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A Study of the Blacktongue Preventive Value of Leached Commercial Casein, together with a Test of the Blacktongue Preventive Action of a High Protein Diet

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In 1925 Goldberger and Tanner (1) reported a series of experiments designed to test the pellagra preventive action of casein. The results of these experiments indicated that the casein may have exerted a slight delaying effect on the recurrence of the disease (*pellagra sine pellagra*) and with three exceptions in 28 cases prevented or modified the occurrence of the dermatitis. This delaying effect indicated, when considered with the other experimental evidence, that the casein probably carried with it a small quantity of the P–P factor. In order to clear up this point a series of experiments was designed to determine whether or not leached commercial casein carried the P–P factor with it and at the same time whether a high protein diet would have any effect on the production of experimental blacktongue of dogs.

Goldberger and Wheeler (2) have reported the production in the dog, by feeding pellagra-producing diets, of a pathological condition known to American veterinarians as blacktongue. Denton (3) has reported that the pathological changes in blacktongue are analogous to those of pellagra. Goldberger, Wheeler, Lillie, and Rogers (4) have reported that, so far as they have been studied, foods containing the P–P factor also contain the blacktongue preventive, and foods deficient in the P–P factor are deficient in the blacktongue preventive. Goldberger, Wheeler, Lillie, and Rogers (4) (5) have further reported that blacktongue of dogs is most probably the analogue of pellagra in man and that the P–P factor and the blacktongue preventive are identical. This hypothesis has been recently further strengthened by Goldberger and Wheeler (6) so that it seems certain that experimental blacktongue and pellagra are essentially identical conditions,

[1] This study was organized prior to the death of Surgeon Goldberger on January 17, 1929, and was partly carried out under his direction. The manuscript was prepared by Assistant Surgeon W. H. Sebrell.

and that the preventive of blacktongue is identical with the pellagra preventive (factor P–P).

The general methods of caring for and feeding the experimental animals have already been described by Goldberger and his associates (2) (4) (5). It may be repeated here that the experimental diets are, as a rule, freshly prepared each day. The daily allowance of food, in general, is intended to be enough only for the maintenance of normal body weight. The same animals are used repeatedly, usually with intermediate feedings of stock diet for the purpose of reconditioning. The stock diet has been either our diet No. 156, the composition and adequacy of which have already been reported (2), or a modification in which pork liver replaces the beef of diet No. 156 and the bone meal is omitted (diet No. 326). The adequacy of the pork liver has been reported by Goldberger, Wheeler, Lillie, and Rogers (4).

Goldberger, Wheeler, Lillie, and Rogers (2) have already described the clinical course and diagnosis of the experimental disease in the dog. It may be recalled that the earliest buccal signs are a vivid red injection of the mucosa of the floor of the mouth or a bilaterally symmetrical reddened patch on the mucosa of the upper lip, or both. The first appearance of these mouth lesions has been considered as marking the beginning of the attack of blacktongue.

The casein used in all the experiments reported here was crude commercial casein obtained on the open market. The method of preparation is modified from the leaching process described by McCollum (7), and is as follows:

Twelve and one-half pounds of crude commercial casein previously ground in a ball mill are placed in a wooden tub and washed with thorough stirring in three changes of tap water. The tub is then filled to 75 liters with tap water and 150 cubic centimeters of glacial acetic acid is added. This is frequently stirred during the day and allowed to stand overnight. On the second day the water is poured off and the tub refilled to 75 liters with tap water and 140 cubic centimeters of glacial acetic acid is added. This is frequently stirred during the day and allowed to stand overnight. On the third, fourth, fifth, sixth, and seventh days the treatment is the same as on the second day. On the eighth day the casein is washed in three or more changes of tap water, until neutral to litmus. It is then drained, dried, and ground.

EXPERIMENT 1

Experiment 1 was a test of the basic diet No. 123 (Table 1) used by us for the experimental production of blacktongue. Goldberger, Wheeler, Lillie, and Rogers (5) have already reported that dogs fed this diet (and certain of its modifications) developed blacktongue within a period which only exceptionally exceeded about 60 days. However, as a control on the experiments herein reported it was considered advisable to repeat this work as a check on the preparation

of the food. Accordingly, suitable portions of this diet were offered daily to each of four test animals—dogs 60, 119, 152, and 153. The significant details relating to each of the test animals are as follows:

Dog 152.—Bitch. Acquired September 20, 1928, between which date and December 13, 1928, was on stock diet.
December 11, 1928: Weighs 8.7 kilos.
December 13: In good condition; begins test diet No. 123.
January 8, 1929: Weighs 8.4 kilos.
January 12: At the end of a period of 30 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth.
April 27: Dead. Autopsy: Advanced blacktongue and fatty degeneration of liver and kidneys.

Dog 153.—Male. Acquired October 21, 1928, between which date and December 13, 1928, was on stock diet.
December 11, 1928: Weighs 8.5 kilos.
December 13: In good condition; begins test diet No. 123.
January 8, 1929: At the end of a period of 26 days presented first signs of attack of blacktongue, an injection of the floor of the mouth. Weighs 8.8 kilos. Further history not relevant.

Dog 60.—Male. Whelped in the laboratory November 4, 1923, between which date and September 15, 1928, served in a number of experiments and suffered several attacks of blacktongue, the last of which began August 9, 1928.
September 15 to December 13, 1928: On stock diet.
December 13: In good condition; weighs 8.3 kilos; begins test diet No. 123.
January 29, 1929: Weighs 7.7 kilos.
February 2: At the end of a period of 51 days presented first signs of an attack of blacktongue, a reddened band-like lesion on mucosa of each side of the upper lip and an injection of the floor of the mouth.
June 24: Dead. Autopsy: Blacktongue and fatty degeneration of liver and kidneys.

Dog 119.—Bitch. Acquired April 9, 1927, between which date and September 15, 1928, served in several experiments and suffered an attack of blacktongue which began on September 4, 1928.
September 15 to December 13, 1928: On stock diet.
December 13: In good condition; weighs 11.2 kilos; begins test diet No. 123.
January 2, 1929 to February 7, 1929: Presented varying degrees of injection of the floor of the mouth, and evanescent reddened patches on the mucosa of each side of the upper lip; mouth returned to normal.
February 12: Weighs 11.4 kilos.
February 14: After a period of 63 days presented first signs of a definite attack of blacktongue, an injection of the floor of the mouth. Further history not relevant.

Summary.—All four of the test animals developed blacktongue in from 26 to 63 days, thus confirming the previously reported inadequacy of the basic diet. A detailed consideration of the significance of the fatty degenerations found at autopsy in two of the animals (dogs 153 and 60) will be the subject of a future paper.

EXPERIMENT 2

Experiment 2 was a test of our diet No. 323 (Table 2) which is identical with the basic diet No. 123 except that the casein is increased from 60 to 120 grams per 2,400 calorie ration. The cane sugar is eliminated and the cottonseed oil reduced in order to avoid unduly increasing the caloric value of the diet. Thus the diet differs essentially from basic diet No. 123 in that it contains twice the amount of casein. Suitable portions of this diet were offered daily to each of nine test animals—dogs 41, 149, 150, 130, 120, 73, 64, 118, and 119. The significant details relating to each of the test animals are as follows:

Dog 119.—Bitch. Acquired April 9, 1927, between which date and May 15, 1928, served in several experiments and suffered no attack of blacktongue.
On stock diet from May 15 to June 26, 1928.
June 26, 1928: In good condition; weighs 10.7 kilos; begins test diet No. 323.
September 4: At the end of a period of 70 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth and a bright red patch on the mucosa of the upper lip. Weighs 11 kilos. Further history not relevant.

Dog 149.—Bitch. Acquired September 20, 1928, between which date and December 13, 1928, was on stock diet.
December 11, 1928: Weighs 7 kilos.
December 13: In good condition; begins test diet No. 323.
March 19, 1929: Presented first injection of floor of mouth, which varied in intensity until March 23, when mouth returned to normal.
April 2: Weighs 6.5 kilos.
April 4: Presented first signs of an attack of blacktongue, an injection of floor of mouth, which began 115 days from the beginning of the experiment.
April 29: Dead. Autopsy: Advanced blacktongue and fatty degeneration of liver and kidneys.

Dog 150.—Male. Acquired September 20, 1928, between which date and December 13, 1928, was on stock diet.
December 11, 1928: Weighs 9 kilos.
December 13: In good condition; begins test diet No. 323.
February 2, 1929: Presented first injection of floor of mouth, which varied in intensity until February 17, 1929, at which date mouth returned to normal.
February 19: Weighs 8.5 kilos.
February 23: At the end of a period of 72 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth and a reddened patch on the mucosa of each side of the upper lip.

Dog 130.—Bitch. Whelped in the laboratory June 28, 1927, between which date and December 13, 1928, was on a miscellaneous stock diet. Used for breeding and raised a litter of two females.
December 11, 1928: Weighs 7.5 kilos.
December 13: In good condition; begins test diet No. 323.
February 5, 1929, to March 30, 1929: Presented varying degrees of injection of the floor of the mouth. Mouth returned to normal on March 30.
April 2: Weighs 7.8 kilos.

April 4: At the end of a period of 112 days presented first signs of a definite attack of blacktongue, a faint reddened streak on the mucosa of the left side of upper lip, a row of small reddened patches on the mucosa of the right side of upper lip, diffuse injection of the floor of the mouth.
May 15: Dead. Autopsy: Blacktongue and fatty degeneration of liver and kidneys.

Dog 120.—Bitch. Acquired April 9, 1927, between which date and May 23, 1928, served in one experiment and suffered no attack of blacktongue. On a stock diet from May 23 to June 26, 1928.
June 26, 1928: In good condition; weighs 9.4 kilos; begins test diet No. 323.
November 13: Weighs 9.1 kilos.
November 17: At the end of a period of 144 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth.
January 3, 1929: Found moribund and gassed. Autopsy: Blacktongue and fatty degeneration of liver and kidneys.

Dog 73.—Bitch. Acquired March 19, 1924, between which date and May 23, 1928, served in several experiments and suffered one attack of blacktongue, which began December 17, 1925. On a stock diet from May 23 to June 26, 1928.
June 26, 1928: In good condition; weighs 11.5 kilos; begins test diet No. 323.
February 2, 1929, to March 11, 1929: Presented varying degrees of injection of the floor of the mouth which finally subsided and the mouth returned to normal.
March 12: Weighs 8.5 kilos.
March 16: At the end of a period of 263 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth.
March 31: Dead. Autopsy: Fatty degeneration of liver and kidneys.

Dog 64.—Bitch. Whelped in the laboratory November 4, 1923, between which date and May 23, 1928, served in a number of experiments and suffered two attacks of blacktongue, the latest of which began September 12, 1925. On a stock diet from May 23 to June 26, 1928.
June 26, 1928: In good condition; weighs 8.5 kilos; begins test diet No. 323.
August 14: Presented slight injection of the anterior portion of the floor of the mouth, which disappeared the next day.
August 28: Weighs 7.1 kilos.
August 30: At the end of a period of 65 days presented first signs of an attack of blacktongue, a faintly reddened bandlike lesion on the mucosa of each side of the upper lip and an injection of the floor of the mouth.
September 7: Moribund; gassed. Blacktongue.

Dog 41.—Bitch. Whelped in the laboratory June 26, 1923, between which date and May 15, 1928, served in a number of experiments and suffered several attacks of blacktongue, the latest of which began October 31, 1927. On a stock diet from May 15 to June 26, 1928.
June 26, 1928: In good condition; weighs 10.6 kilos; begins test diet No. 323.
October 9, 1928: At the end of a period of 105 days presented first signs of an attack of blacktongue, a reddened patch on the mucosa of each side of the upper lip, an injection of the floor of the mouth, and reddening of the mucosa of the cheeks. Weighs 10.1 kilos.
October 17 to December 13: On stock diet for reconditioning.
December 11: Weighs 10.3 kilos.
December 13: In good condition; begins test diet No. 323.

April 16, 1929: At the end of a period of 124 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth and a diffuse reddening of the mucosa of each side of the upper lip. Weighs 10.3 kilos. Further history not relevant.

Dog 118.—Bitch. Acquired April 9, 1927, between which date and September 15, 1928, served in two experiments and suffered one attack of blacktongue which began on September 1, 1928.
September 15 to December 13, 1928: On stock diet.
December 11: Weighs 12 kilos.
December 13: In good condition; begins test diet No. 323.
April 2, 1929: Weighs 11.3 kilos.
April 6: At the end of a period of 114 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth.
June 26: Dead. Autopsy: Advanced blacktongue and fatty degeneration of the liver and kidneys.

Summary—It is to be noted that five of the test animals (dogs 149, 130, 120, 73, and 118) presented fatty degeneration of the liver and kidneys at autopsy. A detailed consideration of the significance of this finding will be the subject of a future paper.

All of the test animals developed blacktongue in a period of from 65 to 263 days. One of the animals (dog 41) after developing an attack of blacktongue in 105 days was reconditioned on stock diet and returned to the experiment, again developing blacktongue in 124 days. It is apparent, then, that the onset of the attack of blacktongue is somewhat delayed as compared with the basic diet No. 123. Thus, it appears that the increase in the amount of casein exerted a delaying action. However, this experiment does not give any indication as to whether it was the additional protein per se which caused the delay in onset or whether the casein carried with it a small amount of the P–P factor which, though not sufficient to prevent the occurrence of blacktongue, was enough to delay the onset. In order to clear up this point, a further experiment was carried out as follows:

EXPERIMENT 3

Experiment No. 3 was a test of our diet No. 324, which contains 150 grams of casein per 2,400-calorie ration and is a modification of our diet No. 302, which Goldberger, Wheeler, Lillie, and Rogers (4) have reported has little or no blacktongue preventive value. It differs from diet No. 302 only in an increase in the casein and a decrease in the cottonseed oil. The essential difference from the basic diet No. 123 is the increase in casein and the removal of the cowpeas. Goldberger, Wheeler, Lillie, and Rogers (4) have shown that cowpeas contain a small quantity of the P–P factor. Thus, although the diet contains a larger amount of casein (150 grams per 2,400-calorie ration) than diet No. 323 and has a larger total protein content, the quantity of the P–P factor present in the basic ingredi-

ents has been reduced. Five test animals—dogs 117, 95, 70, 60, and 118—were offered suitable daily portions of this diet. The significant details relating to each of the test animals are as follows:

Dog 117.—Bitch. Acquired April 9, 1927, between which date and May 15, 1928, served in several experiments and suffered no attack of blacktongue. On stock diet from May 15 to June 26, 1928.
June 26, 1928: In good condition; weighs 11.7 kilos; begins test diet No. 324.
July 24: Weighs 12.1 kilos.
July 28: At the end of a period of 32 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth. Further history not relevant.

Dog 95.—Male. Acquired November 30, 1925, between which date and May 15, 1928, served in two experiments and suffered no attack of blacktongue. On stock diet from May 15 to June 26, 1928.
June 26, 1928: In good condition; weighs 9.8 kilos; begins test diet No. 324.
July 17: Weighs 9.4 kilos.
July 21: At the end of a period of 25 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth. Further history not relevant.

Dog 70.—Male. Whelped in the laboratory November 25, 1923, between which date and May 15, 1928, served in a number of experiments and suffered several attacks of blacktongue, the latest of which began on August 10, 1926. On stock diet from May 15 to June 26, 1928.
June 26, 1928: In good condition; weighs 11.3 kilos; begins test diet No. 324.
July 24: At the end of a period of 28 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth. Weighs 11.4 kilos. Further history not relevant.

Dog 60.—Male. Whelped in the laboratory November 4, 1923, between which date and May 23, 1928, served in a number of experiments and suffered several attacks of blacktongue, the last of which began May 13, 1926. On stock diet from May 23 to June 26, 1928.
June 26, 1928: In good condition; weighs 9.3 kilos; begins test diet No. 324.
August 7: Weighs 8.1 kilos.
August 9: At the end of a period of 44 days presented first signs of an attack of blacktongue, faintly reddened band-like lesion on the mucosa of the upper lip and an injection of the floor of the mouth. Further history not relevant.

Dog 118.—Bitch. Acquired April 9, 1927, between which date and May 15, 1928, served in one experiment and suffered no attack of blacktongue. On stock diet from May 15 to June 26, 1928.
June 26, 1928: In good condition; weighs 11.5 kilos; begins test diet No. 324.
August 28: Weighs 11.1 kilos.
September 1: At the end of a period of 67 days presented first signs of an attack of blacktongue, an injection of the floor of the mouth. Further history not relevant.

Summary.—All of the test animals developed blacktongue in from 25 to 67 days. It thus appears that although this diet contains 30 grams of casein per 2,400 calorie ration more than diet No. 323, the animals do not show any appreciable delay in the onset of blacktongue as compared with the basic diet.

DISCUSSION AND CONCLUSIONS

Four test animals on our basic experimental diet No. 123, containing 60 grams of casein per 2,400 calorie ration, developed blacktongue in from 26 to 63 days from the beginning of the experiment. When the casein of this diet was doubled (diet No. 323—120 grams per 2,400 calorie ration), the time of onset of blacktongue in 9 dogs was from 65 to 263 days from the beginning of the experiment. However, when the cowpeas are removed from the diet and the casein then increased to 150 grams per 2,400 calorie ration (diet No. 324) the onset of blacktongue in 5 animals was from 25 to 67 days from the beginning of the experiment.

Thus, when the P–P content of the basic diet is lowered by removing the cowpeas the addition of 150 grams of casein per 2,400 calorie ration does not add enough of the P–P factor appreciably to delay the onset of blacktongue beyond that of the basic diet.

It therefore appears that leached casein carries with it a small amount of the P–P factor which, when added to the small quantity already present in the basic diet, is sufficient noticeably to delay the onset of blacktongue but not entirely to prevent the disease.

Furthermore, a high protein diet as represented by 150 grams of casein per 2,400 calorie ration had no appreciable delaying effect on the onset of blacktongue as compared with the onset in animals on 60 grams of casein per 2,400 calorie ration (diet No. 123), and, in view of the evidence that pellagra of man and blacktongue of dogs are analogous conditions, it is further indicated that a high protein diet, when lacking in the P–P factor, is of little or no value in the prevention and treatment of the human disease.

TABLE 1.—*Composition of basic blacktongue-producing diet No. 123* [1]

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	400	33.6	18.8	296.0
Cowpeas (*Vigna sinensis*) [3]	50	10.7	.7	30.4
Casein (purified) [4]	60	52.0		
Sucrose	32			32.0
Cottonseed oil	30		30.0	
Cod-liver oil	15		15.0	
Sodium chloride	10			
Calcium carbonate	3			
Total nutrients		96.3	64.5	358.4
Nutrients per 1,000 calories		40.1	26.9	149.3

[1] The corn meal, cowpeas (previously coarsely ground), and salt are stirred into water and cooked in a double boiler of enamel ware for about 1½ hours. Then the other ingredients are well stirred in, the total weight being brought to 2,400 grams with water (so that 1 gram represents 1 calorie), and this finished mixture is served to the dog ad libitum.

[2] Whole maize meal (white) sifted as for human consumption.

[3] The variety known as the California black-eyed pea.

[4] Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

TABLE 2.—*Composition of casein diet No. 323* [1]

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	400	33.6	18.8	296.0
Cowpeas (*Vigna sinensis*) [3]	50	10.7	.7	30.4
Casein (purified) [4]	120	104.0		
Cottonseed oil	20		20.0	
Cod-liver oil	15		15.0	
Sodium chloride	10			
Calcium carbonate	3			
Total nutrients		148.3	54.5	326.4
Nutrients per 1,000 calories		61.7	22.7	136.0

[1] The corn meal, cowpeas (previously coarsely ground), and salt are stirred into water and cooked in a double boiler of enamel ware for about 1½ hours. Then the other ingredients are well stirred in, the total weight being brought to 2,400 grams with water (so that 1 gram represents 1 calorie), and this finished mixture is served to the dog ad libitum.

[2] Whole maize meal (white) sifted as for human consumption.

[3] The variety known as the California black-eyed pea.

[4] Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

TABLE 3.—*Composition of casein diet No. 324* [1]

[Total calories, 2,400]

Articles of diet	Quantity	Nutrients		
		Protein	Fat	Carbohydrate
	Grams	*Grams*	*Grams*	*Grams*
Corn meal [2]	310	28.3	13.0	204.0
Casein (purified) [3]	150	129.9		
Cornstarch	80			72.0
Cottonseed oil	47		47.0	
Cod-liver oil	10		10.0	
Salt mixture [4]	21			
Total nutrients		158.2	70.0	276.0
Nutrients per 1,000 calories		65.9	29.1	115.0

[1] The corn meal and salt mixture are stirred into water and cooked in a double boiler of enamel ware for about 1½ hours. Then the other ingredients are well stirred in, the total weight being brought to 2,400 grams with water (so that 1 gram represents 1 calorie), and this finished mixture is served to the dog ad libitum.

[2] Whole white maize meal, not sifted.

[3] Commercial casein leached for a week in daily changes of acidulated water, after McCollum (7).

[4] After Osborne and Mendel (8).

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WILL THE INHALATION OF SILICEOUS DUSTS ACTIVATE A PARTIALLY HEALED FOCUS OF TUBERCULOUS INFECTION?

AN EXPERIMENTAL STUDY

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In the American Review of Tuberculosis for December, 1929, there appeared a study entitled "The Reactivation of Healing Primary Tubercles in the Lung by the Inhalation of Quartz, Granite, and Carborundum Dusts." This constituted a full report of certain experiments forming a part of an extended investigation which is being carried on conjointly by the Edward L. Trudeau Foundation, the United States Public Health Service, and the Metropolitan Life Insurance Co. at the Saranac Laboratory for the Study of Tuberculosis. The present communication will briefly outline the procedures and results obtained. For a detailed discussion of the problem, the reader is referred to the publication in the journal quoted.

The majority of the authorities upon pneumonokoniosis are of the opinion that the tuberculous infection which so frequently complicates that condition is an occupational infection acquired in adult life. The author in a study of the lungs of granite cutters dying of tuberculosis became convinced that some of the infections, at least, were probably acquired before the dust exposures commenced. He has attempted to determine experimentally whether it is possible to light up partially healed foci of tuberculosis by the subsequent inhalation of various dusts. The work discussed here deals with primary infections; similar experiments are in progress with healing reinfections more or less analogous to apical tuberculosis in human beings.

The experimental procedure was as follows: Ninety-five guinea pigs were infected by inhalation with the low virulent strain of tubercle bacillus R_1. At six serial intervals after infection (54 to 206 days) groups of animals were removed to dusting chambers, where they were exposed for eight hours daily to inhalations of quartz,

granite, or carborundum dusts. The approximate concentrations of effective particles (i. e., those under 10μ in diameter) in the atmosphere of these chambers were as follows: Quartz 859 million, granite 957 million, and carborundum 640 million particles per cubic foot of air. The dust inhalations were continued in most instances until the death of the animals, which generally occurred between 200 and 400 days after commencing the exposure. Two of the carborundum animals survived to be killed on the 1,385th day.

Infection in undusted control animals.—For about 12 years infection by inhalation of this attenuated strain of tubercle bacilli has been used at the Saranac laboratory to produce primary tubercles in the lung. The lesions become caseous, but they do not spread. After a period varying from four to eight months they begin to heal, and they completely disappear by a process of resolution within a period of two years. This reaction takes place irregularly, and not all of the tubercles in any one lung resolve at the same rate.

Involvement of the tracheobronchial lymph node is a regular accompaniment of inhalation infection, but with attenuated bacilli, macroscopic lesions are never seen in the abdominal viscera. The lymph node disease apparently rarely heals completely, as the animals usually retain some degree of skin hypersensitiveness to tuberculin throughout the remainder of their lives. Death occurs from other causes.

Reactivation of healing tubercles by inhaled dusts.—The inhalation of certain types of inorganic dusts has been shown to exert a profound effect upon the course of such self-limited primary tuberculous infection. Previous experiments in which the dust inhalation was begun on the day of infection so that the tubercles developed in tissues already containing considerable quantities of dust have demonstrated that quartz and carborundum are most potent irritants. Under such conditions these two dusts have regularly caused the infection to become progressive in every animal exposed. Granite has been much less active, and it has generally resulted only in retardation of resolution, rather than in spreading the infection. Such a reaction is not a result of dust inhalation per se, for no alteration of the usual course of the infection has been observed with inhaled marble dust; bituminous coal, if anything, seems to accelerate the healing process; asbestos dust apparently exerts a stimulating effect only in an occasional animal.

In the experiment under consideration it has been shown that quartz, granite, and carborundum dusts can affect primary tubercles in the lung after they have already reached maturity. In the table which follows it will be noted that occasionally even tubercles as old as 200 or 400 days are reactivated and caused to spread. Under any

circumstances, a period of dust inhalation varying from two to five months must elapse before these stimulating effects become apparent.

The table summarizes the results of the present experiment. The number of animals in the different groups is small, but in the light of the author's previous experience the results seem significant. It was originally intended that there should be four animals exposed to each of the three dusts at the different intervals after infection. Deaths from endemic pneumonia and other causes have reduced the number available. Moreover, the high incidence of complicating pneumonia, particularly in the granite group, has undoubtedly influenced the picture in many cases. For example, all of the 54-day granite group died of acute pneumonia caused by the Friedlander bacillus from 50 to 150 days after commencing the dust inhalation. The entire group was prematurely destroyed before the effects of the dust had had time to become manifest.

Spread of primary foci in the lungs [1]

Duration infection previous to dust exposure	Quartz		Granite		Carborundum		Controls	
	Number of pigs	Per cent showing spread	Number of pigs	Per cent showing spread	Number of pigs	Per cent showing spread	Number of pigs	Per cent showing spread
54 days	4	100	4	0	4	75	1	0
87 days	3	100	4	100	4	25	1	0
112 days	4	50	3	0	3	66.6	1	0
151 days	2	50	3	0	2	0	1	0
177 days	3	66.6	2	0	3	0	1	0
206 days	3	66.6	3	33.3	3	33.3	1	0
400 days					3	66.6	0	0
654 days							4	0
Total and average for all periods	19	73.6	19	26.3	22	31.8	10 [2] 5	0 0

[1] Includes only tissues examined microscopically from animals without chronic phases of endemic pneumonia.

[2] 5 other undusted animals which died from accidental causes before exposure to dust.

Since the number of animals available for final analysis in the granite group was so small, supporting data from another experiment in which conditions were similar have been introduced. In this case, 26 guinea pigs, infected 150 days previously with approximately the same dose of the same strain of tubercle bacilli, were placed in a room in which there was a rather heavy concentration of very fine granite dust (estimated at perhaps 100 million particles per cubic foot). This was not intended to be a dust inhalation experiment, but was more or less accidental in nature. However, the animals in a short time began to show a marked increase in the intensity with which they reacted to tuberculin, and it was thought that the dust might have irritated their healing infection. The plan was changed, and they were allowed to live in this atmosphere for 326 days. At the end of this time 4 had already died and 6 had been killed. At autopsy

no stimulating effect upon their tuberculous infection could be noted. Because it was suspected that the dust concentration might be too low, the remaining animals were placed in an atmosphere with a concentration of 396.5 million particles of granite dust per cubic foot (sugar-tube method). They were killed at intervals from 2 to 61 days thereafter. In none of them did the dust inhalation show any tendency to reactivate the tuberculous foci, but it did prevent the usual process of resolution, so that fibrous and calcified tubercles could be found as long as 583 days after infection. The 26 guinea pigs of this unplanned experiment might be used to substantiate the negative findings of the fourth group of the granite series. The initial dust concentration was perhaps not as high, but all the dust suspended in the atmosphere in this room was extremely fine as it escaped from a dusting chamber located in a far corner.

Character of the lesions produced by reactivation.—In the *undusted* control animal the lesions of primary low virulent inhalation infection regularly consist of 15 or 20 subpleural pulmonary tubercles, 2 to 3 millimeters in diameter, together with an extensive involvement of the tracheobronchial lymph nodes. When resolution is completed all macroscopic evidence of reaction in the lungs disappears, and after two or more years even microscopic traces of the lesions have vanished.

In the lung of the *animal exposed to the prolonged inhalation of dust* the primary tubercles begin to spread after two or more months. They enlarge locally and attain a diameter of 8 or 10 millimeters. Still later, bronchogenic extensions bring about massive involvement in widespread portions of the lung. The site of the primary tubercles often undergoes cavity formation and secondary cavities may develop in other portions of the organ. The intervening tissues exhibit the reactions characteristic of acute and chronic tuberculous pneumonia. Dusts like carborundum and granite accumulate in sufficient quantities to produce gross pigmentation of the pleural and subpleural zones; the colorless quartz excites a widespread nodular and diffuse fibrosis which is usually avascular so that the lung assumes a characteristic grey-yellow, putty-like appearance. Pleural adhesions are frequent, especially immediately above the site of the original primary tubercles.

Usually an haematogenous spread of the infection from the lung is responsible for macroscopic disease in the spleen, liver, and hepatic lymph nodes. Unless accidental infections supervene, the animals die of their tuberculosis or of failure of the right heart.

Microscopically, it can be shown that those primary tubercles which contain considerable amounts of dust in their structure tend to become progressive and to spread. Tubercle bacilli which are few in number and hard to detect in the lesions of the undusted lung become

very numerous after an exposure to dust three to five months in duration. Simultaneously with this multiplication of organisms large numbers of polynuclear leucocytes invade the caseous center of the tubercle and extensions then occur through the inflamed wall of the nodule. In addition to the usual changes characteristic of chronic tuberculosis, which in general tend toward fibrosis, there are also the special responses to the different types of dust which have been described elsewhere. They tend to be much more marked in the animal with coincident tuberculosis than in the uninfected lung.

The mechanism responsible for the spread of the tuberculous infection is not yet understood. It would appear to be associated with the presence of silica, for clinical experience and previous experiments with soft coal and marble dusts produced no stimulating effect upon such infections. Asbestos dust, a silicate of magnesium, apparently exerts a rather mild stimulation. Carborundum, which is the carbide of silicon, and which theoretically contains very little free crystalline silica, is very active. Experiments are now being carried on which, it is hoped, will demonstrate whether the animal body is able to dissolve quartz, carborundum, granite, and various silicates, thereby liberating soluble silica. Whether this hypothetical soluble silica acts directly upon a few tubercle bacilli in a healing lesion and causes them to multiply, or whether silica or other dissolved substances first react upon the cells and thereby alter metabolism, or form substances favorable to the continued growth of this organism is not yet known to-day. Experiments in vitro are also in progress which should throw light upon this phase of the reaction.

It is unlikely that substances like colloidal silica would diffuse out of the dust containing phagocytes and find their way unchanged into the interior of a tubercle, where the bacilli are located. Contact with basic ions would theoretically form silicates very soon after diffusion had begun. But there is morphological evidence to indicate that the phagocytes may carry the dust into the very heart of the tubercle, where diffusible products would be in immediate contact with the organisms. Furthermore, quartz, the dust which is most potent in exercising a stimulating effect upon the infectious process, reaches the interior of the tubercle in greatest quantity; next in order comes carborundum, and the least amounts of the relatively mild stimulant, granite dust, are seen in this location.

The mechanism must be one of active transportation of dust, for, under the conditions of this experiment, tubercles are already fully developed at the time when dust begins to enter the lung. After an exposure of several months the caseous centers of these lesions are found to contain collections of dust which are sometimes macroscopically visible. The behavior of the phagocytes with reference to the different types of dust was therefore studied.

Mononuclear phagocytes ingest quartz particles relatively slowly, and, in comparison with other dusts, few particles enter any one cell. Either because their normal rate of motility is not impeded, or perhaps because it is accelerated, the cells tend to move out of the air spaces and enter the lymph spaces. Many of them come to rest about solid inelastic structures like lymph nodules and tubercles. They penetrate these formations and do not escape, possibly because of the existing lymph stasis. Carborundum and granite particles, on the other hand, are ingested rapidly and the cells become so overloaded that their structure is obscured. Perhaps for the same reason, they do not migrate rapidly, but tend to remain within the air spaces for at least three or four years. A few cells which happen to have taken in only a few particles do move away and ultimately localize in the same structures involved in the quartz series.

One more fact is necessary for an appreciation of the significance of the preceding material. Inhaled dust ingested by phagocytes is not uniformly distributed throughout the air passages, but much of it usually comes to rest in the subpleural alveoli, and particularly in those which form the boundaries of contiguous primary units. Furthermore, in the guinea pig more dust appears to enter the ventral surfaces of the cephalic lobes and the paravertibral borders of the caudal lobes than other portions of the lung. The tubercles do not necessarily localize in the same areas.

These observations have formed the basis for an hypothesis to explain the varied reaction of different siliceous dusts [1] with respect to tuberculous infection. The accidental formation of a tubercle at a point where dust localized in considerable quantities might bring about conditions favorable for the reaction which initiates spread. But if the position of the two agents, tubercle bacilli and dust, did not happen to coincide, only the mechanism of actively motile phagocytes would come into play. Granite irritation, on the other hand, would only be effective in the few tubercles lying in the direct pathway of the dust and in those in which a few cells containing relatively small quantities of dust had happened to migrate.

This morphological evidence must be supported by the chemical and bacteriological studies now in progress before it will be possible to explain how the reactivation of a quiescent tuberculous lesion takes place.

The experiments reported have proved that in the guinea pig it is possible to light up a quiescent focus of primary tuberculous infection and to render that focus progressive. However, this does not

[1] Carborundum is not a siliceous dust in the sense that it contains appreciable amounts of free silica. However, it is not impossible that the alkaline body fluids might even attack and dissolve silica from this very hard carbide and silicon.

necessarily indicate that the tuberculosis which so frequently complicates human silicosis also arises in the same manner. The truth concerning the disease in man can only be ascertained by careful clinical, radiographic, and post-mortem observation.

To answer the question with finality, data should be collected upon the following points: Incidence of tuberculous infection; incidence of latent apical tuberculosis; post-mortem appearances. On applicants for work in a dusty trade, intracutaneous tuberculin reactions, repeated if necessary, would indicate the presence or absence of infection. If any were negative, such tests repeated at yearly intervals during their employment would serve to date the appearance of infection. Among this same group physical examination would detect only men with considerable amounts of pulmonary tuberculosis, but the X ray would reveal more. In regard to the use of this diagnostic agent, a word should be said. In the study of silicosis it is customary in many places to take very hard negatives, and it is questionable whether they are adequate to detect the ill-defined alterations characteristic of partially healed apical tuberculosis. No comment upon the need for post-mortem examinations is required. Only in South Africa has a sufficient number of autopsies been done to permit statistical treatment of the material.

It is fully appreciated that human prejudice and ignorance offer great barriers to the execution of such a program, but nevertheless this is the goal toward which our efforts should be directed.

COURT DECISION RELATING TO PUBLIC HEALTH

City restrained from dumping garbage in violation of law.—(Texas Court of Civil Appeals; Lambert *v.* City of Port Arthur, 22 S. W. (2d) 320; decided November 8, 1929.) Article 696a of the Penal Code provided that no municipal corporation should maintain any dumping ground or dump any trash, refuse, débris, or dead animals or permit the same to remain within or nearer than 300 yards of any public highway. It further provided that an injunction suit could be brought by any private individual affected or to be affected thereby to prevent any such threatened or probable violation of the law. The city of Port Arthur deposited "wet" garbage, old scrap iron, tin cans, and other trash of a similar nature in trenches dug on certain property owned by it. As one trench was dug it was filled with garbage; then another trench would be dug by its side and the dirt deposited over the first trench, covering the garbage and raising the general level of the ground. Generally the garbage was covered within 24 hours, but not always. The said property was within the prohibited distance as set forth in the statute.

The plaintiff owned property adjacent to the property on which the garbage, etc., was being deposited. He brought suit against the city, and the city was enjoined by the trial court from further violating the law. Later the trial court suspended the operation of the injunction for a period of something over three months, and the plaintiff appealed. The court of civil appeals held that the order suspending the operation of the injunction was erroneous, deciding (*a*) that the city was dumping its garbage, as the word "dump" was used in article 696a; (*b*) that the garbage deposited was in violation of the statute, all of the garbage deposited coming within the meaning of the words "trash, refuse, débris," etc.; (*c*) that the plaintiff had an interest in the litigation such as authorized him to prosecute the suit; and (*d*) that no necessity existed for filling in the city's property with the garbage, there being no showing that it could not be reasonably filled in some other way.

DEATHS DURING WEEK ENDED JANUARY 25, 1930

Summary of information received by telegraph from industrial insurance companies for the week ended January 25, 1930, and corresponding week of 1929. (From the Weekly Health Index, January 29, 1930, issued by the Bureau of the Census, Department of Commerce)

	Week ended Jan. 25, 1930	Corresponding week, 1929
Policies in force	75, 467, 337	72, 978, 042
Number of death claims	14, 091	21, 326
Death claims per 1,000 policies in force, annual rate	9. 7	15. 2

Deaths from all causes in certain large cities of the United States during the week ended January 25, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929. (From the Weekly Health Index, January 29, 1930, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Jan. 25, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 25, 1930 [2]
	Total deaths	Death rate [1]		Week ended Jan. 25, 1930	Corresponding week, 1929	
Total (65 cities)	7,548	13.2	17.8	747	971	[3] 66
Akron	42			8	6	73
Albany [4]	42	18.2	27.7	3	6	66
Atlanta	90	18.4	20.6	10	11	106
White	39			3	5	95
Colored	51	(5)	(5)	7	6	111
Baltimore [4]	250	15.7	21.5	22	14	75
White	188			15	9	64
Colored	62	(5)	(5)	7	5	113
Birmingham	44	10.3	23.0	2	13	19
White	21			1	8	15
Colored	23	(5)	(5)	1	5	24
Boston	207	13.5	25.7	17	32	48
Bridgeport	31			6	7	103
Buffalo	161	15.1	22.0	13	19	80

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended January 25, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Jan. 25, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 25, 1930 [2]
	Total deaths	Death rate [1]		Week ended Jan. 25, 1930	Corresponding week, 1929	
Cambridge	26	10.8	18.7	3	7	56
Camden	25	9.6	15.0	8	7	145
Canton	23	10.3	14.7	4	5	99
Chicago [4]	731	12.1	13.1	70	89	63
Cincinnati	143			16	20	95
Cleveland	208	10.7	12.5	21	26	63
Columbus	84	14.6	17.1	7	5	68
Dallas	69	16.5	16.8	6	9	
White	54			6	8	
Colored	15	(5)	(5)	0	1	
Dayton	38	10.7	17.8	5	2	74
Denver	78	13.8	14.9	5	7	52
Des Moines	32	11.0	11.3	5	3	87
Detroit	298	11.3	14.0	57	51	88
Duluth	19	8.5	6.7	1	0	27
El Paso	32	14.2	20.8	1	7	
Erie	32			1	2	21
Fall River [4]	26	10.1	27.6	1	11	23
Flint	21	7.4	10.2	3	4	35
Fort Worth	45	13.8	20.5	5	7	
White	35			4	6	
Colored	10	(5)	(5)	1	1	
Grand Rapids	32	10.2	8.9	2	2	30
Houston	80			9	8	
White	53			8	4	
Colored	27	(5)	(5)	1	4	
Indianapolis	126	17.2	14.9	9	5	67
White	108			6	5	52
Colored	18	(5)	(5)	3	0	161
Jersey City	70	11.2	19.1	8	11	70
Kansas City, Kans	36	15.9	15.0	6	4	142
White	28			6	4	159
Colored	8	(5)	(5)	0	0	0
Kansas City, Mo	114	15.2	16.4	6	9	47
Knoxville	27	13.4	21.3	1	6	23
White	23			0	4	0
Colored	4	(5)	(5)	1	2	247
Los Angeles	304			20	17	61
Louisville	64	10.1	27.9	3	9	26
White	46			2	7	20
Colored	18	(5)	(5)	1	2	72
Lowell	33			4	2	95
Lynn	19	9.4	15.3	2	2	51
Memphis	94	25.8	31.0	10	17	119
White	49			1	9	18
Colored	45	(5)	(5)	9	8	303
Milwaukee	106	10.2	14.6	11	19	55
Minneapolis	99	11.3	14.2	7	14	45
Nashville	42	15.7	28.4	10	7	155
White	26			6	4	123
Colored	16	(5)	(5)	4	3	253
New Bedford	21			0	4	0
New Haven	42	11.7	15.0	1	3	19
New Orleans	192	23.3	20.5	30	5	174
White	114			16	2	141
Colored	78	(5)	(5)	14	3	235
New York	1,550	13.4	20.6	165	231	69
Bronx Borough	212	11.6	18.2	17	23	40
Brooklyn Borough	526	11.9	18.9	63	90	67
Manhattan Borough	599	17.8	26.8	70	91	115
Queens Borough	165	10.1	14.5	11	22	32
Richmond Borough	48	16.6	22.8	4	5	74
Newark, N. J	107	11.8	18.4	9	17	47
Oakland	71	13.5	14.8	4	6	48
Oklahoma City	48			5	5	98
Omaha	50	11.7	15.2	2	9	23
Paterson	30	10.8	20.9	2	1	35
Philadelphia	496	12.5	16.4	36	67	53
Pittsburgh	195	15.1	19.5	16	23	59
Portland, Oreg	83			2	4	25
Providence	72	13.1	22.4	5	10	46

Footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended January 25, 1930, infant mortality, annual death rate, and comparison with corresponding week of 1929—Continued

City	Week ended Jan. 25, 1930		Annual death rate per 1,000, corresponding week, 1929	Deaths under 1 year		Infant mortality rate, week ended Jan. 25, 1930 [2]
	Total deaths	Death rate [1]		Week ended Jan. 25, 1930	Corresponding week, 1929	
Richmond	65	17.4	15.6	7	4	104
White	43			1	2	22
Colored	22	[3]	[3]	6	2	262
Rochester	73	11.6	20.7	7	16	62
St. Louis	225	13.8	20.2	8	30	26
St. Paul	67			2	4	20
Salt Lake City [4]	43	16.2	14.4	6	5	94
San Antonio	109	26.1	19.1	22	10	
San Diego	37			4	4	84
San Francisco	170	15.1	17.6	5	11	34
Schenectady	22	12.3	26.8	3	2	94
Seattle	60	8.2	11.6	2	3	20
Somerville	30	15.2	16.8	4	3	130
Spokane	27	12.9	14.3	9	2	235
Springfield, Mass	30	10.4	19.5	2	5	32
Syracuse	46	12.0	17.8	6	7	74
Tacoma	25	11.8	14.2	4	1	103
Toledo	74	12.3	14.8	4	9	37
Trenton	34	12.8	22.1	4	7	74
Utica	28	14.0	16.0	2	2	57
Washington, D. C	154	14.5	19.0	17	20	99
White	94			9	7	78
Colored	60	[5]	[5]	8	13	142
Waterbury	15			2	0	51
Wilmington, Del	27	11.0	12.6	4	3	90
Worcester	69	18.2	12.4	7	12	91
Yonkers	15	6.4	13.8	2	5	48
Youngstown	39	11.7	11.4	3	2	47

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.
[3] Data for 73 cities.
[4] Deaths for week ended Friday.
[5] In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

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

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

Reports for Weeks Ended January 25, 1930, and January 26, 1929

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 25, 1930, and January 26, 1929

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929
New England States:								
Maine	4	7	1	1,256	3	224	0	0
New Hampshire	3	----	9	74	23	38	0	0
Vermont	1	1	----	53	18	----	0	0
Massachusetts	133	109	14	2,110	216	630	3	2
Rhode Island	12	14	----	595	2	43	0	1
Connecticut	32	35	21	3,319	23	324	0	2
Middle Atlantic States:								
New York	141	221	[1] 34	[1] 1,929	407	735	15	34
New Jersey	114	137	8	890	221	184	3	8
Pennsylvania	217	176	----	----	690	1,265	11	5
East North Central States:								
Ohio	34	50	8	486	673	395	3	3
Indiana	26	33	----	178	49	185	23	0
Illinois	218	130	64	418	432	407	11	11
Michigan	83	85	3	858	295	186	31	15
Wisconsin	24	11	76	2,407	815	217	6	7
West North Central States:								
Minnesota	16	37	----	65	136	176	0	1
Iowa	11	12	----	----	295	----	5	6
Missouri	33	43	19	942	43	135	14	14
North Dakota	1	9	9	39	17	31	7	9
South Dakota	7	2	----	2	21	64	1	1
Nebraska	5	14	17	31	365	23	6	0
Kansas	20	9	16	293	266	72	2	7
South Atlantic States:								
Delaware	8	----	----	27	----	31	0	0
Maryland [2]	27	31	24	3,391	14	82	1	1
District of Columbia	20	14	3	171	3	2	0	0
Virginia	----	----	----	----	----	----	----	----
West Virginia	19	20	44	5,372	100	97	0	2
North Carolina	42	25	39	----	18	43	12	1
South Carolina	12	20	1,036	2,157	----	4	6	0
Georgia	14	12	156	1,446	116	40	0	0
Florida	10	14	6	593	12	4	0	2

[1] New York City only.
[2] Week ended Friday.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 25, 1930, and January 26, 1929—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929
East South Central States:								
Kentucky				575	72	51	0	0
Tennessee	8	9	158	2,877	64	4	14	1
Alabama	52	78	185	11,508	21	104	3	0
Mississippi	11	9		1,482			4	
West South Central States:								
Arkansas	10	7	171	1,572	3	30	7	9
Louisiana	35	21	27	2,631	58	28	2	8
Oklahoma [3]	19	29	185	2,606	48	33	3	20
Texas	35	42	160	1,467	94	145	1	3
Mountain States:								
Montana	3	2		104	32	139	1	8
Idaho		5			86	10	1	0
Wyoming	3	1	8	15	7	3	1	2
Colorado	3	10	1	6	40	2	3	5
New Mexico	6	7	5	306	90	1	3	0
Arizona	9	6	52	13	1	3	13	17
Utah [2]	4	2	2	4	98	3	8	2
Pacific States:								
Washington	13	17		85	123	38	4	4
Oregon	13	17	69	247	21	80	1	5
California	82	85	48	250	628	29	10	18

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929
New England States:								
Maine	0	0	92	25	0	0	4	0
New Hampshire	0	0	25	11	0	0	0	0
Vermont	0	0	15	4	5	3	0	0
Massachusetts	1	2	349	272	0	0	12	4
Rhode Island	0	0	25	30	0	0	0	0
Connecticut	0	0	138	65	0	0	0	0
Middle Atlantic States:								
New York	3	3	519	482	16	0	15	10
New Jersey	0	1	233	161	0	0	4	1
Pennsylvania	0	0	504	420	5	0	18	6
East North Central States:								
Ohio	1	2	205	195	271	22	7	4
Indiana	0	0	217	189	254	63	1	4
Illinois	0	3	517	362	116	143	8	20
Michigan	1	2	284	279	64	14	6	4
Wisconsin	0	0	186	144	77	11	0	1
West North Central States:								
Minnesota	1	0	136	94	7	1	3	2
Iowa	0	0	87	106	150	22	2	0
Missouri	0	0	91	97	26	26	0	2
North Dakota	1	0	31	57	52	0	0	2
South Dakota	0	0	8	31	55	17	1	0
Nebraska	3	0	90	73	71	26	0	1
Kansas	0	0	123	121	46	15	4	2
South Atlantic States:								
Delaware	0	0	17	2	0	0	0	0
Maryland [2]	0	2	75	49	0	2	9	36
District of Columbia	0	0	20	10	0	0	1	0
Virginia	1							
West Virginia	0	1	30	42	0	28	3	2
North Carolina	1	0	54	40	33	39	2	0
South Carolina	3	1	26	17	1	0	5	3
Georgia	0	0	30	17	0	0	2	1
Florida	0	0	12	8	1	5	5	2
East South Central States:								
Kentucky	0	0	46	85	16	0	5	2
Tennessee	0	0	17	29	11	1	10	4
Alabama	2	0	51	39	4	33	11	12
Mississippi	0	1	19	10	0	2	2	2

[3] Figures for 1930 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 25, 1930, and January 26, 1929—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929	Week ended Jan. 25, 1930	Week ended Jan. 26, 1929
West South Central States:								
Arkansas	0	0	33	10	20	0	2	2
Louisiana	0	1	22	14	6	11	9	10
Oklahoma [3]	0	0	26	41	86	45	3	3
Texas	0	0	47	53	55	61	1	2
Mountain States:								
Montana	0	0	39	35	6	11	1	1
Idaho	0	0	16	20	11	26	5	4
Wyoming	0	0	16	14	3	0	0	0
Colorado	0	0	24	17	26	7	3	0
New Mexico	0	1	11	6	2	0	0	1
Arizona	0	0	16	9	26	17	1	0
Utah [3]	0	0	9	14	1	5	3	0
Pacific States:								
Washington	1	1	87	50	93	53	2	2
Oregon	0	0	54	33	26	34	0	2
California	1	3	348	345	101	44	3	9

[2] Week ended Friday.
[3] Figures for 1930 are exclusive of Oklahoma City and Tulsa.

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	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
November, 1929										
California	26	350	202	6	407	2	0	1,071	179	46
Delaware		16			2		11	13	0	3
Rhode Island		71	10		6		0	76	0	2
December, 1929										
Idaho	17	4	11		461		0	118	138	5
Illinois	43	960	118	3	1,525		1	2,333	520	38
Michigan	70	488	13		593		9	1,142	257	12
Missouri	44	207	88	1	207		0	420	146	23
Montana	10	13	6		117		0	173	68	9
New Jersey	23	560	81		310		4	735	0	17
North Carolina	11	441	97		21	125	8	363	48	36
Oklahoma [1]	15	191	530	94	88	21	1	194	262	37
Rhode Island	1	36			5			72	0	2
Washington	22	63	67		183		6	240	363	12
West Virginia	4	73	84		402		3	225	65	30
Wisconsin	7	68	120		2,117		0	416	175	20

[1] Oklahoma City and Tulsa not included.

November, 1929

	Cases
Anthrax:	
Delaware	1
Chicken pox:	
California	1,052
Delaware	57
Rhode Island	64
Dysentery:	
California (amebic)	6
California (bacillary)	84
Food poisoning:	
California	6
German measles:	
California	32
Granuloma, coccidioidal:	
California	10
Jaundice:	
California	1
Leprosy:	
California	4
Lethargic encephalitis:	
California	3
Mumps:	
California	1,203
Rhode Island	5
Ophthalmia neonatorum:	
Rhode Island	2
Rabies in animals:	
California	59
Rhode Island	9
Septic sore throat:	
Rhode Island	3

Tetanus:	Cases
California	3
Trachoma:	
California	11
Rhode Island	1
Tularaemia:	
California	6
Undulant fever:	
California	11
Whooping cough:	
California	425
Delaware	24
Rhode Island	62

December, 1929

Anthrax:	
Rhode Island	1
Chicken pox:	
Idaho	180
Illinois	2,290
Michigan	1,858
Missouri	396
Montana	70
New Jersey	1,401
North Carolina	745
Oklahoma [1]	86
Rhode Island	56
Washington	791
West Virginia	275
Wisconsin	1,721
Dysentery:	
Illinois	18
Oklahoma [1]	4
German measles:	
Illinois	28
Montana	1
New Jersey	47
North Carolina	5
Rhode Island	2
Washington	17
Wisconsin	19
Impetigo contagiosa:	
Washington	8
Lead poisoning:	
Illinois	13
New Jersey	4
Lethargic encephalitis:	
Illinois	2
Michigan	9
Washington	3
Wisconsin	1
Mumps:	
Idaho	115
Illinois	603
Michigan	455
Missouri	55
Montana	497
Oklahoma [1]	7
Washington	339
Wisconsin	334
Ophthalmia neonatorum:	
Idaho	1
Illinois	37
Missouri	1
Ophthalmia neonatorum—Continued.	Cases
New Jersey	3
North Carolina	1
Oklahoma [1]	3
Wisconsin	3
Paratyphoid fever:	
Illinois	1
New Jersey	2
Washington	3
Puerperal septicemia:	
Illinois	10
Washington	2
Rabies in animals:	
Missouri	11
Rhode Island	6
Rabies in man:	
Michigan	2
North Carolina	1
Scabies:	
Washington	1
Septic sore throat:	
Illinois	12
Michigan	34
Missouri	18
North Carolina	24
Oklahoma [1]	67
Rhode Island	3
Tetanus:	
Illinois	1
Missouri	1
Oklahoma [1]	1
Trachoma:	
Illinois	6
Missouri	29
Oklahoma [1]	8
Rhode Island	2
Tularaemia:	
Illinois	32
Missouri	8
North Carolina	1
Undulant fever:	
Illinois	4
Michigan	2
Missouri	5
Oklahoma [1]	1
Rhode Island	1
Washington	3
Vincent's angina:	
Illinois	1
Oklahoma [1]	2
Whooping cough:	
Idaho	50
Illinois	860
Michigan	424
Missouri	94
Montana	34
New Jersey	513
North Carolina	789
Oklahoma [1]	41
Rhode Island	38
Washington	74
West Virginia	151
Wisconsin	580

[1] Oklahoma City and Tulsa not included.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 96 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,970,000. The estimated population of the 89 cities reporting deaths is more than 30,375,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended January 18, 1930, and January 19, 1929

	1930	1929	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	1,632	1,618	
96 cities	677	780	1,082
Measles:			
43 States	5,992	5,324	
96 cities	1,281	1,321	
Meningococcus meningitis:			
46 States	240	217	
96 cities	102	96	
Poliomyelitis:			
46 States	21	10	
Scarlet fever:			
46 States	4,782	4,003	
96 cities	1,699	1,355	1,512
Smallpox:			
46 States	1,895	822	
96 cities	203	41	200
Typhoid fever:			
46 States	164	89	
96 cities	34	22	39
Deaths reported			
Influenza and pneumonia:			
89 cities	1,005	3,124	
Smallpox:			
89 cities	0	0	

City reports for week ended January 18, 1930

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid ever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that 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 weeks 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 non-epidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1921 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation 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	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	14	1	0		0	1	4	6
New Hampshire:								
Concord	0	0	1		0	5	0	1
Manchester	0	1	0		0	0	0	7
Nashua	0	0	0		0	0	0	0

City reports for week ended January 18, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND—continued								
Vermont:								
Barre	2	0	0	----	0	0	0	0
Burlington	1	0	1	----	0	0	1	0
Massachusetts:								
Boston	69	38	28	4	0	18	60	28
Fall River	9	4	4	----	0	0	0	2
Springfield	14	5	5	----	0	0	9	0
Worcester	30	5	2	----	1	45	1	1
Rhode Island:								
Pawtucket	15	1	3	----	0	0	0	1
Providence	0	10	5	----	0	1	2	8
Connecticut:								
Bridgeport	11	6	2	2	2	0	0	3
Hartford	10	9	3	----	1	0	1	2
New Haven	43	1	2	----	0	1	3	0
MIDDLE ATLANTIC								
New York:								
Buffalo	31	15	10	----	0	2	3	17
New York	196	230	104	29	21	73	101	215
Rochester	22	10	2	2	0	4	0	5
Syracuse	51	5	3	----	0	1	61	7
New Jersey:								
Camden	1	8	8	----	0	0	0	1
Newark	64	21	22	4	0	54	16	17
Trenton	4	3	1	----	0	27	0	5
Pennsylvania:								
Philadelphia	136	79	22	8	7	18	37	54
Pittsburgh	55	25	24	3	3	78	8	28
Reading	23	3	1	----	0	2	2	1
Scranton	5	5	6	----	0	0	1	0
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	18	12	3	----	1	1	4	3
Cleveland	181	39	21	6	3	2	17	19
Columbus	20	6	3	3	4	6	1	4
Toledo	74	9	2	5	5	361	13	6
Indiana:								
Fort Wayne	1	5	5	----	0	0	0	4
Indianapolis	41	10	1	----	0	11	6	15
South Bend	0	1	1	----	0	0	0	2
Terre Haute	0	2	0	----	2	0	0	3
Illinois:								
Chicago	134	110	121	15	11	19	40	76
Springfield	7	1	1	----	0	0	0	0
Michigan:								
Detroit	86	59	40	3	4	179	46	35
Flint	18	6	4	----	0	2	2	4
Grand Rapids	4	2	0	----	0	0	2	0
Wisconsin:								
Kenosha	4	2	0	----	0	0	1	1
Madison	2	0	2	----	0	137	4	0
Milwaukee	199	22	2	2	2	4	41	7
Racine	19	2	1	----	0	1	0	0
Superior	1	1	0	----	0	17	0	1
WEST NORTH CENTRAL								
Minnesota:								
Duluth	5	0	0	----	1	18	2	1
Minneapolis	118	24	8	----	3	31	30	14
St. Paul	26	11	2	----	1	3	10	14
Iowa:								
Davenport	5	1	1	----	----	2	0	----
Des Moines	3	3	0	----	----	9	1	----
Sioux City	14	0	0	----	----	0	1	----
Waterloo	8	1	0	----	----	127	0	----

City reports for week ended January 18, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST NORTH CENTRAL—contd.								
Missouri:								
Kansas City	17	8	5	1	3	1	0	13
St. Joseph	2	4	2		0	0	0	5
St. Louis	5	48	21			2	12	
North Dakota:								
Fargo	5	0	0		0	0	6	1
Grand Forks	4	1	0			0	0	
South Dakota:								
Aberdeen	13	0	0			1	0	
Sioux Falls	0	1	0			8	0	
Nebraska:								
Omaha	5	5	14		0	5	1	10
Kansas:								
Topeka	33	2	3	1	1	4	5	4
Wichita	4	4	2		0	1	2	8
SOUTH ATLANTIC								
Delaware:								
Wilmington	3	2	1		0	0	1	4
Maryland:								
Baltimore	70	30	20	22	5	2	14	26
Cumberland	0	2	0	3	0	0	0	0
Frederick	0	0	1		0	0	0	0
District of Columbia:								
Washington	23	21	10	1	0	2	0	14
Virginia:								
Lynchburg	16	2	0		0	78	17	4
Norfolk	6	2	3	1	0	2	9	5
Richmond	5	7	4		2	0	2	3
Roanoke	1	2	4		0	2	0	1
West Virginia:								
Charleston	8	2	2		0	2	1	2
Wheeling	3	2	0		0	3	0	6
North Carolina:								
Raleigh	22	1	1		0	0	0	2
Wilmington	8	0	3		1	0	0	2
Winston-Salem	9	1	3	1	0	0	9	5
South Carolina:								
Charleston	3	1	2	62	0	0	0	7
Columbia	9	0	0		0	0	1	0
Georgia:								
Atlanta	18	4	5	25	2	0	6	11
Brunswick	0	0	0		0	0	1	0
Savannah	2	1	0	13	1	0	0	3
Florida:								
Miami	3	1	0		0	0	0	2
St. Petersburg		0			0			2
Tampa	6	2	0	1	1	2	12	3
EAST SOUTH CENTRAL								
Kentucky:								
Covington	0	0	4		0	0	0	0
Tennessee:								
Memphis		5						
Nashville	0	2	2		0	0	0	1
Alabama:								
Birmingham	4	3	2	9	4	3	4	6
Mobile	3	2	1	1	0	1	0	3
Montgomery	2	1	0			1	1	
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	2	0	0			1	0	
Little Rock	1	2	2		1	0	2	1
Louisiana:								
New Orleans	2	13	20	6	8	32	0	20
Shreveport	8	2	3		0	0	0	5
Oklahoma:								
Oklahoma City	0	3	0	4	0	0	0	7
Tulsa	22	2	2			16	1	

City reports for week ended January 18, 1930—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST SOUTH CENTRAL—contd.								
Texas:								
Dallas	9	7	8	7	4	72	0	16
Fort Worth	10	3	3	----	0	0	0	6
Galveston	0	1	1	----	0	0	0	2
Houston	7	8	19	----	0	2	0	5
San Antonio	0	3	2	----	4	0	0	13
MOUNTAIN								
Montana:								
Billings	0	0	0	----	0	0	10	1
Great Falls	3	0	0	----	0	1	43	4
Helena	0	0	1	----	0	0	28	0
Missoula	0	1	0	----	0	0	0	1
Idaho:								
Boise	0	1	0	----	0	1	0	0
Colorado:								
Denver	57	11	3	----	3	3	8	15
Pueblo	12	2	1	----	0	0	12	0
New Mexico:								
Albuquerque	1	1	1	----	0	0	6	3
Arizona:								
Phoenix	2	0	0	----	0	2	3	2
Utah:								
Salt Lake City	34	4	1	----	0	23	11	7
Nevada:								
Reno	0	0	0	----	0	0	0	1
PACIFIC								
Washington:								
Seattle	40	4	1	----	----	1	43	----
Spokane	17	2	1	----	----	1	0	----
Tacoma	15	3	1	----	0	1	0	2
Oregon:								
Portland	23	12	4	4	1	3	11	12
Salem	0	0	2	----	0	0	7	0
California:								
Los Angeles	56	46	31	51	2	27	36	38
Sacramento	10	3	0	3	2	5	31	7
San Francisco	50	17	6	2	1	251	63	8

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	2	8	0	0	0	0	0	0	0	0	26
New Hampshire:											
Concord	1	1	0	0	0	0	0	0	0	0	15
Manchester	2	0	0	0	0	0	0	0	0	0	24
Nashua	0	0	0	0	0	0	0	0	0	0	----
Vermont:											
Barre	1	0	0	0	0	0	0	0	0	0	3
Burlington	1	0	0	0	0	0	0	0	0	0	3
Massachusetts:											
Boston	79	87	0	0	0	8	1	1	0	96	213
Fall River	4	2	0	0	0	1	0	0	0	9	29
Springfield	9	3	0	0	0	2	0	0	0	29	35
Worcester	12	22	0	0	0	1	1	0	0	7	41
Rhode Island:											
Pawtucket	2	1	0	0	0	0	0	0	0	3	13
Providence	11	14	0	0	0	3	0	1	0	5	73

City reports for week ended January 18, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND—continued											
Connecticut:											
Bridgeport	12	7	0	0	0	2	0	0	0	1	37
Hartford	7	9	0	0	0	2	0	0	0	5	28
New Haven	9	10	0	0	0	2	0	0	0	13	45
MIDDLE ATLANTIC											Z
New York:											
Buffalo	28	35	0	0	0	8	1	0	0	19	129
New York	271	183	0	0	0	97	9	2	1	46	1,526
Rochester	14	6	0	0	0	0	0	0	0	5	67
Syracuse	14	34	0	0	0	2	0	1	0	31	63
New Jersey:											
Camden	7	8	0	0	0	2	0	0	0	5	31
Newark	31	40	0	0	0	4	1	0	0	27	106
Trenton	5	18	0	0	0	2	1	0	0	0	46
Pennsylvania:											
Philadelphia	103	105	0	0	0	32	2	2	0	27	478
Pittsburgh	44	35	0	0	0	6	1	1	0	27	166
Reading	4	3	0	0	0	0	0	0	0	28	22
Scranton	5	8	0	0	0	0	0	0	0	2	----
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	21	22	1	6	0	11	0	0	0	6	128
Cleveland	46	58	0	0	0	12	1	3	0	96	197
Columbus	12	13	1	7	0	3	0	0	0	4	87
Toledo	16	11	0	6	0	7	0	0	0	3	77
Indiana:											
Fort Wayne	6	6	1	24	0	0	0	0	0	0	22
Indianapolis	12	14	7	2	0	3	0	0	0	19	92
South Bend	3	16	1	0	0	0	0	0	0	0	----
Terre Haute	4	0	0	0	0	0	0	0	0	0	16
Illinois:											
Chicago	138	298	1	7	0	33	3	1	0	118	764
Springfield	4	0	0	1	0	0	0	0	0	7	17
Michigan:											
Detroit	107	134	2	7	0	22	1	0	0	57	292
Flint	13	18	1	4	0	0	0	0	0	18	28
Grand Rapids	14	12	0	0	0	0	1	0	0	4	31
Wisconsin:											
Kenosha	2	5	0	0	0	0	0	0	0	3	5
Madison	4	4	1	1	0	0	0	0	0	20	----
Milwaukee	40	26	1	0	0	6	0	0	0	65	103
Racine	6	12	0	0	0	1	0	0	0	9	17
Superior	3	1	0	0	0	0	0	0	0	0	7
WEST NORTH CENTRAL											
Minnesota:											
Duluth	11	4	0	3	0	1	0	0	0	3	20
Minneapolis	60	18	4	0	0	2	1	0	0	7	118
St. Paul	33	26	1	0	0	2	----	0	0	8	68
Iowa:											
Davenport	2	0	1	5	----	----	0	0	----	3	----
Des Moines	11	7	2	32	----	----	0	0	----	0	54
Sioux City	1	3	1	3	----	----	0	0	----	0	----
Waterloo	2	5	1	51	----	----	0	0	----	2	----
Missouri:											
Kansas City	16	28	1	1	0	9	0	0	0	11	117
St. Joseph	3	0	0	1	0	0	0	0	0	3	27
St. Louis	46	18	1	2	0	12	0	4	0	4	216
North Dakota:											
Fargo	2	6	0	2	0	0	0	0	0	13	8
Grand Forks	0	0	0	3	----	----	0	0	----	0	----
South Dakota:											
Aberdeen	0	0	0	0	----	----	0	0	----	0	----
Sioux Falls	2	7	1	0	----	----	0	0	----	0	7

City reports for week ended January 18, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL—continued											
Nebraska:											
Omaha	5	11	1	1	0	1	0	1	0	2	51
Kansas:											
Topeka	3	6	0	0	0	0	0	1	0	3	18
Wichita	6	12	1	0	0	2	0	0	0	0	47
SOUTH ATLANTIC											
Delaware:											
Wilmington	6	4	0	0	0	2	0	0	0	0	31
Maryland:											
Baltimore	35	37	0	0	0	13	2	0	0	21	214
Cumberland	1	1	0	0	0	0	0	0	0	0	11
Frederick	0	2	0	0	0	0	0	0	0	0	2
District of Columbia:											
Washington	27	19	0	0	0	15	1	0	0	19	146
Virginia:											
Lynchburg	1	3	0	0	0	0	0	0	0	18	19
Norfolk	2	4	0	0	0	2	0	0	0	0	----
Richmond	5	7	0	0	0	3	0	0	0	0	56
Roanoke	2	0	0	1	0	0	0	0	0	0	16
West Virginia:											
Charleston	1	1	0	0	0	1	0	1	0	22	16
Wheeling	2	3	0	0	0	0	0	0	0	3	27
North Carolina:											
Raleigh	1	0	1	1	0	0	0	0	0	0	9
Wilmington	0	2	0	0	0	1	0	0	0	4	13
Winston-Salem	1	3	1	1	0	4	0	0	0	9	20
South Carolina:											
Charleston	1	3	0	0	0	3	0	1	1	0	33
Columbia	1	0	0	0	0	1	0	0	0	3	17
Georgia:											
Atlanta	4	17	2	0	0	4	0	1	0	1	89
Brunswick	0	0	0	0	0	1	0	0	0	0	7
Savannah	1	4	1	0	0	4	1	0	0	0	37
Florida:											
Miami	0	4	0	0	0	4	1	0	0	1	31
St. Petersburg	0	----	0	----	0	0	0	----	0	----	10
Tampa	1	2	0	0	0	1	1	0	0	0	26
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	2	1	0	0	0	0	0	0	0	10
Tennessee:											
Memphis	7	----	1	----	----	----	1	----	----	----	----
Nashville	2	2	0	0	0	4	1	0	0	0	40
Alabama:											
Birmingham	5	6	3	0	0	6	0	1	0	2	82
Mobile	2	0	0	0	0	1	0	0	0	0	25
Montgomery	1	2	0	0	----	----	1	1	----	1	----
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	1	3	0	0	----	----	0	0	----	0	----
Little Rock	2	1	0	0	0	1	0	0	0	0	----
Louisiana:											
New Orleans	7	12	0	0	0	16	3	0	0	1	168
Shreveport	1	3	1	0	0	0	0	0	1	0	25
Oklahoma:											
Oklahoma City	2	8	1	11	0	1	0	0	0	0	33
Tulsa	2	3	0	6	----	----	0	0	----	4	----
Texas:											
Dallas	6	7	1	2	0	3	0	1	0	1	75
Forth Worth	3	2	0	0	0	2	1	0	0	0	31
Galveston	1	0	0	0	0	1	0	0	0	0	14
Houston	3	4	1	6	0	5	0	0	0	0	50
San Antonio	3	6	0	3	0	16	0	1	0	0	93

City reports for week ended January 18, 1930—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
MOUNTAIN											
Montana:											
Billings	1	1	0	0	0	0	0	0	0	0	13
Great Falls	2	17	2	0	0	0	0	0	0	0	13
Helena	0	0	0	0	0	0	0	0	0	2	1
Missoula	1	0	1	4	0	0	0	0	0	0	3
Idaho:											
Boise	2	0	0	0	0	0	0	0	0	0	4
Colorado:											
Denver	11	15	0	1	0	10	0	0	0	10	93
Pueblo	2	2	0	0	0	0	1	0	0	0	13
New Mexico:											
Albuquerque	2	1	0	0	0	9	0	0	0	0	19
Arizona:											
Phoenix	0	1	0	11	0	7	0	0	0	0	24
Utah:											
Salt Lake City	5	4	3	1	0	2	0	7	0	21	38
Nevada:											
Reno	0	0	0	0	0	1	0	0	0	0	4
PACIFIC											
Washington:											
Seattle	10	15	3	1	----	----	1	0	----	6	----
Spokane	8	3	5	38	----	----	0	0	----	3	----
Tacoma	3	5	3	4	0	0	0	0	0	8	22
Oregon:											
Portland	6	9	14	2	0	0	0	1	0	1	88
Salem	0	0	1	0	0	0	0	0	0	1	----
California:											
Los Angeles	35	58	4	11	0	32	1	1	0	15	339
Sacramento	2	11	1	4	0	1	0	0	0	0	34
San Francisco	18	25	2	3	0	14	1	1	0	1	178

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	0	0	1	0	0	0	0
Worcester	0	0	1	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
Buffalo	1	0	0	0	0	0	0	0	0
New York	13	2	1	0	0	0	1	0	0
Rochester	0	0	1	0	0	0	0	0	0
Syracuse	1	0	0	0	0	0	0	0	0
New Jersey:									
Newark	1	0	1	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	3	1	0	0	0	0	0	0	0
Pittsburgh	1	1	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	1	1	0	0	0	0	0	0	0
Cleveland	8	1	0	0	0	0	0	0	0
Columbus	1	1	0	0	0	0	0	0	0
Indiana:									
Indianapolis	7	3	0	0	0	0	0	0	0
South Bend	4	0	0	0	0	0	0	0	0
Illinois:									
Chicago	11	7	0	0	0	0	0	0	0
Michigan:									
Detroit	23	11	0	1	0	0	1	0	0

City reports for week ended January 18, 1930—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL—CON.									
Wisconsin:									
Milwaukee	2	2	0	0	0	0	0	0	0
Racine	1	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	1	0	0	0	0	0	0	0	0
Missouri:									
Kansas City	1	1	0	0	0	0	0	0	0
St. Joseph	2	0	0	0	0	0	0	0	0
St. Louis	4	1	0	0	0	0	0	0	0
North Dakota:									
Fargo	1	1	0	1	0	0	0	0	0
Nebraska:									
Omaha	3	0	0	0	0	0	0	0	0
Kansas:									
Topeka	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	1	1	0	0	0	0	0	0	0
Maryland:									
Baltimore	1	1	0	0	0	0	0	0	0
Virginia:									
Norfolk	1	0	0	0	0	0	0	0	0
Richmond	0	1	0	0	0	0	0	0	0
West Virginia:									
Charleston	1	0	0	0	0	0	0	0	0
North Carolina:									
Winston-Salem	0	1	0	0	0	0	0	0	0
South Carolina:									
Charleston	2	2	0	0	0	0	0	0	0
Columbia	0	2	0	0	0	0	0	0	0
Georgia:									
Atlanta	1	3	0	0	0	0	0	0	0
Savannah [1]	0	0	0	0	5	1	0	0	0
Florida:									
Tampa [1]	0	0	0	0	0	0	0	1	0
EAST SOUTH CENTRAL									
Kentucky:									
Covington	0	1	0	0	0	0	0	0	0
Tennessee:									
Nashville	1	0	0	0	0	0	0	0	0
Alabama:									
Birmingham	0	0	0	0	0	1	0	0	0
Mobile	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Oklahoma:									
Oklahoma City	1	1	0	0	0	0	0	0	0
Texas:									
Fort Worth	0	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Great Falls	0	0	0	1	0	0	0	0	0
Colorado:									
Denver	3	2	0	0	0	0	0	0	0
New Mexico:									
Albuquerque	1	0	0	0	0	0	0	0	
Arizona:									
Phoenix	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City	4	1	0	0	0	0	0	0	
PACIFIC									
California:									
Los Angeles	0	0	0	0	0	0	0	0	1
Sacramento	0	0	0	0	0	0	0	1	0

[1] Typhus fever: 2 cases; 1 case at Savannah, Ga., and 1 case at Tampa, Fla.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended January 18, 1930, compared with those for a like period ended January 19, 1929. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 32,000,000. The 91 cities reporting deaths have more than 30,500,000 estimated population.

Summary of weekly reports from cities, December 15, 1929, to January 18, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928–29 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Dec. 21, 1929	Dec. 22, 1928	Dec. 28, 1929	Dec. 29, 1928	Jan. 4, 1930	Jan. 5, 1929	Jan. 11, 1930	Jan. 12, 1929	Jan. 18, 1930	Jan. 19, 1929
98 cities	129	146	[2] 120	133	[3] 117	148	[4] 119	139	[5] 111	[6] 132
New England	170	159	[3] 125	170	136	163	156	183	122	177
Middle Atlantic	106	146	113	156	86	178	113	157	94	158
East North Central	167	166	166	133	[3] 156	153	130	124	127	[6] 107
West North Central	110	139	67	119	114	161	123	158	108	146
South Atlantic	107	122	79	105	86	111	83	118	103	99
East South Central	122	133	109	105	112	88	79	190	[5] 81	171
West South Central	233	191	178	174	201	111	170	119	205	76
Mountain	61	71	35	18	52	70	69	87	51	61
Pacific	57	95	85	43	120	100	[4] 95	67	94	104

MEASLES CASE RATES

98 cities	110	179	[2] 92	161	[3] 130	196	[4] 146	235	[5] 209	[6] 218
New England	93	800	[2] 98	676	125	964	112	873	157	700
Middle Atlantic	59	68	51	77	76	80	116	94	124	70
East North Central	94	251	97	206	[3] 118	230	153	315	152	[6] 303
West North Central	210	225	146	201	277	198	303	394	364	423
South Atlantic	39	52	30	73	132	114	118	66	167	84
East South Central	0	28	0	0	7	14	13	7	[5] 45	34
West South Central	138	12	91	4	101	24	325	43	400	11
Mountain	139	204	78	106	197	383	146	427	240	853
Pacific	431	49	337	84	315	40	[4] 54	115	676	56

SCARLET FEVER CASE RATES

98 cities	250	184	[2] 217	183	[3] 250	195	[4] 274	221	[5] 280	[6] 225
New England	312	241	[2] 314	308	377	296	397	317	363	294
Middle Atlantic	176	145	164	138	186	148	232	190	223	183
East North Central	354	233	311	220	[3] 344	239	352	251	398	258
West North Central	235	241	179	262	248	258	216	283	260	248
South Atlantic	253	166	144	132	186	154	201	124	198	122
East South Central	48	154	75	182	125	197	106	156	[5] 108	[6] 232
West South Central	103	101	126	162	89	142	120	182	134	183
Mountain	583	27	322	27	378	113	481	157	335	183
Pacific	252	197	254	151	271	185	[4] 348	282	276	377

[1] The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1930, 1929, and 1928, respectively.
[2] Hartford, Conn., not included.
[3] South Bend, Ind., and Racine, Wis., not included.
[4] San Francisco, Calif., not included.
[5] Memphis, Tenn., not included.
[6] South Bend, Ind., not included.

Summary of weekly reports from cities, December 15, 1929, to January 18, 1930—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928–29—Continued

SMALLPOX CASE RATES

	Week ended—									
	Dec. 21, 1929	Dec. 22, 1928	Dec. 28, 1929	Dec. 29, 1928	Jan. 4, 1930	Jan. 5, 1929	Jan. 11, 1930	Jan. 12, 1929	Jan. 18, 1930	Jan. 19, 1929
98 cities	23	8	[2] 18	4	[3] 20	3	[4] 29	5	[5] 33	[6] 7
New England	0	2	[2] 0	2	0	0	0	2	0	0
Middle Atlantic	0	0	0	0	0	1	0	0	0	0
East North Central	31	4	20	3	[3] 16	6	27	3	36	6
West North Central	60	6	58	10	80	2	80	6	121	13
South Atlantic	0	0	2	2	2	0	0	2	5	6
East South Central	7	0	7	7	0	7	7	41	[5] 0	[6] 7
West South Central	36	41	28	12	15	4	43	16	41	46
Mountain	52	44	44	35	52	35	43	78	51	17
Pacific	117	56	80	15	107	5	[4] 233	7	144	17

TYPHOID FEVER CASE RATES

98 cities	5	4	[2] 4	5	[2] 2	4	[4] 3	4	[5] 6	[6] 4
New England	0	2	[2] 0	2	2	5	0	2	4	4
Middle Atlantic	4	4	3	4	1	2	3	4	3	4
East North Central	3	1	1	5	[2] 2	3	2	1	3	[6] 3
West North Central	8	2	2	6	0	0	2	0	11	2
South Atlantic	4	8	9	6	6	9	9	4	5	6
East South Central	0	7	34	7	7	0	7	7	18	21
West South Central	40	8	8	8	0	4	4	28	[5] 7	8
Mountain	17	9	0	9	9	9	0	0	60	0
Pacific	[7]	10	10	8	10	7	[4] 7	0	5	2

INFLUENZA DEATH RATES

91 cities	19	118	[2] 19	180	[3] 17	234	[7] 19	241	[5] 19	[6] 183
New England	9	14	[2] 10	14	7	48	0	100	9	141
Middle Atlantic	18	66	13	129	10	165	14	161	15	152
East North Central	14	124	13	201	[3] 15	238	12	236	17	[6] 148
West North Central	15	220	15	254	27	240	[8] 34	165	27	123
South Atlantic	13	134	26	281	18	343	31	395	22	288
East South Central	52	77	30	268	29	970	65	1,592	[5] 41	948
West South Central	69	212	97	379	79	596	64	467	65	320
Mountain	26	594	26	266	17	218	43	165	26	157
Pacific	30	212	20	182	13	134	[4] 20	79	15	75

PNEUMONIA DEATH RATES

91 cities	159	250	[2] 144	315	[3] 170	383	[7] 170	408	[5] 154	[6] 366
New England	158	159	[2] 96	159	163	201	170	323	115	442
Middle Atlantic	165	247	155	294	181	395	192	443	167	446
East North Central	117	255	116	382	[3] 113	466	122	414	109	[6] 280
West North Central	180	444	174	364	195	216	[8] 173	285	207	241
South Atlantic	184	228	152	344	221	360	177	485	170	474
East South Central	215	207	193	261	251	533	136	659	[5] 102	455
West South Central	243	254	243	408	329	670	210	528	237	383
Mountain	235	399	209	363	180	174	223	200	249	200
Pacific	144	169	108	169	118	148	[4] 232	134	169	119

[1] Hartford, Conn., not included.
[2] South Bend, Ind., and Racine, Wis., not included.
[3] San Francisco, Calif., not included.
[4] Memphis, Tenn., not included.
[5] South Bend, Ind., not included.
[6] Omaha, Nebr., and San Francisco, Calif., not included.
[7] Omaha, Nebr., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended January 11, 1930.—The Bureau of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended January 11, 1930, as follows:

Province	Cerebro-spinal fever	Influenza	Polio-myelitis	Small-pox	Typhoid fever
Prince Edward Island [1]					
Nova Scotia [1]					
New Brunswick					7
Quebec	3				5
Ontario	2	4	1	4	6
Manitoba	1			3	
Saskatchewan				21	
Alberta	1		2	2	
British Columbia				2	1
Total	7	4	3	32	19

[1] No case of any disease included in the table was reported for the week.

Quebec Province—Communicable diseases—Week ended January 18, 1930.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended January 18, 1930, as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	1	Ophthalmia neonatorum	1
Chicken pox	109	Scarlet fever	121
Diphtheria	46	Smallpox	4
Influenza	4	Tuberculosis	35
Measles	121	Typhoid fever	3
Mumps	121	Whooping cough	109

CUBA

Provinces—Typhoid fever—July-December, 1929.—The following table shows the number of cases of typhoid fever reported in the Provinces of Cuba during the period July-December, 1929, as compared with the similar period of 1928:

Typhoid fever cases reported in the Provinces of Cuba July–December, 1929 and 1928

Province	1929							July–December, 1928
	July	August	September	October	November	December	Total	
Havana	91	94	46	30	151	36	448	313
Santa Clara	57	118	62	46	39	22	344	266
Oriente	45	50	62	30	21	18	226	142
Pinar del Rio	21	64	39	11	13	10	158	117
Matanzas	85	20	3	9	10	2	129	125
Camaguey	29	23	19	16	15	7	109	95
Total	328	369	231	142	249	95	1,414	1,058

DENMARK

Communicable diseases—October, 1929.—During the month of October, 1929, cases of certain communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Broncho-pneumonia	1,273	Paratyphoid fever	13
Cerebrospinal meningitis	8	Pneumonia	236
Chicken pox	33	Poliomyelitis	72
Diphtheria and croup	535	Puerperal fever	19
Erysipelas	302	Scabies	1,118
German measles	11	Scarlet fever	236
Influenza	4,539	Tuberculosis	256
Jaundice	132	Typhoid fever	20
Lethargic encephalitis	12	Undulant fever [1]	51
Measles	350	Whooping cough	745
Mumps	891		

[1] Reported from the state serum institute.

NETHERLANDS

Smallpox (alastrim)—Week ended January 4, 1930.—During the week ended January 4, 1930, one case of smallpox (alastrim) was reported in the Netherlands. It occurred at Rotterdam.

PARROT DISEASE IN EUROPE

According to recent information there has been a mild epidemic of psittacosis, parrot disease, in Germany and some of the other countries of central Europe.

The first case was reported to have occurred in Berlin, subsequent to exposure to a parrot which had recently been imported from Brazil with a large number of other birds of the same species. Several other cases have also been reported from Berlin, Frankfurt, and Hamburg in Germany, Prague, Czechoslovakia, and Vienna, Austria. The mortality rate is not positively known, but it is believed to be about 50 per cent in Hamburg.

The symptoms are those of atypical pneumonia with great prostration. An intestinal form has also been observed. No etiological organism has been found.

It is understood that the German Government is maintaining a strict quarantine on all imported parrots under the supervision of capable veterinarians.

PERSIA

Tabriz—Scarlet fever.—A severe epidemic of scarlet fever has recently been reported at Tabriz, Persia. It was said that a conservative estimate placed the deaths at about 3,000.

PORTO RICO

San Juan—Communicable diseases—Five weeks ended January 11, 1930.—During the five weeks ended January 11, 1930, cases of certain communicable diseases were reported in San Juan, Porto Rico, as follows:

Disease	Cases	Disease	Cases
Colibacillosis	1	Malaria	11
Diphtheria	1	Ophthalmia neonatorum	2
Dysentery	1	Tetanus, infantile	1
Filariasis	1	Tuberculosis	57

TUNISIA

Tunis—Pneumonic plague.—According to information recently received, 50 cases of pneumonic plague were reported in Tunis during the period from December 23 to 29, 1929, and 1 new case of bubonic plague at Traka (Sfax district). The cases of pneumonic plague in Tunis all occurred among the southern tribe of Douriat Bedouins, of which there are approximately 800 representatives in Tunis. These 800 people were placed in an isolation hospital under observation, and no subsequent cases had been reported among the remaining population. In addition, strict sanitary measures are being taken in the city.

YUGOSLAVIA

Communicable diseases—December, 1929.—During the month of December, 1929, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	38	7	Rabies	2	2
Cerebrospinal meningitis	18	10	Scarlet fever	1,729	286
Diphtheria and croup	840	158	Tetanus	8	3
Dysentery	95	22	Typhoid fever	397	84
Measles	833	6	Typhus fever	6	1

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

From medical officers of the Public Helath Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Week ended—										
					Oct. 26, 1929	November, 1929					December, 1929				Jan. 4, 1930
						2	9	16	23	30	7	14	21	28	
China:															
Amoy	C	1													
Canton	C	5	1						1	1					
	D	3	1												
Hankow	C			4	1		1								
Manchuria—															
Kwantung—Dairen	C	1													
Newchwang	C		1												
Nanking	C		P			P	P								
Shanghai	C	1,306	984	35											
	D	98	69	11											
Swatow	D	12	37	22	6	3	3		1	1					
Tientsin	C			P											
Chosen: Chemulpo	C		P												
India	C	41,090	26,896	16,354	4,973	3,978	4,386	4,003							
	D	24,005	16,667	10,051	2,971	2,496	2,751	2,462							
Bassein	D	6													
Bombay	C	2		1											
	D	1													
Calcutta	C	170	135	160	71	52	74	55	85	55	60	65	40	38	15
	D	106	59	70	41	11	48	29	45	29	40		28	27	9
Karachi	D	10	11												
Madras	C				1	1	1			1	1				
	D				1	1				1	1				
Negapatam	D						1	1							
Rangoon	C	1		1			1	1	1					3	3
	D	1		1			1	1	1					3	2
Tuticorin	C			18	2	2	1		7	9	7		32	2	
	D			11	1	1	1		4	1	1		6	2	
India (French):															
Chandernagor	C	1		1	3	1	1		2	10	1	1			
	D				1	1	2	1	4	4	3	1			
Karikal	C	1												1	
Pondicherry Province	C			3					2	2					
	D			3					1	2					

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

CHOLERA—Continued

[C indicates cases; D, deaths; P, present]

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Week ended— Oct. 26, 1929	November, 1929 2	9	16	23	30	December, 1929 7	14	21	28	Jan. 4, 1930
India (Portuguese)	C	1	2	1											
	D	1	1												
Indo-China (see also table below):															
Paoompeah	C	3	3	61	28	8	7		1	2	1		2		
	D	3	2	53	20	4	4			2	1		2		
Saigon and Cholon	C	2			1					1	1				
	D	2													
Japan	C			34											
Kobe	C	2	9	3											
Osaka	C	5	41	14											
Shimonoseki	C	P	2												
Siam	C	180	26	9					2	1	4				
	D	112	19	4					1	1	1				
Antboang	C	10													
	D	3													
Ayudhaya	C	2		2											
Bangkok	C	9	10	4					2		3		1	2	3
	D	3	5	2							1			1	
Dhanapuri	C			2											1
	D			2											
Lobpuri	C	2	3												
	D	2	3												
Nagara Rajsima	C	5		2											
	D	5		2											
Sridharmaraj Province	C	15													
	D	13													
On vessel:															
S.S. Shinsei at Shanghai	D		3												
S. S. Texas Maru, at Nagasaki, from Shanghai	C	1													

Place		July, 1929	August, 1929	September, 1929	October, 1929 1–10	11–20	21–31	November, 1929 1–10	11–20	21–30	December, 1929 1–10	11–20
Indo-China (French) (see also table above):												
Annam	C	9	17	1					2			
Cambodia	C	186	35	38		121	100		43			41
Cochin-China	C	315	60	45			3		15			46
Laos	C	13	3	12								

PLAGUE

[C indicates cases; D, deaths; P, present]

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Week ended—												
					Oct. 26, 1929	November, 1929					December, 1929				January, 1930		
						2	9	16	23	30	7	14	21	28	4	11	18
Algeria:																	
Algiers	C		2														
Philippeville	C	3															
Argentina:																	
Rosario	C					1	1										
Plague-infected rats					1	1	1										
Santa Fe	C				1												
Tucuman	C						1										
Azores: Ponta Delgada	C														P		
Belgian Congo: Djugu	C	1	2														
	D	1	2							2							
British East Africa (see also table below): Uganda	C	840	528	405	110	93	71	62	72	68							
	D	730	556	343	101	84	66	59	66	63							
Ceylon:																	
Colombo	C		1	3					1		2	2			1		
	D		1	1					1		1	2			1		
Plague-infected rats		1	7								1						
Galle	C		8	1													
	D		6														
Kandy	C	1	1														
	D	1	1														
Chile: Antofagasta	C																1
China:																	
Amoy	C	P															
Foochow	C	P	P	P													
Hong Kong	C	1	1														
	D	1	1														
Plague-infected rats		3	2														
Manchuria—Tungliao District	C	16															
Dutch East Indies: Java—																	
Batavia and West Java	C	122	180	131	61	66	62	77	89	96	80						
	D	121	178	128	60	65	61	76	86	97	80						
Plague-infected rats							1		3	2	3						2
Celebes—Makassar	C										1						
Plague-infected rodents															2		
East Java and Madura	C	3	7	60	35	3	1	2	29								
	D	3	7	60	36	3	1	3	29								

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

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Week ended— Oct. 6, 1929	November, 1929					December, 1929				January, 1930		
						2	9	16	23	30	7	14	21	28	4	11	18
Dutch East Indies: Java—Continued.																	
Surabaya	C	3	7	4					1								
	D	3	7	2					1								
Ecuador (see table below).																	
Egypt:																	
Alexandria	C	5	11	13	4	4	2	1	1	1	2	2		2			
	D	1	5	3	3		1		1		1	1	2	1			
Assiout	C	1		1								1	4				
	D											1	2				
Assuan	C		1												2		
Beheira	C											1					
Beni Suef	C	1	1				1	1									
Dakahlieh	C		2									1			1		
	D	1	2												1		
Gharbiah	C	1		5	4		1	1				3			2		1
	D	1		4								2			1		
Minieh	C	1															
Port Said	C	6	2	2													
	D	6	3	1													
France: Paris	C			1													
Greece (see also table below):																	
Messenia	C						2										
Patras	C		3	3			1	1									
Piraeus	C		3								1						
Pyrgos	C							6	2								
Hawaii: Hamakua—Kukuihaele—Plague-infected rats				3													
India	C	4,221	6,326	8,334	2,201	1,938	2,079	1,957									
	D	2,266	3,354	4,395	1,132	1,053	1,066	1,123									
Bassein	C	13	4														
	D	14	4														
Bombay	C	1	2	1													
	D	1	2	1													
Plague-infected rats		10	28	32	6	3	10	12	11	9	9	7	3	8	9		
Madras Presidency	C	215	186	139		27	68	57	91	85	18	42		50	14		
	D	112	107	64		14	82	34	36	45	10	17		21	6		

Rangoon	C	15	11	5			1	1	1					1			
	D	12	9	6			1	1	1					1	1		
Plague-infected rats		10	15	6	3		1	2	1	1							
Indo-China (see also table below):																	
Phompenh	C	8	4	1	1			1	2	2		1					
	D	8	4	1	1			1	2	2		1					
Saigon and Cholon	C	4	1	2													
	D	4		2													
Iraq:																	
Baghdad	C	2		3	1	1	1	1	1	1		1	1			1	
	D			1	1			1				1				1	
Basra	C														1		
Naudham	C						1						1				
Italy: Naples Province	C			2													
	D			1													
Plague-infected rats				3													
Madagascar (see also table below):																	
Tamatave	C	1	2	5	1	2								1	3		
	D		13	10	1	2									3		
Morocco	C	4	1		P	1	2		4	2		3	5	4	1	2	
Nigeria: Lagos	C	9	17	37	14	15	13	16	5	2	3		3				
	D	8	17	35	13	11	12	13	5	2	3		2				
Plague-infected rats		16	51	89	9	12	6	6	7		4						
Peru (see table below).																	
Senegal (see table below).																	
Siam	C	3	7	3	1					1	1	1					
	D	3	5	3	1					1	1	1					
Bangkok	C	3	1											1			
	D	3	1											1			
Straits Settlements: Singapore	C		1														
	D		1														
Syria: Beirut	C								1								
Tunisia:																	
Sfax district	C			13	5	3	10	26		11	5	4	9	1	2		
Tunis	C		10	25		5	8	28					9	21	8		
	D		1											21			
Plague-infected rats			4														
Turkey: Adalia	C	1															
Union of Socialist Soviet Republics:																	
Caucasia	C	2															
	D	1															
Kazaks	C														P		
Ural—Kirghiz	C			1													
Union of South Africa:																	
Cape Province	C			17	2	11			4								
	D			13		5											
Orange Free State	C		1				4	3		1	5						
	D						1	3			3						
On vessel:																	
S. S. Chaban, at Port Said, from Jaffa	C	1															
	D	1															
Steamship at Porto Novo, from Lagos	C			1													

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

PLAGUE—Continued

[C indicates cases; D, deaths; P, present]

Place		July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929
British East Africa (see also table above):							
Kenya	C	67	19	28	146	157	15
Uganda	C	1,203	866	------	------	------	------
	D	973	749	------	------	------	------
Ecuador: Guayaquil	C	1	6	7	12	14	------
	D	------	1	3	4	3	------
Plague-infected rats	P	------	4	8	------	9	------
Greece (see also table above)	C	3	2	5	5	2	1
	D	1	1	2	2	1	------
Indo-China (see also table above)	C	37	9	------	------	------	10
Madagascar (see also table above)	C	19	48	195	203	------	------
	D	18	46	182	193	------	------
Ambositra Province	C	------	9	9	2	------	------
	D	------	9	9	2	------	------
Antisirabe Province	C	2	1	13	17	------	------
	D	2	1	13	17	------	------
Itasy Province	C	------	------	5	------	------	------
	D	------	------	5	------	------	------
Majunga Province	C	------	2	------	------	------	------
	D	------	2	------	------	------	------
Miarinarivo	C	------	------	11	12	------	------
	D	------	------	11	11	------	------
Madagascar—Continued.							
Moramanga Province	C	1	2	5	27	------	------
	D	1	2	4	27	------	------
Tamatave Province	C	2	------	7	5	------	------
	D	1	------	1	4	------	------
Tananarive Province	C	16	36	141	141	------	------
	D	16	34	135	132	------	------
Peru	C	11	5	------	------	------	------
	D	3	2	------	------	------	------
Senegal:							
Baol [1]	C	22	32	42	45	23	5
	D	9	13	24	13	16	2
Dakar [1]	C	62	76	26	3	17	8
	D	45	65	17	2	5	1
Louga [1]	C	59	121	108	41	------	------
	D	39	70	64	24	1	------
Rufisque [1]	C	22	------	1	------	------	------
	D	7	------	1	------	------	------
Thies [1]	C	61	53	34	3	------	------
	D	34	33	28	3	------	------
Tivaouane [1]	C	161	188	119	41	8	------
	D	96	119	55	21	4	------

SMALLPOX

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Week ended— Oct. 26, 1929	November, 1929: 2	9	16	23	30	December, 1929: 7	14	21	28	January, 1930: 4	11	18
Algeria:																	
Algiers	C	1	------	1	------	1	1	------	------	1	1	1	------	------	------	------	------
Oran	C	------	5	------	------	------	------	------	3	------	------	------	------	------	------	------	------
Arabia: Aden	C	38	4	3	1	1	------	------	1	1	2	------	------	1	------	------	------
	D	37	1	------	------	------	------	------	------	1	------	------	------	------	------	------	------
Brazil: Porto Alegre	C	3	2	2	3	------	2	------	------	------	------	------	------	------	------	------	------
British East Africa (see also table below):																	
Tanganyika	C	5	9	3	1	7	18	15	6	------	------	------	------	------	------	------	------
	D	------	1	------	------	------	------	4	3	------	------	------	------	------	------	------	------

British South Africa: Southern Rhodesia	C	------	3	5	------	------	------	2	------	------	------	------	------	------	------	------	------	------
Canada:																		
Alberta	C	4	4	1	2	4	1	5	------	4	11	7	5	2	7	2	------	
Calgary	C	2	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	
Edmonton	C	1	------	3	2	4	1	5	------	4	------	7	4	2	7	2	------	
British Columbia—Vancouver	C	8	5	15	2	1	------	6	1	6	6	1	6	2	7	2	------	
Manitoba	C	------	------	------	1	1	------	------	------	------	------	6	2	3	------	3	------	
New Brunswick	C	2	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	
Ontario	C	7	19	7	3	5	3	6	35	5	10	13	4	28	15	4	------	
London	C	------	------	------	------	3	1	------	------	------	------	------	------	------	------	------	------	
Niagara Falls	C	------	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	
North Bay	C	------	3	7	------	5	------	------	1	------	1	------	------	------	------	------	------	
Ottawa	C	1	------	------	------	------	1	------	2	------	1	1	------	4	3	------	5	
Sarnia	C	------	------	------	------	------	1	------	------	------	------	------	------	------	------	------	------	
Toronto	C	------	3	1	1	1	------	------	------	------	------	------	------	------	------	------	2	
Windsor	C	------	------	------	------	1	1	------	------	------	------	------	------	------	------	------	------	
Prince Edward Island	C	2	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	
Quebec	C	3	1	7	8	7	6	1	6	2	------	8	------	1	2	------	4	
Quebec	C	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	
Saskatchewan	C	1	4	------	9	1	------	1	9	9	7	15	18	10	12	21	------	
Saskatoon	C	------	1	13	------	6	5	2	------	------	------	------	------	------	------	------	------	
China:																		
Canton	C	2	------	------	------	------	------	------	------	1	------	3	1	------	------	------	------	
Chungking	C	------	------	P	P	P	------	P	P	P	P	P	------	------	------	------	------	
Foochow	C	P	P	P	------	P	------	P	------	P	------	------	P	------	------	------	------	
Hong Kong	C	5	2	3	------	4	5	6	10	7	9	36	19	36	27	------	25	
Manchuria—	D	4	2	3	------	2	7	4	8	6	8	33	12	16	29	------	28	
Harbin	C	1	------	1	1	------	------	------	------	------	------	------	------	------	------	------	------	
Kwantung—Dairen	C	------	2	------	1	------	------	------	------	------	------	------	------	1	------	------	------	
	D	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	
Nanking	C	P	P	------	------	------	P	------	------	------	------	------	------	P	------	------	------	
Shanghai—																		
Foreigners only	C	------	------	2	------	------	3	1	2	2	1	------	------	2	------	------	------	
Including natives	D	------	------	------	------	------	1	------	2	------	------	------	2	2	------	------	------	
Swatow	D	2	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------	
Tientsin	C	------	2	3	------	------	------	1	3	1	------	------	2	------	------	------	------	
Chosen (see table below).																		
Colombia:																		
Barranquilla	C	------	4	------	------	------	------	------	------	------	------	------	------	------	1	------	------	
Buenaventura	C	------	------	15	8	14	14	14	14	16	12	14	9	------	2	2	------	
Dutch East Indies:	D	------	------	------	------	------	------	------	------	------	------	1	------	------	------	------	------	
Belawan Deli	C	1	1	------	------	------	1	3	------	------	1	------	1	------	------	------	------	
Borneo—Samarinda	C	7	------	11	3	5	------	------	------	------	------	------	------	------	------	------	------	
	D	------	------	3	------	------	------	------	------	------	------	------	------	------	------	------	------	
Celebes—Makassar	C	4	12	156	------	------	------	------	------	------	------	------	------	------	------	------	------	
Java—	D	3	5	1	------	------	------	------	------	------	------	------	------	------	------	------	------	
Batavia and West Java	C	10	35	31	------	4	6	1	11	7	17	2	1	2	------	------	------	
	D	5	7	6	------	1	5	1	3	1	2	2	------	2	------	------	------	
East Java and Madura	C	3	------	------	------	------	12	1	------	4	9	------	------	------	------	------	------	
	D	1	------	------	------	------	9	1	------	------	------	------	------	------	------	------	------	

[1] Incomplete reports.

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

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Week ended— Oct. 26, 1929	Nov. 2	Nov. 9	Nov. 16	Nov. 23	Nov. 30	Dec. 7	Dec. 14	Dec. 21	Dec. 28	Jan. 4, 1930	Jan. 11	Jan. 18
Dutch East Indies—Continued.																	
Sanggi Islands	C								41	30	17						
	D								3	1							
Sumatra—Medan	C	3	3				1	3			1						
Egypt:																	
Alexandria	C			1					4			1					
Suez	C		5														
Great Britain:																	
England and Wales	C	502	496	490	131	168	172	172	279	198	252	265	195	232	248	335	
Ashton under Lyne	C	3		2			1		1	1		4	3				
Bradford	C		8	6		4	8	1	7		9	4	4	2	1	1	
Cardiff	C	1		1				1				1					
Leeds	C	1	2														
London	C	78	144	156	29	44	47	54	84	60	72	105	99	83	129	169	
London and Great Towns	C	297	304	332	83	115	121	123	214	148	208	213	159	180	186	274	
	D									1							
Newcastle-on-Tyne	C	4	2	1								1					
Stoke-on-Trent	C	18	18	7	3	1	5		1					2	10		
Greece: Patras	C												1				
Hedjaz	C	11	22	5		4	1	2	2	2	2						
	D	19	7	1		4	1	1	1								
Honduras: Choluteca	C			2													
India	C	5,481	4,199	3,111	838	681	837	981									
	D	1,418	954	661	169	143	201	217									
Bombay	C	63	37	16	6	1	3	2	9	8	12	13	19	29	25		
	D	31	24	11	3	1	3	1	1	5	4	4	11	12	15		
Calcutta	C	31	21	12	1	3		2	7	6	7	34	7	18	29		P
	D	20	16	11	1	2		1	6	5	6	22	5	13	24		
Cochin	C	4	13	13	18	16	28	34	29	47	245	66	67	71	51		
	D		1		5	2	2	2	10	5	51	6	6	4	3		
Karachi	C	15	27	10		2			3	2	1	1	2	3	8		
	D	7	16	3		1				2			4	2	3		
Madras	C	89	82	79	15	11	21	11	22	18	14	10	27	25	10		
	D	22	21	8	1	3	4	3	2	2	5	2	7	5	2		
Moulmein	C	11	5	3	2		1		1	1	1	3	3	1	8		
	D	5	2		1		1				1	2	3	1	4		
Negapatam	C	1	3	1				1		1							
	D		1														
Rangoon	C	1		1					1				1				
Vizagapatam	C		1											1	1		
	D	1	1														

India (French):																		
Karikal	C	12	14	2	1		2	1				1						
	D	2	13				2					1						
Pondicherry Province	C	12	8	5	3	2	2	12			1	6			2			
	D	7	8	3	3	2	2	9	1	1	1	4			2			
India (Portuguese)	C		1	1								1						
Indo-China (see also table below):																		
Pnompenh	C	3	1	1			1	1										
	D	3	1															
Saigon and Cholon	C														2			
	D														2			
Iraq:																		
Baghdad	C				8			1	3	2	5	10	4	6	5		3	
	D				2			1	2		2	6	1	1	3			
Basra	C									1	4							
Diyalah Liwa	C	13	4				18	45		33	13							
	D	12					9	9		3	4							
Kirkuk Liwa	C		21	16			45	45		19	51							
	D		1				13	13		6	13							
Mossoul	C	81	68	24	75	52	11	14	20	8	19	1	53	27				
	D	13	17	6	33	28	26	12	6	1	10		3					
Ivory Coast (see table below).																		
Mexico (see also table below):																		
Acapulco	C	4	1															
	D	4	1															
Aguascalientes	D	7	6	8	1													
Coahuila	D						1											
Jalisco (State): Guadalajara	D	5	8	4	1					1	4	1	1	5	1	2		
Juarez	C	3	P	10		6					11							
Mexico City and surrounding territory	C	21	7	8	2	4	1	2	6	2	5	6	2	15				
	D	6	1	8	2	1		1		1	6	2						
Morocco (see table below).																		
Netherlands: Rotterdam	C	141	110	39	4	2	8	4			5				1			
	D	1	7	5			1		1									
Nigeria: Lagos	C			1														
Panama	C	5	95	154	8	3												
Persia (see table below).																		
Philippine Islands: Sarangani and Balut Islands	D														40			
Poland	C	2		1	2				1	3								
Portugal:																		
Lisbon	C	1	17			1	1			1	1	1	3			2		
Oporto	C								1									
Rumania	C		1	2														
	D		1															
Siam	C	32	23	33	2	4		1	1		1	1			27			
	D	7	5	2	1		1					1			2			
Somaliland, British: Boales	C		4	3	5	10	5	5	5	8	6	5	1	2		2		
	D		2	4	1	5	4	6	2	3	1	3	4	3	1	1		
Somaliland, French: Jibuti	C	31	10															
	D	21	11															
Sudan (Anglo-Egyptian)	C	87	598	250	19	11	7	54	74	7	35	138	52	30	3	205	14	
	D	73	95	16	3	3	3	3	32	2	10	1	14	9		42	1	
Sudan (French) (see table below).																		
Syria (see table below).																		
Tunisia: Tunis	C			6	6	6	8	1	12	12	7	16		14	3	3		

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

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Week ended— Oct. 26, 1929	Nov. 2	Nov. 9	Nov. 16	Nov. 23	Nov. 30	Dec. 7	Dec. 14	Dec. 21	Dec. 28	Jan. 4	Jan. 11	Jan. 18
		November, 1929									December, 1929				January, 1930		
Turkey (see table below).																	
Union of South Africa:																	
Cape Province	C			P	P	P	P	P	P	P	P						
Natal	C	P	P						P								
Transvaal	C		P	P	P	P	P	P	P	P	P						
Upper Volta	C			1													
On vessel:																	
S. S. Karoa, at Zanzibar	C		1			1											
S. S. Taipikn, at Manila, from Australia	C				1												
S. S. Umvuma, at Cape Town, from London	C			5													

Place		July, 1929	August, 1929	September, 1929	October, 1929	November, 1929 1–10	November, 1929 11–20	November, 1929 21–30	December, 1929 1–10	December, 1929 11–20	December, 1929 21–31	Jan. 1–10, 1930
Belgian Congo	C			725								
	D			19								
Dahomey	C				4			19	19			
Indo-China (see also table above)	C	159	263	64	128		245			142		
Ivory Coast	C	22	2									
Sudan (French)	C	15		2				P		17		
Syria: Beirut	C	27	29	37	28	22	22	16	10	9	6	13
	D				1		6					

Place		August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	January, 1930
British East Africa (see also table above):							
Kenya	C	60	66				
Chosen	C	1			1		
	D	1					

Place		August, 1929	September, 1929	October, 1929	November, 1929	December, 1929	January, 1930
Mexico: Durango (see also table above)	D		2	2	2	4	10
Morocco	C	10	3	12	41		
Persia	C		62	57		P	
	D			158	37		
Turkey	C	1	41	100			
	D		9	29			

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Week ended— Oct. 26, 1929	Nov. 2	Nov. 9	Nov. 16	Nov. 23	Nov. 30	Dec. 7	Dec. 14	Dec. 21	Dec. 28	Jan. 4, 1930	Jan. 11
Algeria:																
Algiers	C	4	4	10			1	1		1				1		
Constantine Department	C	2					1				1	2			1	
Oran	C	2	3									1				
Bolivia: Pacajes Province—Calacoto Canton	C	19														
	D	5														
Brazil: Sao Paulo. [1]																
Bulgaria	C		14								9					
	D										1					
Sofia	C							1								
	D							1								
Chile: Valparaiso	C	1														
China: Tientsin	C	1														
Chosen (see table below).																
Czechoslovakia (see table below).																
Egypt:																
Alexandria	C		1	2												
Assuan	C														9	
	D														1	
Beheira Province	C	31	6	16	2											
	D		2	4	1											
Cairo	C	4	3						1							
	D		1						1							
Dakahlieh	C															7
	D															2
Port Said	C	3														
Suez	C	2		1	1											
Greece (see table below).																
Iraq: Baghdad Liwa	C														1	
	D														1	
Ireland (Irish Free State): Donegal County—Dunfanaghy	C														1	
Latvia (see table below).																
Lithuania (see table below).																
Mexico:																
Aguascalientes	D	1														
Mexico City, including municipalities in Federal District	C	11	14	9		1	2		1	1	1	2	4	2		
	D	1	6			1							1	1		
Morocco	C	6		5	1	2	1			1		1	1	1	1	

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

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place		July 28–Aug. 24, 1929	Aug. 25–Sept. 21, 1929	Sept. 22–Oct. 19, 1929	Week ended— Oct. 26, 1929	November, 1929 2	9	16	23	30	December, 1929 7	14	21	28	January, 1930 4	11
Palestine	C	1	5	3			2		1							1
Persia	C	23														
	D	8														
Peru: Arequipa (see table below).																
Poland	C	48	26	31	26	8	15	13	17	16	19	22		18	15	28
	D	7	4	3						3	3	4		2	1	1
Portugal: Oporto	C	1		1		1		2	2	1						
Rumania	C	9	39	25	5	2	1	11	8	11	32	52				
	D	1	4	5		1		1			1	9				
Tunisia	C	4		1	1				1	1		1				2
Turkey (see table below).																
Union of South Africa:																
Cape Province	C	1	P	P	P	P	P	P		P	P					
Natal	C	P	P	2	P			P		P						
Orange Free State	C	P	P	P			P	P		P	P					
Transvaal	C	P	P	P	P	P	P									
Yugoslavia (see table below).																

Place		July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929
Chosen: Seoul	C			1			
Czechoslovakia	C			1		3	
France	C			1			1
Greece: Athens	C		6	3	7		
Latvia	C		1				
Lithuania	C	10	7	3	6	4	
	D	1	1		1	1	

Place		July, 1929	August, 1929	September, 1929	October, 1929	November, 1929	December, 1929
Peru: Arequipa	D	1		1	1		
Turkey	C		3	4	10	2	2
	D			1			
Yugoslavia	C	3	7		1		5
	D	1	2				

[1] Press reports show that 10 deaths from typhus fever have occurred in Sao Paulo, Brazil, from Nov. 3 to 30, 1929.

YELLOW FEVER

Since August 1, 1929, the following cases of yellow fever have been reported: Nictheroy, Brazil, 1 case; Rio de Janeiro, Brazil, 2 cases; Monrovia, Liberia, 1 case. All occurred during the month of September, 1929.