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PREVALENCE OF SMALLPOX IN THE UNITED STATES

At this season of the year an increase in the prevalence of smallpox is usual, but this year the reports indicate somewhat more cases of this disease in November than were reported in 1925 or 1926.

The health officers of 41 States reported 452 cases of smallpox for the week ended November 19, 1927; 593 cases for the following week, and 559 cases for the week ended December 3, 1927.

Data from 43 States are available for the week ended December 3, 1927, and the corresponding weeks of 1925 and 1926. These States reported 444 cases for the week in 1925, 595 cases in 1926, and 570 cases for the week in 1927.

PREVALENCE OF POLIOMYELITIS IN THE UNITED STATES

Poliomyelitis is more prevalent this month than it usually is in December. During the week ended December 3, 1927, 42 States reported 172 cases of poliomyelitis. For the corresponding week of 1926 these States reported 34 cases, and in 1925 they reported 37 cases for the week. These figures do not include Ohio, as weekly reports for that State are not available for 1925 and 1926. Ohio reported 22 cases for the week in 1927.

For the week ended November 19, 1927, 42 States (including Ohio) reported 297 cases of poliomyelitis. The following week these States reported 195 cases, and for the week ended December 3, 1927, they reported 193 cases.

Reports for the week ended December 10, 1927, will be found on page 3086 of this issue of the Public Health Reports.

TETANUS FOLLOWING VACCINATION AGAINST SMALLPOX, AND ITS PREVENTION

With Special Reference to the Use of Vaccination Shields and Dressings

By CHARLES ARMSTRONG, *Surgeon, United States Public Health Service*

For a number of years the United States Public Health Service has been deeply interested in post-vaccination tetanus. Studies directed toward determining the origin of the contaminating tetanus

organism led, in 1917, to the detection of *B. tetani* on "bone point" scarifiers by McCoy and Bengtson (1). In 1925 this organism was demonstrated in bunion pads which were found to be used occasionally as a vaccination dressing (2). The examination of other commercial dressings, of needles, of capillary tubes, and of mild antiseptics occasionally used on vaccination lesions has failed to reveal the presence of *B. tetani*. Moreover, extensive tests at the Hygienic Laboratory, using various methods, have failed to demonstrate the presence of the organism in commercial vaccine. We are therefore left to conclude that the occasional cases of post-vaccination tetanus which are not explainable on the basis of the two positive findings above mentioned must be due to the presence of the specific organism at the local site at the time of vaccination, or to its subsequent introduction. Certainly the possibility of such accidental contamination can not be denied. We should, of course, always be vigilant to insure that vaccination materials are free from contamination; but it would seem that much might also be accomplished by directing our efforts toward eliminating conditions at the vaccination site which are favorable for the development of tetanus in case the specific organism does gain entrance thereto.

VACCINATION CIRCUMSTANCES SURROUNDING THE DEVELOPMENT OF POST-VACCINATION TETANUS

A study of the individual cases of post-vaccination tetanus (Table 1) which have developed in this country over a period of several years has revealed the following facts:

1. Without exception the lesions were covered during all or part of their active course by some sort of shield or dressing strapped to the vaccination site.

2. The cases in the great majority of instances were vaccinated by a large insertion—¼ to ⅝ inch in diameter.

3. The cases of post-vaccinal tetanus, for which the data are available, have without exception followed primary "takes."

TABLE 1.—*Vaccination methods used in cases developing tetanus*

Method of insertion	Type of dressing used							
	Shields	Gauze	Bunion pads	Gauze and shield	No dressing early; shields later	Adhesive bandage	No dressing	Total
Abrasions (¼ to ⅝ inch) scarifications	30	22	13	1	1	------	------	67
Multiple linear incisions, 2 to 12 in one locality	7	6	2	2	1	------	------	18
Single linear incision	2	1	------	1	------	1	------	5
Unknown	5	3	------	------	------	------	------	8
Total	44	32	15	4	2	1	------	98

RELATION TO SEVERE "TAKES"

As noted above, several factors which tend to produce severe "takes" were present in the cases which we have investigated, namely, high susceptibility to vaccinia (primary vaccinations), large insertions, and the use of shields and dressings. That the great majority of the "takes" were actually severe, was indicated by the presence of large ulcerated areas in the cases seen during the attacks, by the size of the scars in recovered cases, and by the descriptions of the lesions as given by physicians and relatives in instances in which the lesions or scars could not be inspected by the writer. The fact that post-vaccination tetanus tends to develop only among severe primary "takes" indicates that some special condition found in such "takes" is necessary before tetanus will develop from vaccinations contaminated with *B. tetani* under ordinary conditions. Certainly there is no reason to assume that the bacilli would not occasionally gain entrance to secondary as well as to primary vaccinations, whatever the origin of the infection may be.

Anderson (3), Willson (4), and others believed that the tetanus organism gained entrance to the "take" about the tenth day or later. They based this conclusion upon the fatal nature of the tetanus (75 to 80 per cent being fatal), upon the long interval from vaccination to onset of symptoms (usually about 21 days),[1] and upon the failure to find tetanus organisms in vaccine virus.

The contention of these writers is not necessarily correct, however, since those cases which followed the use of infected bone-point scarifiers were of a severe type and showed the same long intervals from vaccination to onset of symptoms.

The more probable explanation of this long interval is that the tetanus organism, whenever it may be introduced, is incapable of developing before conditions such as are found from the 10th to the 14th day in severe primary "takes" covered by dressings have developed.

Let us now observe whether or not an undue proportion of the cases of post-vaccination tetanus has followed particular vaccination methods. By referring to Table 1 it will be seen that in most instances post-vaccinal tetanus has followed large abrasions or scarifications, which, in every case, were during all or part of their course covered by some type of shield or dressing strapped to the arm or leg. Unfortunately, we are unaware of the relative number of persons vaccinated by various methods in the United States during the period of this study, hence the data are not susceptible of statistical treatment. However, we do know that in recent years a

[1] As is well known, ordinary tetanus of this fatality usually shows an incubation period of less than 10 days.

considerable proportion of individuals have been vaccinated by small insertions, without dressings, and it would seem that the absence of post-vaccinal tetanus in this group is significant. Moreover, we have made local studies wherein the numbers vaccinated by various methods could be determined and have found a disproportionate number of post-vaccination tetanus cases to have been associated with certain vaccination procedures which tended to produce severe local "takes."

INFLUENCE OF SHIELDS AND DRESSINGS ON THE "TAKES"

The malign influence of shields and dressings is apparentl not fully realized by all vaccinators. Let us therefore consider the manner in which they influence a vaccination.

Dressings held by adhesive bands tend, when swelling occurs, to restrict the flow of blood and lymph, thus favoring stasis. This effect is especially marked when a shield is employed, since any pressure exerted on the shield is transmitted through its margin to the immediate circumference of the insertion. A shield, moreover, must be rather snugly applied, otherwise it moves and comes in contact with and irritates or ruptures the vesicle. The heat and moisture retained by artificial coverings tends to soften the vesicle and to lead to an exudation of serum, pus, etc., which is retained at the vaccination site. This accumulation of *moist* exudate tends to produce maceration and constitutes a medium for the growth of proteolytic bacteria. Even though the original insertion be small the lesion will often develop under these conditions until it fills the shield. Thus the benefit of a small insertion may be lost through the influence of the dressing. Gauze dressings become embedded in the exudate, and when they are removed the vesicle is ruptured. Some cut the gauze away, leaving the attached portion embedded in the exudate where it constitutes a foreign body.

Under the influence of dressings, especially when neglected, a foul-smelling, necrotic ulcer may develop. This would seem to be favorable for the development of tetanus, since a foul odor was noted prior to the onset of tetanus symptoms in approximately 75 per cent of the cases investigated as to this point. If such foul-smelling lesions ever develop in vaccinations kept cool and dry—conditions favored by omitting dressings—the writer has not encountered them.

In relation to the use of dressings it is of some interest to note that the writer has failed to find any reference to tetanus complicating smallpox, a disease in which the body may be covered with lesions resembling a vaccination but which are of necessity treated openly.

INFLUENCE OF THE SHIELD IN EXPERIMENTAL POST-VACCINAL TETANUS

Francis (5), in 1914, failed to produce tetanus among eight monkeys, each vaccinated in five places with a virus heavily contaminated with tetanus spores, though the animals developed good "takes." Two calves vaccinated with a similar mixture on the abdomen and thighs likewise failed to develop the disease. Anderson (3) (1915) tried with similar methods, using guinea pigs, but also with negative results. In these attempts no dressings were employed. It was deemed advisable, therefore, to endeavor again to produce the complication experimentally, employing various types of commercial shields and dressings.

MONKEYS

Twenty monkeys were vaccinated in a single site on the thorax, about 1 inch from the vertebral column. The site was shaved, and a mixture of equal parts of a highly potent virus and a heavy suspension of a virulent strain of *B. tetani* (group III by agglutination) was well rubbed in on an area 1 inch in diameter. The amount of the mixture applied was 0.6 c. c. to 0.8 c. c.

Dressings, held in place by a 3-inch band of adhesive tape were applied to all the animals for the first 18 hours. At the end of that time they were removed from the control monkeys and the lesions left uncovered, while in the remainder they were not disturbed unless to replace them in a few instances where the animals' efforts at removal had been partially successful. In applying the adhesive band a hole was cut to accommodate the dressing in order to permit of the usual ventilation with each type. In the case of the celluloid shields it was found necessary to cover the "cap" with a light wire gauze, fitted to the shield, in order to prevent its being torn away.

Three additional monkeys were vaccinated as above, but with insertion one-fourth inch in diameter; that is, in an area only one-sixteenth of that used above. A shield was applied and retained in each case. This was to determine whether a small insertion with a shield showed any advantage over a larger one similarly dressed. All these animals died of tetanus and when the dressings were removed, the ulcers filled the shields just as in the cases with the larger insertions.

TABLE 2.—*Results in monkeys vaccinated with vaccine-tetanus mixture treated with and without dressings of various types*

Monkey No.	Date vaccinated, 1927	Diameter of insertion	Quantity of virus-tetanus mixture used	Dressing [1]	Result	Date of onset of tetanus	Date of death	Symptoms	Tetanus organisms recovered	Local production of toxin demonstrated	Autopsy
1	Feb. 19	1 inch	0.8 c. c.	Shield A	Tetanus	Feb. 26	Feb. 28	Typical	+	No attempt	Consistent with tetanus.
2	Mar. 9	do	do	do	do	Mar. 21	Mar. 25	do	+	Yes	Do.
3	Apr. 7	do	do	do					−		Uncomplicated vaccinia [2].
4	do	do	do	None					−		Do.
5	Apr. 23	do	do	Shield A					−		Do.
6	do	do	do	None					−		Do.
7	Sept. 14	do	do	Shield A	Tetanus	Sept. 23	Sept. 25	Typical	+	Yes	Consistent with tetanus.
8	do	do	do	do	do	Sept. 24	do	do	+	Yes	Do.
9	do	do	do	do					−		Uncomplicated vaccinia [2]
10	do	do	do	None					−		Do.
11	do	do	do	do					−		Do.
12	do	do	do	do					−		Do.
13	Oct. 6	do	do	Shield B	Tetanus	Oct. 14	Oct. 15	Typical	+	Yes	Consistent with tetanus.
14	do	¼ inch	do	do	do	do	Oct. 16	do	+	Yes	Do.
15	do	do	do	do	do	Oct. 18	Oct. 18	do	+	Yes	Do.
16	do	do	do	do	do	do	do	do	+	Yes	Do.
17	do	1 inch	do	do	do	Oct. 14	Oct. 19	do	+	Yes	Do.
18	do	do	do	Dressing C	do	Oct. 19	do	do	+	Yes	Do.
19	do	do	do	Shield B	do	Oct. 17	Oct. 17	do	+	Yes	Do.
20	do	do	do	Dressing C					−		Uncomplicated vaccinia [2]
21	do	do	do	None	Tetanus	Oct. 24	Oct. 25	Typical	+	Yes	Consistent with tetanus.
22	do	do	do	do					−		Uncomplicated vaccinia. [2]
23	do	do	do	do					−		Do. [2]

[1] Shield A, celluloid cap type; shield B, bunion pad type with celluloid top; dressing C, several folds of sterile gauze covered by band of perforated adhesive. None, indicates no dressing after first 18 hours.

[2] No autopsy; animal recovered.

From Table 2 it will be seen that among 15 animals vaccinated with the virus-tetanus mixture and dressed throughout the course of the vaccination with shields or dressings (types noted in the table), there were 11 cases of tetanus, all fatal, a rate of 73.3 per cent. The period from vaccination to onset of symptoms ranged from 7 to 13 days. Among 8 animals similarly treated, but with dressing for only the first 18 hours after vaccination, there was 1 case, also fatal, a rate of 12.5 per cent. In this case the onset of symptoms was relatively late, being on the eighteenth day.

Character of the experimental "takes" in monkeys.—The difference in the character of the "takes" in the monkey treated with and without dressings was striking. In vaccinations which were covered the lesions were large, deep, moist, necrotic, and stinking; while in those treated openly the lesions were moist for only a few days at most, then became crusted and proceeded to heal. The one control animal which developed tetanus was a wild creature, and whenever approached would spring to the farthest corner of his cage; in this way he repeatedly knocked off the vaccination scab. At the time of his death the lesion had healed considerably, but the upper portion was covered by a scab one-half inch to three-quarter inch in diameter in which was embedded a considerable amount of shavings from his bedding. Beneath the scab was a collection of pus; there was no fetid odor.

DIAGNOSIS OF TETANUS IN THE EXPERIMENTAL CASES

Rigidity of the front leg on the side of the "take" was usually the first symptom noted; later general spasticity, typical convulsions, trismus, and opisthotonos or emprosthotonos would develop. The development of tetanus toxin at the "takes" was demonstrated in every case, except one in which no attempt was made to do so, by excising and macerating the wound in 100 c. c. of saline and injecting 0.5 c. c. of this extract into white mice. This dose uniformly killed the mice within 24 hours, while control mice which received the same dose plus tetanus antitoxin remained well. Tetanus organisms were recovered from the lesions in all the fatal cases. The incubation periods in the experimental cases (Table 2) were shorter than is usual in clinical cases; but it should be remembered that vaccinia develops more readily in monkeys than is the rule in primary vaccinations in man, and that the virus used was heavily seeded with *B. tetani.*

RABBITS

Twenty rabbits were vaccinated with the same virus-tetanus mixture, using methods identical with those described for the monkeys. One insertion, 1 inch in diameter and located on the thorax

about 1½ inches from the vertebral column, was employed. Ten animals were without dressings after 18 hours; in the remainder the dressings were permitted to remain throughout the experiment. By referring to Table 3 it will be noted that among the ten animals on which dressings (types indicated in the table) were used, there were 8 cases of tetanus, whereas among 10 similarly treated, but with no dressings after 18 hours, there were no cases of tetanus. There were two deaths among this group, but the symptoms resembled snuffles and no toxin could be demonstrated in the excised "takes." The period from vaccination to onset of tetanus symptoms is indicated in Table 3 and ranged from 9 to 15 days.

Character of the "takes" in rabbits.—The animals without dressings developed severe "takes" (fig. 1) which soon became covered with dry, firm scabs and proceeded to heal. The animals with shields likewise developed severe "takes" (fig. 2), and at the time of death the lesions were moist, but the necrosis and accumulation of exudate were much less than in the case of the monkeys. In only one instance was a foul odor noted, and it was not very pronounced.

Diagnosis of post-vaccinal tetanus in rabbits.—The earliest symptom usually noted was an alert, hyper-excitable condition of the animal. This was soon followed by rigidity of one or more legs which would rapidly progress until the animal was twisted and drawn into abnormal positions. Later generalized convulsions and death would ensue. The diagnosis of post-vaccination tetanus was confirmed in every instance by excising and macerating the lesion in 100 c. c. of saline and injecting 0.4 c. c. of this extract into white mice. This dose uniformly killed the mice within 24 hours, except in the case of rabbit No. 2. In this case the mouse showed severe symptoms of tetanus but lived for several days. Control mice which received the same doses of extract plus tetanus antitoxin remained well in every case.

PREVENTION

It is realized that the malign influence of dressings on monkeys and rabbits vaccinated with a virus purposely contaminated with *B. tetani*, is not in itself conclusive evidence against the use of vaccination dressings in man. However, the experimental evidence is in such complete accord with the epidemiological evidence concerning 98 human cases as to constitute a strong confirmatory argument against dressings; in fact, the combined evidence seems strong enough to suggest that the practical elimination of post-vaccination tetanus may be accomplished by a general application of certain fundamentals of a proper vaccination technique.

Vaccination procedure.[2]—The essential factors of a proper technique will be briefly considered in the order of their probable importance.

[2] Those desiring a detailed consideration of the many phases of vaccination should consult Surg. J. P. Leake's "Questions and Answers on Smallpox Vaccination (6)."

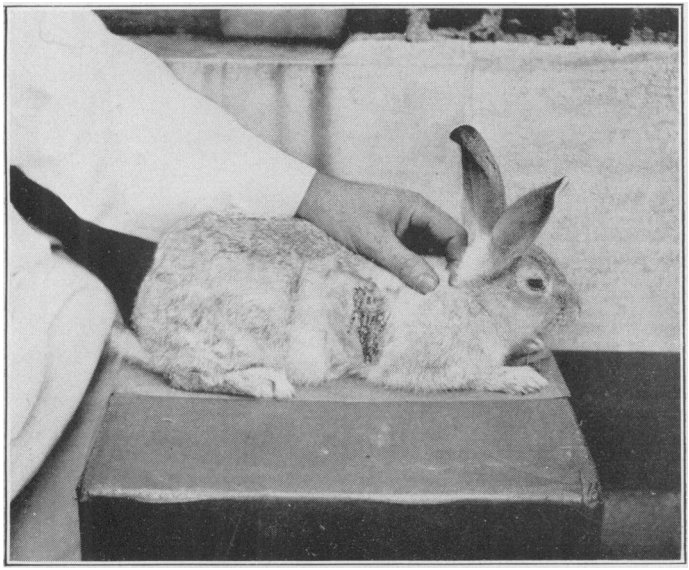

Fig. 1.—Rabbit No. 15. (No dressing after 18 hours.) Photograph taken on sixteenth day after vaccination

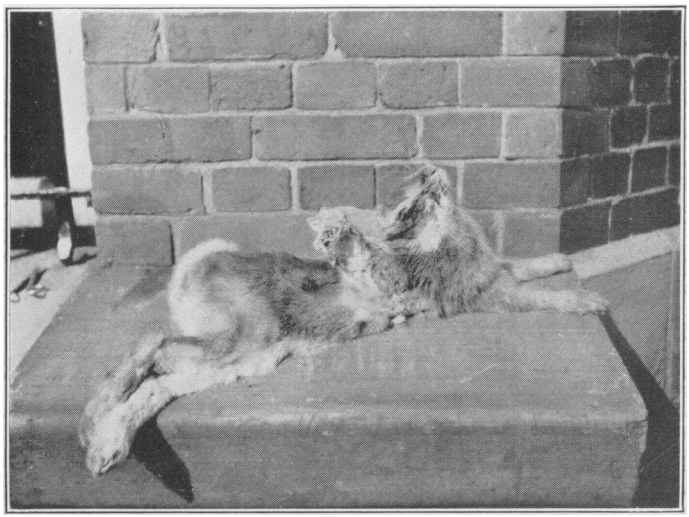

Fig. 2.—Rabbit No. 7. (Dressed with a celluloid shield.) Photograph taken on sixteenth day after vaccination and a few hours before death from tetanus. Note opisthotonos. The shield is shown elevated from the lesion

TABLE 3.—*Results in rabbits vaccinated with vaccine-tetanus mixture treated with and without dressings of various types*

Rabbit No.	Date vaccinated, 1927	Diameter of insertion	Quantity of virus-tetanus mixture used	Dressing used [1]	Result	Date of onset of tetanus	Date of death	Symptoms	Tetanus organisms recovered	Local production of toxin demonstrated	Autopsy
1	Oct. 26	1 inch	0.8 c. c.	Shield B	Tetanus	Nov. 4	Nov. 10	Typical	+	Yes	Consistent with tetanus.
2	do	do	do	do	do	Nov. 9	do	Not typical	+	Yes	Peritonitis; toxin at "take."
3	do	do	do	do	do	Nov. 8	do	Typical	+	Yes	Consistent with tetanus.
4	do	do	do	do	do	do	do	do	+	Yes	Do.
5	do	do	do	Shield A	do	do	Nov. 9	do	+	Yes	Do.
6	do	do	do	do	do	Nov. 6	Nov. 7	Not seen	+	Yes	Do.
7	do	do	do	do	do	Nov. 10	Nov. 11	Typical	+	Yes	Do.
8	do	do	do	Dressing C	do	Nov. 4	Nov. 5	do	+	Yes	Do.
9	do	do	do	do					−		Uncomplicated vaccinia.[2]
10	do	do	do	do					−		Do.[2]
11	do	do	do	None			Nov. 6	Snuffles	+	No	Snuffles and vaccinia.
12	do	do	do	do			Nov. 11	do	+	No	Do.
13	do	do	do	do					−		Uncomplicated vaccinia.[2]
14	do	do	do	do					−		Do.[2]
15	do	do	do	do					−		Do.[2]
16	do	do	do	do					−		Do.[2]
17	do	do	do	do					−		Do.[2]
18	do	do	do	do					−		Do.[2]
19	do	do	do	do					−		Do.[2]
20	do	do	do	do					−		Do.[2]

[1] Shield A, celluloid cap type; shield B, bunion pad type with celluloid top; dressing C, several folds of sterile gauze covered by band of perforated adhesive. None, indicates no dressing after first 18 hours.
[2] No autopsy; animal recovered.

1. *Dressings*.—No local covering to be applied. Keep cool and dry. When these directions are observed and follow a proper type of small insertion, the lesions will usually retain their own natural covering—the epithelium itself—and will usually develop a dry scab without having become an open lesion at any time. Should an open lesion develop (as occasionally happens) through injury, an antiseptic dressing may be desirable for a few days. A few layers of gauze pinned to the inside of a loose-fitting sleeve is probably best. If attached to the arm the dressing should be large and the adhesive straps applied loosely and as far from the vaccination site as possible. Shields and dressings are often purchased and applied without the knowledge or consent of the physician, and warning should therefore always be given against the danger which such practice entails.

2. *Insertion*.—Second only in importance to the dressing is the character of the insertion, which should be *small*, never more than one-eighth inch in its greatest diameter, and is best made by some method which does not remove the epidermis. The multiple pressure method advocated by Surg. J. P. Leake is admirable (6). This method consists in making 20 to 30 shallow tangential pricks of the cleansed but not irritated skin through a drop of virus in an area not over one-eighth inch in diameter. A new, sharp needle should be used. The point is not driven directly into the skin, but the side of the needle point is pressed against it, then lifted free, by a series of rapid, up-and-down motions. The virus is wiped off immediately.

3. *Method of cleansing the skin*.—Many solutions are satisfactory; we usually use acetone. The important thing is—*gentleness!* Too vigorous rubbing abrades the epidermis and may enable the virus to multiply outside the intended insertion.

4. *Site*.—The insertion of the deltoid is probably the best location for vaccination. Leg vaccination in persons who are up and about is inadvisable.

5. *Age*.—Primary vaccinations are best performed during the first year of life, since it is a well-established fact that infant vaccinations tend to run a milder course than do primary vaccinations performed later, and, furthermore, the child is protected against smallpox during a period in which it would otherwise be susceptible. The infant, moreover, is confined to an environment which would seem to offer less opportunity for accidental contamination of his vaccination. The custom of performing the first vaccination at about the sixth year (entrance to school) would seem to be a less favorable practice, since at this age the child's sanitary sense is not developed and his outdoor play brings him in contact with an environment more likely to be contaminated with tetanus organisms. These considerations may explain the fact that boys are more subject to post-vaccination tetanus than girls.

SUMMARY

1. Epidemiological evidence is presented which indicates that post-vaccination tetanus, when it develops, tends to follow severe primary vaccinations performed with large insertions and dressed with some type of shield or covering strapped to the site.

2. Shields and dressings are shown markedly to predispose to the development of post-vaccination tetanus in monkeys and rabbits vaccinated with virus artificially contaminated with *B. tetani*.

3. A proper vaccination is defined as one in which the insertion is not over one-eighth inch in its greatest diameter, made by some method which does not remove or destroy the epidermis. Such insertions treated openly, i. e., without the use of shields or dressings strapped to the site, have never, in so far as we are aware, been followed by post-vaccination tetanus. It seems probable that the adoption of these simple procedures of technique on the part of vaccinators, coupled with a proper warning to the vaccinated individual, or his parents or guardian, concerning the dangers of home-applied shields and dressings, would eliminate tetanus as a complication of vaccination.

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A REPORT ON THE DISPOSAL OF ZYKLON-B RESIDUE FOLLOWING THE FUMIGATION OF THE HOLDS OF VESSELS

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CLEARING TESTS IN SHIP FUMIGATION

In the method of ship fumigation with Zyklon–B at present employed at the New York quarantine station, the practice is to remove all the residue and throw it overboard before clearing the vessel. A series of tests was undertaken to determine whether it would be prac-

tical and safe to leave the residue in the holds following fumigation, which would permit of a better distribution and avoid the necessity of placing the fumigant within a restricted space, as on a piece of canvas.

Careful clearing tests were made on a series of 10 vessels undergoing routine fumigation with Zyklon–B at the port of New York in which the residue was well scattered over the holds of the vessels and allowed to remain as scattered.

The following table shows the results of these tests:

TABLE No. 1.—*Results of clearing tests in holds*

Ship No. and class	Hold No.	Capacity, in cubic feet	Ounces of HCN used	Clearing time, minutes	Weather condition	Local condition
1. Cargo vessel	1	90,669	180	170	Clear; slight breeze	Difficult; vessel located between high docks.
	2	143,392	280	40		
	3	31,255	60	150		
	4	111,149	220	160		
	5	72,372	120	120		
2. Cargo vessel	1	69,130	140	60	Clean and warm; very slight breeze.	Ventilation poor; holds sheltered by superstructure and docks.
	2	111,135	220	140		
	3	80,360	160	80		
	4	50,645	100	90		
3. Cargo vessel	1	27,191	60	40	Cloudy; slight mist, fair breeze.	Very good; holds small and exposed to breeze.
	2	47,157	100	50		
	3	31,816	60	60		
	4	33,131	80	70		
4. Cargo vessel	1	54,100	120	45	Clear; good breeze	Excellent; holds exposed to breeze.
	2	58,400	120	35		
	3	83,500	160	25		
5. Cargo vessel	1	98,126	200	60	Cloudy; air damp, good breeze.	Good; vessel exposed to breeze.
	2	168,826	320	50		
	3	78,223	160	30		
	4	78,773	160	45		
6. Cargo vessel	1	71,100	140	15	Clear; good breeze	Excellent; holds exposed to breeze.
	2	97,300	200	25		
	3	46,380	100	40		
	4	85,000	180	55		
	5	53,070	120	65		
7. Cargo vessel	1	92,070	180	95	Clear; very slight breeze	Poor; no breeze, account high docks.
	2	105,840	220	85		
	3	28,660	60	70		
	4	76,780	160	110		
	5	85,630	180	50		
8. Passenger vessel	1	98,176	200	150	Clear; slight breeze	Poor; deep holds protected by superstructure and docks.
	2	103,000	220	50		
	3	82.000	160	150		
	4	86,000	180	40		
9. Cargo vessel	1	57,740	120	30	Clear; fair breeze	Hold No. 3 damp from rain and sheltered by superstructure.
	2	75,500	150	40		
	3	64,200	120	75		
	4	30,720	60	55		
10 Cargo vessel	1	92,432	180	25	Clear cool; good breeze	Favorable; holds deep but dry.
	2	98,981	200	30		
	3	61,735	120	45		
	4	113,064	230	55		
	5	36,355	80	60		

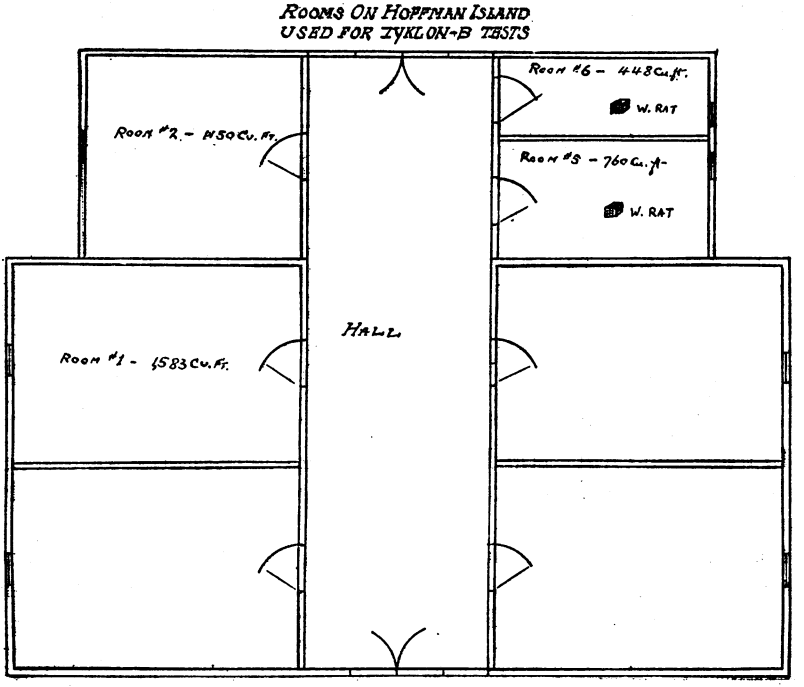
NOTE.—As each vessel was cleared by testing the holds in rotation, beginning with hold No. 1, it frequently happened that the other holds were clear before the test of the first hold was completed. For this reason, the clearing time of hold No. 1 is the best criterion on those vessels on which the holds were cleared in consecutive order.

The method followed in determining whether the holds were clear of gas after fumigation was to lower white rats in a cage to the bottom of the hold and observe them for signs of agitation during a period of 10 minutes, and also to make use of a methyl orange-mercuric

chloride filter-paper test, which is sensitive to approximately 0.1 ounce HCN per 1,000 cubic feet of air space, equivalent to 5 per cent of the concentration of gas used in fumigation. When both tests were negative, further observations by means of taste and smell were made during the actual inspection of the holds.

LABORATORY TESTS OF RESIDUE

As a check on the practical results of allowing the residue to remain in holds after ship fumigation, 75 grams of residue of Zyklon-B which had been used in routine fumigation was gathered up, after



two hours' fumigation and one hour's airing, in a tightly stoppered glass bottle and was brought to the laboratory and placed with a white rat in a large glass jar containing $1\frac{1}{5}$ cubic feet of air space. The top of this jar was covered with heavy paper and the rat was observed for a period of 19½ hours, during which time it showed no signs of agitation and was unaffected when released.

ROOM TESTS

Following the above test, a series of tests was undertaken at Hoffman Island, in a vacant building containing two rows of outside rooms with a large central hallway between them. These rooms

have walls of brick and tile construction and concrete floors, and are plastered and painted on the inside. The measurements as to air-space capacity are shown in the accompanying diagram. Rooms No. 5 and No. 6 contained ¾-inch holes in the doors, with stoppers to fit, through which the rats were observed.

In making these tests, the results of which are shown in Table 2, the residue was gathered up on paper and transferred to the smaller rooms, in which a white rat in a wire cage was placed about 24 inches from the floor. During these tests all the rooms were made practically gas-tight by pasting paper over doors and such places as might permit of the escape of gas, particular care being taken in this regard with the two small rooms in which the rats were placed with the Zyklon–B residue.

TABLE 2.—*Residue tests in rooms*

Test No.	Room No.	Air space	Amount HCN used	"Standard" amount	Exposure	Aired	Residue removed to—	Air-space	Rat exposed	Results
		Cu. ft.	*Oz.*	*Oz.*	*Hrs.*	*Hr.*		*Cu. ft.*	*Hrs.*	
1	1	1,583	4	3.16	2	1	Room No. 6	760	21	Unaffected.
2	2	1,150	4	2.3	2	1	Room No. 5	448	21	Do.
3	1	1,583	8	3.16	2	1	Room No. 6	760	21	Do.
4	2	1,150	8	2.3	2	1	Room No. 5	448	21	Do.
5	1	1,583	12	3.16	2	1	Room No. 6	760	21	Do.
6	2	1,150	12	2.3	2	1	Room No. 5	448	21	Do.
7	1	1,583	8	3.16	2	1	Room No. 6	760	21	Do.
8	2	1,150	16	2.3	2	1	Room No. 5	448	21	Do.
9	1	1,583	4	3.16	2	1	Glass jar	2.36	21	Do.
10	2	1,150	4	2.3	2	1	do	2.36	3	Dead.

In using the term "standard amount" a concentration of 2 ounces of hydrocyanic acid gas per 1,000 cubic feet of air space, as used in routine ship fumigation, is indicated.

Comments.—In conducting these tests a concentration of gas from slightly above standard, as in test No. 1, to seven times standard, as in test No. 8, was used. In removing the HCN in test No. 1 to a smaller, gas-free room, the amount of residue used was two and six-tenths times greater than the amount of residue obtaining in the standard concentration used in ship fumigation, and in test No. 8 the amount used was eighteen times greater.

In tests No. 9 and No. 10 an increase in HCN of about 27 per cent over "standard" amount was used, and the residue was placed in glass jars closed with wax paper and of 2.36 cubic feet of air space, a space one six-hundred-and-seventieth as large as that involved in routine fumigation with an equal quantity of Zyklon–B. The fact that it took three hours to kill a white rat in test No. 10 and that the rat in test No. 9 survived shows that while a small amount of gas (probably chloropicrin) is retained in the residue, it is very far below the minimum lethal dose under open atmospheric conditions such as obtain following ship fumigation.

As the minimum time allowed under present regulations for the clearing of holds of vessels following fumigation is one hour, this period of time was adopted in conducting these tests as being the shortest possible period of airing that the fumigant would undergo in routine fumigation.

Hydrocyanic acid gas being readily absorbed and slowly released by water, it is evident that Zyklon–B can not be scattered on a wet floor of a hold or dumped into a bilge without materially increasing the clearing time of a vessel. For this reason *extreme care should be exercised not to throw the fumigant into the bilges or upon wet surfaces.* Canvas should be used when the floors of the holds are wet. In these tests, both on shipboard and ashore, Zyklon–B was scattered in such a manner as to allow the floor to be easily seen through the residue.

It should be emphasized that these restrictions relate to the holds of vessels and not to the superstructure. As Zyklon-B is corrosive (solvent) to painted or finished surfaces, it should not be used in furnished compartments of the superstructure without interposing heavy paper or waterproof canvas on the floors.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Malaria. Rockefeller Foundation, International Health Board, Thirteenth Annual Report (1926), pp. 111–142. (Abstract by A. L. Dopmeyer.)

Field investigations.—Location of station was changed from Leesburg, Ga., to Edenton, N. C., in order to study a different type of malaria problem. Two major projects were concentrated on during the year, attention being directed toward ecological studies of anopheline mosquitoes. Another major project dealing with county-wide elimination of malaria by means of spleen surveys was begun late in the year. Attention was also given to incidence of sporozoites in the glands of Anopheles mosquitoes; the stage of ovarian development; and the relation of these to the probable age of captured females.

An anopheline control program was undertaken by the station and the town of Edenton. No draining was done and culicines were ignored. Paris green was relied upon to control Anopheles breeding. The actual per capita cost to the town was $0.027.

The board continued to assist in the operation of a training station in malaria control in Corsica. A malaria laboratory was installed at Bastia. A movement was started in Corsica with a view to the development of malaria control from local funds. Experiments were also carried on in Corsica with the use of Paris green and Gambusia, both with satisfactory results.

Laboratory studies.—Studies were continued of possible substitutes for quinine, and the use of the precipitin reaction in the diagnosis of latent malaria was studied.

Malaria control in rural areas in the United States.—On account of satisfactory results obtained in malaria campaigns in towns and cities and the completeness of this work, the board directed its activities to control of malaria in rural areas where the population is sparse, and the per capita income low. General

mosquito control in such areas was found to be not feasible, and since studies indicate that *A. quadrimaculatus* only is responsible for the transmission of malaria, it was considered advisable to concentrate on the destruction of this one type alone and ignore all others. During the year, a tentative plan of malaria control was formulated on the basis of the county as a unit. Contributions were made to the development of health bureaus in 7 States, and 26 county health unit budgets were assisted.

Demonstrations in Italy.—Cooperation with the Government of Italy consisted in: (1) Experiments in intensive antimalaria work in five stations with resident medical directors, technical assistants, visiting nurses and field agents; (2) extension work in five villages under supervision of these stations; (3) studies in malaria epidemiology and the evaluation of certain control measures in four zones. At the end of the year there were 12 field projects in operation, divided into three groups, as follows: (1) field laboratories; (2) units for extension work in malaria control in villages adjacent to the field laboratories; (3) stations for surveys and field studies. Results of the work indicated that intensive quininization is invariably more expensive than larva control. Studies were made on the following: (1) Systematic study of Anopheles; (2) the effect of minimum doses of X-ray on chronic cases of malaria with and without concomitant doses of quinine; (3) study of the epidemiology of malaria in connection with land reclamation on a large scale; (4) studies of the value of top minnows in the reduction of Anopheles mosquitoes.

A malaria project in Porto Rico.—Assistance to the Porto Rico Health Department was continued in making a malaria control demonstration at Fajardo. The control methods employed were quininization and larva control. More than two-thirds of the persons suffering with malaria completed the standard eight weeks treatment, 85.6 per cent of which were found negative after treatment. This procedure is expensive, however, and increasing emphasis has been placed on antilarva work. Studies of irrigated cane fields resulted in changes, so that irrigation water has been practically eliminated as a source of Anopheles breeding. Rain water is, however, more important from a malaria standpoint. Observations indicate definitely that *A. albimanus* is the important vector of the area. The records indicate a marked reduction of malaria in the Fajardo area during the year. The following field studies were started in 1926: (1) Feeding and resting habits of Anopheles; (2) infectivity rates in *A. albimanus* and *A. grabhamii;* (3) habits of mosquitoes with a view to improved methods in determining their density; (4) methods of control in mangrove swamps, particularly as to value of automatic tide gates; (5) relative value of different kinds of screening material in localities near the ocean; (6) feasibility of simultaneous control of mosquito breeding and growth of vegetation in ditches by covering ditches with cane straw supported by mangrove sticks; (7) value of a gate in a creek permitting water to change its course at short intervals to control breeding.

Continuation of control in the Philippine Islands.—Cooperation with the Philippine Health Service was continued in developing a malaria program. Program included control demonstrations, field research in malaria, malaria surveys and training of medical and subordinate personnel.

The essential method of control was the use of Paris green as a larvicide. There occurred reductions of from 82 to 91 per cent in malaria in four areas where work was conducted. In one province control measures were continued on the sugar haciendas, with the result that in 1926 there was less than one-third the number of malaria cases of the average of the two preceding years. A malaria control section was established in the central office of the insular health service; $50,000 was appropriated for the work in 1927.

Control work in the Argentine.—Malaria control measures were initiated in the Province of Tucuman under a five-year cooperative program which went into effect January 1, 1926. Two towns were selected for demonstration purposes, which showed that *Anopheles pseudopunctipennis* was the immediate vector of the disease. All methods for controlling Anopheles were used, including closed and open drainage, filling, use of Paris green, oil and top minnows. Results were satisfactory. Epidemiological studies were also conducted by representatives of the board and the United States Bureau of Entomology.

A four-year cooperative program in Brazil.—This program, which was inaugurated in the States of Rio de Janeiro in 1925, was continued. Control of Anopheles larvæ was secured by the use of oil and Paris green and quininization of all recurrent infections was carried out, but the most important control measure was drainage. Reduction in mosquito breeding has been satisfactory.

Preliminary work in Panama.—The Government approved plans for the installation of a drainage system in the city of Aguadulce and village of Procri. Efforts to reduce malaria among pupils are being made in several schools. Examination of over 22,000 children in nine Provinces disclosed that nearly 61 per cent had definitely enlarged spleens.

Control measures in Nicaragua.—Work in Nicaragua was limited to five places. In Managua it was found that oiling and draining were not sufficient to control Anopheles breeding. Paris green was introduced as a measure of control with extraordinary success, at a cost of 5 cents per capita per year. It is estimated that a per capita cost of 10 cents will eliminate malaria from Managua through the extensive use of Paris green on the lake front.

Palestine.—A sanitary engineer was loaned to Palestine to assist putting into effect control measures outlined by a previous survey. Before the end of the year he completed surveys of two areas.

Cooperation in Spain.—A study of malaria prevalence showed that Caceres furnished about 20 per cent of the 300,000 cases of malaria reported each year, and a program for control in this Province was undertaken, consisting of epidemiological study of the infected areas; investigation of the use of Paris green as a larvicide; the establishment of a portable laboratory service; and study of the effect of Gambusia in mosquito control. The success of the Paris green work was so pronounced that it was believed feasible to use it on a large scale.

Malaria training in the Mokatow demonstration unit, Poland.—This demonstration unit, which is being conducted in Warsaw, continued to provide training facilities in practical malaria work for students at the School of Hygiene, Warsaw, and others. Field activities included examination of types of breeding places; dipping for larvæ; and their identification. 882 school children were examined for enlarged spleens which were detected in 36 cases.

Two New Sandflies from Bombay. T. C. McCombie Young and B. S. Chalam. *Indian Journal of Medical Research*, vol. 14, No. 4, April, 1927, pp. 849–862. (Abstract by L. M. Fisher.)

Two insects, one *P. Chalami*, n. sp., the other *P. colabaensis*, n. sp., are described. Both were collected in municipal latrines in Colaba between September 25,1926, and October 5, 1926. Only one specimen of *P. colabaensis* was obtained. Points of resemblance and difference between *P. Chalami* and Indian and Singalese species are enumerated.

P. colabaensis is said to differ from four Indian species tabulated by Sinton as having erect hair on the dorsum of the abdomen: They are *P. sergenti*, *P. papatasii*, *P. major*, and *P. argentipes*. The points of difference are enumerated.

Annual Report of Sanitary Engineer, Republic of Haiti for Fiscal Year 1925–26. December, 1926. 189 pages. (Abstract by I. W. Mendelsohn.)

This is a report of the activities of the Public Health Service of Haiti, the sanitary engineer, who is the head of the service, being an officer of the Medical Corps of the United States Navy. The United States Navy has detailed commissioned and noncommissioned officers of the Medical Corps to administer the public health service, these being placed in charge of various districts and administrative units. The activities of the divisions of sanitation, quarantine, hospitals, and miscellaneous sections are given.

Haiti is smaller in area than Maryland. About one-fifth of the 10,200 square miles consists of coastal plains and flood plains of small rivers. There is one well-watered plateau at an elevation of 1,200 feet. The population is unaware of present sanitary habits, and agriculture and industry are not sufficiently developed to provide necessary funds for sanitary works.

Malaria control measures.—The only efficient mosquito host of malaria in Haiti is *Anopheles albimanus*, which breeds up to elevations of 2,500 feet, and wherever collections of water occur. The late summer and winter is the period of greatest malarial incidence, following the rainy season of May to October.

In many sections of Haiti for years to come the only measure which can be applied against malaria will be the administration of quinine to those actually sick. Small towns and villages are located right in the middle of swampy areas.

A system of examination of school children for splenic enlargements is described and results are given which show that in some rural schools there is from 50 to 60 per cent of malarial infection as determined by the splenic index. This record shows that the incidence of malaria on the island follows the rain curve provided no control measures are in operation.

During the spring of 1924 an extensive Anopheline survey of Port au Prince and vicinity showed *A. albimanus* to breed practically all over the city. The various springs and swampy tracts along the shore line were overgrown with weeds and despite the presence of mosquito-destroying fish (*Poecilia sphenops* and *Gambusia dominicencis*), contained many anopheline larvæ. The swampy sections along the shore line of the city proper have been filled in, cement drains have been built along the streets, rock drains, a ditch filled with rocks and covered with dirt, have been made by the hundreds with the result that as far as mosquito breeding is concerned this part of the city is in excellent condition. The simple expedient of cutting down all vegetations in the swampy region along the shore caused a rapid drying up of large areas. In the upper part of the swampy area numerous rice paddies and potato patches were found. The local method of producing these vegetables includes damming up water for the purpose of continuous watering, and as a consequence we have continuous mosquito breeding. These practices have been stopped in the vicinity of the city. The area is now being drained by the introduction of a series of canals. The bottom and part of the sides are lined with one-third sections of 32-inch cement pipes, thus permitting free drainage from the upper layer of the soil and at the same time allowing free flow from the spring proper. Small circumscribed areas are too low for drainage and will be filled.

Water supply.—The various intestinal infectious diseases are quite common in Haiti, due to lack of knowledge of sanitary measures on the part of the majority of the population. The city of Port au Prince is supplied with water from seven surface springs located in three different localities. Chlorinating apparatus has been ordered to sterilize the city water supply. Information is given as to the measures instituted in controlling typhoid fever in the city in 1926 due to infected water.

Sanitation.—In Port au Prince night soil is removed at night from latrines by hired men who transport the matter in boxes on their heads to the sea. Refuse is used to fill in swampy areas in and near the town.

Organization of the Public Health Services in Latvia. H. J. Cazeneuve. League of Nations Bulletin, C. H. 283, July 3, 1925. 72 pages. (Abstract by I. W. Mendelsohn.)

Since 1920 the public health department has been reorganized. It is attached to the Ministry of the Interior and consists of central health, pharmaceutical, and veterinary services. The Central Health Service includes a health and statistical epidemiology section, administrative section, and budget section. One of the duties of the health and statistical epidemiology section is to exercise a general control of the health supervision services in town and country, of waterways and sewage, of industrial undertakings and of foodstuffs and provisions. No sanitary engineers or sanitary inspectors are employed, but, when necessary, the health department calls on the services of experts to deal with special questions.

Water supply.—The public water supplies are derived from springs, artesian and other wells. Some sections of the cities are not served with the public water supply. The wells in the country districts are generally contaminated. Serious attention must be given to the matter of public water supplies.

Latvia is subject to typhoid fever outbreaks. In 1924 (first 10 months) the number of notified cases was 1,356 out of a population of 1,900,000. This situation is ascribed to impure water supplies and defective sewerage.

Sewerage.—There are only a few sewerage systems in the cities and these do not serve all sections. The small towns have no sewers and use more or less water-tight pits, which are periodically emptied.

Houses.—In several towns there are numerous old and overcrowded houses. There are no governmental regulations regarding dwellings.

Malaria.—There were 286 notified cases in 1924. Although there are certain conditions favorable to development of the anopheles mosquitoes, malaria is still rare in Latvia. Anopheles mosquitoes exist in rural districts around the towns.

Cholera in Shanghai in 1926. R. C. Robertson and C. C. P. Anning. *U. S. Naval Bulletin*, vol. 25, No. 4, October, 1927, pp. 944–947. (Abstract by Herbert Hargis.)

The epidemic of cholera which occurred in Shanghai during the summer of 1926 with special reference to treatment is discussed by the authors. There were 3,140 Chinese cases notified and 76 foreign; 1,165 occurred within the international settlement. The chief causes were: (1) Contact with previous case, 20; (2) water contamination, 84; (3) ice, 122; (4) food contamination, process unknown, 145; (5) fly infection, 118; (6) infection from excreta, 4; (7) melon contamination, 236; (8) fruits, 42; (9) untraced, 394. More than one-third of the deaths occurred before the patients had been in the hospital 12 hours.

The authors reached the following conclusions: (1) That with adequate hygienic precautions, cholera should not affect the foreign population in Shanghai; (2) that when cases reach the hospital in the early stages, cholera is no longer a fatal disease; (3) uremia and clinical acidosis were the most serious complications noted in this series of cases.

Experimental Studies of Water Purification. (Discussion of *B. coli* results obtained from primary experiments). H. W. Streeter. *Public Health Reports*, Reprint No. 1170, July 15, 1927, pp. 1841–1859. (Abstract by W. L. Havens.)

Consideration is directed toward the following: "(1) The numerical interpretation of the results of individual *B. coli* tests; (2) the effects on the relationships above noted resulting from conversion of the *B. coli* data from terms of the *B. coli* index to those of the 'most probable numbers' of *B. coli;* (3) the relations between the indicated average *B. coli* densities in the unchlorinated and chlorinated filter effluents resulting from calculations based on two different systems

of sample dilutions; (4) the results of a parallel comparison of *B. coli* enumerations based on fermentation tube tests and of the acid-colony count obtained from direct platings of samples on the Ayers-Rupp medium."

Seven tables, 4 diagrams, and 18 pages of discussion lead to the following conclusions: "(1) That the quantitative expression of the results of routine *B. coli* tests in terms of the 'most probable numbers' yields average figures which, though more nearly representative of the true density of *B. coli* in a given water than are those based on the ordinary *B. coli* index, do not alter materially the basic relationship between the raw water and the various effluents in this respect, on which the main conclusions to be derived from the primary series of experiments depend; (2) that the indicated maximum 'most probable numbers' of *B. coli* in the raw water consistent with producing a chlorinated filter effluent conforming to the revised United States Treasury Department standard approximates 9,000 per 100 cubic centimeters, the corresponding maximum, as expressed in terms of the Phelps index, being 6,000 per 100 cubic centimeters. The maximum raw water *B. coli* content consistent with producing an unchlorinated effluent meeting the same standard is indicated as being approximately 100 per 100 cubic centimeters, as expressed in terms both of the *B. coli* index and the 'most probable numbers;' (3) the inclusion of tests of filter effluents, both unchlorinated and chlorinated, in portions of samples less in volume than 10 cubic centimeters (*a*) gives decidedly higher average indicated densities of *B. coli* in these effluents and (*b*) yields results which appear to be more consistent with those obtained from geometric-series dilutions than does the exclusion of such tests; (4) for bacterial densities falling within the range of the ordinary plate count, the acid-colony count on the Ayers-Rupp medium gives results which are of the same general order of magnitude numerically as the 'most probable numbers' of *B. coli*, as determined by the fermentation-tube test."

Statement is further made that *B. coli* densities in terms of the "most probable numbers" are more expressive, and that because of statistical advantages and greater precision they will come into wider use. For routine plant control, the index will continue as standard enumeration and the results so expressed will be consistent with those which evaluate the "most probable number" of bacteria.

Report of the Division of Water Supply Control, Department of Health, City of Chicago. Pp. 410–476. (Abstract by H. H. Gerstein.)

After a water-borne typhoid fever outbreak in October and November, 1923, it was realized that more careful supervision over chlorination of the water supply was necessary and a sanitary engineer was appointed to supervise this work. A survey of the chlorination equipment showed that it was in bad physical condition and that the capacity was inadequate to properly chlorinate the water. One hundred and fifty thousand dollars was appropriated in 1924 to purchase the latest type chlorination equipment, with capacity sufficient to deliver 0.75 p. p. m. of chlorine at maximum pumpage.

The total amount of chlorine used rose from 699,111 pounds in 1923 to 1,267,387 in 1924 and 1,253,129 in 1925.

There are numerous tables in the report giving summaries of turbidity and bacteriological determinations of the water supply.

The division of water supply control, in addition to the supervision of chlorination, studied possible sources of pollution of the public water supply at cribs, tunnels, tunnel shafts, and in the distribution system.

A sanitary survey of the lake front was begun in 1924 in cooperation with the United States Public Health Service and the Sanitary District of Chicago, to study the pollution of the southern end of Lake Michigan. Lake dumping of grossly

contaminated dredged material from the Chicago River was strictly supervised. Dumping of refuse on the shore of the lake was allowed only behind tight breakwaters. Studies were made of the sanitary quality of the water at bathing and swimming pools.

A survey of the city for cross connections between the public water supply and private water supplies disclosed 428 cross connections, of which 179 were direct and 249 indirect; 85.3 per cent of these cross connections were removed at the end of 1925.

The State Water Commission. Anon. *Health*, New Haven Department of Health, vol. 54, No. 9, September, 1927, pp. 3–5. (Abstract by J. H. O'Neill.)

Increasing pollution of the waterways of Connecticut has led to the creation of a State water commission by the legislature of 1925. The commission began to function March 1, 1925.

The commission is an independent body evidently created to provide an agency to deal with pollution per se. Nowhere in the act is there any indication that it was intended as a health measure. Since previous legislation has placed certain responsibilities upon the State department of health in connection with sewerage and sewage treatment, close cooperation is necessary to prevent overlapping of activities.

The commission is empowered wherever pollution is found to exist to issue an order directing that measures shall be instituted to reduce, control or eliminate such pollution. The law provides that the particular system or means to be operated must be specified by the commission and further, that the cost of installation, maintenance, and operation shall not be unreasonable or inequitable. The policy of the State Water Commission is to stress the necessity for treating raw sewage before its discharge into the waterways of the State as the factor of most urgent importance in carrying out its allotted task.

Sterilization of Potable Waters by Electrolysis. Daniel Chevrier and Max Salles. Compt. rend. 185, 230–1 (1927). From *Chemical Abstracts*, vol. 21, No. 20, October 20, 1927, p. 3407. (Abstracted by A. Papineau-Couture).

"Potable water is sterilized by electrolyzing under 110–20 v. The cathode is a metal cylinder and the anode a platinum wire placed at the axis of the cathode and of as small a diameter as possible without appreciable heating by the current. The distance between the electrodes is just sufficient to allow the water to flow and the evolved gases to escape. The sterilizing action is attributed to the formation of O_3 and of free chlorine. Even if formation of O_3 is neglected, a water containing 1 mg. organic matter (expressed in terms of required O) and 15 mg. chlorides can liberate chlorine equivalent to 2 mg. O, thereby ensuring destruction of all organic matter (including bacteria) and leaving a slight residual bactericidal effect."

How Health Department Controls New York State Water Supplies. C. A. Holmquist. *Water Works Engineering*, vol. 80, No. 20, September 28, 1927, pp. 1413–1414 and 1438. (Abstract by W. L. Havens.)

In the State of New York the department of health has control over the sanitary quality of existing water supplies under the public health law, while under the conservation law the State Department of Conservation has jurisdiction in approving new or additional sources of supply. These two departments have operated in close cooperation and with no overlapping of authority.

The public health law has been revised from its original form so that it no longer requires the approval of a county or supreme court judge to make the rules enacted by the State Commissioner of Health effective. The law has also been amended so that the water supply authorities of New York may now make rules and regulations for the protection of the supply, subject to the approval of the State Department of Health.

The more important features of the law now provide that the city benefited must bear the expense of preventing pollution of its water supply unless such pollution constitutes a public nuisance or menace to health. Bathing, boating, or fishing in water-supply reservoirs is generally prohibited, as is the use of cross connections between potable and questionable supplies. Active supervision over the quality of all supplies and over filtration and chlorination plants is carried out by the health department. Reports of operation are filed with the department regularly. This supervision has already resulted in a noted improvement in the water supplies of the State.

Controlling Oil Pollution of Water. Almon L. Fales. *Water Works Engineering*, vol. 80, No. 18, August 31, 1927, pp. 1251–1252 and 1271–1275. (Abstract by Frank Raab.)

The presence of oil in water imparts a disagreeable taste and odor and interferes with coagulation, filtration, and chlorination. The following are chief sources of oil pollution: Oil burning and oil cargo vessels; ship repair yards; oil terminals and refineries; oil fields; gas plants; sewers and other industrial plants where oil is used as fuel. Oil discharged by vessels even far out at sea is carried into territorial waters by winds, tides, and currents. Oil refineries and oil terminals constitute an important source of oil pollution on the Atlantic and the Gulf coast. The salt water discharge from oil fields carries much oil.

The Bureau of Mines in cooperation with the American Petroleum Institute and the American Steam Ship Owners Association, has made an investigation of handling oil-contaminated water and the oil pollution act of 1924 was the result. This act makes it unlawful to discharge oil into or upon the coastal navigable waters of the United States from any oil burning or oil transporting vessel. A report on oil pollution made by the War Department in connection with the oil pollution act lists the following sources of serious pollutions: Oil; coal mining washery wastes and acid mine drainage; coal distillation; metal trades—pickling, cleaning, and plating wastes; pulp and pulp mills; tanneries; textile industries—washing, bleaching, and dyeing wastes; miscellaneous—distilleries, storage batteries, service stations, rubber reclaiming, canning factories, creameries, and chemical plants.

It is reported that oil-pollution conditions have improved considerably in recent years and indications are that the oil-pollution problem is well on the way of solution.

DEATHS DURING WEEK ENDED DECEMBER 3, 1927

Summary of information received by telegraph from industrial insurance companies for the week ended December 3, 1927, and corresponding week of 1926. (From the Weekly Health Index, December 7, 1927, issued by the Bureau of the Census, Department of Commerce)

	Week ended Dec. 3, 1927	Corresponding week, 1926
Policies in force	69, 585, 309	66, 183, 596
Number of death claims	13, 358	12, 548
Death claims per 1,000 policies in force, annual rate	10. 0	9. 9

Deaths from all causes in certain large cities of the United States during the week ended December 3, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926. (From the Weekly Health Index, December 7, 1927, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Dec. 3, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Dec. 3, 1927 [2]
	Total deaths	Death rate [1]		Week ended Dec. 3, 1927	Corresponding week 1926	
Total (66 cities)	6,924	12.4	[3] 12.6	704	[3] 742	[4] 58
Akron	32			3	7	33
Albany [5]	44	19.1	21.1	8	1	167
Atlanta	69			10	7	
White	41			6	2	
Colored	28	(6)		4	5	
Baltimore [5]	224	14.3	12.6	13	25	41
White	165		11.6	12	20	48
Colored	59	(6)	18.4	1	5	16
Birmingham	78	18.9	17.6	8	8	
White	39		15.1	5	2	
Colored	39	(6)	21.4	3	6	
Boston	203	13.3	14.2	21	26	59
Bridgeport	28			4	0	68
Buffalo	135	12.8	13.0	19	20	80
Cambridge	25	10.5	12.8	3	5	53
Camden	31	12.2	13.1	5	5	86
Canton	25	11.5	8.5	4	1	96
Chicago [5]	719	12.1	11.9	70	61	61
Cincinnati	152	19.2	16.8	15	13	91
Cleveland	163	8.6	9.1	19	16	51
Columbus	66	11.8	15.2	5	3	46
Dallas	57	14.2	12.3	4	5	
White	40		9.8	4	4	
Colored	17	(6)	29.3	0	1	
Dayton	50	14.5	13.3	4	9	66
Denver	76	13.7	15.0	8	6	
Des Moines	29	10.1	8.6	3	1	53
Detroit	256	10.0	10.1	39	35	60
Duluth	17	7.7	9.3	3	0	65
El Paso	29	13.3	12.9	2	6	
Erie	28			2	3	43
Fall River [5]	38	14.9	14.7	7	4	120
Flint	28	10.2	8.4	5	2	79
Fort Worth	22	7.0	8.8	1	5	
White	17		7.8	1	3	
Colored	5	(6)	16.2	0	2	
Grand Rapids	28	9.2	12.7	3	2	44
Houston	61			7	11	
White	45			5	8	
Colored	16	(6)		2	3	
Indianapolis	96	13.4	13.7	7	8	53
White	82		13.1	7	5	61
Colored	14	(6)	18.0	0	3	0
Jersey City	76	12.3	11.0	7	5	53
Kansas City, Kans	29	12.9	15.6	2	2	42
White	25		11.9	1	2	25
Colored	4	(6)	33.1	1	0	145
Kansas City, Mo	75	10.2	12.4	7	8	
Knoxville	24	12.3		6		
White	18			6		
Colored	6	(6)		0		
Los Angeles	225			18	24	51
Lowell	25	11.8	17.5	1	7	21
Lynn	18	8.9	9.0	2	3	55
Memphis	63	18.4	14.5	13	6	
White	36		11.0	4	3	
Colored	27	(6)	20.7	9	3	
Milwaukee	127	12.5	9.6	13	15	60
Minneapolis	95	11.2	10.1	4	5	23
Nashville	47	17.8	14.5	6	9	
White	24		10.6	2	4	
Colored	23	(6)	24.1	4	5	
New Bedford	27	11.8	7.9	2	4	38
New Haven	62	17.5	7.4	4	1	56
New Orleans	155	19.1	17.8	19	18	
White	92		15.5	7	10	
Colored	63	(6)	21.4	12	8	

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended December 3, 1927, infant mortality, annual death rate, and comparison with corresponding week of 1926—Continued

City	Week ended Dec. 3, 1927		Annual death rate per 1,000 corresponding week 1926	Deaths under 1 year		Infant mortality rate, week ended Dec. 3, 1927
	Total deaths	Death rate		Week ended Dec. 3, 1927	Corresponding week 1926	
New York	1,302	11.4	11.8	138	133	58
Bronx Borough	159	9.0	9.4	14	13	45
Brooklyn Borough	448	10.3	10.7	62	59	65
Manhattan Borough	517	14.9	15.6	48	42	57
Queens Borough	134	8.6	8.3	11	15	48
Richmond Borough	44	15.6	13.2	3	4	57
Newark, N. J	100	11.2	10.2	13	17	65
Oklahoma City	43			4	3	
Omaha	67	16.0	13.3	6	6	68
Paterson	41	14.8	12.0	8	2	144
Philadelphia	537	13.8	14.5	53	60	72
Pittsburgh	169	13.7	13.3	16	25	56
Portland, Oreg	79			2	7	21
Providence	62	11.5	11.0	5	4	43
Richmond	45	12.2	11.6	3	4	39
White	24		8.6	1	2	20
Colored	21	(6)	18.8	2	2	73
Rochester	76	12.2	9.4	6	5	51
St. Louis	234	14.5	16.0	22	30	
St. Paul	60	12.5	10.5	4	3	37
Salt Lake City [5]	32	12.3	13.8	3	5	48
San Antonio	36	8.9	12.0	6	8	
San Diego	29	13.1	17.9	6	0	132
San Francisco	145	13.1	14.6	6	9	37
Schenectady	27	15.1	7.8	2	3	60
Seattle	67			4	5	43
Somerville	20	10.2	12.5	2	2	58
Spokane	28	13.4	20.6	1	7	24
Springfield, Mass	26	9.2	13.2	0	4	0
Syracuse	42	11.1	11.2	3	5	30
Tacoma	20	9.7	14.8	1	3	23
Toledo	67	11.5	15.0	8	10	76
Trenton	47	17.9	16.7	5	5	89
Utica	35	17.7	18.3	3	3	70
Washington, D. C	137	13.2	14.8	12	21	70
White	91		14.3	6	15	52
Colored	46	(6)	16.4	6	6	109
Waterbury	14			4	1	93
Wilmington, Del	29	12.0	11.3	3	2	74
Worcester	36	9.6	12.4	2	4	24
Yonkers	26	11.4	12.6	2	8	46
Youngstown	35	10.8	9.8	3	4	40

[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 65 cities.
[4] Data for 61 cities.
[5] Deaths for week ended Friday, Dec. 2, 1927.
[6] 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; Memphis, 36; 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 December 11, 1926, and December 10, 1927

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 11, 1926, and December 10, 1927

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927
New England States:								
Maine	2	4	1	113	71	54	0	0
Vermont	2				93		0	
Massachusetts	104	131	9	1	56	540	1	0
Rhode Island	12	25			1	10	0	0
Connecticut	37	37	5	9	39	47	0	0
Middle Atlantic States:								
New York	295	376	[1] 77	[1] 25	835	289	5	4
New Jersey	123	184	18	8	32	89	0	1
Pennsylvania	235	299			580	670	1	4
East North Central States:								
Ohio		98		10		59		2
Indiana	99	62	37	29	56	50	0	0
Illinois	112	177	24	39	742	32	3	3
Michigan	160	112		4	104	328	0	4
Wisconsin	47	55	51	29	523	84	2	5
West North Central States:								
Minnesota	55	28	1	1	113	5	0	4
Iowa [2]	42	14			17	12	0	1
Missouri	80	73	23	6	140	25	2	1
North Dakota	5				181		0	
South Dakota	3	2	2	2	36	21	0	1
Nebraska	7	21		11	10	10	1	0
Kansas	41	36	14	5	58	103	1	1
South Atlantic States:								
Delaware	3	3		1	2		0	0
Maryland [2]	58	41	27	28	32	88	1	1
District of Columbia	23						0	
West Virginia	49	28	51	26	65	30	0	1
North Carolina	102	80			16	1,158	0	2
South Carolina	30	35	409	629	9	335	0	0
Georgia	92	22	90	68	31	28	1	0
Florida	44	20	20	5	16	3	0	1
East South Central States:								
Tennessee	39	22	53	79	13	174	3	1
Alabama	72	78	44	67	14	44	1	1
Mississippi	25	39	106				1	
West South Central States:								
Arkansas	6	20	104	73	16	22	0	0
Louisiana	34	35	13	13	31	26	0	0
Oklahoma [3]	33	100	100	80	23	62	0	2
Texas	82	144	160	67	4	34	1	0

[1] New York City only. [2] Week ended Friday. [3] Exclusive of Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 11, 1926, and December 10, 1927—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927
Mountain States:								
Montana	2	2			140	1	2	2
Idaho	2	0			33		0	3
Wyoming	0	1		1	27	10	3	0
Colorado	21	34	1		15	11	0	3
New Mexico	4	6			9	13	0	0
Arizona	8	7			4	9	0	0
Utah [2]	12	11		2	464		0	1
Pacific States:								
Washington	55	25	1		110	166	2	3
Oregon	20	10	15	14	31	8	0	0
California	154	120	33	21	999	53	1	4

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927	Week ended Dec. 11, 1926	Week ended Dec. 10, 1927
New England States:								
Maine	0	2	40	67	0	0	5	4
Vermont	0		3		0		0	
Massachusetts	2	24	324	266	0	0	6	6
Rhode Island	1	0	9	35	0	0	0	0
Connecticut	0	2	52	70	0	0	2	3
Middle Atlantic States:								
New York	5	6	387	382	18	1	50	27
New Jersey	2	1	143	127	0	3	18	6
Pennsylvania	1	8	417	366	0	0	59	24
East North Central States:								
Ohio		11		216		24		16
Indiana	0	4	176	114	147	94	10	3
Illinois	2	7	285	277	9	20	22	18
Michigan	0	6	308	210	14	29	3	9
Wisconsin	0	0	141	140	2	77	2	4
West North Central States:								
Minnesota	1	2	251	123	5	0	3	6
Iowa [3]	0	2	45	67	8	41	2	3
Missouri	0	0	107	86	3	26	10	11
North Dakota	0		35		28		0	
South Dakota	0	1	80	31	0	21	4	3
Nebraska	0	5	31	65	10	56	5	1
Kansas	0	1	92	134	18	40	3	8
South Atlantic States:								
Delaware	1	0	27	7	0	0	0	1
Maryland [3]	0	0	53	29	0	0	16	15
District of Columbia	0		8		0		1	
West Virginia	0	8	65	60	11	16	32	23
North Carolina	0	2	59	73	37	42	9	3
South Carolina	1	1	14	20	1	4	16	27
Georgia	0	2	37	13	65	0	13	4
Florida	3	2	15	10	24	0	18	4
East South Central States:								
Tennessee	1	2	55	36	7	6	37	28
Alabama	0	1	30	23	77	1	11	8
Mississippi	1	0	30	17	9	0	18	2
West South Central States:								
Arkansas	0	1	5	9	7	8	6	3
Louisiana	0	0	24	11	5	6	10	6
Oklahoma [3]	1	2	31	37	11	54	26	32
Texas	1	7	60	78	12	27	19	12
Mountain States:								
Montana	0	0	59	12	0	16	1	0
Idaho	0	1	28	8	5	0	0	0
Wyoming	0	0	21	14	0	10	1	1
Colorado	0	4	84	112	6	10	2	3
New Mexico	1	1	29	13	0	0	6	9
Arizona	0	0	20	6	0	0	0	6
Utah [2]	0	2	15	20	1	54	0	0
Pacific States:								
Washington	0	5	107	42	66	30	6	6
Oregon	1	13	86	22	41	51	5	4
California	6	27	231	162	12	2	10	9

[2] Week ended Friday.

[3] Exclusive of Tulsa.

Report for Week Ended November 26, 1927

NORTH DAKOTA

	Cases		Cases
Diphtheria	5	Scarlet fever	76
Influenza	1	Smallpox	14
Measles	7	Typhoid fever	5

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
September, 1927										
Delaware	0	7	1		4		0	8	0	9
October, 1927										
California	21	499	79	3	199	11	153	485	22	49
November, 1927										
Alabama	3	434	226	169	75	23	1	138	28	100
Connecticut	0	136	25		105		16	223	0	18
Nebraska	1	73	5		36		27	148	33	15

September, 1927

Delaware:

	Cases
Anthrax	1
Mumps	2
Tetanus	1
Whooping cough	10

October, 1927

California:

	Cases
Chicken pox	639
Dysentery (amœbic)	5
Dysentery (bacillary)	18
German measles	132
Jaundice	4
Leprosy	1
Lethargic encephalitis	7
Malta fever	1
Mumps	249
Ophthalmia neonatorum	1
Paratyphoid fever	4
Rabies in animals	13
Tetanus	2
Trachoma	21
Whooping cough	396

November, 1927

Chicken pox:

	Cases
Alabama	81
Connecticut	525
Nebraska	186

Dengue:

	Cases
Alabama	4

German measles:

	Cases
Connecticut	5
Nebraska	8

Lead poisoning:

	Cases
Connecticut	1

Lethargic encephalitis:

	Cases
Alabama	1
Connecticut	2

Mumps:

	Cases
Alabama	33
Connecticut	193
Nebraska	72

Paratyphoid fever:

	Cases
Connecticut	6

Rabies in animals:

	Cases
Connecticut	5

Rabies in man:

	Cases
Alabama	1

Septic sore throat:

	Cases
Connecticut	10
Nebraska	3

Tetanus:

	Cases
Connecticut	2

Trichinosis:

	Cases
Connecticut	3

Typhus fever:

	Cases
Alabama	8

Whooping cough:

	Cases
Alabama	77
Connecticut	332
Nebraska	59

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 99 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 30,920,000. The estimated population of the 92 cities reporting deaths is more than 29,490,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended November 26, 1927, and November 27, 1926

	1927	1926	Estimated expectancy
Cases reported			
Diphtheria:			
41 States	2,382	2,397	----
99 cities	1,207	1,235	1,327
Measles:			
40 States	2,809	4,396	----
99 cities	801	780	----
Poliomyelitis:			
41 States	166	31	----
Scarlet fever:			
41 States	2,853	3,499	----
99 cities	939	1,244	1,011
Smallpox:			
41 States	602	474	----
99 cities	129	32	45
Typhoid fever:			
41 States	417	479	----
99 cities	59	69	66
Deaths reported			
Influenza and pneumonia:			
92 cities	612	752	----
Smallpox:			
92 cities	0	1	----
Indianapolis	0	1	----

City reports for week ended November 26, 1927

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever 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 week of the preceding years. When the reports include several epidemics or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during non-epidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1918 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Population July 1, 1925, estimated	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	75,333	9	2	2	0	0	10	0	1
New Hampshire:									
Concord	22,546	0	1	0	0	0	4	0	0
Vermont:									
Barre	10,008	0	1	0	0	0	0	0	0
Burlington	24,089	5	1	0	0	0	0	0	0

City reports for week ended November 26, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	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—con.									
Massachusetts:									
Boston	779,620	54	52	17	7	1	160	5	8
Fall River	128,993	1	5	6	0	0	1	0	1
Springfield	142,065	2	4	3	0	0	3	6	2
Worcester	190,757	8	5	15	0	0	1	18	2
Rhode Island:									
Pawtucket	69,760	0	1	2	0	0	0	0	0
Providence	267,918	0	10	10	1	0	4	2	3
Connecticut:									
Bridgeport	(1)	2	10	7	2	0	0	0	3
Hartford	160,197	1	9	8	2	0	0	1	2
New Haven	178,927	9	4	3	0	0	32	15	4
MIDDLE ATLANTIC									
New York:									
Buffalo	538,016	45	22	22	-------	0	27	28	14
New York	5,873,356	86	179	240	12	12	22	16	109
Rochester	316,786	8	9	4	-------	0	3	1	3
Syracuse	182,003	28	11	3	-------	0	9	14	3
New Jersey:									
Camden	128,642	2	7	3	0	0	0	1	3
Newark	452,513	30	12	34	6	0	21	7	9
Trenton	132,020	1	6	0	0	1	0	0	3
Pennsylvania:									
Philadelphia	1,979,364	100	84	40	-------	6	3	55	31
Pittsburgh	631,563	30	31	82	-------	1	175	51	21
Reading	112,707	6	4	3	-------	0	1	0	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	409,333	24	20	18	0	1	11	2	10
Cleveland	936,485	51	57	80	0	0	12	71	17
Columbus	279,836	14	13	20	0	0	1	1	5
Toledo	287,380	46	17	7	1	1	17	8	4
Indiana:									
Fort Wayne	97,846	1	5	6	0	0	0	0	3
Indianapolis	358,819	35	13	13	0	1	2	32	9
South Bend	80,091	2	3	0	0	0	0	0	1
Terre Haute	71,071	0	2	0	0	0	0	0	3
Illinois:									
Chicago	2,995,239	143	126	112	10	3	5	24	41
Springfield	63,923	0	3	1	0	0	0	4	2
Michigan:									
Detroit	1,245,824	47	82	47	0	2	43	31	29
Flint	130,316	12	14	8	0	0	1	36	3
Grand Rapids	153,698	5	6	1	0	1	13	1	0
Wisconsin:									
Kenosha	50,891	10	3	6	0	0	0	1	0
Milwaukee	509,192	87	33	17	0	0	1	24	8
Racine	67,707	7	3	0	0	0	1	1	0
Superior	39,671	8	2	0	0	0	0	0	2
WEST NORTH CENTRAL									
Minnesota:									
Duluth	110,502	6	2	0	0	0	2	1	2
Minneapolis	425,435	67	35	13	0	0	1	3	8
St. Paul	246,001	12	21	3	0	0	1	2	8
Iowa:									
Davenport	52,469	0	2	1	0	-------	0	0	-------
Des Moines	141,441	0	7	0	0	-------	0	0	-------
Sioux City	76,411	4	3	0	0	-------	0	6	-------
Waterloo	36,771	2	0	0	0	-------	0	0	-------
Missouri:									
Kansas City	367,481	31	13	8	0	3	0	35	11
St. Joseph	78,342	0	4	0	0	0	0	0	2
St. Louis	821,543	18	53	63	0	0	5	8	-------
North Dakota:									
Fargo	26,403	26	0	0	0	0	1	1	0
Grand Forks	14,811	16	0	0	0	-------	0	0	-------

[1] No estimate made.

City reports for week ended November 26, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	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—continued									
South Dakota:									
Aberdeen	15,036	1	0	0	0	-------	2	0	-------
Sioux Falls	30,127	2	1	0	0	-------	0	0	-------
Nebraska:									
Lincoln	60,941	17	2	1	0	0	2	9	0
Omaha	211,768	11	8	2	0	0	1	1	3
Kansas:									
Topeka	55,411	21	3	1	1	0	1	1	2
Wichita	88,367	12	8	0	0	0	0	0	6
SOUTH ATLANTIC									[1]
Delaware:									
Wilmington	122,049	0	3	2	0	0	0	1	1
Maryland:									
Baltimore	796,296	67	38	30	11	2	29	4	25
Cumberland	33,741	1	1	0	0	0	0	0	1
Frederick	12,035	-------	0	-------	-------	-------	-------	-------	-------
District of Columbia:									
Washington	497,906	23	24	21	1	1	0	0	12
Virginia:									
Lynchburg	30,395	2	2	10	0	0	0	0	3
Norfolk	(1)	19	5	3	0	0	0	1	3
Richmond	186,403	3	19	17	0	0	7	0	3
Roanoke	58,208	0	5	3	0	1	0	0	1
West Virginia:									
Charleston	49,019	2	4	0	0	1	0	0	2
Wheeling	56,208	22	4	0	0	0	0	0	4
North Carolina:									
Raleigh	30,371	16	3	1	0	0	1	0	1
Wilmington	37,061	1	0	1	0	1	34	0	0
Winston-Salem	69,031	0	3	5	0	0	4	7	3
South Carolina:									
Charleston	73,125	0	2	0	25	0	0	0	6
Columbia	41,225	5	1	0	0	-------	3	18	-------
Greenville	27,311	-------	1	-------	-------	-------	-------	-------	-------
Georgia:									
Atlanta	(1)	3	7	5	42	0	0	0	10
Brunswick	16,809	0	0	0	0	0	0	5	1
Savannah	93,134	0	3	2	27	0	21	0	2
Florida:									
Miami	69,754	2	-------	3	0	0	0	2	1
St. Petersburg	26,847	-------	1	-------	-------	0	-------	-------	0
Tampa	94,743	0	2	6	1	1	1	0	2
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,309	2	3	0	0	0	0	0	2
Lexington	46,895	2	-------	1	0	0	0	0	2
Louisville	305,935	2	10	3	4	1	5	1	3
Tennessee:									
Memphis	174,533	3	11	8	0	0	25	2	7
Nashville	136,220	3	6	2	0	1	0	1	2
Alabama:									
Birmingham	205,670	4	8	8	2	4	1	0	11
Mobile	65,955	0	2	1	1	3	0	0	0
Montgomery	46,481	0	2	2	0	0	1	1	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	0	2	4	0	-------	0	0	-------
Little Rock	74,216	0	3	1	0	0	3	0	0
Louisiana:									
New Orleans	414,493	0	13	10	9	6	2	0	9
Shreveport	57,857	2	2	2	0	0	12	0	1
Oklahoma:									
Oklahoma City	(1)	3	4	11	3	1	0	1	7
Tulsa	124,478	4	-------	9	0	-------	0	9	-------

[1] No estimate made.

City reports for week ended November 26, 1927—Continued

Division, State, and city	Population July 1, 1925, estimated	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—continued									
Texas:									
Dallas	194,450	4	15	32	2	2	2	0	5
Galveston	48,375	0	1	3	0	0	0	0	1
Houston	164,954	1	6	17	0	0	0	0	3
San Antonio	198,069	1	4	4	0	0	2	0	7
MOUNTAIN									
Montana:									
Billings	17,971	2	0	0	0	0	0	0	0
Great Falls	29,883	1	1	0	0	0	0	0	0
Helena	12,037	0	0	0	0	0	0	0	0
Missoula	12,668	3	0	0	0	0	0	0	0
Idaho:									
Boise	23,042	1	0	0	0	0	0	4	0
Colorado:									
Denver	280,911	43	16	6	----	2	2	12	8
Pueblo	43,787	8	4	2	0	0	0	0	2
New Mexico:									
Albuquerque	21,060	3	1	1	0	0	0	0	0
Utah:									
Salt Lake City	130,948	11	5	11	0	0	1	1	1
Nevada:									
Reno	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle	(1)	21	7	6	0	----	49	10	----
Spokane	108,897	24	4	0	0	----	0	0	----
Tacoma	104,455	5	4	4	0	0	0	0	6
Oregon:									
Portland	282,383	14	10	5	0	0	0	1	5
California:									
Los Angeles	(1)	23	48	29	7	----	4	14	----
Sacramento	72,260	2	3	5	0	0	5	0	2
San Francisco	557,530	74	17	18	3	2	9	13	3

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	2	0	0	0	0	1	0	0	0	14
New Hampshire:											
Concord	0	1	0	0	0	0	0	0	0	0	13
Vermont:											
Barre	0	0	0	0	0	0	0	0	0	0	1
Burlington	1	0	0	0	0	0	0	0	0	0	4
Massachusetts:											
Boston	46	36	0	0	0	8	1	1	0	33	199
Fall River	2	4	0	0	0	2	0	1	0	0	22
Springfield	6	5	0	0	0	0	0	0	0	4	26
Worcester	11	8	0	0	0	4	0	0	0	0	50
Rhode Island:											
Pawtucket	1	2	0	0	0	0	0	0	0	0	12
Providence	7	13	0	0	0	2	1	2	0	0	66
Connecticut:											
Bridgeport	8	4	0	0	0	3	0	0	0	0	35
Hartford	5	3	0	0	0	0	0	0	0	9	37
New Haven	6	0	0	0	0	1	0	2	0	5	50

[1] No estimate made.

City reports for week ended November 26, 1927—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		
MIDDLE ATLANTIC											
New York:											
Buffalo	18	20	0	0	0	6	1	1	0	18	117
New York	122	87	0	0	0	73	18	15	0	135	1,271
Rochester	8	9	0	0	0	1	1	0	0	2	62
Syracuse	12	3	0	0	0	1	0	0	0	9	40
New Jersey:											
Camden	5	6	0	0	0	1	0	1	1	0	30
Newark	16	6	0	0	0	8	1	0	0	44	89
Trenton	2	2	0	0	0	1	0	0	0	0	38
Pennsylvania:											
Philadelphia	67	85	0	0	0	19	5	4	3	26	410
Pittsburgh	35	26	1	0	0	5	0	0	0	7	189
Reading	2	3	0	0	0	2	0	0	0	0	25
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	15	4	0	0	0	15	1	0	0	0	137
Cleveland	29	21	0	0	0	17	2	1	1	21	193
Columbus	10	18	0	0	0	0	0	0	0	6	66
Toledo	13	10	0	1	0	3	1	7	0	0	71
Indiana:											
Fort Wayne	2	7	0	0	0	4	0	0	0	4	26
Indianapolis	12	18	3	0	0	2	0	0	0	0	97
South Bend	4	2	1	0	0	2	0	0	0	0	18
Terre Haute	4	0	1	0	0	0	0	0	0	0	21
Illinois:											
Chicago	105	89	1	2	0	37	4	5	0	59	617
Springfield	2	2	0	0	0	1	0	0	0	0	20
Michigan:											
Detroit	77	63	1	0	0	20	2	3	2	56	253
Flint	9	25	0	0	0	0	0	0	1	2	22
Grand Rapids	10	4	0	0	0	2	0	0	0	0	28
Wisconsin:											
Kenosha	2	2	1	0	0	0	0	0	0	0	2
Milwaukee	18	24	1	0	0	0	0	0	0	13	105
Racine	4	8	0	0	0	0	0	0	0	9	6
Superior	2	6	0	0	0	0	0	0	0	0	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth	8	7	1	0	0	2	0	0	0	2	24
Minneapolis	45	18	3	0	0	3	0	0	0	0	90
St. Paul	21	11	2	1	0	1	1	1	0	0	49
Iowa:											
Davenport	1	0	1	0	----	----	0	0	----	0	----
Des Moines	8	11	0	18	----	----	0	0	----	0	38
Sioux City	3	2	1	0	----	----	0	0	----	2	----
Waterloo	2	2	0	0	----	----	0	0	----	0	----
Missouri:											
Kansas City	12	12	0	2	0	5	1	1	0	4	107
St. Joseph	3	2	0	84	0	2	0	0	0	0	29
St. Louis	35	23	0	0	0	12	3	3	0	8	207
North Dakota:											
Fargo	2	5	0	0	0	0	0	0	0	3	7
Grand Forks	0	0	0	1	----	----	0	0	----	0	----
South Dakota:											
Aberdeen	2	0	0	0	----	----	0	0	----	0	----
Sioux Falls	2	5	0	0	----	----	0	0	----	0	6
Nebraska:											
Lincoln	2	2	0	0	0	0	0	0	0	9	14
Omaha	5	7	2	1	0	1	0	0	0	0	39
Kansas:											
Topeka	2	1	0	0	0	0	0	1	0	22	16
Wichita	4	13	0	14	0	0	1	1	0	3	35

City reports for week ended November 26, 1927—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		
SOUTH ATLANTIC											
Delaware:											
Wilmington	5	1	0	0	0	1	0	0	0	1	31
Maryland:											
Baltimore	19	23	0	0	0	9	3	1	0	11	231
Cumberland	0	3	0	0	0	0	0	0	0	0	7
Frederick	0		0				0				
District of Columbia:											
Washington	18	18	0	0	0	7	2	0	0	8	122
Virginia:											
Lynchburg	1	4	0	0	0	0	0	0	0	0	10
Norfolk	2	4	0	0	0	2	0	0	0	0	
Richmond	8	6	0	0	0	6	0	1	0	0	52
Roanoke	3	10	0	0	0	0	0	0	0	0	18
West Virginia:											
Charleston	2	2	0	0	0	0	0	0	1	0	16
Wheeling	2	1	0	0	0	0	1	0	0	0	15
North Carolina:											
Raleigh	2	1	0	0	0	0	0	0	0	0	16
Wilmington	1	2	0	0	0	0	0	0	0	1	6
Winston-Salem	2	2	0	0	0	1	0	0	0	1	19
South Carolina:											
Charleston	0	2	0	0	0	2	1	1	1	0	27
Columbia	0	1	0	0			0	0		2	13
Greenville	1		0				0				
Georgia:											
Atlanta	5	8	1	0	0	4	1	2	0	2	75
Brunswick	0	0	0	0	0	0	0	0	0	0	6
Savannah	1	2	0	1	0	4	1	0	0	0	30
Florida:											
Miami		4		0	0	0		0	0	0	21
St. Petersburg	0		0		0	0	0		0		6
Tampa	0	1	0	0	0	0	0	0	0	0	16
EAST SOUTH CENTRAL											
Kentucky:											
Covington	2	1	0	0	0	1	0	0	0	0	16
Lexington		0		0	0	2		1	0	0	15
Louisville	5	5	1	0	0	6	1	1	1	0	81
Tennessee:											
Memphis	6	6	1	0	0	3	2	0	0	1	66
Nashville	3	1	0	0	0	2	1	1	0	0	40
Alabama:											
Birmingham	4	2	0	0	0	2	1	1	0	0	65
Mobile	0	2	0	0	0	1	0	0	0	0	25
Montgomery	1	0	0	0	0	0	0	0	0	0	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	2	0	0	0			0	1		0	
Little Rock	2	2	1	0	0	2	0	0	0	0	
Louisiana:											
New Orleans	7	9	1	0	0	12	1	1	1	3	148
Shreveport	1	3	1	0	0	1	1	0	0	0	14
Oklahoma:											
Oklahoma City	3	3	0	15	0	2	0	0	0	0	25
Tulsa		2		1				0		4	
Texas:											
Dallas	5	16	0	0	0	2	1	1	0	6	40
Galveston	1	0	0	0	0	0	0	0	0	0	9
Houston	1	2	0	0	0	2	0	0	0	0	45
San Antonio	1	8	0	1	0	8	0	0	1	0	52

City reports for week ended November 26, 1927—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	0	1	0	0	0	0	1	0	0	0	7
Great Falls	1	1	1	1	0	0	0	0	0	0	5
Helena	0	2	0	2	0	0	0	0	0	0	3
Missoula	1	0	1	0	0	0	0	0	0	0	3
Idaho:											
Boise	0	1	0	0	0	0	0	0	0	0	5
Colorado:											
Denver	11	11	2	0	0	6	0	1	0	8	74
Pueblo	1	1	0	0	0	1	0	0	0	0	10
New Mexico:											
Albuquerque	1	0	0	0	0	5	0	0	0	0	12
Utah:											
Salt Lake City	2	3	0	3	0	1	0	2	0	7	24
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	3
PACIFIC											
Washington:											
Seattle	9	6	3	0	----	----	1	1	----	2	----
Spokane	8	12	5	17	----	----	0	0	----	0	----
Tacoma	2	2	4	0	0	0	0	0	0	0	27
Oregon:											
Portland	8	3	4	5	0	0	0	0	0	1	67
California:											
Los Angeles	23	15	4	0	----	----	2	1	----	10	----
Sacramento	2	5	0	0	0	3	0	0	0	0	26
San Francisco	11	10	0	0	0	15	1	0	0	8	129

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									
Maine:									
Portland	0	2	0	0	0	0	0	0	0
Massachusetts:									
Boston	0	1	3	0	0	0	1	10	2
Fall River	0	0	0	0	0	0	0	1	0
Worcester	0	0	0	0	0	0	0	2	0
MIDDLE ATLANTIC									
New York:									
New York	3	2	7	1	0	0	3	3	0
New Jersey:									
Newark	1	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	1	0	0	0	0	0	0	0	1
Pittsburgh	0	0	0	0	0	0	0	2	0
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	0	0	1	0	0	0	2	0
Cleveland	0	0	3	0	0	0	1	0	0
Columbus	0	0	0	0	0	0	0	1	0
Toledo	1	0	0	0	0	0	0	0	0
Indiana:									
Fort Wayne	0	0	0	0	0	0	0	0	1
Illinois:									
Chicago	2	0	0	0	1	1	1	0	0
Michigan:									
Detroit	0	0	1	0	0	0	1	1	0
Wisconsin:									
Milwaukee	5	1	0	0	0	0	0	2	0

City reports for week ended November 26, 1927—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis	0	1	0	0	0	0	0	0	0
Iowa:									
Des Moines	0	----	0	----	0	----	0	1	----
Missouri:									
Kansas City	0	0	1	1	0	0	0	0	0
St. Louis	1	1	0	0	0	0	0	0	0
Kansas:									
Topeka	0	0	0	0	0	1	0	1	1
SOUTH ATLANTIC									
Delaware:									
Wilmington	1	1	0	0	0	0	0	1	1
Maryland:									
Baltimore	0	0	2	1	0	0	1	0	1
Virginia:									
Lynchburg	0	0	0	0	0	1	0	0	0
Norfolk	0	0	1	0	0	0	0	0	0
Richmond	0	0	0	0	0	1	0	0	0
West Virginia:									
Wheeling	0	0	0	0	0	0	0	1	0
North Carolina:									
Raleigh	0	0	0	0	0	2	0	0	0
Winston-Salem	0	1	0	0	1	1	0	0	0
South Carolina:									
Charleston [1]	0	0	0	0	1	0	0	0	0
Columbia	0	0	0	0	0	1	0	0	0
Georgia: [2]									
Atlanta [2]	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	0	0	0	1	0	0	0	0	0
Alabama:									
Birmingham	0	0	0	0	1	0	0	0	0
Mobile [2]	0	0	0	1	0	1	0	0	0
Montgomery	0	0	0	0	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock	0	0	0	0	0	3	0	0	0
Louisiana:									
New Orleans	1	0	0	0	2	3	1	0	0
Oklahoma:									
Oklahoma City	0	0	0	1	0	0	0	0	0
Texas:									
Dallas	0	0	0	0	3	2	0	0	0
MOUNTAIN									
Montana:									
Helena	0	0	0	0	0	0	0	1	0
Missoula	0	0	0	0	0	0	0	1	0
Colorado:									
Denver	1	0	0	0	0	0	0	0	0
Utah:									
Salt Lake City	0	0	0	0	0	0	0	2	0
PACIFIC									
Washington:									
Seattle	0	----	0	----	0	----	0	1	----
Spokane	1	----	0	----	0	----	0	2	----
Tacoma	0	0	0	0	0	0	0	3	0
Oregon:									
Portland	0	0	0	0	0	0	0	5	1
California:									
Los Angeles	0	----	1	----	2	----	1	5	----
San Francisco	0	0	0	0	1	1	0	2	0

[1] Dengue: 1 case at Charleston, S. C.
[2] Typhus fever: 1 case at Atlanta, Ga., 2 cases at Savannah, Ga., and 1 case at Mobile, Ala.

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended November 26, 1927, compared with those for a like period ended November 27, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,445,000 in 1926 and 30,966,000 in 1927. The 95 cities reporting deaths had nearly 29,785,000 estimated population in 1926 and nearly 30,296,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, October 23 to November 26, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	Oct. 30, 1926	Oct. 29, 1927	Nov. 6, 1926	Nov. 5, 1927	Nov. 13, 1926	Nov. 12, 1927	Nov. 20, 1926	Nov. 19, 1927	Nov. 27, 1926	Nov. 26, 1927
101 cities	213	195	224	214	228	[2] 215	230	[3] 228	212	[4] 204
New England	106	135	118	114	134	160	139	163	132	169
Middle Atlantic	138	191	143	226	163	205	159	234	155	213
East North Central	241	232	275	261	264	254	292	[3] 249	258	220
West North Central	264	139	252	195	222	161	214	153	192	179
South Atlantic	354	192	317	185	387	190	276	217	281	[4] 195
East South Central	383	260	424	153	264	209	367	239	217	122
West South Central	331	298	253	323	378	298	326	348	301	306
Mountain	155	99	219	99	182	279	146	207	201	171
Pacific	204	152	287	141	230	[2] 224	324	223	303	162

MEASLES CASE RATES

101 cities	64	70	81	77	106	[2] 96	135	[3] 125	134	[4] 135
New England	24	190	66	241	31	341	47	390	57	499
Middle Atlantic	13	72	16	72	44	124	28	93	30	129
East North Central	77	18	80	29	101	27	120	[3] 55	135	60
West North Central	85	34	151	14	147	16	198	22	109	24
South Atlantic	9	107	20	132	24	136	54	283	22	[4] 184
East South Central	21	204	26	234	10	76	31	148	16	163
West South Central	0	21	9	21	26	13	26	71	103	88
Mountain	392	63	793	9	1,531	18	1,950	72	2,543	27
Pacific	340	92	313	79	279	[2] 76	488	212	338	175

SCARLET FEVER CASE RATES

101 cities	169	146	188	149	206	[3] 150	212	[3] 177	213	[4] 158
New England	245	211	264	200	351	204	330	248	285	181
Middle Atlantic	92	97	94	110	125	110	130	152	138	122
East North Central	157	166	186	173	182	177	201	[3] 202	196	196
West North Central	355	248	415	165	347	185	407	232	411	204
South Atlantic	132	168	197	159	177	183	143	156	156	[4] 167
East South Central	331	138	248	168	295	153	228	112	238	87
West South Central	112	126	112	151	142	105	116	105	198	168
Mountain	365	144	583	180	702	153	638	234	784	180
Pacific	236	97	204	141	279	[3] 117	335	154	249	131

[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, 1926 and 1927, respectively.
[2] Seattle, Wash., and Spokane, Wash., not included.
[3] Fort Wayne, Ind., not included.
[4] Frederick, Md., and Greenville, S. C., not included.

Summary of weekly reports from cities, October 23 to November 26, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

SMALLPOX CASE RATES

	Week ended—									
	Oct. 30, 1926	Oct. 29, 1927	Nov. 6, 1926	Nov. 5, 1927	Nov. 13, 1926	Nov. 12, 1927	Nov. 20, 1926	Nov. 19, 1927	Nov. 27, 1926	Nov. 26, 1927
101 cities	3	7	3	18	5	[2] 16	5	[3] 19	5	[4] 22
New England	0	9	0	0	0	0	0	0	0	0
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	1	0	6	6	10	4	3	[3] 6	7	1
West North Central	2	52	2	159	10	157	4	161	30	202
South Atlantic	6	0	0	14	2	5	4	9	4	[4] 2
East South Central	5	5	10	0	10	0	0	5	5	0
West South Central	4	0	9	4	30	4	4	4	4	4
Mountain	9	45	0	36	9	27	0	27	0	54
Pacific	21	16	3	18	5	[2] 3	48	29	5	45

TYPHOID FEVER CASE RATES

101 cities	27	17	24	19	21	[2] 15	16	[3] 15	12	[4] 10
New England	12	19	17	16	9	16	7	23	7	14
Middle Atlantic	14	12	12	20	21	15	21	14	13	10
East North Central	17	13	13	7	10	9	5	[3] 7	3	6
West North Central	24	16	26	24	16	28	6	20	8	14
South Atlantic	75	22	45	31	35	20	22	25	19	[4] 9
East South Central	140	46	103	36	52	5	36	15	31	15
West South Central	39	38	21	59	34	34	13	29	17	13
Mountain	46	27	91	36	27	9	27	18	18	27
Pacific	19	16	46	5	29	[2] 7	29	13	21	5

INFLUENZA DEATH RATES

95 cities	11	8	11	9	14	8	10	[3] 9	10	[5] 11
New England	7	0	12	5	2	2	2	5	9	2
Middle Atlantic	8	4	9	8	10	9	10	7	7	10
East North Central	14	5	6	9	10	5	10	[3] 2	9	5
West North Central	2	6	6	10	13	2	6	10	2	6
South Atlantic	21	13	15	7	17	17	8	20	15	[4] 13
East South Central	10	41	21	15	26	15	31	20	41	46
West South Central	26	17	40	26	66	17	31	34	31	34
Mountain	9	27	18	18	27	18	9	36	36	18
Pacific	7	10	7	7	14	0	4	3	0	[6] 14

PNEUMONIA DEATH RATES

95 cities	96	91	101	90	106	104	123	[3] 112	126	[5] 98
New England	99	65	99	63	90	95	104	102	132	60
Middle Atlantic	101	92	114	87	115	113	136	119	138	98
East North Central	86	82	85	93	87	89	104	[3] 97	98	89
West North Central	63	69	84	62	76	75	120	81	74	87
South Atlantic	108	88	121	118	140	120	144	160	166	[4] 149
East South Central	134	112	98	112	165	138	171	148	103	127
West South Central	88	190	115	90	110	129	154	142	207	112
Mountain	182	144	164	117	155	144	109	99	146	99
Pacific	88	97	49	100	99	100	74	76	124	[6] 76

[3] Fort Wayne, Ind., not included.
[4] Frederick, Md., and Greenville, S. C., not included.
[5] Frederick, Md., Greenville, S. C., and Los Angeles, Calif., not included.
[6] Los Angeles, Calif., not included.

Number of cities included in summary of weekly reports, and aggregate population of cities in each group, approximated as of July 1, 1926 and 1927, respectively

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total	101	95	30,443,800	30,966,700	29,783,700	30,295,900
New England	12	12	2,211,000	2,245,900	2,211,000	2,245,900
Middle Atlantic	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central	16	16	7,650,200	7,810,600	7,650,200	7,810,600
West North Central	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central	7	7	1,008,300	1,023,500	1,008,300	1,023,500
West South Central	8	7	1,213,800	1,243,300	1,181,500	1,210,400
Mountain	9	9	572,100	580,000	572,100	580,000
Pacific	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for the week ended November 19, 1927.—The following report for the week ended November 19, 1927, was transmitted by the Eastern Bureau of the Health Section of the Secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

Plague, cholera, or smallpox was reported present in the following ports:

PLAGUE

Egypt.—Alexandria.
India.—Rangoon, Bassein.
Dutch East Indies.—Makassar.
Straits Settlements.—Singapore.
French Indo-China.—Saigon, Cholon.

CHOLERA

India.—Calcutta, Madras, Tuticorin.
Straits Settlements.—Singapore.
Dutch East Indies.—Batavia.
Siam.—Bangkok.

SMALLPOX

Aden Protectorate.—Aden.
Iraq.—Basra.
India.—Calcutta, Madras, Tuticorin, Rangoon.
Dutch East Indies.—Banjermasin, Samarinda.
Siam.—Bangkok.

Returns for the week ended November 19 were not received from Bombay, India; Canton, China; or Vladivostok, Union of Socialist Soviet Republics.

ARGENTINA

Plague—Quilino—Rosario.—Information dated November 26, 1927, shows the occurrence of plague at Quilino and Rosario, Argentina.

BELGIUM

Ghent—Vital statistics, year 1926.—The report of the Municipal Bureau of Health of Ghent for the year 1926 gives the population of the city as 162,641. There were 2,356 births during the year as compared with 2,471 in 1925, the rates being 14.41 per 1,000 population in 1926, and 15.08 per 1,000 in 1925. There were 2,078 deaths in 1926 as compared with 2,123 in 1925. Deaths among children under one year were 213 in 1926, as compared with 260 in 1925.

The principal causes of death in 1926 were cancer, 226 deaths, and pulmonary tuberculosis, 116. Forty-eight cases of typhoid fever were reported with 4 deaths; 51 cases of scarlet fever with no death; 44 cases of diphtheria with 2 deaths; and there were 6 deaths from whooping cough. One case of puerperal fever and one of cerebro-spinal meningitis were reported, but there were no deaths from these

diseases. It is said that smallpox has not appeared in Ghent for a number of years. Forty-nine cases of gonorrhea and 2 of syphilis were discovered and segregated.

The city maintains an open-air school for tubercular children at Breedene-sur-Mer, which was attended by 64 children during the year.

CANADA

Communicable diseases—Week ended November 26, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from seven Provinces of Canada for the week ended November 26, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	Total
Influenza	6							6
Lethargic encephalitis				1				1
Poliomyelitis				1		1	1	3
Smallpox				71	1	9	7	88
Typhoid fever	2	11	12	16	3		2	46

Communicable diseases—Ontario—November, 1927, comparative.—During the month of November, 1927, communicable diseases were reported in the Province of Ontario, Canada, as follows:

Disease	1927		1926	
	Cases	Deaths	Cases	Deaths
Cerebrospinal meningitis	1			2
Chancroid	7		1	
Chicken pox	1,080		1,527	
Diphtheria	343	17	393	14
Dysentery		4		
German measles	14		15	
Gonorrhea	190		157	
Influenza		3		7
Lethargic encephalitis	4	1	2	
Measles	542		746	
Mumps	1,007		47	
Pneumonia		74		127
Poliomyelitis	7		8	1
Scarlet fever	402	4	546	
Smallpox	271		95	1
Syphilis	115		99	
Tuberculosis	94	53	84	42
Whooping cough	285		312	2

Smallpox.—During the period under report smallpox was notified in the Province of Ontario in 21 municipalities, the greatest numbers of cases being notified as follows: Ottawa, 97 cases; Toronto, 59 cases; East York, 51 cases. Reports from other localities show as follows: North York, 11 cases; Gloucester, 9; Clarence, 9; Kitchener, 7; Charlton, 6. In eight localities one case each was reported.

Communicable diseases—Quebec—Week ended November 26, 1927.—The Bureau of Health of the Province of Quebec reports cases of

certain communicable diseases for the week ended November 26, 1927, as follows:

Disease	Cases	Disease	Cases
Chicken pox	32	Scarlet fever	120
Diphtheria	125	Smallpox	8
German measles	2	Tuberculosis	62
Influenza	9	Typhoid fever	13
Measles	87	Whooping cough	26

Vital statistics—Quebec—September, 1927.—Births and deaths in the Province of Quebec for the month of September, 1927, were reported as follows:

Estimated population	2,604,600	Deaths from—Continued	
Births	6,252	Diphtheria	28
Birth rate per 1,000 population	28.81	Heart disease	209
Deaths	2,923	Influenza	16
Death rate per 1,000 population	13.47	Measles	4
Deaths under 1 year	1,083	Pneumonia	123
Infant mortality rate	173.24	Poliomyelitis	3
Deaths from—		Scarlet fever	9
Accidents (all)	110	Syphilis	7
Cancer	145	Tuberculosis (pulmonary)	135
Cerebrospinal meningitis	6	Tuberculosis (other forms)	48
Diabetes	13	Typhoid fever	23
Diarrhea	402	Whooping cough	39

Nova Scotia—Infant mortality and deaths from communicable diseases—January to June, 1927.—The report of vital statistics for the Province of Nova Scotia, Canada, for the first half of the year 1927, shows a decrease in the birth rate and an increase in infant mortality, as compared with the first half of the year 1926. The infant mortality rate for the six months was 93 per 1,000 births in 1927 and it was 76 per 1,000 last year.

The following table gives a comparison of the deaths from certain communicable diseases during the first six months of the years 1926 and 1927 in the Province of Nova Scotia:

Deaths during first six months of 1926 and 1927

Disease	1926	1927
Cancer	262	239
Cerebrospinal meningitis	11	1
Diphtheria	7	22
Measles	9	11
Scarlet fever	6	15
Tuberculosis (pulmonary)	297	296
Whooping cough	2	27

Poliomyelitis—Alberta Province—May-November, 1927.—From May 26 to November 21, 1927, 322 cases of poliomyelitis were reported in the Province of Alberta, with 37 deaths from this disease.

The first case was reported in Edmonton on May 26, but there were very few cases reported until August, and the epidemic was at its height in September. The city of Edmonton reported 100 cases, and 13 were reported in the city of Calgary. Ninety per cent of the cases occurred within a radius of 90 miles of the city of Edmonton; 86 per cent of the cases were children 15 years of age or under, but there were 5 deaths of adults over 30 years of age.

A hospital is now under construction in the city of Edmonton for the after-care of poliomyelitis cases.

EGYPT

Communicable diseases—Two weeks ended October 21, 1927.—During the two weeks ended October 21, 1927, communicable diseases were reported in Egypt as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	1		Typhoid fever	120	
Influenza	1,278		Typhus fever	6	2

GREAT BRITAIN (SCOTLAND)

Infectious disease prevalence—Glasgow—January–October, 1927.—Information relative to infectious disease prevalence in Glasgow during the periods June to October, and January to October, 1927, is as follows:

Chicken pox.—Incidence was stated to be fairly high. Cases, 458 during October, 1927. On account of possible confusion in diagnosis in districts where mild smallpox is present, specially notified cases of chicken pox have been investigated, particularly when occurring in unvaccinated children and adults.

Diphtheria.—Cases, 2,307, as compared with 1,948 cases during corresponding period of the year 1926, the increased incidence being most marked in September and October. The type of the disease was stated to be mild, but severe cases followed by paralysis occurred with some frequency.

Measles.—Stated to be decreasing in incidence. In September 227 cases were registered; in October, 1,208 cases. It was stated to be occurring freely in all the more populous districts of the city, in contrast with the character of the disease in the winter of 1925–26, when the infection spread slowly throughout the city.

Pneumonia.—The incidence of the disease was stated to have been rising since June, 1927, the maximum increase occurring in October, when 687 cases were registered, as compared with 413 cases in October of 1926. The type of the disease was stated to be severe, the lobar form being prevalent in persons over five years of age. From January to June, 1927, 4,603 cases were notified as compared with 4,559

cases for the same period in 1926, including the period of high prevalence of influenza and pneumonia in March of that year.

Scarlet fever.—The prevalence was stated to be less than in 1926, with 328 cases in September, as compared with 543 in September of the preceding year. In October there were 495 cases as against 758 cases for the preceding October.

Whooping cough.—This disease was made notifiable in July, 1924, for a period of three years. At the expiration of that period notification was not renewed.

HAWAII

Plague-infected rat—Pohakea—November 10, 1927.—The finding of a plague-infected rat at Pohakea, Hamakua district, Hawaii, was reported November 10, 1927.

ITALY

Infectious disease prevalence—Year 1926 and comparison with 1925.—Data supplied by the provincial health officers of the Kingdom of Italy to the department of health of the Kingdom for the year 1926 with comparisons of similar data for the year 1925, show as follows:

Disease	Year 1926, cases	Year 1925, cases	Remarks
Anthrax	1,753	2,383	
Cerebrospinal meningitis	532	581	
Chicken pox	9,399	9,045	Area of greatest prevalence, Province of Lazio, with 6.3 per 10,000 population. Lowest prevalence, Province of Apulia, viz, 0.8.
Diphtheria and croup	14,923	16,383	Areas of greatest prevalence, Provinces of Lazio and Venezia Giulia, each 6.3; lowest, Apulia, 0.9. No notable outbreak.
Dysentery (amebic)	522	644	Greatest prevalence, Sardinia.
Dysentery (bacillary)	1,742	2,046	Greatest prevalence, districts in Calabria, Sardinia. and Venetia Tridentina.
Influenza	184,499	64,736	
Kala azar (Leishmaniosis)	263	313	Of these, 223 in Sicily; 13 each in Calabria and Campania, 4 each in Venice and Puglia, 2 in Sardinia, and 1 each in Liguria, Piedmont, and Lombardy and the Marches. Larger but unreported number in 1925.
Lethargic encephalitis	450	681	Greatest prevalence in northern and central Italy; rarely in the south and Sardinia.
Malaria	220,602	283,109	Great diminution noted, especially in Sardinia, Lazio, Campania, and Basilicata.
Malta fever	1,085	439	Greatest diffusion in Tuscany, Sicily, and generally in the southern provinces.
Measles	98,158	164,485	Epidemic outbreaks: Sardinia in two localities; Lecce, two localities.
Pellagra	103	103	
Poliomyelitis (acute anterior).	388	780	Greatest diffusion in northern and central Italy; rare in the south, and in Sardinia and Sicily.
Puerperal fever	1,678	2,110	
Rabies	105	163	1926: Persons reported bitten by dogs, 8,622; 1925: 9,415.
Scarlet fever	16,062	16,733	Epidemic outbreaks in Catanzaro, Foggia, and Rome.
Smallpox and varioloid	112	195	Isolated cases of mild character difficult to diagnose.
Typhoid and paratyphoid fever.	35,649	24,264	Lazio, 30.0 per 10,000; Umbria, 19.7; Marches, 16.3; Lombardy, 16.0; Abruzzi, 15.9; Venetia Giulia, 12.6; Tuscany, 11.3; Emilia, 9.7; Liguria, 9.3; Campania, 8.3; Venice, 8.2; Calabria, 6.9; Venezia Tridentina, 6.8; Sardinia, 6.7; Piedmont, 6.4; Basilicata, 6.3; Apulia, 6.0; Sicily, 3.7.
Typhus fever	34	----------	Of these, 31 in city of Naples and occurring in first semester of year. Imported, result of contact and occurring in three zones of the city and among related persons.
Whooping cough	31,282	23,756	Greatest frequency in Sardinia, viz, 59.3 per 10,000 population; Lombardy, 7.4.

Population: 40,064,000.

LATVIA

Communicable diseases—September, 1927.—During the month of September, 1927, communicable diseases were reported in the Kingdom of Latvia as follows:

Disease	Cases	Disease	Cases
Diphtheria	28	Puerperal fever	1
Dysentery	8	Rabies	1
Erysipelas	11	Scabies	1
Influenza	28	Scarlet fever	142
Leprosy	1	Tetanus	3
Measles	38	Trachoma	1
Mumps	3	Typhoid fever	149
Poliomyelitis	1	Whooping cough	59

Population: 1,950,000.

SENEGAL

Plague—Yellow fever—October 24–November 13, 1927.—During the period October 24 to November 13, 1927, plague and yellow fever were reported in Senegal as follows:

Plague.—In the interior, in the Cayor region, 48 cases with 8 deaths; at the town of Thies, 1 case and 12 suspect cases.

Yellow fever.—At Dakar, cases, 9; deaths, 6. In the interior, cases, 31; deaths, 23. European fatal cases, 6.

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

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

Reports Received During Week Ended December 16, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
Siam				Oct. 16–22, 1927: Cases, 8; deaths, 7. Apr. 1–Oct. 22, 1927: Cases, 769; deaths, 525.
Bangkok	Oct. 16–22	1	1	District.

PLAGUE

Algeria:				
Oran	Oct. 30–Nov. 5	1		
Argentina:				
Quilino	Nov. 26	1		
Rosario	do	1		
Hawaii:				
Hamakua—Pohakea	Nov. 10			Infected rat found.
India:				
Bombay	Oct. 16–22	2	1	
Madras Presidency	Oct. 9–15	167	72	
Java:				
East Java and Madura	Sept. 25–Oct. 1	3	3	
Senegal:				
Cayor region	Oct. 24–Nov. 13	48	8	Interior.
Thies	do	1		12 suspect cases.
Siam	Oct. 16–22	1		Apr. 1–Oct. 22, 1927: Cases, 12; deaths, 8.
Bangkok	do	1		

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

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

Reports Received During Week Ended December 16, 1927—Continued

SMALLPOX

Place	Date	Cases	Deaths	Remarks
Algeria:				
Oran	Oct. 30–Nov. 12	14		
Brazil:				
Rio de Janeiro	Oct. 23–29	1	1	
Canada:				
Alberta	Nov. 20–26	7		
Manitoba	do	1		
Ontario	do	71		Nov. 1–30, 1927: Cases, 271; corresponding period, year 1926—cases, 95; deaths, 1.
Ottawa	do	10		
Quebec	do	8		
Saskatchewan	do	9		
China:				
Chefoo	Oct. 22–29			Present.
Tientsin	Oct. 16–22	1		
Great Britain:				
England and Wales	Nov. 13–19			Cases, 226.
Bradford	Nov. 6–19	5		
Bristol	Nov. 13–19	3		
Leeds	do	2		
Newcastle on Tyne	do	1		
India:				
Bombay	Oct. 16–22	4	2	
Italy				Year 1926: Cases, 112; year 1925—cases, 195.
Java:				
East Java and Madura	Sept. 25–Oct. 1	1		
Siam				Apr. 1–Oct. 22, 1927: Cases, 253; deaths, 67.
Spain:				
Malaga	Nov. 11–18		1	

TYPHUS FEVER

Bulgaria:				
Sofia	Nov. 5–11	2		
Egypt				Oct. 8–21, 1927: Cases, 6; deaths, 2.
Greece:				
Athens	Sept. 1–30	2		
Italy				Year 1926: Cases, 34.
Naples	Year, 1926	31		Imported; contact cases.
Palestine	Oct. 11–31	6		
Union of South Africa:				
Cape Province	Oct. 16–22			Outbreaks in three districts, in 9 locations.
Natal	do			Outbreak in Durban district, at Bellair.

YELLOW FEVER

Senegal	Oct. 24–Nov. 13			Cases, 31; deaths, 23.
Urban—				
Dakar	Oct. 24—Nov. 6	9	6	
Thies	Oct. 24–Nov. 13	4	4	European.
Interior—				
Kelle	Oct. 25–30	1	1	
Keur Samba Kane	Oct. 31–Nov. 6	1	1	
Keur Madiop	Oct. 24–30	1	1	Syrian.
Louga	Oct. 24–Nov. 13	4	4	3 cases Syrian.
Mekhe	do	5	3	
N'Dande	Oct. 24–Nov. 6	3	2	
Sebikotane	Oct. 31–Nov. 13	3	1	

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

Reports Received from June 25 to December 9, 1927 [1]

CHOLERA

Place	Date	Cases	Deaths	Remarks
China:				
Amoy	May 22–Oct. 15	119	11	
Canton	May 1–Oct. 29	102	67	
Foochow	July 24–Oct. 22			Present.
Hong Kong	July 17–Sept. 3	3	3	
Kulangsu	June 21	1		
Shanghai	June 19–25	2		
Do	July 31–Oct. 22		119	In international settlement and French concession.
Swatow	May 15–Oct. 29	138	13	
Tientsin	Aug. 27–Oct. 1	14		
India	Apr. 17–Sept. 24			Cases, 179,664; deaths, 97,933.
Bombay	May 8–Sept. 17	127	57	
Calcutta	May 8–Oct. 22	828	490	
Karachi	May 29–June 4	1	1	
Madras	June 19–Oct. 22	833	442	
Rangoon	May 8–Oct. 22	26	21	
India, French Settlements in	Mar. 30–Aug. 27	253	168	
Indo-China (French)	Apr. 1–Sept. 20			Cases, 15,564.
Annam	do	4,509		
Cambodia	do	403		
Cochin-China	do	1,606		
Saigon	June 4–Oct. 2	13	4	
Laos	July 11–Sept. 20	223		
Tonkin	Apr. 1–Sept. 10	9,818		
Iraq:				
Amarah	Oct. 2–22	45	26	
Baghdad	July 24–Oct. 22	30	19	
Basra	July 17–Oct. 22	385	289	
Diwaniyah	Oct. 2–22	72	43	
Hillah	do	13	7	
Kerbala	do	14	10	
Kut	do	12	8	
Muntafique	do	9	4	
Japan:				
Yokohama	July 31–Aug. 6	1	1	
Java:				
Batavia	Reported Nov. 19	25	15	
Persia:				
Abadan	July 21–Aug. 13	215	183	
Ahwaz	July 31–Aug. 13	20	13	
Minab	Aug. 7–13		23	
Mohammerah	July 17–Aug. 27	194	155	
Nasseri	July 19–31		10	
Philippine Islands:				
Bulacan Province	June 7–July 8	3	2	
Leyte Province—				
Barugo	June 29	1	1	
Carigara	June 23	1	1	Final diagnosis not received.
Palo	May 18	1		
Manila	July 17–Aug. 27	2		
Siam	May 1–Oct. 15			Cases, 374; deaths, 220.
Bangkok	do	53	18	
On vessel:				
S. S. Adrastus	Reported Aug. 6	1	1	At Yokohama, Japan.
S. S. Montreal Maru	Sept. 20			At Muke, Japan.
S. S. Tabaristan	Oct. 6	1		Case in coolie removed at Basra.
S. S. Morea	Sept. 2			At Hong Kong; cholera-infected.
S. S. War Mehtar (oil tanker).	Aug. 4	1	1	At Saffagha, Egypt.

PLAGUE

Algeria:				
Algiers	Aug. 21–Oct. 20	3		
Oran	Aug. 21–Sept. 10	5	4	
Argentina	Jan. 1–Aug. 2			Cases, 80; deaths, 44.
Bahia	Nov. 21	1		In vicinity.

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

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

Reports Received from June 25 to December 9, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Argentina—Continued.				
Province—				
Buenos Aires	Apr. 10–May 7	4	3	
Cordoba	Jan. 11–Aug. 6	52	29	
Do	Nov. 21	10		Reported as having occurred three weeks previously.
Corrientes	June 1	1	1	
Entre Rios	Mar. 29–Aug. 13	8	1	
Sante Fe	Apr. 28–May 16	4	3	
Territory—				
Chaco—				
Barranqueras	May 29	2	2	
Formosa	June 25	3	2	
Pampa	July 27–Aug. 2	4		
Rio Negro	Aug. 6	1		
City—				
Merou	Reported July 14			Present.
Rosario	May 7	1	1	
Santa Fe	May 16	4	2	
Azores:				
St. Michaels Island	May 15–Oct. 29	12	1	
Ribeira Grande	June 12–18	1		
Brazil:				
Sao Paulo	June 3–9	1	1	
British East Africa:				
Kenya	Apr. 24–July 31	73	14	
Mombasa	July 24–30	1	1	
Nairobi	May 22–28	6		
Tanganyika	Mar. 29–May 28		37	
Do	July 24–Oct. 1		70	
Uganda	Jan. 1–Feb. 28	138	121	
Do	Mar. 27–June 30	782	593	
Canary Islands:				
Laguna district—				
Tejina	June 17	1		
Las Palmas	Oct. 8–11	8		
Ceylon:				
Colombo	May 1–Oct. 22	24	14	Plague rats, 5.
China:				
Amoy	July 3–23			Present in surrounding country.
Mongolia	Reported Oct. 11		200	Approximate.
Tientsin	Aug. 14–20	2		
Tungliao	Reported Oct. 11–15.	200		
Ecuador:				
Guayaquil	June 1–Oct. 30	7		Rats taken, 95,408; found infected, 53.
Egypt:				
Alexandria	June 4–Sept. 2	4		
Beni-Souef	June 4–July 13	5	2	
Biba	June 4–10	1		At Nama.
Dakhalia	June 24–July 9	6	1	
Minia	Aug. 8–9	4		
Port Said	June 24–July 21	4	1	
Suez	Sept. 4	1		
Tanta district	June 4–10	1		
Greece	May 1–June 30	4	3	
Athens	June 1–Aug. 29	3		Including Piraeus.
Mytilene	Aug. 9–Sept. 26	6		
Patras	May 30–Nov. 5	10	3	
Hawaii Territory:				
Hamakua	July 15–Aug. 30			2 plague rodents.
Honokaa	May 17–23	2	2	
Kapulena	Oct. 22			1 plague rodent.
Kukuihaele	Aug. 12–17	1	1	Do.
Paauilo	July 26–Aug. 1		4	
India	Apr. 17–Oct. 24			Cases, 25,403; deaths, 11,164.
Bombay	May 8–Oct. 8	104	88	
Calcutta	Aug. 21–Sept. 3	18	10	
Madras	May 1–Oct. 8	1,691	792	
Rangoon	May 8–Oct. 22	81	75	
Indo-China (French)	Apr. 1–Aug. 10	50		
Saigon	Sept. 2–16	2		
Kwang-Chow-Wan	May 21–July 31	73		
Iraq:				
Baghdad	Apr. 8–May 28	12	1	

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

Reports Received from June 25 to December 9, 1927—Continued

PLAGUE—Continued

Place	Date	Cases	Deaths	Remarks
Java:				
Batavia	May 1-Oct. 22	419	399	Province.
East Java and Madura	May 22-July 16	28	27	
Pasoeroean Residency	May 9			Outbreak reported at Nagdiwano.
Surabaya	Apr. 17-Sept. 24	94	92	
Madagascar				Mar. 16-Apr. 30, 1927: Cases, 256; deaths, 135.
Province—				
Ambositra	Mar. 16-Aug. 15	100	93	
Antisirabe	Mar. 16-Sept. 15	44	44	
Miarinarivo (Itasy)	do	94	83	
Moramanga	May 16-Aug. 31	32	31	
Tananarive	Mar. 16-Sept. 15	350	308	
Tananarive Town	Mar. 16-June 30	22	20	
Mauritius:				
Port Louis	May 1-June 30	1	1	
Nigeria	Mar. 1-May 31	228	117	
Peru	Apr.-May 31			Cases, 22; deaths, 8.
Departments—				
Ica	Apr. 1-30	1		
Lambayeque	do	1		
Libertad	Apr. 1-May 31	7	4	
Lima	Apr. 1-July 31	13	8	
Lima City	Apr. 1-30	5	1	
Senegal	May 23-Oct. 16			Cases, 1,159; deaths, 646.
Baol	June 2-Oct. 16	235	109	
Cayor Frontier	July 4-Oct. 23	992	561	
Dakar	June 20-Oct. 2	147	94	
Facel	July 6	17	8	
Guindel	June 20-26	11	2	
Louga district	Sept. 18-Oct. 16	13	4	
M'Bour	July 6-10	28	23	
Medina	June 13-19	2	2	
Pout	July 4-10	1		
Rufisque	May 23-Sept. 25	223	167	
Thies district	do	34	15	
Tivaouane	June 2-July 17	50	32	
Siam	Apr. 1-June 25			Cases, 12; deaths, 8.
Do	Oct. 2-15	1	1	
Bangkok	May 8-June 11	2	1	
Do	Oct. 2-8	1		
Syria:				
Beirut	June 11-Sept. 10	4		
Tunisia	Apr. 21-July 10	144		
Tunis	July 25-Aug. 1	1		
Turkey:				
Constantinople	May 13-19	1		
Do	Sept. 18-Oct. 1	2	1	
Union of South Africa:				
Cape Province—				
Maraisburg district	May 1-14	2	2	Native.
Orange Free State—				
Edenburg district	July 17-26	3	3	Natives; on farm.
Rouxville district	July 24-Aug. 6	2	2	
On vessel;				
S. S. Avoroff	June 24-30	1		Greek warship at port of Athens.
S. S. Capafric	Aug. 23	3	1	At Duala, French Cameroons, from Nigeria.
S. S. Elcano	Aug. 19	1		At Piraeus, Greece.
S. S. Madonna	Aug. 24	1		At Dakar, Senegal, from ports south.
S. S. Ransholm	Aug. 5	3		At Gefle, Sweden, from Rufisque, Senegal.

SMALLPOX

Algeria	Apr. 21-Sept. 20			Cases, 955.
Algiers	May 11-June 30	8		
Oran	May 21-Oct. 29	74		
Angola	June 1-Aug. 31	47		
Loanda	Sept. 1-15	1		
Portuguese Congo	do	4		
Arabia:				
Aden	July 17-Aug. 1	2	1	

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

Reports Received from June 25 to December 9, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Brazil:				
Bahia	Aug. 7–13	1		
Porto Alegre	July 1–Sept. 30	11		
Rio de Janeiro	May 22–Sept. 24	25	21	
British East Africa:				
Kenya	Apr. 24–May 14	7	14	
Tanganyika	Mar. 29–June 18		22	
Do	Aug. 7–Sept. 17		29	
Zanzibar	Apr. 1–Aug. 31	121	41	
British South Africa:				
Northern Rhodesia	Apr. 30–Oct. 15	331	16	
Canada	June 5–Nov. 19			Cases, 1,033.
Alberta	June 12–Nov. 19			Cases 243.
Edmonton	Oct. 23–29	1		
Calgary	June 12–Aug. 27	9		
British Columbia—				
Vancouver	May 23–Sept. 4	4		
Manitoba	June 5–Nov. 19			Cases, 64.
Winnipeg	June 12–Nov. 26	26		
Nova Scotia	Sept. 11–Oct. 15	2		
Halifax	Oct. 8–15	1		
Ontario	June 5–Nov. 19			Cases, 534.
Kingston	Nov. 13–19	1		
Ottawa	June 12–Nov. 19	239		
Sarnia	Aug. 7–13	1		
Toronto	June 19–Nov. 19	55		
Windsor	Oct. 2–15	9		
Quebec	June 19–Nov. 5	32		
Riviere du Loup	Oct. 29–Nov. 19	6		
Saskatchewan	June 12–Nov. 19			Cases, 184.
Moose Jaw	Aug. 14–Oct. 22	24		
Regina	July 17–Nov. 12	16		
Ceylon	May 1–7			Cases, 3; deaths, 2.
Colombo	July 31–Aug. 6	1	1	
China:				
Amoy	May 8–28	1		
Do	July 3–16			Present in surrounding country.
Antung	July 4–31	3		
Canton	Sept. 18–24	1	1	
Chefoo	May 8–14			Present.
Do	Oct. 9–15			Do.
Foochow	May 8–Oct. 22			Do.
Hong Kong	May 8–Sept. 17	22	21	
Manchuria—				
Anshan	May 22–28	1		
Changchun	May 15–July 30	8		
Dairen	May 2–June 3	10	5	
Fushun	May 15–Sept. 17	11		
Harbin	June 13–July 10	4		
Kaiyuan	July 3–9	2		
Mukden	May 22–Oct. 29	9		
Pensihu	July 3–Oct. 1	2		
Ssupingkai	May 8–July 9	2		
Tientsin	May 8–Oct. 1	30	4	
Chosen	Feb. 1–July 20			Cases, 526; deaths, 211.
Chinnampo	Apr. 1–May 31	2		
Fusan	Apr. 1–30	1		
Gensan	May 1–31	1		
Seishin	Apr. 1–30	1		
Curacao	May 29–June 4	1		Alastrim.
Ecuador:				
Guayaquil	June 1–Oct. 31	5		
Egypt	May 7–Sept. 30			Cases, 21; deaths, 4.
Alexandria	May 21–June 17	4	1	
Cairo	Jan. 22–Apr. 15	14	3	
France	Apr. 1–Aug. 31			Cases, 207.
Lille	July 24–30	1		
Paris	May 21–July 31	14	2	
Gold Coast	Mar. 1–July 31	42	7	
Great Britain:				
England and Wales	May 22–Nov. 12			Cases, 4,476.
Birmingham	Aug. 14–Sept. 30	2		
Bradford	May 20–June 11	2		
Do	Oct. 23–Nov. 5	6		
Bristol	Oct. 16–29	7		

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

Reports Received from June 25 to December 9, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Great Britain—Continued.				
England and Wales—Con.				
Cardiff	June 19–July 2	4		
Do	Oct. 23–29	1		
Leeds	July 17–Nov. 12	26		
Liverpool	July 17–30	1		
London	May 15–June 18	2		
Manchester	Oct. 2–Nov. 22	5		
Newcastle-upon-Tyne	June 12–Oct. 20	13		
Sheffield	June 12–Oct. 29	37		
Stoke-on-Trent	Aug. 21–27	1		
Scotland—				
Dundee	May 29–Sept. 3	6		
Greece	June 1–30	14		
Saloniki	July 12–Aug. 15		2	
Guatemala:				
Guatemala City	June 1–30		9	
Guinea (French)	June 4–10	9		
India	Apr. 17–Sept. 24			Cases, 77,885; deaths, 20,509.
Bombay	May 28–Oct. 8	250	158	
Calcutta	May 8–Oct. 22	418	319	
Karachi	May 15–Aug. 6	10	5	
Madras	May 22–Oct. 29	42	9	
Rangoon	May 8–Oct. 22	209	160	
India, French Settlements in	Mar. 20–Aug. 27	174	155	
Indo-China (French)	Mar. 21–Sept. 20			Cases, 332.
Saigon	May 14–Sept. 9	4	1	
Iraq:				
Baghdad	Apr. 10–Oct. 22	10	5	
Basra	Apr. 10–Oct. 15	11	10	
Italy	Apr. 10–May 21	13		
Rome	June 13–July 17	3		Including consular district.
Jamaica	May 29–Oct. 29	47		Reported as alastrim.
Japan	Apr. 3–May 7			Cases, 19.
Nagasaki City	June 20–Aug. 14	26	7	
Taiwan Island	May 21–31	1		
Java:				
Batavia	May 22–Nov. 12	36	15	
East Java and Madura	Apr. 24–Sept. 30	45	1	
Latvia	Apr. 1–30	1		
Mexico	Mar. 1–June 30			Deaths, 621.
Acapulco	Aug. 28–Sept. 17	2	2	
Durango	June 1–30		1	
Guadalajara	Nov. 15–21		1	
Monterey	July 1–31	6	4	
San Luis Potosi	May 29–Aug. 13		11	
Tampico	June 1–July 31	1	2	
Torreon	Aug. 7–Oct. 1		2	
Morocco	Apr. 1–Aug. 31	283		
Netherlands India:				
Borneo—				
Holoe Soengei	Apr. 21			Epidemic in 2 localities.
Pasir Residency	Apr. 30–May 6			Epidemic outbreak.
Samarinda Residency	May 21–27			Do.
Nigeria	Mar. 1–July 31	2,844	653	
Paraguay:				
Asuncion	July 10–23		2	
Persia:				
Teheran	Feb. 21–July 23		16	
Poland	Apr. 10–Aug. 6	20	2	
Portugal:				
Lisbon	May 29–Nov. 5	32	1	
Oporto	Sept. 3–9	1		
Senegal:				
Medina	July 4–10	7		
Siam	Apr. 1–Oct. 15			Cases, 256; deaths, 67.
Bangkok	May 1–Sept. 10	16	8	
Spain:				
Madrid	Aug. 1–31		1	
Valencia	May 29–June 4	3		
Do	Sept. 25–Oct. 1	1		
Straits Settlements	June 12–18			Cases, 3.
Singapore	Apr. 1–June 18	7	2	
Sumatra:				
Medan	June 5–Aug. 20	3		
Switzerland:				
Berne	June 26–July 2	1		

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

Reports Received from June 25 to December 9, 1927—Continued

SMALLPOX—Continued

Place	Date	Cases	Deaths	Remarks
Syria:				
Damascus	Aug. 11–Oct. 20	30		
Tunisia	Apr. 1–June 10			Cases, 10.
Tunis	June 1–10	1		
Union of South Africa:				
Cape Province	July 7–Aug. 20			Outbreaks.
Do	Oct. 2–8			Do.
Elliott district	May 11–June 10			Do.
Idutywa district	July 3–9			Do.
Kalanga district	May 11–June 10			Do.
Mount Ayliffe district	July 31–Aug. 6			Do.
Orange Free State	Aug. 7–13			Do.
Transvaal—				
Barberton district	May 1–7			Do.
Venezuela:				
Maracaibo	July 12–Oct. 3		4	

TYPHUS FEVER

Algeria	Apr. 21–July 20			Cases, 399; deaths, 39.
Algiers	May 11–Oct. 20	34		
Oran	May 21–Aug. 31	34		
Argentina:				
Rosario	Aug. 1–31		1	
Bulgaria	Mar. 1–Aug. 10			Cases, 245; deaths, 21.
Sofia	June 4–Nov. 4	20	1	
Chile:				
Antofagasta	Apr. 16–May 31	1		
Do	Sept. 25–Oct. 1		1	
Concepcion	May 29–June 4		1	
La Calera	Apr. 16–May 31	1		
Ligua	Mar. 16–31	2		
Puerto Montt	Apr. 16–May 31	1		
Santiago	do	5	1	
Talcahuano	July 10–16		1	
Valparaiso	Apr. 16–Sept. 3	5	3	
China:				
Manchuria—				
Harbin	July 25–Aug. 21	5		
Mukden	May 29–June 4	1		
Tientsin	July 10–24	3		
Chosen	Feb. 1–July 31			Cases, 793; deaths, 68.
Chemulpo	May 1–Aug. 31	3		
Gensan	do	4		
Seoul	Apr. 1–Aug. 31	35	3	
Czechoslovakia	do			Cases, 55.
Egypt	May 28–Sept. 30			Cases, 133; deaths, 22.
Alexandria	May 21–Aug. 5	13	5	
Cairo	Jan. 15–July 1	43	16	
Port Said	Sept. 24–30	1		
Estonia	Apr. 1–June 30			Cases, 5.
Greece	June 1–30	2		
Athens	June 1–July 31		9	
Guatemala:				
Guatemala	Aug. 25–31		1	
Iraq:				
Baghdad	Apr. 24–30	1		
Irish Free State:				
Cork County	July 3–9	1		In urban district.
Donegal County—				
Letterkenney	Oct. 16–22	4		
Latvia	Apr. 1–July 31	32		
Lithuania	Feb. 1–Aug. 31	365	50	
Mexico	Feb. 2–June 30			Deaths, 166.
Mexico City	May 29–Nov. 5	95		Including municipalities in Federal District.
San Luis Potosi	July 31–Aug. 6		1	
Morocco	Apr. 1–Sept. 20	981		
Palestine	May 24–Oct. 10			Cases, 32.
Haifa	do	10		
Jaffa	Aug. 2–Oct. 3	3		
Jerusalem	June 28–Aug. 15	3		
Mahnaim	May 17–23	1		In Safad district.
Nazareth	July 19–25	1		
Safad	May 17–Aug. 8	10		
Tel Aviv	Oct. 1–10	1		

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

Reports Received from June 25 to December 9, 1927—Continued.

TYPHUS FEVER—Continued

Place	Date	Cases	Deaths	Remarks
Peru:				
Arequipa	Apr. 1-30		1	
Do	Aug. 1-Sept. 30		3	
Poland	Apr. 10-Oct. 8	1,142	106	
Portugal:				
Lisbon	May 29-June 4	1		
Oporto	Aug. 20-27	1		
Do	Oct. 23-29	1		
Rumania	Apr. 3-Aug. 27	1,000	69	
Spain:				
Seville	Aug. 19-25		2	
Syria:				
Aleppo	Sept. 11-17	2		
Tunisia	Apr. 22-July 20			Cases, 158.
Tunis	July 5-Aug. 21	2		
Turkey:				
Constantinople	May 13-19		2	
Union of South Africa	Apr. 1-30			Cases, 55; deaths, 8, native. In Europeans, cases, 2.
Cape Province	Apr. 1-Oct. 15	42	5	Outbreaks.
Albany district	June 5-11			Do.
East London	May 22-28	1		Do.
Glen Gray district	May 1-7			Do.
Kentani district	June 26-July 2			Do.
Port Elizabeth	Aug. 7-13	1		Do.
Qumbu district	May 1-7			Do.
Umzimkulu district	June 26-July 2			Do.
Natal	Apr. 1-Aug. 6	7	3	
Impendhle district	June 5-11			Do.
Orange Free State	Apr. 1-Oct. 1	5		
Transvaal	Apr. 1-30	1		
Johannesburg	July 3-Aug. 20	19	5	
Do	Oct. 9-15	5		
Yugoslavia	May 1-Oct. 31			Cases, 25; deaths, 5.

YELLOW FEVER

Ashanti:				
Obuasi	Aug. 6	1	1	
Dahomey (West Africa):				
Porto Novo	July 1	1	1	In Syrian woman.
Gold Coast	Apr. 1-June 30	60	22	
Do	Aug. 4	2		
Ivory Coast	July 29	1	1	
Liberia:				
Monrovia	May 29-Sept. 10	5	5	
Senegal	Oct. 3-23			Cases, 29; deaths, 22.
Dakar	July 9	1		
Do	Aug. 8		2	
Do	Sept. 17			Present.
Do	Oct. 3-16	12	7	
Geoul	Sept. 26-Oct. 2	1	1	
Island of Goree	Aug. 22-Sept. 4	2	2	
Kebemer	Oct. 9-23	2	2	
Kelle	do	2	1	
Khombole	Aug. 1-Oct. 9	6	3	
Louga	Sept. 26-Oct. 2	1	1	
Mehke	Oct. 17-23	1		
M'Bour	May 27-June 19	5	5	
N'Dande	Oct. 17-23	1	1	
Ouakam	June 2-Aug. 14	4	2	
Pout	Sept. 19-25	1	1	
Rufisque	Oct. 9-16	1	1	
Sebikotane	Oct. 17-23	1	1	
St. Louis	Aug. 1-Oct. 2	3	3	
Thies	July 10	1	1	In European.
Do	Sept. 12-Oct. 23	11	11	
Tiaroye	Aug. 22-Sept. 4	1	1	
Tivaouane	May 27-Sept. 11	6	5	
Togoland:				
Melatza	Aug. 15-21	1	1	
On vessel:				
S. S. Desirade	Sept. 16	1	1	At Leixoes, Portugal, in passenger from Dakar, Senegal.

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