, 12, deaths, 2.
Pemalang.....	Aug. 19-Sept. 1....	5	7	
Tegal.....	Sept. 2-8.....	7		
Latvia.....				Apr. 1-June 30, 1924; Cases, 3; July 1-31, 1924; Case, 1.
Mexico:				
Cecilia.....	Oct. 11-17.....	5	1	State of Taumaulipas.
Durango.....	June 1-30.....		2	
Do.....	Sept. 1-Oct. 31....		2	
Guadalajara.....	May 1-June 30....	9	4	
Do.....	July 8-14.....		1	
Mexico City.....	May 4-June 28....	96		Including municipalities in Federal District.
Do.....	June 29-Oct. 18....	76		Do.
Progreso.....	Oct. 19-25.....		1	
Salina Cruz.....	May 25-31.....	1	1	
Saltulo.....	Nov. 2-8.....		2	
Tampico.....	June 14-20.....	2		
Do.....	July 1-Oct. 31....	15	9	
Tuxtepec.....	July 3-18.....	3	1	State of Oaxaca.
Vera Cruz.....	Sept. 21-Nov. 9....		8	
Palestine.....				June 17-23, 1924: 20 cases in northern districts.
Samaria Province—				
Samak.....	May 27-June 2....	1		
Paraguay:				
Asuncion.....	June 2.....			Present.
Encarnacion.....	do.....			Many cases reported.
Persia:				
Bushire.....	June 1-30.....	2		
Peru:				
Arequipa.....	Jan. 1-June 30....		5	
Poland.....				Mar. 30-June 28, 1924: Cases, 299; deaths, 27.
Do.....				June 29-July 27, 1924: Cases, 25; deaths, 5.
Portugal:				
Lisbon.....	May 25-June 28....	7	2	
Do.....	June 29-Oct. 19....	34	8	
Oporto.....	May 11-June 28....	18	16	
Do.....	June 29-Oct. 25....	22	26	
Russia.....				Jan. 1-31, 1924: 2,243 cases.
Moscow.....	July 27-Aug. 9....	37		
Siam:				
Bankok.....	Apr. 27-June 14....	3	5	
Do.....	Sept. 7-13.....	1		

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

Reports Received from June 28 to November 28, 1924—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Spain:				
Barcelona.....	August-September	23	2	Year 1923: Cases, 160.
Do.....	June 1-30.....		5	
Cadiz.....	July 1-Sept. 30.....		114	July-September, 1924: Cases, 300; deaths, 30. Oct. 6, 1924: Increase in prevalence reported.
Do.....	Aug. 1-Sept. 30.....		6	
Madrid.....	June 29-Oct. 18.....		76	
Malaga.....	Aug. 24-30.....		4	
Santander.....	June 8-21.....	3		
Valencia.....	July 13-Oct. 25.....	5	1	
Do.....	Aug. 17-23.....		1	
Vigo.....				
Straits Settlements:				
Singapore.....	May 4-24.....	2	1	
Sumatra:				
Medan.....	Jan. 1-31.....	5		
Switzerland:				
Berne.....	May 25-June 28.....	22		
Do.....	June 29-Sept. 27.....	13		
Lucerne.....	Aug. 1-Sept. 30.....	30		
Syria:				
Damascus.....	May 28-June 12.....	12		
Do.....	Aug. 7-Oct. 22.....	7		
Tunis:				
Tunis.....	May 27-June 30.....	17	4	
Do.....	July 1-Oct. 27.....	37	29	
Turkey:				
Constantinople.....	June 1-7.....	1		
Do.....	Aug. 17-Sept. 27.....	2		
Union of South Africa.....				Mar. 1-June 30, 1924: Cases, 167 (white, 15; native, 152). July 1-Aug. 31, 1924: 4 cases (white); 36 cases, 12 deaths (native). Outbreaks.
Cape Province.....	May 4-31.....			Do.
Do.....	July 20-Sept. 20.....			Do.
East London.....	July 27-Aug. 2.....	1		Do.
Orange Free State.....	May 4-10.....			Do.
Do.....	Aug. 17-Sept. 13.....			Do.
Transvaal.....	May 4-10.....			Do.
Do.....	July 20-Aug. 16.....			Do.
Johannesburg.....	July 6-12.....	1		
Yugoslavia.....				January-June, 1924: Cases, 308; deaths, 62. July, 1924: Cases, 9; deaths, 3.
Belgrade.....	July 28-Aug. 3.....	1		
On vessels:				
S. S. Dront.....	Sept. 14-20.....	1		At Pernambuco, Brazil. Case removed to hospital. Vessel left Cadiz, Spain, Aug. 20, 1924.
S. S. Karoa.....	May 7.....	1		At Durban, South Africa, from Bombay, India. Vessel left Bombay Apr. 16, 1924. Patient, European.
S. S. Mount Evans.....	July 8.....	1		At Key West, Fla., from Manchester, England.

TYPHUS FEVER

Algeria.....				Year 1923: Cases, 1,166, of which 27 were in the military population.
Algiers.....	May 1-June 30.....	24	9	
Do.....	July 1-Sept. 30.....	3		
Bolivia:				
La Paz.....	do.....		2	
Brazil:				
Porto Alegre.....	June 1-7.....		1	
Bulgaria:				
Sofia.....	Aug. 17-23.....	1		
Chile:				
Antofagasta.....				June 16, 1924: 2 cases in Lazaretto.
Concepcion.....	May 20-26.....		3	
Do.....	July 8-Oct. 13.....		6	
Iquique.....	June 22-28.....		1	
Do.....	Oct. 19-25.....		2	
Talcahuano.....	May 25-31.....	2		
Do.....	June 29-Oct. 11.....		43	
Valparaiso.....	May 25-June 21.....		11	
Do.....	June 29-Oct. 25.....		41	

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

Reports Received from June 28 to November 28, 1924—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Antung.....	June 2-16.....	6		Present.
Chungking.....	May 11-June 14.....			
Manchuria—Harbin.....	Sept. 17-23.....	2		
Chosen:				
Chemulpo.....	May 1-June 30.....	10		
Do.....	July 1-31.....	6	2	
Seoul.....	May 1-June 30.....	43	5	
Do.....	July 1-Sept. 30.....	3		
Czechoslovakia				Apr. 1-June 30, 1924: Cases, 6.
State—Slovakia.....	Apr. 1-June 30.....	4		
Egypt:				
Alexandria.....	June 25-Aug. 26.....	5	1	
Cairo.....	Feb. 19-June 24.....	53	16	
Do.....	June 25-Aug. 18.....	12	7	
Port Said.....	July 24-Aug. 5.....	3		
Estonia.....				Apr. 1-June 30, 1924: Cases, 37. July 1-Sept. 30, 1924: Cases, 3.
Germany:				
Coblenz.....	July 13-19.....	2		
Great Britain:				
England—St. Helens.....	July 13-Sept. 20.....	8	3	One suspect case: July 10, 1924. Locality, vicinity of Liverpool.
Ireland—Dublin.....	June 8-14.....	1		
Do.....	July 13-19.....	1		
Lismore.....	July 19.....	1		
Longford.....	do.....	1		
Greece.....				Jan.-Apr., 1924: Cases, 178; deaths, 27.
Saloniki.....	Apr. 20-May 4.....	6		
Do.....	Aug. 10-Sept. 27.....	2	2	
Hungary.....				Jan.-June, 1924: Cases, 221; deaths, 19.
Iraq:				
Bagdad.....	Apr. 27-May 10.....	2		
Do.....	Aug. 3-9.....	1		
Japan.....				July 1-31, 1924: Cases, 2. Jan. 1-July 31, 1924: Cases, 8; deaths, 1.
Latvia.....				Apr. 1-June 30, 1924: Cases, 108. July, 1924: Cases, 9. Aug. 1-31, 1924: Cases, 8.
City—Riga.....	June 1-30.....	1		
Lithuania.....				Jan.-June, 1924: Cases, 556; deaths, 48. July, 1924: Cases, 24.
Mexico:				
Durango.....	July 1-31.....		2	
Guadalajara.....	May 1-June 30.....	2	2	
Mexico City.....	May 24-June 28.....	59		Including municipalities in Federal district.
Do.....	June 29-Oct. 18.....	128		Do.
Torreon.....	July 1-Oct. 31.....		6	
Palestine:				
Acre.....	Aug. 19-25.....	1		
Jaffa.....	June 17-23.....	1		
Do.....	July 8-Oct. 20.....	6		
Jerusalem.....	July 1-Sept. 29.....	7		
Kantara.....	July 15-21.....	1		
Khulde.....	Aug. 17.....	1		
Palestine.....	Oct. 14-20.....	1		
Ramleh district.....	Oct. 14-20.....	1		
Safad.....	Aug. 26-Sept. 1.....	1		
Tiberias.....	Aug. 19-25.....	1		
Peru:				
Arequipa.....	Jan. 1-June 30.....		4	
Do.....	July 1-Aug. 31.....		3	
Poland.....				Mar. 20-June 28, 1924: Cases, 2,947; deaths, 277. June 29-July 27, 1924: Cases, 332; deaths, 23.
Do.....				
Portugal:				
Oporto.....	June 15-21.....		1	

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

Reports Received from June 28 to November 28, 1924—Continued.

TYPHUS FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Russia: Moscow.....	July 27-Aug. 9.....	4		Jan. 1-31, 1924: Cases, 14,275.
Spain: Barcelona.....	July 10-16.....		1	
Malaga.....	Sept. 6-Oct. 11.....		2	
Switzerland: Lucerne.....	Sept. 1-30.....	1		
Syria: Aleppo.....	July 8-14.....	1		
Damascus.....	July 14-20.....	1		
Tunis: Tunis.....	May 27-June 9.....	4		
Turkey: Constantinople.....	May 18-June 21.....	7	2	
Do.....	July 6-Oct. 18.....	14	13	Mar. 1-June 30, 1924: Cases, 418; deaths, 45. July 1-Aug. 31, 1924: Cases, 212; deaths, 31. (Colored, 203 cases; white, 9 cases.)
Union of South Africa: Cape Province.....				
Do.....				
Natal.....				
Durban.....	Apr. 20-June 28.....	2		Mar. 1-June 30, 1924: Cases, 249; deaths, 23. July 1-Aug. 31, 1924: Cases, 122; deaths, 16. Sept. 14-20, outbreaks.
Orange Free State.....				Mar. 1-June 30, 1924: Cases, 27; deaths, 5. July 1-Aug. 31, 1924: Cases, 12; deaths, 1 (colored)
Harrismith District.....	Sept. 28-Oct. 4.....			Mar. 1-June 30, 1924: Cases, 83; deaths, 11. July 1-Aug. 31, 1924: Cases, 40; deaths, 12. Outbreak. On farm.
Transvaal: Johannesburg.....	May 11-24.....	2		Mar. 1-May 31, 1924: Cases, 39; deaths, 5. July 1-Aug. 31, 1924: Cases, 29 (colored); deaths, 2.
Do.....	June 29-Sept. 13.....	3		January-June, 1924: Cases, 252; deaths, 14. July 1-31, 1924: Cases, 9; deaths, 3.
Yugoslavia.....				
Zagreb.....	Sept. 7-13.....	1		

YELLOW FEVER.

Brazil: Pernambuco.....	May 11-17.....	2	1	May, 1924: Cases, 2; deaths, 2. July, 1924: Cases, 2; deaths, 1.
Gold Coast.....				
Salvador: San Salvador.....	June 10-Aug. 25.....			Present in San Salvador and vicinity.

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