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THREE OUTBREAKS OF FOOD POISONING APPARENTLY DUE TO B. ENTERITIDIS, B. PARATYPHOSUS B (AERTRYCKE TYPE), AND B. PARATYPHOSUS A, RESPECTIVELY [1]

There are recorded here three outbreaks of food poisoning of the same clinical type and apparently due to the same group of bacterial organisms. It is interesting to note that two of the outbreaks occurred in hospitals.

(1) OUTBREAK AT SACRAMENTO, CALIF.

By J. C. GEIGER, *Professor of Epidemiology, University of California,* MARGARET NELSON, and J. P. GRAY, *Epidemiologist, California State Department of Public Health*

This outbreak was investigated in the field by one of us (Gray). The epidemiologic and bacteriologic data are as follows: On January 20, about 60 women and their families, members of a lodge auxiliary, attended a banquet in honor of visitors from outside cities. The banquet hall was situated in the basement of a building, and the kitchen in which final preparations were made was found to be in an unclean condition. Dishes were kept on shelves in a cupboard known to be rat infested. No definite information was obtainable, however, as to measures used previously to destroy rats, but it was admitted that such efforts had been made. The cooking utensils were imported from numerous private homes. The menu consisted of a chicken-veal-cream-sauce mixture, tomato sauce made from commercially canned tomatoes, commercially canned peas, fresh cauliflower, coconut and chocolate nut cakes, and coffee.

The meat dish was prepared at the banquet hall early in the evening of the 19th. The chickens had been killed on the 18th and cooked and "boned" that evening. The meat from these was left overnight in a pan. The veal was purchased from a market in an outlying district on the morning of the 19th. During the day the veal and chicken were "diced" at the hall. The chickens and veal were originally prepared by the same person. The "dicing" of

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both meats was done on the 19th by several different women. The final preparation, the chicken-veal mixture with a little cream sauce, was put on the stove and slightly warmed for serving.

The tomato sauce was made from freshly opened cans of tomatoes to which gelatin was added. Canned peas were freshly opened and boiled, and a small portion was placed on each plate. Cauliflower was procured from various sources, brought to the hall and boiled. One "button" was served on each plate. The two kinds of cake came from various homes and a few had been purchased from local bakeries. Coffee was made in the hall in a large container.

One person had the preparation of the meats, cauliflower, creamed sauce, and coffee. The preparation of the food, other than the cooking of the meat, was done in the kitchen of the lodge. The banquet was served at 11.35 p. m. Some 60 people were present. Thirty-five cases were reported and investigated.

The symptoms complained of in the cases investigated were nausea, vomiting, abdominal pain, and diarrhea. Many complained of headaches, chilly sensations, faintness, muscular tremors or twitchings, weakness, restlessness, and profound prostration. The presence of fever was unusual. The symptoms were decidedly diminished in severity within 48 hours, and complete recovery occurred in three to four days. There were no complications recorded, though the cases were not accurately followed for sufficient periods to determine this question. The onset was sudden. The shortest incubation period was given as two and one-half hours; the longest not more than four hours.

The type of illness, with so sudden and rapid an onset, with accompanying short incubation periods, and with the universally present symptoms of nausea, vomiting, abdominal pain, and diarrhea, pointed toward food poisoning as the cause. Epidemiologic study of the individual cases shows that all those who were ill ate of the meat preparation. There were a few who ate only of cake and coffee, and these persons were not ill. The epidemiologic data, therefore, definitely point toward the meat dish as being the responsible factor.

Since the chicken and veal were cooked shortly after the animals had been killed or purchased from the market, one turns to the person preparing the dish. The home was insanitary, but no recent illness had been recorded. Stool and urine specimens were negative for bacteria of the food poisoning group.

Laboratory results.—Two types of food specimens were submitted for examination—the creamed cauliflower and the veal-chicken salad preparation. The epidemiologic evidence generally pointed to the salad as the causative food, but the presence of cauliflower in the salad and the use of the "cooked or heated cream-flour sauce" on both,

made it possible that the contamination was general in character or that it was throughout both foods. In fact, the chicken and meat broth was stated to be the fluid used in the so-called creamed or white sauce.

The samples showed gross bacterial contamination, possibly indicating faulty methods of storage or preparation, and making it exceedingly difficult to isolate the probable causative organism. For instance, the creamed cauliflower showed a bacterial dilution count of 60,000,000 organisms per cubic centimeter, of which approximately 25 per cent were nonlactose splitters. The veal-chicken mixture dilution count was over 2,000,000 organisms per cubic centimeter, of which 20 per cent were approximately nonlactose splitters. White mice fed directly with stomach tube according to methods described by Geiger and Meyer (1) and injected intraperitoneally with one-half cubic centimeter amounts of the diluted mixture of both foods, heated and unheated, produced symptoms and death within 24 hours, with typical pathology of food poisoning.

The isolation of a specific bacteria of the food poisoning group presented many difficulties, because of the gross bacterial contamination previously mentioned. Enrichment cultures from the creamed chicken-veal mixture, however, after numerous transplants in selective media, yielded an organism, Gram-negative, sluggishly motile, culturally and serologically, *B. enteritidis*. The organisms isolated proved to be a reliable producer of bacterial poison in veal infusion broth, with ground-up veal suspended in gauze sacks, with Liebig extract, and proteose peptone added, but more so when inoculated intraperitoneally into mice in 0.5 cubic centimeter amounts than when fed by mouth. The poison produced was heat stabile for at least 10 minutes at 240° F. Considering the type of organism isolated, it is most probably the causative factor and its source was not unlikely the incompletely cooked veal.

(2) OUTBREAK AT M. Z. HOSPITAL, SAN FRANCISCO, CALIF.

By J. C. Geiger, Margaret Nelson, and F. Firestone

This outbreak occurred on July 20. The meal was served to patients, staff, and employees of the hospital, and the poisoning involved over 200 persons. The clinical picture was as follows: Incubation period two to four hours. First nausea, then vomiting of a large amount of undigested food, followed by severe retching, abdominal cramps, and diarrhea tinged with blood. Then followed profuse perspiration, rigors, cramps in legs, rapid pulse, utter prostration, and continued diarrhea. Vomiting and retching continued from 2 to 18 hours, diarrhea from 12 to 72 hours. The first two days after the attack there was the usual marked weakness and then gradual recovery, apparently complete in three to seven days.

There were two menus and the only food in common on both menus was a rice pudding covered with a fruit sauce. This fruit sauce was made of the following commercially canned fruits: Pears, pineapple, apricots, and raspberries. The chef who made up this food had been employed at the hospital for the preceding 18 months. Both the first and second chefs' stools were subsequently proved bacteriologically negative for any of the food-poisoning group.

The rice was kept in an open container in the kitchen where considerable repairs were being made. This stock rice on enrichment showed a bacteriological count of 50,000,000 organisms per cubic centimeter. There was not isolated any of the paratyphoid group from this particular sample. Samples of the fruit sauce and the original rice pudding were examined. The fruit sauce was bacteriologically negative. The samples of rice pudding, however, yielded an organism which has been identified culturally and serologically as *B. paratyphosus* B (*aertrycke* type). The other interesting epidemiologic factor is that two days before this rice pudding was prepared members of a rat exterminator firm visited the kitchen hospital and used some material. The suspicion is that a bacteriologic rat virus was used, but this was later vehemently denied. The type of organism isolated tends to confirm this suspicion. The rice pudding itself was steamed in a steam cooker for about an hour in very large pans. It was subsequently removed from the large pans and placed in still larger pans for a period estimated to be from six to eight hours before being served to the patients. The evidence is far from being absolutely complete in view of the fact that the investigation was not begun until July 23 and, consequently, only one stool from a patient was available. This was negative. Therefore, the only statement that can be made is that this is an outbreak of food poisoning, the number of cases estimated to be 200, due to a rice pudding and probably specifically due to the organism isolated, *B. paratyphosus* B (*aertrycke* type), and whose source was not unlikely a bacteriologic rat virus used by a commercial rat exterminator company employed by the hospital.

Laboratory data.—Aside from the isolation of an organism from the rice pudding, some of the original material was fed by stomach tube and injected intraperitoneally into white mice. The animals died in 24 hours with typical pathology of food poisoning. Considerable quantities of the original rice pudding (in excess of two helpings for humans) were fed to one monkey whose normal stool contained no paratyphoid organisms. In about six hours the monkey appeared ill and in some abdominal distress. This was accompanied by profuse diarrhea for 30 hours. Within 48 hours, however, the animal's stools had returned to normal consistency; but prostration, weakness, and muscular twitchings were still to be noted. An organism identical in type with the organism isolated directly from the rice pudding was

obtained readily from the profuse, soft, mucous-containing stools. The cultures obtained from the rice pudding and recovered from the stools of the monkey were grown in a special media for four days at 37° C. When fed by mouth and when injected intraperitoneally into white mice, both the heated (240° F. for 10 minutes) and the unheated cultures caused death with typical pathology. The heated culture, however, showed considerable variation in results. This culture, grown in special media, when injected intravenously in 1 cubic centimeter amounts into rabbits, caused death in the animals, with profuse diarrhea and pathology of a severe enteritis within as short a period as 5 hours, but usually within 24 hours. The same material when injected intraperitoneally in 2 cubic centimeter and 5 cubic centimeter amounts into guinea pigs caused death with pathology of enteritis, and, curiously, even a peritonitis.

(3) OUTBREAK AT F. HOSPITAL, OAKLAND, CALIF.

By J. C. Geiger, Margaret Nelson, and H. L. Wynns, *Epidemiologist, California State Department of Public Health*

The F. hospital cares for about 1,100 persons, including both patients and employees. The investigation was begun by one of us (Geiger) on March 11. The outbreak of food poisoning occurred, however, on March 9 at the noon meal. Fifty-two persons were involved, all having been served at the same table. Eight others were also present, but the records of five of these gave no history of eating the suspected food. Of the 52 cases, all showed symptoms of nausea, vomiting, diarrhea, and great prostration, with an incubation period of three to four hours. The majority showed their initial symptoms within a period of 30 minutes of each other. One case, alleged to have suffered from chronic myocarditis and under treatment for syphilis, died on March 10. An autopsy was performed, with no definite findings recorded. Portions of the liver, spleen, and duodenum were submitted for bacteriological examination. These proved negative, as did three specimens of stools from those ill but 48 hours after the causative meal.

During the investigation of March 11, the following facts were ascertained: An egg soufflé, made with eggs from the hospital farm, and milk from the hospital dairy, was prepared by the chief chef and assistant chef. This dish was prepared mainly by the latter. To it was added commercially canned shrimp, and the entire dish was served to the majority of the patients on Sunday, March 8. No illness occurred. The remainder of this dish was allowed to remain overnight in the kitchen, and was again served after a brief warming and with the addition of some commercially canned peas. On the first investigation by the hospital authorities the canned peas were

thought to have been the causative factor. This warmed-over egg soufflé-shrimp mixture with peas added was served only at the table where the persons ate who became ill. This special dish was served to them because, though they were patients of the hospital, they did extra work around the hospital, and it was served as an additional factor to their meal. The remainder of the meal served at lunch was consumed by over a thousand persons without any serious results.

During the investigation on March 11 particular attention was attracted to the assistant chef by his decided interest. On questioning the medical officer, it was learned that the assistant chef had begun work on March 7 and had not been physically examined, nor had his excreta been examined. Since epidemiologically the causative food was easily ascertainable, the matter of contamination was then gone into. There were two possibilities, because of the nature of the illness, namely, that it was contamination from the human carrier or from an animal carrier such as rats, mice, etc. Close questioning of the housekeeper, however, revealed the fact that the last noticeable presence of rats and mice was about two years ago. There was used at that time a preparation known to contain one of the members of the paratyphoid group. Consistent trapping by the hospital authorities failed to obtain any material for examination.

All the original food had been consumed; therefore, to eliminate the remote possibility of the contamination coming from the commercially canned foods, a can of the same brand and code of both the shrimps and peas were examined and found sterile.

Specimens of stools and urine were obtained from the chief chef and the assistant chef on March 13. The stools were obtained after these persons had received a cathartic. From the stool of the assistant chef there was isolated an organism now identified culturally and serologically as *B. paratyphosus* A. Two other specimens were also submitted; one was received in an unsatisfactory condition, and the other showed no growth. It may be of interest to state that the assistant chef showed an uncooperative attitude, having disappeared when the stools were first requested and causing some difficulty in ascertaining his whereabouts. His history shows him to be a "floater," working short periods of time at various places throughout the country. Therefore, this is an outbreak of food poisoning apparently due to *B. paratyphosus* A, consumed in an egg soufflé-shrimp-pea mixture with ample time for incubation and contaminated by a human carrier, the assistant chef.

Laboratory data.—The strain of *B. paratyphosus* A was isolated from the stools of the assistant chef on direct plating and from tetrathionate enrichment broth. This organism grown in suitable media for four days at 37° C. produced a poison which killed white mice

within 20 hours with both the cooked and live material when 0.5 cubic centimeter amounts were injected intraperitoneally. When fed by stomach tube no results could be shown.

DISCUSSION

Outbreaks of food poisoning due to contamination of the food with *B. enteritidis* as in outbreak No. 1 are comparatively rare in the United States, but not infrequent in continental Europe and Great Britain. Rosenau and Weiss (2), Spray (3), D'Aunoy (4), Toulan (5), Nattkemper (6), Noble (7), and Geiger (8) have, however, reported its isolation from the causative food vehicle, such as home-prepared meat stews, milk or milk and cream, bread pudding, cream puffs, smoked tongue, roast beef sandwiches, and creamed chicken. This organism is generally associated with meat, especially that of pig or cattle, and with such meat products as meat pies, sausages, and hamburger. Ample evidence is available to indicate that it is specifically contaminated food and not decomposed food that will cause gastrointestinal irritation in man. The taste is not changed, neither is the odor noticeable. The isolation from milk or its products, such as cream puffs, bread puddings, and creamed chickens, is an indication of contamination from outside sources. In this connection abundant opportunity is offered through rat and mouse carriers or from these animals naturally infected. This important observation has been reported by several authors, notably Meyer and Matsumura (9), who found by bacteriological examination of 775 rats taken from the rat population of San Francisco, 28 cases infected with *B. enteritidis* and 30 cases with *B. aertrycke*. Furthermore, Geiger (10) has called attention to the fact that beside specific infection and possible carriers in animals, another source of *B. enteritidis* is the commercial rat viruses which are not infrequently used for the destruction of rodents in and around food establishments, especially bakeries and canneries. Health agencies have not generally recognized this possible source of contamination and have not taken steps to regulate the use of such viruses.

B. paratyphosus B (*aertrycke* type) involved in outbreak No. 2 is probably the major organism isolated in food poisoning outbreaks. Moreover, it is a common pathogen for domestic and laboratory animals. Savage and White (11) have reported 14 outbreaks due to this organism in England. Likewise, Geiger (8) has recorded several outbreaks in the United States. The possibility of an organism of this type being used in the commercial rat viruses as noted in outbreak No. 2 is an interesting departure from the usual organism, *B. enteritidis*. *B. paratyphosus* A involved in outbreak No. 3 has been previously reported by Geiger (8) as a causative organism in food poisoning.

At this point one of the numerous difficulties as to classifying causative bacteria now arises, because of the terminology for subtypes of *B. paratyphosus* B. The term "*Salmonella* group" is often used to add to the confusion, while, Savage and White (11) refer to "Mutton and Derby types." Jordan (12) has attempted to classify the matter of types by using the term *B. paratyphosus* B "Schottmüller type" and limiting such a type to organisms coming from human sources. Many investigators, however, classify another type of *B. paratyphosus* B "*aertrycke* type" where the source is presumably from animals.

It is interesting to note, particularly in outbreak No. 3, the absence of infections as would be indicated by prolonged fevers. There did occur, however, three cases of appendicitis in those affected with symptoms of food poisoning shortly after outbreak No. 2. All these different types of organisms isolated in these three outbreaks and considered to belong to the same biological group produced to a varying degree heat stabile poisons. Furthermore, the original food involved in outbreak No. 2 caused symptoms in a monkey, when fed directly by mouth, that resembled very closely those of food poisoning in human beings.

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SOME ASPECTS OF SHIP FUMIGATION

By J. R. RIDLON, *Surgeon, United States Public Health Service*

The fumigation of ships for the destruction of rodents is a problem which has received much study and attention from various officers of the Public Health Service. The use of suitable cyanogen products has practically replaced the use of sulphur in fumigation at all of the quarantine stations of the larger ports.

Several cyanogen products have been used at San Francisco during the past few years. These, together with the methods, include the following:

1. The generation of straight hydrocyanic-acid gas by a mixture of sodium cyanide, sulphuric acid, and water.

2. The generation of hydrocyanic-acid and cyanogen-chloride gas by a mixture of sodium cyanide, sodium chlorate, hydrochloric acid, and water.

3. Liquid hydrocyanic acid with either cyanogen chloride or chloropicrin as a warning gas.

4. Zyklon-B, which consists of an earthy substance impregnated with liquid hydrocyanic acid and marketed at present with 5 per cent chloropicrin as a warning gas.

The two latter methods of fumigation afford a saving in time and labor and have almost entirely displaced the generation methods at the San Francisco station. Generation of cyanide gas on shipboard with the use of crocks and barrels was a laborious process.

LIQUID HYDROCYANIC ACID

Liquid hydrocyanic acid is also called liquid gas or liquid cyanide, and may be correctly termed prussic acid. This acid when of high-grade purity is exceedingly volatile in warm dry air, and its boiling point is about 74° F. The cylinders containing liquid cyanide should not be exposed to the hot sun for long periods. In use it appears that the vaporization of the gas is more complete on warm days at higher temperatures. It is a colorless liquid and less than three-fourths the weight of water. Hydrocyanic-acid gas is inflammable when concentrated but not so when diluted. Care must be taken not to ignite the concentrated gas.

The liquid hydrocyanic acid is manufactured for commercial use by the generation of gas from a mixture of sodium cyanide, sulphuric acid, and water. The gas is led from the closed generator through a series of refrigerated pipes and condensed to a liquid. The liquid can be distilled to separate excess water from the acid until a purity of 96 to 98 per cent is obtained (1).

In general, liquid cyanide is used chiefly for the fumigation of fruit trees or fruit products for the control of insect pests and for ship fumigation for the destruction of rodents and insects. The use of liquid cyanide for tree fumigation was begun in this country in 1916 and has become a popular method of insect control (2).

The use of "liquid gas" in ship fumigation was started at the San Francisco station in 1925 and was extensively used during 1926. Our records show that this method was employed in whole or in part in the fumigation of about 1,000 vessels during the period July, 1927, to April, 1930.

The liquid cyanide has been used with either 20 per cent cyanogen chloride or 10 or 5 per cent chloropicrin as a warning gas. In the

former case the cylinders as purchased are labeled to contain hydrocyanic acid not less than 76 per cent, cyanogen chloride not less than 20 per cent, and inert matter not more than 4 per cent. In the latter case the labels read: "Hydrocyanic acid not less than 91 per cent, chloropicrin not less than 5 per cent, and inert matter not more than 4 per cent."

The liquid cyanide is shipped to this station from the manufacturing plant in heavy metal cylinders containing 75 pounds avoirdupois each. This method of shipment conforms to the Federal interstate regulations.

The equipment necessary for ship fumigation consists of a small motor attached to an air pump and a supply of dosing cylinders equipped with the proper valves and rubber hose.

The dosing, or applicating, cylinders are about 2 feet tall and have a capacity of about 10 pounds. They are made from heavy-gage metal and weigh about 21 pounds when empty. The liquid cyanide is forced from the large shipping cylinder into the small dosing cylinder by compressed-air pressure. It is customary to use one cylinder for each hold or other large compartment. Having a record of the cubic capacity of each hold, the dosage is computed on the basis of 60 gm. (2 oz.) per 1,000 cubic feet. The small cylinder is balanced upon a pair of scales, and then the scales are set to weigh the desired amount of liquid.

A rubber hose leads from the air pump to the large cylinder and another hose from the large cylinder to the dosing cylinder. When air pressure is applied and the valves are opened, enough liquid is forced over from the large cylinder to bring the small cylinder up to the required weight. (Fig. 1.)

Before taking the small cylinders to the vessel, compressed air is pumped into them to give a pressure of about 100 pounds, which is indicated upon a gauge on top of the cylinder. (Fig. 2.) A rubber hose about 10 feet in length is attached to the cylinder before use. This hose has a fine nozzle on the end of it. When ready for use, the hose is put down through the hatch opening into the hold and a valve on top of the cylinder is opened. (Fig. 3.) Then the compressed air forces the liquid cyanide through the fine nozzle, and it is expelled as a mist, which immediately becomes gas. The liquid is subjected to atomization and is discharged in a vapory spray. The gas diffuses and permeates through the open spaces of the compartment or hold.

The cylinders and hose are washed out frequently and the apparatus checked over before use. The applicating cylinders when loaded rarely exceed 30 pounds in weight and can be transported by launch to the vessel and easily handled.

An apparatus has been recently supplied for the use of small doses in individual compartments. This is a metal portable container for

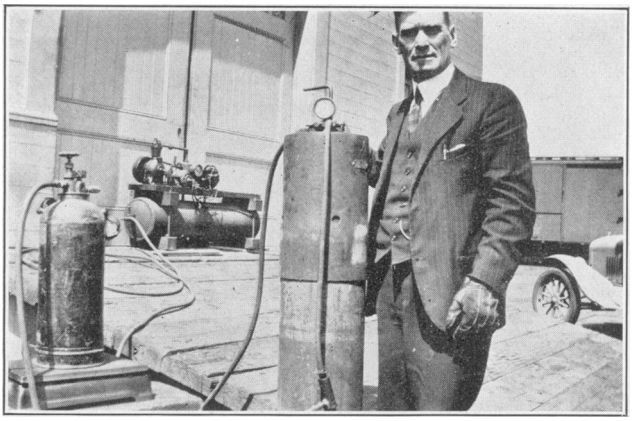

FIGURE 1.—Air pump and motor in background, connected by rubber hose with shipping cylinder and dosing cylinder, the latter being shown on the scales, which are set to the desired amount

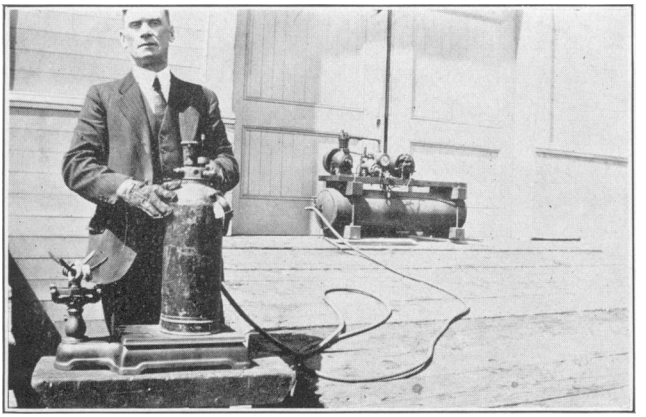

FIGURE 2.—Air pump with hose connected for applying pressure to dosing cylinder

FIGURE 3.—Method of dosing holds with liquid hydrocyanic acid. Rubber hose is inserted under tarpaulin covering hatch

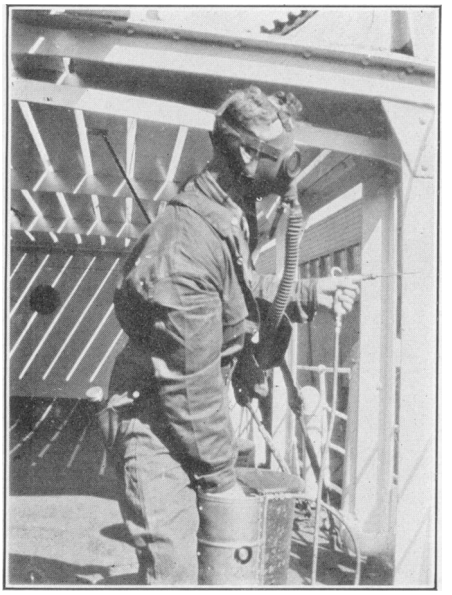

FIGURE 4.—Dosing cylinder with hand air pump and measuring device for dosing small compartments

the liquid cyanide, to which is attached a hand-operated air pump and accurate measuring devices. A rubber hose with a spray nozzle is attached to the cylinder or container. (Fig. 4.) An upward stroke of the pump draws a graduated amount of the liquid into the pump, which is expelled in a fine mist on the downward stroke of the pump. This is very convenient for dosing a series of isolated rooms requiring only a few ounces each.

Both of the warning gases which have been used with liquid cyanide produce a tear effect. The effect of the 20 per cent cyanogen-chloride gas is greater than that of 5 per cent chloropicrin, i. e., lachrimation is much more marked; and it is believed that, on account of the tear effect, a person unfamiliar with fumigation could escape from a small room containing hydrocyanic-acid gas with 20 per cent cyanogen chloride before inhaling a dangerous amount of cyanide.

The lachrimation which is produced by 5 per cent chloropicrin is much less, and even when used by experienced fumigators it would seem desirable to have a more pronounced warning effect. One should always use test animals to see whether a ship's hold is free of cyanide gas after using this irritant as a warning gas.

Liquid gas with 5 per cent chloropicrin is quoted at a cheaper price than with 20 per cent cyanogen chloride. Since the former mixture contains 91 per cent hydrocyanic acid as against 76 per cent in the latter mixture, more lethal power is purchased for less money. Experiments at this station with roaches indicate that the former mixture is more deadly for that insect and presumably so also for rats.

EQUIVALENTS

The quarantine regulations prescribe that when using the generation method there shall be used for killing rats 5 ounces (150 gm.) of sodium cyanide with an appropriate amount of sulphuric acid and water per 1,000 cubic feet.

It is stated (2) that, based on chemical determination, 1 ounce (30 gm.) of 97 per cent sodium cyanide (containing not less than 51 per cent cyanogen) with 93 per cent gas generation equals 20.44 cubic centimeters of liquid gas, 98 per cent purity at 60° F. Then, 5 ounces (150 gm.) of sodium cyanide under the same conditions would equal 102.2 cubic centimeters. At 60° F. 40 cubic centimeters of 97 per cent liquid gas weighs 30 gm., so that the equivalent of 150 gm. of sodium cyanide would be 76.5 gm. of liquid gas.

It is probable, though, that under actual working conditions, with varying temperatures, not more than 60 to 80 per cent of the potential amount of gas is generated and liberated. Allowing 80 per cent generation, 63 gm. of liquid gas, 98 per cent pure, should be considered as at least the equivalent in lethal effect of 150 gm. of sodium cyanide.

The regulations prescribe that when generating hydrocyanic-acid-cyanogen-chloride mixture there shall be used 4 ounces (120 gm.) of sodium cyanide with 3 ounces (90 gm.) of sodium chlorate and an appropriate quantity of hydrochloric acid and water. Then 120 gm. of sodium cyanide at about 80 per cent generation would yield 52.5 gm. of liquid gas 98 per cent pure at 60° F.

In practice it is customary and desirable to use 60 gm. of liquid cyanide, mixed with either 20 per cent cyanogen chloride or 5 per cent chloropicrin per 1,000 cubic feet for rat and vermin destruction. However, we know that under laboratory conditions a very much smaller dose of cyanide will kill rats promptly.

ZYKLON-B

Zyklon-B is liquid hydrocyanic acid absorbed by an earthy substance called "diatomite" and packed in strong tin containers. Cans are provided containing 15 grams, 120 grams, 480 grams, and 1,200 grams of hydrocyanic acid with 5 per cent chloropicrin as a warning gas. The cans at present are packed with a slight vacuum, which is shown by dents or sinking in of the sides of the cans.

The fumigator opens the cans by knocking holes in each end with a special hammer and sprinkling the contents on the floor of the hold or spreading in a thin layer on canvas or paper on the floor of a compartment. The hold may be dosed by a fumigator standing on deck, and the residue of diatomite, which is left after the hydrocyanic acid has evolved, may be left on the floor of the hold (3). It is customary to throw the residue overboard after use in the superstructure compartments.

Directions on the cans state that Zyklon-B may be satisfactorily used in the proportion of 60 grams per 1,000 cubic feet. Experiments by Akin and Sherrard (3) show that rats are killed under laboratory conditions in 30 to 45 minutes by one-twelfth of this dose, or 5 grams per 1,000 cubic feet. This applies to straight liquid hydrocyanic acid 96 to 98 per cent pure and should equally apply to Zyklon-B. Experiments at this station on ships show that it is not safe to rely in practice upon less than the standard dose of 60 grams per 1,000 cubic feet.

The time of exposure is prescribed as two hours for an empty vessel and four hours for a vessel with cargo aboard. The longer time allows for more complete penetration. It must be understood that all holds or compartments are tightly sealed during fumigation.

SAFETY MEASURES

Gas masks must be worn by fumigators when in any way exposed to the fumes of cyanide gas in dangerous concentration. This is necessary when opening cans of Zyklon-B, when dosing compartments with

liquid cyanide, and when opening up compartments for ventilation. The canister attached to the mask is charged with chemicals which neutralize hydrocyanic-acid and cyanogen-chloride gas. These absorbent chemicals are a caustic silicate and an impregnated charcoal (4). They offer little resistance to breathing and are effective for several hours' use. The absorptive and neutralizing capacity of the canister becomes exhausted gradually, so that ample warning is given to replace the worn-out canister.

Two men should always work together in any place where there is danger from gas, such as in the holds or in compartments not immediately adjacent to an exit.

Test animals, such as rats or guinea pigs, should always be lowered into holds following fumigation, to test for the presence of gas in dangerous quantity before the fumigator himself goes below to make the final inspection.

Hydrocyanic-acid gas is one of the most deadly gases known and should be used with great care and caution. A person exposed for a short period to a strong concentration of cyanide gas, even though wearing an efficient gas mask, will suffer a marked effect from the gas. This is probably explained by absorption through the clothing and moist skin.

COMPARATIVE MERITS

At present the cost of liquid hydrocyanic acid with 5 per cent chloropicrin is slightly less than that of Zyklon–B.

The two fumigants possess equal lethal power. They are both convenient to use and require an equal number of fumigators on shipboard. In dosing the holds it is necessary only to open a valve when using the liquid gas; and the new cylinder which delivers small accurate doses is convenient for use in small rooms.

In using Zyklon–B it is necessary only to knock holes in the cans and sprinkle out the contents. The empty cans are thrown away.

The preparations for the use of liquid gas require a little more attention, as the dosing cylinders must be accurately checked, weighed, and filled with compressed air before proceeding to the vessel.

At a station where there is regular routine ship fumigation and cylinders of liquid gas can be received at frequent intervals, this fumigant is very satisfactory. Loaded cylinders, however, should not be stored with air pressure applied, as there may be a degree of deterioration of the gas.

If only infrequent fumigations are done, Zyklon–B would be very satisfactory, as this material can be stored for a longer time before use.

The opening of many small cans of Zyklon–B in a closed space is attended with danger from absorption through the clothing, especially

if fumigators are perspiring. In using liquid gas the operator need not be in intimate exposure to the applied gas.

It is found that a combination of the two methods makes an ideal way of fumigation. It is common practice at this station to use both methods in combination on the same vessel.

REFERENCES

(1) University of California Publications. Bulletin No. 308.
(2) U. S. Department of Agriculture. Farmers Bulletin No. 1321.
(3) Akin and Sherrard: Fumigation with Cyanogen Products. Pub. Health Rept., vol. 43, No. 41, October 12, 1928, p. 2647.
(4) The Military Surgeon, vol. 62, No. 5, May, 1928, p. 693.

COMPARATIVE CURRENT STATE MORTALITY STATISTICS[1]

The present report on mortality from certain causes covers, for a majority of the States included, the months January to March, 1931. For some of the States the data for all of these months are not available. The present plan is to publish about three current reports during the year, covering periods of approximately 3 months, 6 months, and 9 months, respectively, with a more complete annual summary of death rates for the calendar year at as early a date as possible in the following year. It is impossible to present data for all of the States on this basis of 3, 6, and 9 months, but each State is included in each report for as many months as possible with rates in each case for the "year to date" and comparative rates for the same period in preceding years. This arrangement makes it possible to compare the mortality of the current calendar year with the mortality of preceding years in the same State.

The rates are computed from current and generally preliminary reports furnished by State departments of health. Because of (*a*) some lack of uniformity in the method of classifying deaths according to cause, (*b*) some delayed death certificates, and (*c*) various other reasons, these preliminary rates can not be expected to agree in all instances with final rates published by the Bureau of the Census, which are based on a complete review and retabulation of the individual death certificates from each State. The preliminary rates given in the accompanying table are intended to serve only as a current index of mortality until final figures are issued by the Bureau of the Census.

Populations used in computing rates are estimates as of July 1 of each year, based on the 1920 and 1930 censuses.

[1] From the Office of Statistical Investigations, United States Public Health Service.

Death rates from certain causes in stated periods of 1931, with comparative data for corresponding periods in preceding years

State	Period	Year	Rate per 1,000 population, all causes (annual basis)	Rate per 1,000 live births		Rates per 100,000 population (annual basis)																		
				Infant mortality	All except malformations and early infancy	Maternal mortality (143–150)	Typhoid fever (1)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Poliomyelitis (22)	Lethargic encephalitis (23)	Meningococcus meningitis (24)	Tuberculosis, all forms (31–37)	Cancer, all forms (43–49)	Diabetes (57)	Diseases of the nervous system (70–86)	Cerebral hemorrhage, apoplexy (74)	Diseases of the circulatory system (87–96)	Diseases of the heart (87–90)	Diseases of the respiratory system (97–107)	Pneumonia, all forms (100–101)	Diseases of the digestive system (108–127)	Diarrhea and enteritis under 2 years (118)	Nephritis (126, 129)
Alabama	Jan. to Mar.	1931	11.4	74	49	8.1	1.5	12.2	1.8	3.2	5.3	85.7	0.6	1.1	5.7	79.3	50.3	11.5	93.8	61.0	127.4	117.9	159.4	142.3	53.8	5.3	95.2
		1930	11.4	78	47	8.3	2.1	3.8	.9	8.4	5.5	66.7	.3	.6	2.3	82.1	45.4	10.1	97.1	61.2	147.1	135.2	137.1	126.4	53.5	7.5	94.8
		1929	15.0	100	68	7.7	1.7	3.9	1.7	9.0	6.3	388.6	1.1	1.7	2.2	82.5	41.1	9.9	94.5	54.7	140.4	131.2	177.2	168.0	86.6	5.7	87.0
		1928	12.4	92	56	8.1	4.7	13.6	.6	6.5	7.3	95.5	.6	(1)	(1)	92.1	42.3	11.6	(1)	58.1	(1)	123.9	(1)	170.9	(1)	7.6	78.3
		1927	9.6	62	35	6.8	3.8	3.3	1.3	10.0	5.2	39.9	.2	(1)	(1)	73.6	44.3	6.8	(1)	49.5	(1)	95.2	(1)	91.6	(1)	6.2	68.8
Arizona	Jan.	1931	16.6	182	131	13.5	2.6	15.8	(2)	5.3	10.5	84.1	(2)	2.6	18.4	346.9	39.4	7.9	113.0	57.8	165.6	128.8	349.5	247.0	81.5	15.8	63.1
		1930	16.3	136	97	4.2	8.1	(2)	2.7	8.1	10.7	43.0	(2)	2.7	56.4	351.9	51.0	13.4	145.1	61.8	163.9	150.4	314.3	263.3	86.0	37.6	37.6
		1929	14.6	119	78	3.2	13.7	(2)	(2)	5.5	(2)	11.0	(2)	2.7	11.0	316.1	41.2	(1)	79.7	46.7	142.9	131.9	112.7	74.2	236.4	151.2	44.0
Connecticut	Jan. to Feb.	1931	11.5	66	(1)	(1)	(2)	4.2	1.1	1.9	.8	54.8	(1)	.8	.4	59.0	105.1	33.7	(1)	(1)	(1)	224.2	(1)	128.9	(1)	7.2	86.2
		1930	11.4	75	(1)	(1)	.7	(2)	3.7	3.7	4.4	23.4	1.5	2.2	2.2	52.6	121.9	24.8	(1)	(1)	(1)	224.8	(1)	124.1	(1)	8.0	76.6
		1929	16.1	84	(1)	(1)	.7	3.7	2.2	6.7	3.7	203.1	(2)	.7	(2)	68.2	101.5	16.3	(1)	(1)	(1)	264.6	(1)	263.1	(1)	5.2	83.8
		1928	12.1	75	(1)	(1)	2.3	3.0	.8	2.3	8.3	29.4	1.5	3.0	.8	65.6	117.5	(1)	(1)	(1)	(1)	174.1	(1)	145.4	(1)	9.8	(1)
		1927	12.4	77	(1)	(1)	1.5	1.5	1.5	5.3	6.1	38.9	.8	(2)	(2)	76.2	118.9	(1)	(1)	(1)	(1)	208.8	(1)	131.1	(1)	12.2	(1)
Dist. of Col.	Jan. to Mar.	1931	18.6	73	41	6.1	3.3	.8	1.6	.8	6.6	49.4	1.6	(1)	8.2	124.2	145.6	28.8	185.9	119.3	426.9	357.0	312.6	282.2	99.5	6.6	161.2
		1930	16.1	69	35	10.4	(2)	(2)	4.2	4.2	5.8	11.6	(2)	.8	.8	127.1	126.3	33.2	152.1	111.3	409.6	350.7	197.8	168.7	83.9	2.5	191.1
		1929	20.0	83	45	8.2	.8	(2)	2.5	7.6	12.6	71.3	(2)	(2)	2.5	142.6	135.0	32.7	167.8	109.0	502.7	428.0	319.7	288.7	107.4	5.9	207.3
		1928	16.6	(1)	(1)	(1)	1.7	.8	1.7	3.4	8.4	24.4	(2)	(2)	.8	122.7	124.4	36.9	169.6	124.4	383.3	340.4	251.3	214.1	88.2	10.9	178.8
		1927	18.2	(1)	(1)	(1)	1.7	(2)	.9	3.4	8.5	56.8	(2)	3.4	.9	135.5	124.8	21.4	201.7	143.6	390.0	345.0	265.0	234.0	92.3	3.4	204.3
Georgia	Jan. to Feb.	1931	11.0	84	(1)	10.1	3.6	1.5	.9	3.0	4.7	83.8	.2	.4	3.2	67.0	47.6	9.6	113.7	(1)	138.6	128.8	146.3	136.7	45.9	3.2	116.3
		1930	11.4	89	(1)	10.2	2.8	3.0	1.3	7.2	6.2	67.6	1.7	.2	5.3	72.3	43.5	12.1	122.1	(1)	151.9	138.7	147.3	133.9	54.5	5.9	139.9
		1929	14.6	(1)	(1)	(1)	2.3	2.1	1.9	4.3	5.5	377.8	(1)	(1)	(1)	69.1	42.4	12.2	(1)	(1)	(1)	116.8	(1)	158.6	(1)	4.9	148.6
Hawaii	Jan. to Mar.	1931	10.6	76	(1)	(1)	5.3	11.6	(2)	(2)	8.5	8.5	(2)	(2)	1.1	104.8	46.6	14.8	(1)	59.3	(1)	131.3	(1)	122.8	111.2	50.8	76.2
		1930	12.1	100	(1)	(1)	3.4	7.9	(2)	9.1	17.0	14.7	(2)	(2)	10.2	104.2	52.1	12.5	(2)	48.7	(1)	148.4	(2)	131.4	182.4	111.0	85.9
		1929	14.2	116	(1)	(1)	5.8	3.5	(2)	36.0	9.3	25.6	(2)	(2)	33.7	96.5	65.1	9.3	(2)	56.9	(1)	131.3	(2)	183.6	206.8	131.3	(1)
		1928	12.6	(1)	(1)	(1)	5.8	3.5	(2)	3.5	16.1	11.5	(2)	(2)	3.5	142.9	68.0	5.8	(2)	54.2	(1)	125.6	(2)	185.5	165.9	96.8	(2)

[1] Not available.

[2] No deaths.

Death rates from certain causes in stated periods of 1931, with comparative data for corresponding periods in preceding years—Continued

State	Period	Year	Rate per 1,000 population, all causes (annual basis)	Rate per 1,000 live births			Rates per 100,000 population (annual basis)																			
				Infant mortality	All except malformations and early infancy	Maternal mortality (145–150)	Typhoid fever (1)	Measles (7)	Scarlet fever (8)	Whooping cough (9)	Diphtheria (10)	Influenza (11)	Poliomyelitis (22)	Lethargic encephalitis (23)	Meningococcus meningitis (24)	Tuberculosis, all forms (31–37)	Cancer, all forms (43–49)	Diabetes (57)	Diseases of the nervous system (70–86)	Cerebral hemorrhage, apoplexy (74)	Diseases of the circulatory system (87–96)	Diseases of the heart (87–90)	Diseases of the respiratory system (97–107)	Pneumonia, all forms (100–101)	Diseases of the digestive system (108–127)	Diarrhea and enteritis under 2 years (113)	Nephritis (128, 129)
Idaho	do	1931	10.6	67	51	4.6	0.9	1.8	2.7	10.9	0.9	19.1	0.9	1.8	10.0	29.9	69.0	13.6	132.5	104.3	198.7	176.9	138.8	127.9	66.2	2.7	46.3
		1930	9.8	59	30	5.5	1.8	3.6	3.6	.9	3.6	9.1	(2)	(2)	12.7	34.5	58.2	4.5	108.2	63.6	197.2	180.0	145.4	120.9	53.6	1.8	35.5
Indiana	do	1931	(1)	(1)	(1)	7.0	1.4	7.8	5.7	4.7	4.8	80.3	.2	.7	8.2	59.0	103.9	17.1	(1)	122.2	(1)	183.0	(1)	163.9	(1)	5.7	79.2
		1930	12.7	59	28	6.5	1.3	1.8	3.3	4.7	5.3	30.7	.3	.8	17.3	72.6	104.1	19.1	(1)	121.9	(1)	199.8	(1)	130.4	(1)	6.8	89.2
		1929	15.0	83	(1)	7.9	.8	6.1	5.4	6.5	5.1	179.6	.4	(1)	.8	77.6	95.7	17.1	(1)	127.3	(1)	223.0	(1)	191.7	(1)	8.9	88.3
		1928	12.6	66	(1)	5.8	1.8	1.8	3.0	4.7	6.8	54.2	(1)	(1)	(1)	74.8	101.9	(1)	(1)	122.5	(1)	182.6	(1)	136.9	(1)	9.0	81.1
		1927	12.2	68	(1)	7.8	3.5	3.1	4.8	7.7	7.5	45.9	(1)	(1)	(1)	80.3	90.0	(1)	(1)	100.2	(1)	175.2	(1)	118.5	(1)	7.7	90.2
Iowa	do	1931	11.3	69	35	6.1	.7	.2	2.6	2.6	1.5	59.4	.2	3.1	4.7	31.9	116.6	25.8	130.3	110.1	256.9	232.5	130.8	119.5	64.6	3.8	39.7
		1930	11.4	68	30	7.5	1.1	11.5	4.9	5.4	3.1	48.4	.2	2.3	2.0	38.3	107.9	25.5	146.3	98.0	272.1	194.0	137.5	125.0	68.3	3.3	44.0
		1929	12.4	68	29	7.7	1.0	1.2	3.1	4.9	.2	156.7	1.2	2.1	3.0	35.7	107.3	20.9	148.8	104.9	285.6	252.6	124.6	108.5	60.7	3.3	56.1
		1928	10.8	64	29	6.2	2.5	(3)	2.5	2.6	3.9	49.1	.3	1.3	1.3	34.0	104.8	19.6	140.0	104.6	266.5	239.0	110.8	99.2	62.9	3.4	56.4
Maryland	do	1931	15.8	86	49	6.4	1.0	4.9	2.2	5.1	3.7	60.5	.5	2.0	2.0	102.9	119.6	27.2	163.7	132.8	348.0	319.3	260.2	241.9	72.0	12.5	152.4
		1930	14.1	69	38	4.1	2.0	.2	3.2	6.1	4.1	18.3	(2)	1.0	2.4	110.4	106.5	23.7	157.3	119.5	307.9	273.6	200.4	179.9	68.5	9.8	168.0
Michigan	Jan. to Feb.	1931	10.6	68	31	6.0	.9	.7	3.7	4.0	4.5	29.2	.4	.9	3.6	57.4	85.1	20.1	123.0	91.9	251.4	224.8	113.2	97.6	67.8	5.2	65.3
		1930	11.4	78	36	8.4	.2	4.1	3.8	3.6	9.9	22.9	(2)	2.0	14.6	58.5	88.1	18.0	127.5	97.2	248.9	221.0	130.8	108.8	74.5	7.9	66.0
		1929	14.5	94	54	6.8	1.2	1.2	4.7	7.2	10.0	155.8	.8	1.3	9.2	73.6	94.8	23.4	153.6	107.3	301.2	265.7	200.0	176.5	85.1	14.8	76.2
Minnesota	do	1931	10.6	65	30	5.3	.2	.5	1.7	2.6	1.0	38.6	.5	1.7	1.2	41.1	115.2	25.1	101.3	78.6	223.7	199.8	139.8	130.7	66.4	2.6	57.8
		1930	10.8	46	19	6.0	1.2	7.0	2.4	3.4	2.2	32.0	(2)	2.2	3.8	49.8	118.9	21.2	111.6	88.5	210.1	199.0	107.8	110.7	64.2	6.5	53.2
		1929	12.7	74	39	5.8	.2	4.4	4.6	8.5	2.4	160.9	.5	3.2	3.2	54.8	109.0	26.2	114.9	84.6	246.2	201.4	133.8	127.5	64.9	3.9	71.7
		1928	10.4	(1)	(1)	(1)	.5	(3)	3.4	1.5	3.2	23.9	.2	1.2	.7	63.2	113.2	21.5	(1)	(1)	(1)	175.4	(1)	86.4	(1)	(1)	70.3
Mississippi	do	1931	11.6	(1)	(1)	(1)	2.7	.3	.3	2.1	7.6	94.1	.3	.3	3.6	75.6	49.2	11.2	(1)	71.3	(1)	116.9	(1)	125.4	(1)	3.6	94.7
		1930	12.0	(1)	(1)	(1)	4.0	2.2	.3	7.1	8.3	71.3	1.2	(2)	9.8	77.4	42.4	11.7	(1)	75.6	(1)	111.9	(1)	118.9	(1)	6.8	94.3
		1929	16.9	(1)	(1)	(1)	4.3	7.8	(2)	9.6	5.6	497.5	.6	.3	.9	70.5	41.9	8.1	(1)	71.7	(1)	98.1	(1)	136.0	(1)	3.1	97.5

New Jersey	Jan. to Mar.	1931	12.4	72	(1)	5.9	.7	4.3	3.6	3.1	5.6	39.0	.2	1.1	2.3	71.7	110.7	27.9	118.3	88.4	310.4	280.2	164.1	149.9	67.0	8.1	107.1
		1930	11.7	70	(1)	5.8	.6	3.5	2.4	3.2	12.9	15.9	.1	.8	2.6	69.4	100.2	26.1	116.4	86.3	285.5	260.2	142.5	128.9	69.1	8.5	107.0
		1929	14.3	78	(1)	5.6	.6	1.6	1.3	8.5	14.1	80.6	.4	1.7	2.7	78.8	106.7	26.9	132.2	97.7	334.7	309.5	237.2	215.8	71.4	9.2	117.3
		1928	12.2	(1)	(1)	(2)	1.0	5.3	2.8	5.8	14.3	17.6	(1)	(1)	(1)	70.7	101.9	(1)	118.4	(1)	272.3	(1)	170.7	98.7	64.4	10.0	115.8
		1927	12.3	(1)	(1)	(1)	1.1	1.1	4.8	6.0	9.7	22.2	(1)	(1)	(1)	80.3	101.9	(1)	135.9	(1)	263.3	(1)	160.8	88.5	79.2	14.1	105.5
New York [3]	Jan. to Feb.	1931	14.2	76	35	6.5	.4	.8	2.6	4.5	3.1	34.7	.4	1.2	1.2	65.2	137.2	33.7	145.6	116.4	410.9	370.1	159.5	140.6	68.6	8.5	127.6
		1930	13.2	66	29	6.5	.7	1.7	1.9	3.1	3.8	15.5	.3	1.1	1.0	68.4	115.8	30.4	137.0	103.8	378.6	327.6	138.7	122.2	73.2	10.4	133.4
		1929	18.3	84	42	7.2	1.0	5.1	4.1	5.6	4.0	170.3	.7	1.1	1.2	83.5	137.1	36.0	185.2	145.7	496.4	439.9	262.8	235.0	71.4	9.8	133.5
		1928	13.9	70	30	7.2	1.9	3.6	3.6	3.5	5.3	20.4	.4	1.3	.9	74.1	124.8	27.5	164.7	126.6	388.0	337.5	142.3	125.8	77.5	11.2	120.1
		1927	13.9	77	36	6.0	3.2	5.6	2.1	5.3	5.5	25.7	.1	.9	(2)	77.8	122.4	27.2	164.7	126.0	365.6	315.9	154.4	132.8	80.0	13.4	123.6
No. Carolina	Jan. to Mar.	1931	11.5	89	(1)	(1)	1.5	2.1	2.7	4.1	7.2	86.0	.2	.4	.1	73.5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	156.1	(1)	2.5	(1)
		1930	12.0	83	(1)	(1)	.8	.1	1.4	9.2	6.7	50.3	.4	.6	.9	84.5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	156.5	(1)	6.2	(1)
		1929	13.9	(1)	(1)	(1)	2.1	1.3	1.7	7.1	10.0	241.4	.8	(2)	.3	85.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	154.0	(1)	7.7	(1)
		1928	11.4	(1)	(1)	(1)	2.1	37.2	2.4	7.3	8.9	58.5	.5	1.1	(1)	79.5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	154.8	(1)	9.8	(1)
Pennsylvania	Jan. to Feb.	1931	13.3	77	44	6.2	1.0	5.7	3.0	2.0	4.7	65.1	.1	1.4	2.9	60.6	97.6	28.4	122.0	95.5	313.1	279.1	187.1	167.4	69.2	13.5	104.8
		1930	12.6	76	45	6.0	.7	2.4	2.7	5.4	7.7	31.7	.4	1.0	2.7	62.6	93.6	22.8	125.7	94.3	287.3	257.5	159.3	142.8	72.9	13.2	111.1
		1929	17.4	107	68	7.1	1.7	7.4	4.2	10.9	9.1	241.4	.7	1.7	2.3	77.4	104.5	30.1	149.9	109.3	347.7	317.5	262.5	234.4	76.5	15.1	133.1
		1928	13.0	75	39	5.5	1.1	3.9	3.7	4.2	13.4	38.2	.6	.8	.1	65.5	96.6	21.9	(1)	101.5	(1)	249.1	(1)	132.8	(1)	16.9	118.1
		1927	13.5	88	50	6.8	1.7	5.4	4.0	6.8	10.1	47.8	(1)	1.3	.5	73.6	94.5	21.5	(1)	99.8	(1)	249.9	(1)	163.5	(1)	19.2	124.2
So. Carolina	Jan. to Mar.	1931	(1)	(1)	(1)	(1)	2.6	3.9	.7	1.9	3.7	153.3	.7	2.1	2.8	69.5	40.2	9.1	(1)	(1)	270.4	(1)	(1)	163.1	(1)	(1)	117.8
		1930	(1)	(1)	(1)	(1)	5.6	.2	.5	12.9	6.3	74.6	.5	3.3	7.7	70.2	34.6	8.0	(1)	(1)	313.7	(1)	(1)	152.5	(1)	(1)	106.4
		1929	(1)	(1)	(1)	(1)	5.4	(2)	.5	7.0	6.6	236.4	.7	2.8	2.6	74.6	37.3	9.6	(1)	(1)	303.5	(1)	(1)	142.4	(1)	(1)	92.4
		1928	(1)	(1)	(1)	(1)	4.4	47.4	.2	10.7	9.1	95.8	1.4	4.2	1.9	85.2	40.4	13.6	(1)	(1)	280.1	(1)	(1)	179.5	(1)	(1)	105.4
		1927	(1)	(1)	(1)	(1)	5.2	1.4	(2)	4.2	5.2	28.1	.7	3.1	1.2	86.8	38.2	9.7	(1)	(1)	282.8	(1)	(1)	147.9	(1)	(2)	88.4
So. Dakota	Jan. to Feb.	1931	9.0	76	43	1.5	1.8	(2)	.9	7.1	4.4	52.1	3.5	(2)	(2)	30.0	80.4	19.4	112.2	75.1	144.9	127.3	104.3	87.5	68.9	4.4	38.0
		1930	7.6	61	27	7.6	1.8	2.7	(2)	2.7	2.7	31.3	.9	(2)	(2)	31.3	68.8	19.7	73.3	42.9	128.7	107.3	77.8	67.9	45.6	5.4	51.8
		1929	10.5	91	52	8.1	3.6	(2)	3.6	2.7	.9	194.6	3.6	.9	1.8	56.7	59.4	20.7	82.9	52.2	160.3	145.9	135.1	114.4	60.3	3.6	33.3
		1928	8.2	71	35	5.3	1.8	1.8	3.6	6.3	2.7	25.1	(1)	(1)	(1)	77.0	59.1	13.4	97.6	51.0	116.4	92.2	88.6	75.2	62.6	9.8	30.4
Tennessee	Jan. to Mar.	1931	11.2	87	61	8.7	2.4	6.4	2.4	3.2	3.4	84.3	.6	.3	9.6	105.7	52.5	11.6	97.0	60.3	134.6	121.1	164.9	152.6	50.9	4.0	63.5
		1930	11.7	75	49	8.9	3.6	7.6	1.5	6.4	4.3	62.0	.8	1.0	19.1	123.8	53.9	11.5	103.4	59.4	136.9	123.5	143.9	131.9	60.7	5.2	81.1
		1929	15.3	108	78	9.4	2.3	.3	3.0	7.0	5.5	341.6	.8	.3	2.0	137.1	53.6	11.1	105.7	57.5	155.4	144.1	177.5	162.4	55.1	5.2	71.4
		1928	12.1	(1)	(1)	(1)	4.1	16.6	2.4	5.8	5.0	83.2	.9	.5	.6	134.7	53.4	10.2	(1)	(1)	(1)	118.2	(1)	159.8	(1)	4.2	(1)
		1927	11.1	(1)	(1)	(1)	9.0	6.6	2.2	14.1	6.6	50.5	.5	.3	.6	130.2	(1)	(1)	(1)	(1)	(1)	(1)	(1)	125	(1)	5.3	(1)
West Virginia	Jan. to Feb.	1931	10.4	(1)	(1)	5.1	7.0	1.8	2.5	15.3	5.6	76.7	1.1	(2)	.4	57.8	51.5	13.7	92.8	65.5	146.7	122.5	177.5	165.6	46.6	7.4	53.9
		1930	10.3	(1)	(1)	5.5	6.1	5.3	2.5	8.2	7.5	47.8	.4	(2)	.7	78.1	49.6	13.9	88.1	57.8	156.5	118.7	134.8	124.1	56.3	13.5	64.5
		1929	15.4	(1)	(1)	6.5	9.4	4.0	2.2	18.5	6.2	414.1	1.1	1.8	2.2	74.2	61.2	12.7	94.1	55.0	214.3	132.5	203.8	153.5	53.9	11.2	65.9
Wisconsin	Jan. to Mar.	1931	11.4	67	(1)	5.2	.4	1.5	3.3	2.0	2.7	40.9	.1	1.5	2.0	51.9	116.3	(1)	(1)	(1)	(1)	(1)	(1)	119.6	(1)	7.1	(1)
		1930	11.0	68	(1)	5.2	.3	5.8	5.4	3.0	3.0	27.3	.3	1.1	3.0	52.2	117.1	(1)	(1)	(1)	(1)	(1)	(1)	107.3	(1)	8.0	(1)
		1929	12.7	78	(1)	(1)	1.3	2.2	3.5	3.1	2.6	130.8	.1	1.5	7.7	52.8	102.8	(1)	(1)	(1)	(1)	(1)	(1)	125.8	(1)	13.1	(1)
		1928	(1)	65	(1)	(1)	.7	.4	2.5	1.3	3.5	27.5	.3	1.5	4.1	56.4	(1)	(1)	(1)	(1)	(1)	(1)	(1)	93.4	(1)	10.6	(1)

[1] Not available.

[2] No deaths.

[3] Exclusive of New York City.

COURT DECISION RELATING TO PUBLIC HEALTH

Action held to lie against city for negligent removal of scarlet fever pay patient from public isolation hospital.—(Maine Supreme Judicial Court; Anderson *v.* City of Portland, 154 A. 572; decided Apr. 28, 1931.) An action was brought against the city of Portland by an administratrix to recover for damages alleged to have been sustained because of the premature removal of decedent from the municipal isolation hospital. The declaration, in substance, alleged that the city owned and maintained, chiefly as an activity for the public benefit, a hospital for the care of persons afflicted with communicable diseases and that incidentally persons were also received as private patients for gain; that the deceased, who had scarlet fever, was taken to such hospital and, for remuneration, cared for as a private patient; that two days later the defendant refused to treat the deceased any longer and sent him to his home; and that the deceased, as a result of the exposure and exertion to which he was subjected, suffered pain and incurred expense until his death, which occurred two weeks after his removal from the hospital.

The defendant city, proceeding upon the theory that, in caring for patients in the isolation hospital, it was exercising a governmental function and was, therefore, not liable for the negligence of its officers and agents, demurred to the declaration, but the supreme court held that the declaration stated a cause of action, saying:

> But the declaration sets out, in effect, in the particular instance, the defendant city was not discharging duties partaking of the nature of a governmental power. On the other hand, assertion is, that realm was left, and one entered, albeit casually, in which the rules which regulate the responsibility of business corporations are applicable.
>
> Herein lies the test. * * * When public use descends to private profit, even incidentally, liability attaches. * * *

DEATHS DURING WEEK ENDED JUNE 13, 1931

Summary of information received by telegraph from industrial insurance companies for the week ended June 13, 1931, and corresponding week of 1930. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

	Week ended June 13, 1931	Corresponding week, 1930
Policies in force	75, 136, 092	75, 764, 230
Number of death claims	13, 770	14, 251
Death claims per 1,000 policies in force, annual rate	9. 6	9. 8

Deaths [1] from all causes in certain large cities of the United States during the week ended June 13, 1931, infant mortality, annual death rate, and comparison with corresponding week of 1930. (From the Weekly Health Index, issued by the Bureau of the Census, Department of Commerce)

[The rates published in this summary are based upon midyear population estimates derived from the 1930 census]

City	Week ended June 13, 1931				Corresponding week, 1930		Death rate [2] for the first 24 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1931	1930
Total (82 cities)	7,338	10.7	604	[4] 46	11.5	681	13.1	13.0
Akron	36	7.3	3	30	9.2	2	8.3	8.4
Albany [5]	36	14.5	1	20	13.5	2	15.3	16.1
Atlanta	67	12.6	6	61	14.6	13	16.0	16.7
White	39		3	48		3		
Colored	28	(6)	3	86	(6)	10	(6)	(6)
Baltimore [5]	174	11.2	17	58	10.4	5	16.0	15.1
White	122		11	48		2		
Colored	52	(6)	6	94	(6)	3	(6)	(6)
Birmingham	61	11.8	3	30	16.7	11	14.8	14.3
White	25		0	0		7		
Colored	36	(6)	3	73	(6)	4	(6)	(6)
Boston	164	10.9	16	46	12.5	17	15.7	15.8
Bridgeport	31	11.0	3	50	8.2	0	12.2	12.6
Buffalo	132	11.8	10	41	10.0	9	14.4	14.2
Cambridge	11	5.0	1	20	10.5	1	13.5	13.4
Camden	24	10.5	3	52	14.5	4	16.0	14.7
Canton	18	8.8	1	23	6.4	2	11.2	11.1
Chicago [5]	631	9.5	51	45	10.4	58	11.4	11.4
Cincinnati	101	11.5	6	36	12.4	5	16.9	16.5
Cleveland	196	11.2	14	41	10.6	11	12.1	12.2
Columbus	60	10.6	3	29	14.3	7	14.9	17.6
Dallas	57	10.9	8		13.3	6	12.2	12.1
White	46		7			4		
Colored	11	(6)	1		(6)	2	(6)	(6)
Dayton	53	13.4	1	14	8.3	2	13.0	10.4
Denver	67	12.0	3	29	12.6	4	15.0	15.2
Des Moines	19	6.9	4	70	13.1	2	11.5	12.7
Detroit	242	7.6	26	41	9.6	37	9.2	10.4
Duluth	22	11.3	1	25	16.9	1	11.3	11.8
El Paso	39	19.4	3		15.7	7	17.3	18.5
Erie	23	10.2	4	75	11.7	3	11.4	11.5
Fall River [5] [7]	26	11.8	2	45	8.6	1	13.4	13.6
Flint	25	7.9	2	26	6.6	3	8.0	10.1
Fort Worth	25	7.8	1		12.7	5	12.0	11.7
White	22		1			4		
Colored	3	(6)	0		(6)	1	(6)	(6)
Grand Rapids	30	9.1	3	44	8.0	2	9.8	11.3
Houston	73	12.3	10		15.0	15	11.6	12.8
White	54		10			10		
Colored	19	(6)	0		(6)	5	(6)	(6)
Indianapolis	83	11.7	12	99	15.3	4	14.6	15.5
White	71		12	113		3		
Colored	12	(6)	0	0	(6)	1	(6)	(6)
Jersey City	63	10.3	8	71	10.2	6	12.9	12.6
Kansas City, Kans	27	11.5	1	21	10.7	3	14.3	11.8
White	21		1	25		2		
Colored	6	(6)	0	0	(6)	1	(6)	(6)
Kansas City, Mo	85	10.8	5	38	11.7	6	14.4	13.7
Knoxville	28	13.4	3	64	8.8	1	13.8	14.8
White	17		3	71		0		
Colored	11	(6)	0	0	(6)	1	(6)	(6)
Long Beach	31	10.6	1	24	9.1	0	10.5	10.3
Los Angeles	300	11.9	22	64	10.5	20	11.4	11.6
Louisville	76	12.9	1	9	10.5	5	15.6	14.2
White	58		1	10		4		
Colored	18	(6)	0	0	(6)	1	(6)	(6)
Lowell [7]	25	12.9	1	25	9.8	3	13.4	14.9
Lynn	12	6.1	2	52	7.6	3	11.3	11.8
Memphis	66	13.3	4	42	16.4	7	17.3	18.0
White	35		2	33		3		
Colored	31	(6)	2	58	(6)	4	(6)	(6)
Miami	18	8.3	0	0	8.9	2	13.2	12.2
White	13		0	0		1		
Colored	5	(6)	0	0	(6)	1	(6)	(6)

See footnotes at end of table.

Deaths [1] ***from all causes in certain large cities of the United States during the week ended June 13, 1931, infant mortality, annual death rate, and comparison with corresponding week of 1930***—Continued

City	Week ended June 13, 1931				Corresponding week, 1930		Death rate [2] for the first 24 weeks	
	Total deaths	Death rate [2]	Deaths under 1 year	Infant mortality rate [3]	Death rate [2]	Deaths under 1 year	1931	1930
Milwaukee	98	8.7	12	52	10.6	16	10.1	10.5
Minneapolis	97	10.7	6	39	11.5	7	11.9	11.2
Nashville	52	17.4	3	45	12.5	4	17.5	16.5
White	30		2	40		1		
Colored	22	(6)	1	59	(6)	3	(6)	(6)
New Bedford [7]	18	8.3	3	80	10.7	1	13.4	1.2
New Haven	32	10.3	2	38	11.5	5	12.8	14.5
New Orleans	139	15.5	16	88	16.4	9	18.1	18.8
White	71		9	74		6		
Colored	68	(6)	7	114	(6)	3	(6)	(6)
New York	1,320	9.7	111	46	10.9	133	12.5	12.0
Bronx borough	189	7.4	16	36	7.9	19	9.1	8.6
Brooklyn borough	450	8.9	46	49	10.1	45	11.5	11.0
Manhattan borough	488	14.0	32	55	16.5	53	19.2	17.9
Queens borough	151	6.8	12	33	6.6	16	8.1	7.7
Richmond borough	42	13.4	5	90	13.7	0	14.4	15.1
Newark, N. J	73	8.5	6	31	10.2	8	12.9	13.6
Oakland	55	9.8	3	38	12.2	3	11.2	11.7
Oklahoma City	36	9.5	4	55	12.5	10	12.0	10.5
Omaha	70	16.8	6	67	11.4	2	14.8	13.9
Paterson	32	12.0	1	17	13.9	1	14.9	13.6
Peoria	22	10.6	2	53	11.4	3	13.1	13.2
Philadelphia	414	11.0	32	46	13.3	41	14.9	13.6
Pittsburgh	161	12.4	18	62	13.7	16	16.5	15.3
Portland, Oreg	57	9.7	2	24	10.2	7	12.4	13.1
Providence	54	11.0	2	18	10.5	2	14.3	14.7
Richmond	56	15.8	5	73	13.9	3	17.0	15.9
White	26		0	0		2		
Colored	30	(6)	5	217	(6)	1	(6)	(6)
Rochester	59	9.3	9	82	10.1	4	13.1	12.6
St. Louis	204	12.8	12	40	13.0	14	16.6	14.6
St. Paul	59	11.1	0	0	12.8	5	11.4	11.0
Salt Lake City [8]	41	15.0	5	74	12.6	4	13.1	13.7
San Antonio	81	17.6	23		20.3	25	16.3	18.7
San Diego	44	14.7	4	81	14.6	1	14.9	14.9
San Francisco	158	12.7	7	46	11.9	5	13.8	13.7
Schenectady	18	9.8	0	0	8.7	0	11.1	12.3
Seattle	73	10.2	5	47	8.8	5	12.4	11.5
Somerville	14	6.9	0	0	6.5	2	10.5	11.3
South Bend	21	10.1	0	0	12.4	2	8.9	9.6
Spokane	28	12.6	3	78	9.0	1	12.9	13.2
Springfield, Mass	29	9.9	3	46	9.7	2	13.5	13.6
Syracuse	41	10.0	3	36	11.7	4	12.5	13.1
Tacoma	15	7.3	1	26	14.1	1	13.5	13.1
Toledo	70	12.4	6	55	10.5	6	13.0	13.7
Trenton	20	8.4	2	35	12.7	0	18.6	17.9
Utica	28	14.3	2	52	14.8	4	15.7	16.6
Washington, D. C	136	14.4	10	55	15.6	13	17.1	16.0
White	91		7	57		2		
Colored	45	(6)	3	52	(6)	11	(6)	(6)
Waterbury	17	8.8	3	90	11.5	5	10.5	10.4
Wilmington, Del. [7]	32	15.7	4	86	14.2	2	15.8	15.6
Worcester	44	11.6	1	14	9.6	4	14.0	14.5
Yonkers	24	9.0	0	0	6.5	4	9.5	8.6
Youngstown	39	11.8	1	14	10.1	2	11.0	11.0

[1] Deaths of nonresidents are included. Stillbirths are excluded.
[2] These rates represent annual rates per 1,000 population, as estimated for 1931 and 1930 by the arithmetical method.
[3] Deaths under 1 year of age per 1,000 live births. Cities left blank are not in the registration area for births.
[4] Data for 77 cities.
[5] Deaths for week ended Friday.
[6] For the cities for which deaths are shown by color, the percentage of colored population in 1920 was as follows: Atlanta, 31; Baltimore, 15; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 25; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 15; Louisville, 17; Memphis, 38; Miami, 31; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.
[7] Population Apr. 1, 1930; decreased 1920 to 1930, no estimate made.

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 June 20, 1931, and June 21, 1930

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 20, 1931, and June 21, 1930

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930
New England States:								
Maine	2	9	-------	1	17	47	0	1
New Hampshire	-------	1	4	-------	14	20	0	0
Vermont	-------	-------	-------	-------	15	39	0	0
Massachusetts	47	47	-------	1	563	878	1	3
Rhode Island	8	3	-------	-------	117	5	0	0
Connecticut	1	13	-------	-------	207	46	0	2
Middle Atlantic States:								
New York	137	111	[1] 3	[1] 8	2,075	2,025	8	16
New Jersey	34	76	5	1	711	939	1	0
Pennsylvania	55	98	-------	-------	1,877	1,033	7	3
East North Central States:								
Ohio	17	26	5	3	449	336	2	4
Indiana	48	13	5	-------	258	134	4	6
Illinois	116	131	3	3	1,322	390	8	6
Michigan	27	75	-------	4	340	802	8	12
Wisconsin	13	21	12	12	699	326	1	5
West North Central States:								
Minnesota	15	10	-------	2	108	98	1	2
Iowa	2	6	-------	-------	11	63	0	1
Missouri	14	12	-------	-------	96	59	2	3
North Dakota	2	4	-------	-------	49	11	0	0
South Dakota	4	8	-------	-------	3	90	0	1
Nebraska	3	5	-------	-------	4	75	0	1
Kansas	10	4	-------	4	117	170	0	0
South Atlantic States:								
Delware	-------	-------	1	-------	53	6	0	0
Maryland [2] [3]	17	12	3	7	364	37	1	0
District of Columbia	10	2	-------	-------	58	65	1	1
West Virginia	7	4	1	10	240	41	1	1
North Carolina	16	11	4	5	470	54	3	4
South Carolina	9	11	163	137	155	-------	2	3
Georgia [3]	6	2	18	4	45	56	0	2
Florida [3]	1	7	-------	-------	27	38	0	0

[1] New York City only.
[2] Week ended Friday.
[3] Typhus fever: 1931, 9 cases; 2 cases in Maryland; 2 cases in Goergia; 2 cases in Florida; and 3 cases in Mississippi.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 20, 1931, and June 21, 1930—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930
East South Central States:								
Kentucky					92		0	2
Tennessee		6	12	6	96	47	3	11
Alabama	13	10	3	21	69	111	9	3
Mississippi [3]	3	10					1	0
West South Central States:								
Arkansas	1	3	7	8	46	24	0	0
Louisiana	25	15	4	10		7	1	1
Oklahoma [4]	3	4	7	5	14	58	0	2
Texas	17	9	14	11	18	72	1	1
Mountain States:								
Montana	1				8	21	0	0
Idaho	1	1			4	7	0	1
Wyoming		3			5	44	0	0
Colorado	3	2			69	286	0	2
New Mexico	5	13		1	43	34	0	2
Arizona	4				26	44	2	2
Utah [3]		1	2	6	5	129	0	1
Pacific States:								
Washington	5	5			98	383	0	1
Oregon	3	2	9	7	32	103	0	1
California	63	45	23	18	502	1,186	3	4

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930
New England States:								
Maine	0	0	31	14	0	0	1	1
New Hampshire	0	0	1	3	0	0	0	0
Vermont	0	0	5	5	10	0	0	0
Massachusetts	2	1	205	102	0	0	6	2
Rhode Island	0	0	27	5	0	0	1	0
Connecticut	0	0	23	44	0	0	2	1
Middle Atlantic States:								
New York	6	4	568	228	11	14	26	11
New Jersey	0	0	197	104	0	0	7	5
Pennsylvania	2	2	407	253	0	0	12	16
East North Central States:								
Ohio	0	1	169	116	23	79	7	14
Indiana	1	0	55	50	66	124	5	4
Illinois	0	0	326	247	60	53	10	17
Michigan	3	0	361	220	18	75	5	11
Wisconsin	0	0	57	90	6	80	2	4
West North Central States:								
Minnesota	1	0	40	46	6	7	3	0
Iowa	0	0	30	22	42	89	1	0
Missouri	1	0	45	65	26	20	8	3
North Dakota	1	2	6	11	3	4	3	0
South Dakota	0	0	13	2	17	24	0	0
Nebraska	0	0	7	40	18	27	0	2
Kansas	0	0	25	22	77	71	2	8
South Atlantic States:								
Delaware	0	0	1	7	0	0	0	0
Maryland [2] [3]	0	0	29	34	0	0	6	8
District of Columbia	0	0	13	4	0	0	0	1
West Virginia	0	0	23	12	0	12	2	5
North Carolina	1	4	27	9	1	9	15	34
South Carolina	5	3	2	2	5	1	36	62
Georgia [3]	0	0	21	4	0	0	17	28
Florida [3]	0	0	6	0	0	0	2	3

[2] Week ended Friday.
[3] Typhus fever: 1931, 9 cases; 2 cases in Maryland; 2 cases in Georgia; 2 cases in Florida; and 3 cases in Mississippi.
[4] Figures for 1931 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended June 20, 1931, and June 21, 1930—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930	Week ended June 20, 1931	Week ended June 21, 1930
East South Central States:								
Kentucky	0	0	35	13	0	3	5	8
Tennessee	0	0	8	17	1	2	14	28
Alabama	1	5	6	16	8	10	18	26
Mississippi [3]	3	0	8	4	22	10	15	28
West South Central States:								
Arkansas	0	0	6	2	14	2	10	15
Louisiana	0	27	5	24	9	0	17	30
Oklahoma [4]	2	0	6	13	43	70	5	4
Texas	1	2	16	11	20	107	32	7
Mountain States:								
Montana	1	1	9	24	3	4	5	2
Idaho	0	0	15	0	5	1	0	0
Wyoming	0	0	1	0	0	5	0	0
Colorado	0	0	12	17	33	12	1	0
New Mexico	0	0	3	1	1	9	2	3
Arizona	0	2	1	1	1	0	3	1
Utah [2]	0	0	3	8	0	0	0	1
Pacific States:								
Washington	0	0	14	14	17	23	3	5
Oregon	0	0	7	3	11	17	3	2
California	6	51	76	84	12	43	7	12

[2] Week ended Friday.
[3] Typhus fever: 1931, 9 cases in Maryland; 2 cases in Georgia; 2 cases in Florida; and 3 cases in Mississippi.
[4] Figures for 1931 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

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

State	Meningococcus meningitis	Diphtheria	Influenza	Malaria	Measles	Pellagra	Poliomyelitis	Scarlet fever	Smallpox	Typhoid fever
April, 1931										
Hawaii Territory	4	40	7	----	152	----	1	7	0	5
May, 1931										
Alabama	30	44	242	201	1,110	191	6	100	56	38
Colorado	2	21	----	----	894	----	0	136	30	3
Illinois	73	481	24	12	8,350	----	6	2,149	265	23
Indiana	35	81	48	----	4,501	----	0	913	541	11
Iowa	1	24	----	----	271	----	0	237	274	1
Maryland	7	47	39	1	4,589	2	2	287	0	24
Michigan	27	139	9	2	787	----	0	1,697	81	16
Minnesota	10	52	4	----	897	----	5	344	33	8
Missouri	30	160	37	12	2,419	----	5	1,340	212	35
New Jersey	21	166	32	1	4,190	----	3	1,100	6	15
New Mexico	----	14	5	10	424	5	0	25	8	8
New York	42	536	----	4	12,992	----	18	3,650	32	63
North Carolina	15	60	118	----	3,296	402	2	169	13	13
Oklahoma [1]	9	42	285	142	183	138	1	108	280	24
Pennsylvania	43	297	----	2	16,967	1	1	2,000	0	45
Rhode Island	----	20	----	----	505	1	0	226	0	2
Texas	4	97	205	533	----	3	1	147	----	37
West Virginia	3	33	132	----	646	----	1	190	27	27
Wisconsin	9	65	88	----	3,442	----	3	624	50	4

[1] Exclusive of Oklahoma City and Tulsa.

April, 1931	Cases
Hawaii Territory:	
Chicken pox	86
Conjunctivitis, follicular	76
Dysentery (amebic)	1
Hookworm disease	1
Impetigo contagiosa	2
Leprosy	9
Mumps	58
Tetanus	3
Trachoma	4

May, 1931	Cases
Anthrax:	
New Jersey	3
New York	1
Pennsylvania	2
Chicken pox:	
Alabama	148
Colorado	249
Illinois	1,402
Indiana	364
Iowa	186
Maryland	330
Michigan	1,439
Minnesota	1,032
Missouri	305
New Jersey	1,827
New Mexico	85
New York	2,716
North Carolina	445
Oklahoma [1]	208
Pennsylvania	2,458
Rhode Island	76
West Virginia	284
Wisconsin	1,941
Conjunctivitis:	
New Mexico	4
Dengue:	
Alabama	1
Diarrhea:	
Maryland	10
Dysentery:	
Illinois (amebic)	3
Illinois (bacillary)	4
Maryland	2
Minnesota	11
Minnesota (amebic)	1
New Jersey	1
New York	6
Oklahoma [1]	4
German measles:	
Colorado	2
Illinois	205
Iowa	7
Maryland	306
New Jersey	243
New York	2,240
North Carolina	1,052
Pennsylvania	1,202
Rhode Island	39
Wisconsin	826
Impetigo contagiosa:	
Colorado	1
Illinois	4
Maryland	2
Lead poisoning:	
Illinois	1
New Jersey	2
Leprosy:	
Illinois	1
Pennsylvania	1
Lethargic encephalitis:	
Alabama	4
Illinois	5
Indiana	1
Iowa	1
Michigan	7
New Jersey	3
New York	13
Pennsylvania	13
Wisconsin	4
Mumps:	
Alabama	102
Colorado	193
Illinois	1,060
Indiana	205
Iowa	105
Maryland	313
Michigan	812
Missouri	198
New Jersey	296
New Mexico	65
New York	1,744
Oklahoma [1]	31
Pennsylvania	1,778
Rhode Island	257
Wisconsin	4,544
Ophthalmia neonatorum:	
Illinois	10
Indiana	2
Minnesota	1
Missouri	3
New York	4
Pennsylvania	24
Wisconsin	2
Paratyphoid fever:	
Illinois	2
New York	9
North Carolina	1
Texas	2
Puerperal septicemia:	
Illinois	4
New York	32
Pennsylvania	27
Rabies in animals:	
Illinois	2
Maryland	5
Missouri	10
New York	2
Rhode Island	3
Rabies in man:	
Indiana	1
Rocky Mountain spotted or tick fever:	
Colorado	3
Scabies:	
Maryland	1
Oklahoma [1]	1
Septic sore throat:	
Colorado	1
Illinois	3
Maryland	7

[1] Exclusive of Oklahoma City and Tulsa.

Septic sore throat—Continued.	Cases
Michigan	38
Missouri	5
New York	94
North Carolina	23
Oklahoma [1]	27
Tetanus:	
Illinois	2
Indiana	2
Maryland	3
Missouri	1
New Jersey	3
New York	2
Oklahoma [1]	1
Pennsylvania	6
Tetanus neonatorum:	
Maryland	1
Trachoma:	
Illinois	5
Indiana	1
Missouri	61
Oklahoma [1]	6
Pennsylvania	6
Wisconsin	2
Trichinosis:	
New York	10
Tularæmia:	
Illinois	1
Iowa	[2] 1
Missouri	1
New York	1
Typhus fever:	
Alabama	1
Undulant fever:	
Alabama	3
Illinois	25
Indiana	4

Undulant fever—Continued.	Cases
Iowa	3
Maryland	2
Michigan	1
Minnesota	6
Missouri	10
New Jersey	2
New York	12
Oklahoma [1]	1
Pennsylvania	3
Wisconsin	6
Vincent's angina:	
Colorado	1
Illinois	3
Maryland	12
New York	82
Oklahoma [1]	1
Whooping cough:	
Alabama	92
Colorado	324
Illinois	815
Indiana	244
Iowa	108
Maryland	258
Michigan	1,087
Minnesota	256
Missouri	300
New Jersey	933
New Mexico	31
New York	1,920
North Carolina	846
Oklahoma [1]	60
Pennsylvania	853
Rhode Island	36
West Virginia	274
Wisconsin	609

[1] Exclusive of Oklahoma City and Tulsa.

[2] Delayed report; case occurred in October.

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 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 33,465,000. The estimated population of the 90 cities reporting deaths is more than 31,925,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended June 13, 1931, and June 14, 1930

	1931	1930	Estimated expectancy
Cases reported			
Diphtheria:			
46 States	729	900	
97 cities	345	494	688
Measles:			
45 States	14,989	13,103	
97 cities	5,625	5,139	
Meningococcus meningitis:			
46 States	74	118	
97 cities	34	40	
Poliomyelitis:			
46 States	38	70	
Scarlet fever:			
46 States	3,574	2,631	
97 cities	1,723	1,183	980

Weeks ended June 13, 1931, and June 14, 1930—Continued

	1931	1930	Estimated expectancy
Cases reported—Continued			
Smallpox:			
46 States	790	1,050	
97 cities	67	90	48
Typhoid fever:			
46 States	285	407	
97 cities	48	57	45
Deaths reported			
Influenza and pneumonia:			
90 cities	484	535	
Smallpox:			
90 cities	0	0	

City reports for week ended June 13, 1931

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 weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded, and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1922 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND								
Maine:								
Portland	10	1	0		0	0	5	2
New Hampshire:								
Concord	0	0	0		0	4	0	0
Manchester	0	0	0		0	0	0	0
Vermont:								
Barre		0						
Massachusetts:								
Boston	77	28	6		0	35	7	10
Fall River	0	2	1		0	23	8	2
Springfield	4	2	0		0	18	18	1
Worcester	25	3	4		0	1	14	4
Rhode Island:								
Pawtucket	2	0	0		0	2	4	1
Providence	3	5	4		0	90	19	1
Connecticut:								
Bridgeport	0	5	2	1	0	8	1	1
Hartford	4	4	0	1	0	9	2	2
New Haven	36	0	0		0	59	27	1
MIDDLE ATLANTIC								
New York:								
Buffalo	21	8	11		1	126	39	17
New York	307	223	83	7	6	1,131	73	121
Rochester	14	5	4		0	154	12	2
Syracuse	21	2	2		0	31	4	1
New Jersey:								
Camden	4	6	1		0	0	3	2
Newark	61	12	13	5	0	18	6	3
Trenton	1	2	0		0	5	9	0
Pennsylvania:								
Philadelphia	110	48	7	2	1	316	33	30
Pittsburgh	54	14	2	1	1	92	57	19
Reading	10	1	0		1	2	4	1

City reports for week ended June 13, 1931—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
EAST NORTH CENTRAL								
Ohio:								
Cincinnati	8	5	1		0	60	10	6
Cleveland	165	22	13	6	1	404	282	14
Columbus	39	3	1	2	2	10	38	2
Toledo	60	4	2	1	1	16	11	1
Indiana:								
Fort Wayne	5	1	5		0	5	0	2
Indianapolis	28	2	1		0	140	19	12
South Bend	1	1	0		0	10	0	1
Terre Haute	0	0	0		0	13	0	1
Illinois:								
Chicago	217	81	71	10	1	901	62	42
Springfield	15	1	0		0	11	3	1
Michigan:								
Detroit	131	38	10		2	62	50	15
Flint	46	1	1		0	1	9	2
Grand Rapids	2	1	0		0	49	0	0
Wisconsin:								
Kenosha	2	0	0		0	2	115	0
Madison	6	0	0			2	51	
Milwaukee	207	10	2		0	476	380	1
Racine	7	0	1		0	2	28	0
Superior	7	0	0		0	1	1	0
WEST NORTH CENTRAL								
Minnesota:								
Duluth	25	0	0		1	1	3	1
Minneapolis	98	11	4		0	68	64	8
St. Paul	83	6	6	1	1	45	5	2
Iowa:								
Davenport	4	0	0			0	0	
Des Moines	0	0	0			0	0	
Sioux City	10	0	1			2	6	
Waterloo	1	0	1			0	0	
Missouri:								
Kansas City	6	2	3		0	91	2	5
St. Joseph	1	0	5		0	8	0	3
St. Louis	19	27	5			6	4	1
North Dakota:								
Fargo	6	0	0		0	6	4	0
Grand Forks	0	0	0			0	0	
South Dakota:								
Aberdeen	4	0	0			3	0	
Sioux Falls	0	0	0			0	0	
Nebraska:								
Omaha	17	2	5		0	0	11	4
Kansas:								
Topeka	0	0	1		0	0	37	0
Wichita	2	1	1		0	7	0	0
SOUTH ATLANTIC								
Delaware:								
Wilmington	1	1	2		0	13	2	0
Maryland:								
Baltimore	49	17	9	1	0	257	48	16
Cumberland	0	0	0		0	1	0	0
Frederick	0	0	0		0	7	1	0
District of Columbia:								
Washington	16	8	11		0	83	0	5
Virginia:								
Lynchburg	8	1	0		0	0	0	1
Norfolk	0	0	4		0	19	0	6
Richmond	0	1	2		0	45	0	3
Roanoke	3	0	0		1	10	2	0
West Virginia:								
Charleston	2	0	0		0	1	0	0
Wheeling	11	0	0		0	1	0	0
North Carolina:								
Raleigh	0	0	1		0	47	0	0
Wilmington	3	0	0		0	2	0	2
Winston-Salem	3	0	0		0	70	9	1

City reports for week ended June 13, 1931—Continued

Division, State, and city	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
		Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
SOUTH ATLANTIC—CON.								
South Carolina:								
Charleston	0	0	0	31	0	3	0	4
Columbia	0	0	0	----------	0	0	2	6
Greenville	0	0	0	----------	0	0	0	0
Georgia:								
Atlanta	3	1	0	----------	0	9	0	0
Brunswick	0	0	0	----------	0	0	3	0
Savannah	0	0	0	8	2	5	2	0
Florida:								
Miami	1	1	2	----------	0	33	2	0
Tampa	0	0	0	----------	0	4	0	4
EAST SOUTH CENTRAL								
Kentucky:								
Covington	0	0	1	----------	0	1	0	3
Tennessee:								
Memphis	6	1	0	----------	0	102	3	0
Nashville	2	0	0	----------	1	37	0	12
Alabama:								
Birmingham	1	1	0	----------	1	1	1	7
Mobile	0	0	2	----------	0	0	0	1
Montgomery	0	0	0	----------	----------	0	0	----------
WEST SOUTH CENTRAL								
Arkansas:								
Fort Smith	1	0	0	----------	----------	0	0	----------
Little Rock	2	0	1	----------	0	8	0	0
Louisiana:								
New Orleans	0	6	5	----------	0	1	0	11
Shreveport	2	0	0	----------	0	5	2	1
Oklahoma:								
Muskogee	1	0	0	----------	----------	0	0	----------
Texas:								
Dallas	6	3	0	----------	0	2	0	1
Fort Worth	4	1	1	----------	0	0	0	1
Galveston	0	0	1	----------	0	0	0	1
Houston	0	2	1	----------	0	6	0	5
San Antonio	0	2	0	----------	1	22	0	4
MOUNTAIN								
Montana:								
Billings	3	0	0	----------	0	6	0	0
Great Falls	7	0	0	----------	0	1	0	0
Helena	0	0	0	----------	0	2	0	0
Missoula	0	0	0	----------	0	0	0	1
Idaho:								
Boise	0	0	0	----------	0	0	2	0
Colorado:								
Denver	24	6	4	----------	0	57	37	4
Pueblo	0	1	0	----------	0	12	0	1
New Mexcio:								
Albuquerque	7	0	0	1	0	2	0	1
Arizona:								
Phoenix	1	1	0	----------	0	2	0	0
Utah:								
Salt Lake City	38	3	0	----------	0	1	13	1
Nevada:								
Reno	0	0	0	----------	0	2	0	1
PACIFIC								
Washington:								
Seattle	71	2	1	----------	----------	8	19	----------
Spokane	0	2	1	----------	----------	0	0	----------
Tacoma	11	2	1	----------	0	2	4	1
Oregon:								
Portland	6	5	0	----------	0	20	6	1
Salem	7	1	0	----------	----------	1	10	----------
California:								
Los Angeles	46	27	23	19	1	138	9	3
Sacramento	5	2	0	1	1	56	0	4
San Francisco	40	13	1	3	0	92	4	10

City reports for week ended June 13, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	2	9	0	0	0	1	0	0	0	0	28
New Hampshire:											
Concord	0	0	0	0	0	0	0	0	0	0	6
Manchester	1	0	0	0	0	1	0	0	0	0	9
Vermont:											
Barre	1	----	0	----	----	----	0	----	----	----	----
Massachusetts:											
Boston	60	49	0	0	0	10	1	0	0	16	164
Fall River	2	6	0	0	0	2	0	0	0	1	26
Springfield	5	7	0	0	0	1	0	0	0	8	25
Worcester	7	17	0	0	0	3	1	0	0	6	44
Rhode Island:											
Pawtucket	2	3	0	0	0	0	0	0	0	1	13
Providence	7	21	0	0	0	3	0	0	0	0	54
Connecticut:											
Bridgeport	6	4	0	0	0	1	0	0	0	1	31
Hartford	3	0	0	0	0	2	0	0	0	1	39
New Haven	3	3	0	0	0	2	0	0	0	7	32
MIDDLE ATLANTIC											
New York:											
Buffalo	20	44	0	0	0	11	0	0	0	17	127
New York	183	315	0	0	0	82	9	15	2	190	1,320
Rochester	8	65	0	0	0	0	0	0	0	9	56
Syracuse	8	17	0	0	0	0	0	0	0	19	41
New Jersey:											
Camden	5	5	0	0	0	0	0	0	0	1	24
Newark	20	30	0	1	0	10	0	0	0	83	79
Trenton	3	2	0	0	0	0	0	0	0	5	20
Pennsylvania:											
Philadelphia	80	143	0	1	0	26	2	0	0	37	414
Pittsburgh	26	88	0	0	0	8	0	0	0	48	161
Reading	3	2	0	0	0	2	0	0	0	0	19
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	12	35	2	0	0	10	1	0	0	10	101
Cleveland	31	60	0	1	0	17	1	1	0	33	196
Columbus	6	6	1	0	0	4	0	0	0	0	60
Toledo	12	11	1	0	0	6	0	0	0	22	70
Indiana:											
Fort Wayne	2	7	2	1	0	0	0	0	0	0	19
Indianapolis	10	24	6	16	0	4	0	0	0	41	----
South Bend	3	0	1	0	0	1	0	0	0	2	19
Terre Haute	1	2	0	0	0	0	0	0	0	3	18
Illinois:											
Chicago	97	255	1	0	0	48	2	1	0	86	631
Springfield	2	5	1	0	0	0	0	0	0	0	27
Michigan:											
Detroit	91	193	0	1	0	24	1	3	0	152	242
Flint	11	19	2	0	0	1	0	1	0	2	25
Grand Rapids	7	11	0	1	0	0	1	0	0	6	30
Wisconsin:											
Kenosha	1	1	0	0	0	0	0	0	0	2	----
Madison	2	3	0	0	----	----	0	0	----	1	----
Milwaukee	26	15	0	0	0	5	0	1	0	49	98
Racine	2	2	0	0	0	1	0	0	0	14	10
Superior	2	1	0	0	0	1	0	0	0	0	9
WEST NORTH CENTRAL											
Minnesota:											
Duluth	6	0	0	0	0	1	0	0	0	0	22
Minneapolis	25	17	0	0	0	3	0	0	0	9	97
St. Paul	17	10	0	0	0	5	0	0	0	16	68
Iowa:											
Davenport	0	0	1	4	----	----	0	0	----	3	----
Des Moines	5	2	2	16	----	----	0	0	----	0	19
Sioux City	2	1	0	1	----	----	0	0	----	10	----
Waterloo	2	0	0	0	----	----	0	0	----	2	----

City reports for week ended June 13, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST NORTH CENTRAL—continued											
Missouri:											
Kansas City	9	3	0	1	0	9	0	0	0	7	85
St. Joseph	0	1	2	0	0	1	0	0	0	8	30
St. Louis	19	51	0	4	0	13	1	2	0	21	204
North Dakota:											
Fargo	1	0	0	0	0	1	0	0	0	2	10
Grand Forks	0	1	1	0	---	---	0	0	---	0	---
South Dakota:											
Aberdeen	1	0	0	1	---	---	0	0	---	0	---
Sioux Falls	0	3	1	2	---	---	0	0	---	0	9
Nebraska:											
Omaha	3	4	3	7	0	6	0	0	0	1	70
Kansas:											
Topeka	1	0	0	0	0	0	0	0	0	1	5
Wichita	1	1	1	6	0	2	1	0	0	5	24
SOUTH ATLANTIC											
Delaware:											
Wilmington	3	1	0	0	0	3	0	0	0	5	32
Maryland:											
Baltimore	25	18	0	0	0	14	1	1	0	60	174
Cumberland	0	0	0	0	0	0	0	1	0	0	10
Frederick	0	0	0	0	0	0	0	0	0	0	3
District of Columbia:											
Washington	16	17	1	0	0	9	1	0	0	7	136
Virginia:											
Lynchburg	0	0	0	0	0	0	0	0	0	1	4
Norfolk	1	3	0	0	0	2	0	1	0	0	---
Richmond	2	4	0	0	0	2	1	0	0	1	44
Roanoke	0	1	0	0	0	0	0	0	0	1	13
West Virginia:											
Charleston	0	0	0	0	0	1	0	0	0	4	11
Wheeling	1	0	0	0	0	1	1	0	0	0	13
North Carolina:											
Raleigh	0	1	1	0	0	0	0	0	0	10	12
Wilmington	0	0	0	0	0	0	0	0	0	16	10
Winston-Salem	1	2	0	0	0	1	0	0	0	14	18
South Carolina:											
Charleston	0	0	0	0	0	1	0	1	0	0	22
Columbia	0	0	0	0	0	2	1	0	0	4	27
Greenville	0	0	0	0	0	0	0	0	0	1	---
Georgia:											
Atlanta	3	18	3	0	0	3	0	3	0	1	67
Brunswick	0	0	0	0	0	0	1	0	0	0	5
Savannah	0	0	0	0	0	2	1	1	1	1	29
Florida:											
Miami	0	0	0	0	0	2	0	0	0	0	18
Tampa	0	0	0	0	0	3	1	0	0	0	21
EAST SOUTH CENTRAL											
Kentucky:											
Covington	1	8	0	0	0	1	0	0	0	0	17
Tennessee:											
Memphis	3	10	0	3	0	6	2	2	0	28	66
Nashville	1	6	1	0	0	0	1	1	0	1	52
Alabama:											
Birmingham	1	4	2	0	0	5	1	0	0	2	61
Mobile	0	0	1	1	0	3	1	0	0	0	21
Montgomery	0	1	1	0	---	---	0	0	---	1	---
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith	0	0	0	0	---	---	0	0	---	1	---
Little Rock	1	1	0	0	0	0	1	0	0	9	1
Louisiana:											
New Orleans	5	15	0	5	0	9	3	2	2	2	139
Shreveport	0	0	0	1	0	3	1	0	0	3	30

City reports for week ended June 13, 1931—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
WEST SOUTH CENTRAL—continued											
Oklahoma:											
Muskogee	0	0	2	1			0	0		0	
Texas:											
Dallas	2	8	2	0	0	5	0	3	0	0	57
Fort Worth	1	2	1	4	0	1	0	0	0	0	25
Galveston	0	0	0	0	0	0	0	1	1	0	16
Houston	2	1	0	1	0	9	1	1	0	9	73
San Antonio	0	1	0	0	0	3	1	0	0	0	81
MOUNTAIN											
Montana:											
Billings	1	0	0	0	0	0	0	0	0	5	5
Great Falls	1	2	0	0	0	0	0	0	0	4	7
Helena	0	0	0	0	0	0	0	0	0	0	3
Missoula	0	0	0	2	0	0	0	0	0	0	4
Idaho:											
Boise	0	0	0	0	0	0	0	0	0	0	2
Colorado:											
Denver	9	8	0	0	0	4	0	0	1	26	58
Pueblo	0	0	0	0	0	1	0	0	0	10	10
New Mexico:											
Albuquerque	0	0	0	0	0	3	0	0	0	0	8
Arizona:											
Phoenix	0	0	0	0	0	2	0	0	0	0	
Utah:											
Salt Lake City	2	1	0	0	0	1	0	1	0	20	41
Nevada:											
Reno	0	0	0	0	0	0	0	0	0	0	5
PACIFIC											
Washington:											
Seattle	6	12	1	0			1	0		65	
Spokane	4	0	4	11			0	0		0	
Tacoma	3	1	2	0	0	1	0	0	0	5	15
Oregon:											
Portland	3	2	7	4	0	2	0	0	0	0	57
Salem	1	0	1	1			0	0		0	
California:											
Los Angeles	25	24	5	2	0	28	2	1	0	35	300
Sacramento	2	0	1	0	0	0	0	2	2	6	20
San Francisco	16	4	1	0	0	14	1	3	0	20	172

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston	0	0	0	0	0	0	0	2	1
MIDDLE ATLANTIC									
New York:									
New York	3	2	2	1	0	0	1	4	1
Rochester	0	1	0	0	0	0	0	0	0
New Jersey:									
Newark	2	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia	1	1	0	0	0	0	0	0	0
Pittsburgh	1	0	0	0	0	0	0	0	0

City reports for week ended June 13, 1931—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	0	1	0	0	0	1	0	0	0
Cleveland	1	1	0	0	0	0	0	0	0
Toledo	1	0	0	0	0	0	0	0	0
Indiana:									
Indianapolis	2	0	0	0	0	0	0	0	0
Illinois:									
Chicago	10	5	0	0	0	0	0	0	0
Springfield	1	0	0	0	0	0	0	0	0
Michigan:									
Detroit	3	0	1	0	0	0	0	0	0
Grand Rapids	0	0	0	0	0	0	0	1	0
WEST NORTH CENTRAL									
Minnesota:									
Duluth	0	1	0	0	0	0	0	0	0
Minneapolis	0	0	0	0	0	0	0	1	0
St. Paul	2	1	0	0	0	0	0	1	0
Missouri:									
St. Louis	1	2	0	1	0	0	0	0	0
SOUTH ATLANTIC									
Delaware:									
Wilmington	0	1	0	0	0	0	0	0	0
Maryland:									
Baltimore [1]	0	0	1	0	0	0	1	0	0
Cumberland [2]	0	0	1	1	0	0	0	0	0
Virginia:									
Richmond	0	1	0	0	0	0	0	0	0
North Carolina:									
Winston-Salem	0	0	0	0	0	1	0	0	0
South Carolina:									
Charleston	0	0	0	0	4	2	0	1	0
Columbia	0	1	0	0	0	1	0	0	0
Georgia:									
Atlanta	0	0	0	0	1	1	0	0	0
Florida:									
Miami	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis	2	0	0	0	0	0	0	0	0
Nashville	2	0	0	0	0	0	0	0	0
Alabama:									
Birmingham	0	0	0	0	1	0	0	1	1
Mobile	0	0	0	0	4	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	0	0	0	0	9	0	0	0	0
Little Rock	0	0	0	0	0	1	0	0	0
Louisiana:									
New Orleans	2	0	0	0	3	1	0	0	0
Texas:									
Dallas	0	0	1	0	0	0	0	0	0
MOUNTAIN									
Montana:									
Great Falls	0	0	0	0	0	0	0	1	0
New Mexico:									
Albuquerque	0	0	1	0	0	0	0	0	0
Arizona:									
Phoenix	0	1	0	0	0	0	0	0	0
Utah:									
Salt Lake City	0	0	0	1	0	0	0	0	0
PACIFIC									
California:									
San Francisco	0	0	0	0	2	0	0	1	0

[1] Typhus fever; 1 case at Baltimore, Md. [2] Nonresident.

The following tables give the rates per 100,000 population for 98 cities for the 5-week period ended June 13, 1931, compared with those for a like period ended June 14, 1930. The population figures used in computing the rates are estimated midyear populations for 1930 and 1931, respectively, derived from the 1930 census. The 98 cities reporting cases have an estimated aggregate population of more than 33,000,000. The 91 cities reporting deaths have more than 31,500,000 estimated population.

Summary of weekly reports from cities, May 10 to June 13, 1931—Annual rates per 100,000 population, compared with rates for the corresponding period of 1930 [1]

DIPHTHERIA CASE RATES

	Week ended—									
	May 16, 1931	May 17, 1930	May 23, 1931	May 24, 1930	May 30, 1931	May 31, 1930	June 6, 1931	June 7, 1930	June 13, 1931	June 14, 1930
98 cities	63	74	62	79	59	76	67	75	[2] 54	78
New England	38	106	48	68	50	56	46	94	[2] 41	39
Middle Atlantic	58	74	63	76	58	67	74	68	55	78
East North Central	72	91	67	115	81	110	75	112	64	128
West North Central	71	74	75	72	54	77	55	52	61	60
South Atlantic	55	54	38	54	41	60	39	54	49	44
East South Central	17	36	12	24	17	36	12	12	17	12
West South Central	81	66	81	52	54	49	68	38	27	80
Mountain	61	35	61	53	52	44	191	18	35	35
Pacific	74	43	72	59	37	67	49	65	53	36

MEASLES CASE RATES

98 cities	1,403	1,255	1,372	1,159	1,114	911	1,096	934	[2] 876	815
New England	1,166	1,843	1,190	1,877	935	1,558	933	1,596	[2] 602	1,546
Middle Atlantic	1,486	1,337	1,478	1,091	1,187	940	1,101	1,021	838	1,033
East North Central	1,313	814	1,458	685	1,304	524	1,446	512	1,304	453
West North Central	1,396	831	1,098	794	641	525	817	420	448	370
South Atlantic	3,365	1,228	2,840	957	2,089	793	1,473	523	1,102	397
East South Central	1,234	359	1,234	568	1,047	335	1,140	371	820	161
West South Central	166	735	271	547	294	453	254	115	149	94
Mountain	531	6,652	618	7,119	461	5,674	870	5,665	705	3,410
Pacific	554	1,670	456	2,180	492	1,397	511	1,903	580	1,340

SCARLET FEVER CASE RATES

98 cities	389	226	367	206	306	182	310	208	[2] 268	188
New England	666	261	536	314	351	307	414	252	[2] 288	218
Middle Atlanite	439	222	442	204	304	162	355	186	318	147
East North Central	454	308	412	227	438	264	422	293	386	301
West North Central	383	262	340	306	291	213	258	265	168	238
South Atlantic	243	172	241	164	239	126	197	170	122	158
East South Central	337	24	390	102	297	72	151	96	169	48
West South Central	108	73	85	49	51	14	41	73	88	35
Mountain	157	229	270	300	165	97	104	194	96	132
Pacific	123	128	88	97	110	71	86	93	80	97

[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, 1931 and 1930, respectively.

[2] Barre, Vt., not included.

Summary of weekly reports from cities, May 10 to June 13, 1931—Annual rates per 100,000 population, compared with rates for the corresponding period of 1930—Continued

SMALLPOX CASE RATES

	Week ended—									
	May 16, 1931	May 17, 1930	May 23, 1931	May 24, 1930	May 30, 1931	May 31, 1930	June 6, 1931	June 7, 1930	June 13, 1931	June 14, 1930
98 cities	17	22	16	20	15	15	14	20	[1] 10	14
New England	0	0	0	0	0	0	0	0	[1] 0	0
Middle Atlantic	1	0	4	0	1	1	0	1	1	0
East North Central	23	16	15	10	11	12	16	8	12	11
West North Central	75	126	67	110	88	56	42	118	36	54
South Atlantic	6	4	6	2	24	10	18	4	0	8
East South Central	12	72	41	30	6	30	17	30	23	36
West South Central	41	21	47	10	37	14	41	21	24	21
Mountain	17	62	9	70	26	62	26	62	17	35
Pacific	25	47	12	71	12	49	33	59	25	49

TYPHOID FEVER CASE RATES

98 cities	5	8	6	7	7	7	6	8	[1] 7	9
New England	5	10	2	19	2	12	2	5	[1] 0	10
Middle Atlantic	5	7	5	4	8	3	5	6	7	8
East North Central	2	2	5	5	2	2	1	4	4	4
West North Central	6	8	10	8	4	10	10	10	4	6
South Atlantic	12	14	12	12	22	14	20	22	14	16
East South Central	17	42	17	24	12	36	17	12	17	24
West South Central	7	35	7	10	7	21	10	35	24	17
Mountain	0	0	0	0	17	9	17	0	9	9
Pacific	0	2	8	6	2	8	4	2	12	16

INFLUENZA DEATH RATES

91 cities	8	8	7	6	7	4	6	5	[1] 4	6
New England	2	0	5	5	10	0	2	0	[1] 0	2
Middle Atlantic	7	7	5	7	3	4	5	4	4	5
East North Central	5	4	5	5	5	4	2	4	4	6
West North Central	9	3	3	0	9	3	6	12	6	15
South Atlantic	16	20	4	6	18	4	14	10	6	2
East South Central	50	39	19	19	19	32	38	13	13	13
West South Central	7	4	28	7	14	4	10	11	3	25
Mountain	9	9	26	9	17	18	0	9	0	0
Pacific	7	12	0	5	5	2	7	2	5	5

PNEUMONIA DEATH RATES

91 cities	102	102	95	101	101	78	86	83	[1] 75	83
New England	113	111	72	109	111	97	120	80	[1] 60	89
Middle Atlantic	121	124	121	130	109	89	102	100	88	96
East North Central	74	67	68	79	75	53	59	58	60	66
West North Central	103	108	97	84	133	69	138	132	71	78
South Atlantic	126	170	111	110	132	90	77	102	83	80
East South Central	126	84	120	78	183	97	76	71	145	97
West South Central	114	78	97	82	128	121	86	78	79	100
Mountain	78	79	70	123	70	79	87	115	70	88
Pacific	55	47	55	35	43	52	48	32	43	57

[1] Barre, Vt., not included.

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended June 6, 1931.—The Department of Pensions and National Health of Canada reports cases of certain communicable diseases for the week ended June 6, 1931, as follows:

Province	Cerebro-spinal fever	Influenza	Polio-myelitis	Smallpox	Typhoid fever
Prince Edward Island [1]					
Nova Scotia [1]					
New Brunswick [1]					
Quebec	1				6
Ontario	2	1	1		7
Manitoba					1
Saskatchewan				7	
Alberta [1]					
British Columbia			1		2
Total	3	1	2	7	16

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

Quebec Province—Communicable diseases—Week ended June 13, 1931.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended June 13, 1931, as follows:

Disease	Cases	Disease	Cases
Chicken pox	83	Ophthalmia neonatorum	1
Diphtheria	30	Puerperal septicemia	1
Erysipelas	5	Scarlet fever	52
German measles	4	Tuberculosis	82
Measles	695	Typhoid fever	3
Mumps	16	Whooping cough	11

CZECHOSLOVAKIA

Communicable diseases—April, 1931.—During the month of April, 1931, certain communicable diseases were reported in the Republic of Czechoslovakia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	6	1	Paratyphoid fever	13	
Cerebrospinal meningitis	21	9	Puerperal fever	48	21
Diphtheria	1,109	83	Scarlet fever	938	35
Dysentery	10	1	Trachoma	211	
Malaria	56		Typhoid fever	250	25

YUGOSLAVIA

Communicable diseases—May, 1931.—During the month of May, 1931, certain communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax	26	2	Paratyphoid fever	6	3
Cerebrospinal meningitis	21	12	Puerperal septicemia	6	4
Diphtheria	395	46	Scarlet fever	335	44
Dysentery	17	----	Tetanus	36	17
Erysipelas	159	7	Typhoid fever	106	19
Leprosy	2	1	Typhus fever	14	----
Measles	1,531	27			

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

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

CHOLERA

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

Place		Week ended—																	
		Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Feb. 8–Mar. 7, 1931	March, 1931			April, 1931				May, 1931					June, 1931		
					14	21	28	4	11	18	25	2	9	16	23	30	6	13	20
Ceylon: Colombo	C				1											1	1		
	D															1	1		
China: Canton	C								1						2				
	D														1				
India	C	10,687	15,334	11,544	2,471	857	2,551	2,989	3,161	3,067	2,668								
	D	5,689	8,123	6,131	1,252	473	1,314	1,511	1,571	1,550	1,360								
Bombay	C		21						2										
	D		9						1										
Calcutta	C	28	121	170	80	102	129	125	95	82	62	71	72	89	49	55	44		
	D	20	86	112	49	68	69	70	55	51	26	44	39	44	34	32	57		
Karikal	C	1		9	2	1	7	2	10	8	1		10		1	1			
	D			8	2	1	7	2	5	8	1		5		1	1			
Madras	C	201	99	72	4	5	7	4	3	1	4	18	18	23	11		3		
	D	67	47	29	5	3	2		5	1	3	5	6	8	2	1			
Negapatam	D		3	3															
Rangoon	C	1														2			
	D	1	1													1			
Tuticorin	C	1	1	1															
India (French):																			
Chandernagor	C	2	1	5	2	2	2	1	3	2	1		3		1				
	D	3	1	5	2	3	1		3	2			3		1				
Pondicherry	C	31	19	100	29	25	26	20	5	3	5	11	3	8	2	4	1		
	D	21	11	34	6	5	4	3	1	3						4	1		
India (Portuguese)	C	1																	
Indo-China (see also table below):																			
Pnompenh	C		4	9					1	1							1		
	D		2	5			1				1		2				1		
Saigon and Cholon	C	9	6	4	1		1	3	2	3	7	15	25	23	34	22	18		
	D	4	3	4	2	1	1	1		3	6	13	20	18	25	13	9		
Persia: Rafsandjan	C												31						
	D												12						

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

CHOLERA—Continued

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

Place		Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Feb. 8–Mar. 7, 1931	Week ended— March, 1931			April, 1931				May, 1931					June, 1931		
					14	21	28	4	11	18	25	2	9	16	23	30	6	13	20
Philippine Islands: [1]																			
Iloilo	C	1	2																
	D	1	2																
Provinces—																			
Capiz	C		59	186	29	11	4	4		3	8	18	11	3		3	4		
	D		47	146	24	10	4	3		3	8	13	11	3		1	4		
Iloilo	C	28	145	95	2	5											8	7	5
	D	22	110	65	2	2											6	5	6
Masbate	C				21														
	D				9														
Negros, Occidental	C	120	90	4															
	D	97	56	4															
Negros, Oriental	C		1																
	D		1																
Pampanga	C												1						
Samar	C	17																	
	D	9																	
Siam	C	2	3	1		4	4	2	1	1	1	13	11					1	
	D	2	1			1	1					4	3					1	
Ayudhaya District	C							1											
Bangkok	C	2	3	2		1	1	1	1		1	1	1	1	1				
	D	2	1	1		1	1				1	1			1				
Bismulok Province	C					4	4												
	D					1	1												
On vessel: S. S. Arankola, at Rangoon from Calcutta	C															1			

[1] Figures for cholera in the Philippine Islands are subject to correction.

Place		October, 1930	November, 1930	December, 1930			January, 1931			February, 1931			March, 1931		
				1-10	11-20	21-31	1-10	11-20	21-31	1-10	11-20	21-28	1-10	11-20	21-31
Indo-China (French) (see also table above):															
Cambodia [1]	C	22	26	28	-------	-------	7	19	36	71	35	19	14	-------	65
Cochin-China [1]	C	28	13	8	-------	-------	7	4	13	5	5	19	39	-------	33

[1] Reports incomplete.

PLAGUE

Place		Dec. 14, 1930-Jan. 10, 1931	Jan. 11-Feb. 7, 1931	Feb. 8-Mar. 7, 1931	Week ended—													
					March, 1931			April, 1931				May, 1931					June, 1931		
					14	21	28	4	11	18	25	2	9	16	23	30	6	13	20
Algeria:																			
Algiers	C	1	2	1	-------	-------	-------	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	-------	-------	-------	-------	-------	-------	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Bone	C	-------	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Constantine, vicinity of	C	50	1	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	-------	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Philippeville	C	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Argentina:																			
Cordoba Province	C	-------	1	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Entre Rios Province—Diamante	C	-------	-------	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Jujuy Province—Palpala	C	-------	1	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Santa Fe	C	-------	-------	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Belgian Congo	C	-------	-------	-------	-------	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	1	-------
	D	-------	-------	-------	-------	2	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	1	-------
British East Africa (see also table below):																			
Tanganyika	C	2	-------	22	-------	8	-------	-------	-------	-------	3	15	-------	5	-------	-------	-------	-------	-------
	D	2	-------	4	-------	1	-------	-------	-------	-------	10	11	-------	2	-------	-------	-------	-------	-------
Uganda	C	67	25	15	4	7	4	4	8	3	10	14	-------	-------	-------	-------	-------	-------	-------
	D	67	24	15	4	7	4	4	8	3	9	12	-------	-------	-------	-------	-------	-------	-------
Ceylon: Colombo	C	9	8	11	1	3	3	1	1	3	-------	-------	1	-------	-------	-------	-------	-------	-------
	D	9	6	13	1	3	2	1	1	2	-------	-------	1	-------	-------	-------	-------	-------	-------
Plague-infected rats		-------	2	3	-------	3	1	-------	-------	1	-------	-------	-------	-------	5	-------	-------	-------	-------
China: Amoy	C	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	1	-------	-------	-------	-------	-------	-------
	D	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	1	-------	-------	-------	-------	-------	-------

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

PLAGUE—Continued

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

Place		Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Feb. 8–Mar. 7, 1931	Week ended— March, 1931			April, 1931				May, 1931					June, 1931		
					14	21	28	4	11	18	25	2	9	16	23	30	6	13	20
Dutch East Indies:																			
Batavia and West Java	C	239	180	141	18	31	23	12	19	24	20	11							
	D	238	168	128	17	28	23	12	18	23	20	10							
East Java and Madura	C		4	1	1		1	2			1								
	D		4	1	1		1	2			1								
Java and Madura	D	615	427	376	65	81	68	63	58	73	70	42	47	41					
Egypt:																			
Alexandria	C	3	1	2	1													2	3
	D																		3
Plague-infected rats		1	1	1															
Assiout	C	7	26	41	6	10	1	1	5	16	8	3	4	5	8	1	4		5
	D	1	6	11		4	1	1		11	4	2	2	4	1				
Beni-Suef	C		1								10	2	3		2				
	D		1								3		1		2				
Cairo	C							1											
Deirout	C		21	16								3	7	1		2	3		
	D		4	4								1	2	2			1		
Gharbieh	C		1															1	
	D		1															1	
Girga	C	7	1			14	37	35	31	9	4		1	1	5				
	D	2	1			2	5	17	13	3	5	1	1	1					
Kena	C						5				3				1				
	D						2				1				1				
Manfalut	C	23	30	15	3	5	9												
	D	5	6	5		2	1												
Minieh	C		2			2	1			1			5		1		3		
	D		1			1	1						2		1		1		
Port Said	C																	1	
Hawaii Territory: Hamakua—Plague-infected rats															1				

India	C	3,740	5,335	5,457	2,674	2,271	2,462	1,732	2,503	1,603	1,253								
	D	2,226	3,422	3,661	1,887	1,624	2,009	1,526	1,980	1,377	1,092								
Bassein	C	2	4	1								1			1				
	D	1	3	1								1			1				
Bombay	C		1	1	1	1	1	1	4	4	1	2	5		1	1			
	D		1	1		2	1		4	4		3	4	1	1				
Plague-infected rats		38	34	32	17	14	21	18	34	43	30	30	26	30	17	21	10		
Calcutta	C								1	1									
	D								1	1									
Madras Presidency	C	220	312	74	9	12	7		3					1					
	D	154	182	46	4	12	5		2					1					
Rangoon	C	2	2				1		1				1			1			
	D	1	1				1		1				1			1			
Plague-infected rats		2	4	8				1	1	3			1	1		2			
Indo-China (see also table below): Pnompenh	C	1	7	1													1		
	D	1	7	4	2	1	1	2	2	1	1						1		
Iraq: Baghdad	C		5	3	1	3	3	1		5	10	8	7	10	4	2	10	6	1
	D		4	2		3	1	1		2	5	1	3	4	2		1	4	1
Madagascar (see also table below): Tamatave	C	2	9																
Morocco	C	19	13																
	D	8	4																
Nigeria: Lagos	C	5	1						2	2	1								
	D	5	1						2	2	1								
Plague-infected rats		5							3	3									
Peru (see table below).																			
Senegal (see table below).																			
Siam	C		4	18	29	2			1				1						
	D		2	14	6	1			1				1						
Bangkok	C	3	8	6	29														
	D	3	8	5	6														
Nagara Rajsima	C	17	9	7			1												
	D	10	10	6															
Syria: Beirut	C	1	1	1															
Tripolitania	C		8	1	1														
	D		3																
Tunisia: Tunis	C	13	1	14		5		5	5	7		4	7		8				
	D			7				4	4	2		2	3						m
Union of Socialist Soviet Republics:																			
Gouranduz	D		28																
Transcaucasia—Karabakh	C		6																
Union of South Africa:																			
Cape Province	C								2	1									
Orange Free State	C	2	P	1	2		4	P	1	1									
	D	2		1			1		1	1									
On vessel: S. S. Marionga de Thermiotis at Avonmouth	C	1																	

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

PLAGUE—Continued

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

Place		Dec., 1930	Jan., 1931	Feb., 1931	Mar., 1931	Apr., 1931	May, 1931
British East Africa (see also table above):							
Kenya	C	50	69	21	7	12	7
Indo-China (see also table above)	C	1	------	------	4	2	------
Madagascar (see also table above):							
Ambositra Province	C	95	100	92	70	------	------
	D	87	96	88	66	------	------
Antisirabe Province	C	27	66	84	83	------	------
	D	26	57	79	74	------	------
Miarinarivo Province	C	18	28	31	19	------	------
	D	18	26	29	19	------	------
Moramanga Province	C	13	7	7	1	------	------
	D	11	5	7	1	------	------
Tananarive Province	C	178	92	145	90	------	------
	D	172	89	139	81	------	------
Peru	C	41	29	12	------	------	------
	D	13	8	6	------	------	------
Senegal:							
Baol [1]	D	------	------	------	------	------	3
Dakar [1]	C	------	------	------	------	2	63
	D	------	------	------	------	1	49
Louga [1]	C	------	------	------	14	1	5
	D	------	------	------	6	------	2
Rufisque [1]	C	------	------	2	------	------	1
Thies [1]	C	2	------	------	------	------	------
	D	1	------	------	------	------	------
Tivaouane [1]	C	2	------	------	------	4	9
	D	1	------	------	------	------	7

[1] Reports incomplete.

SMALLPOX

Place		Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Feb. 8–Mar. 7, 1931	Week ended— March, 1931			April, 1931				May, 1931					June, 1931	
					14	21	28	4	11	18	25	2	9	16	23	30	6	13
Algeria:																		
Algiers	C	1	1	1	------	------	2	------	------	2	------	------	------	------	1	------	------	------
Bone	C	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Constantine	C	------	------	------	------	1	------	------	------	------	------	------	1	------	------	------	------	------
Arabia: Aden	C	------	1	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Belgian Congo	C	79	50	------	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Belgium	C	------	------	1	------	------	------	------	------	------	------	------	------	------	------	------	------	------
Brazil: Porto Alegre (alastrim)	C	------	3	7	7	12	16	14	20	19	8	6	2	------	------	------	------	------
	D	------	------	1	------	------	------	1	------	------	------	------	------	------	------	------	------	------
British East Africa (see also table below): Tanganyika	C	84	70	91	6	2	------	------	------	------	------	------	------	------	------	------	------	------
	D	4	5	13	1	2	------	------	------	------	------	------	------	------	------	------	------	------

British South Africa: Southern Rhodesia	C	18	13															
Canada:																		
Alberta	C	19	7	1														
British Columbia	C	3	2	8														
Manitoba	C		1	1														
Winnipeg	C	1		1										4				
Nova Scotia	C		1				1											
Ontario	C	17	49	29	2	3	3	1	4		6	7	17	5		3		
Kingston	C	6	1	1							2	3						
North Bay	C	2		1														
Ottawa	C	2	3	1														
Sault Ste. Marie	C	1	30	2					3	1				1				
Toronto	C				1		1			4			1					
Quebec	C		2															
Saskatchewan	C		38	63	40	10	8	5	16	3	22	7	15	18	8	7		
Regina	C			1			2			2		2						
Canary Islands: Las Palmas	C						1											
China:																		
Amoy	C						1				2	2	1	1	2	1		
	D						1				1	1		1	1	1		
Canton	C			3	1	2	2	2	1	2	1			1	2			
Chungking	C	2																
Foochow	C	P	P	P		P		P	P			P						
Hong Kong	C	1	1	9			1	1		1	2				1			
	D			3			2				1		1		1			
Manchuria—																		
Harbin	C		1	4	1		1											
Kwantung—Dairen	C	1					2				1	1						
Nanking	C	P	P	P		P	P	P	P	P	P	P	P	P				
Shanghai—																		
Foreigners only	C	14	12	16	3	1	1	1	2	1	2	2	1	4	1	1	2	
Including natives	D	11	13	14	5	2	2	1	2	7	4	5	1		3	3	1	5
Swatow	D	5	7	13	3	6	9	8	2									
Tientsin	C		1										2					
Chosen (see table below).																		
Colombia: Cali	D												1					
Dutch East Indies:																		
Batavia and West Java	C	4	29	2	1													
	D	2	2	1														
East Java and Madura	C														1			
Finland	C													1				
France (see table below).																		
Great Britain:																		
England and Wales	C	665	958	745	171	219	226	179	177	163	212	192	186	166	111	107	83	
Bradford	C	1	4	1		1		1	1		1	4	1	3	1	3		
Leeds	C	2						1		1	1		1		1			
London	C	161	140	98	26	54	32	35	51	39	84	53	66	44	37	36	25	
London and Great Towns	C	560	693	683	117	154	166	117	142	126	162	128	139	108	84	72	57	
	D			1					1		1							
Sheffield	C		3	32	2	1	6	1	4	2	1							
Stoke-on-Trent	C		1	1														

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

SMALLPOX—Continued

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

Place		Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Feb. 8–Mar. 7, 1931	Week ended— March, 1931			April, 1931				May, 1931					June, 1931	
					14	21	28	4	11	18	25	2	9	16	23	30	6	13
Greece (see table below).																		
Honduras:																		
Amapala	C			1														
Ocotopeque and Gracias districts	C			P														
Puerto Castilla	C	4	11	3														
Tegucigalpa	C										1							
Tela	C								1									
India	C	5,623	9,623	12,222	3,440	1,695	3,395	3,261	3,080	3,749	3,468							
	D	1,381	2,245	2,660	655	303	655	638	807	684	680							
Bassein	C															1		
Bombay	C	2	7	6	4	1	4	1	2	2	1	3	3		6	1		
	D	2	1	3		1	2	1	1			4	1	1	1	1		
Calcutta	C	59	143	251	53	69	75	86	101	60	61	65	24	30	19	16	14	
	D	40	100	188	36	54	50	63	78	42	50	54	18	25	17	15	12	
Cochin	C	15	29	59	15	17	14		10	11	12	6	3					
	D	1		3														
Karachi	C		3	4		3		1		5		1						
	D		2				2											
Madras	C	4	16	8	6	3	9	4	12	4	1	2	1	3	3	1		
	D			1		2	1		2	1	1	1		1	5			
Moulmein	C		2															
Negapatam	C								1	1		1						
Rangoon	C			4	1	1	1		2	2	1	6	7	5		1		
	D				1							1	2	1	1	1		
Vizagapatam	C		1	8	1		1		2	2	4	2			5	1	2	
	D			2			1		1		1				1			
India (French):																		
Chandernagor	C	5	9	12	3	3	6	2	3	1	4	2	3		4			
	D	3	1	1				2	3	1	2	1	3		2			
Karikal	C	3	5	19			3			1	1	2	1	1	1	1	1	
	D	2	4	18						1		2	1	1	1	1	1	
Pondicherry Province	C	34	45	19	7		4	3	3			3	1	2	7	1	3	2
	D	32	45	19	7		4	3	3	3		3	1	2	7	1	3	2
India (Portuguese)	C	4	5	14		3	5			19	2							
	D			3		1	2			4	2							

Indo-China (see also table below):																		
Pnompenh	C	2	1		1										1		2	
	D		1												1			
Saigon and Cholon	C		6	4	4	1	1	2	1					1		1		
	D		4	1	3	1	2	2	1					1				
Iraq:																		
Baghdad	C			9														
Mosul Liwa	C	1	3	5							1	1			1			
	D			1														
Ivory Coast (see table below).																		
Japan:																		
Kobe	C			2														
Taiwan	C		1															
Mexico (see also table below):																		
Jalisco (State)—Guadalajara	D		1				1					1	1		1			1
Mexico City and surrounding territory	C	10		23	13	13	7		17	9	11	6	4	10	10	21		
	D	6	1	8	5	5	6	6	4	6	4		4	3	2	2		
Monterrey	C															1		
Torreon	C									1				1				
	D									2								
Vera Cruz	C			3		1	1			1		1	1					
Morocco (see table below).																		
Nicaragua: Porto Cabezas	C	2																
Nigeria: Lagos	C						2											
Panama Canal Zone	C		2															
Poland	C	25		1												3	1	
Portugal: Lisbon	C	72	103	40	16	15	17	4	8	18	11	19	19	14	16	18	5	
Siam	C	1	4	2							1							
	D	1																
Spain	C	P	P	P	P	P	P											
Straits Settlements	C	6	7	2			2	2	1		1							
	D	3	1	1			1		1	1								
Sudan (Anglo-Egyptian)	C	64	11	97	3	1	4					3		3		1		
	D	6	7	10		1	1									1		
Sudan (French) (see table below).																		
Syria (see table below).																		
Tunisia: Tunis	C	17	8				4											
Turkey (see table below).																		
Union of South Africa:																		
Cape Province	C	P	P	P			P	P	P	P	P		P	P				
Orange Free State	C		P	P			P	P	P	P	P		P	P				
Transvaal	C	P	P	P	P		P											
Upper Volta	C	4		18			3			3			1	2		85		
	D	2					1									1		
On vessel:																		
S. S. Clan Mactoggart at Suez	C			2														
S. S. Muncaster Castle at Manila from Hong Kong	C	1																
S. S. Matheran at Suez from Calcutta	C		1															
S. S. Clan Buchanan at Suez	C			2														
S. S. Rotterdam at Naples from Venice	C																	
S. S. Clan McTavish at Manila from Chittagong	C						1			1								

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

SMALLPOX—Continued

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

Place		Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Feb. 8–Mar. 7, 1931	Week ended— March, 1931 14	21	28	April, 1931 4	11	18	25	May, 1931 2	9	16	23	30	June, 1931 6	13
On vessel—Continued.																		
S. S. Benvenue at Sydney from Shanghai	C		1															
S. S. Clan MacBrayne at Cochin	C			1														
S. S. Chilka at Rangoon	C			1														
S. S. Taif (pilgrim ship) at Suakin from Jeddah	C											1						
S. S. Talodi at Soakim	C													1				

Place		Nov., 1930	Dec., 1930	Jan., 1931	Feb., 1931	Mar., 1931	Apr., 1931
British East Africa (see also table above):							
Kenya	C	653					
Chosen	C			1		11	
	D			1		3	
France	C			4	16		

Place		Nov., 1930	Dec., 1930	Jan., 1931	Feb., 1931	Mar., 1931	Apr., 1931
Greece	C		4		4		
Mexico (see also table above)	D		1		3		1
Morocco	C	20	25		4	6	7
Turkey	C	65	116	63	37	1	
	D	1	9	7	6		

Place		October, 1930	November, 1930	December, 1930 1–10	11–20	21–31	January, 1931 1–10	11–20	21–31	February, 1931 1–10	11–20	21–28	March, 1931 1–10	11–20	21–31
Indo-China (see also table above)	C	258	86	38	9	14	47	48	46	95	46	27	125		139
Ivory Coast	C	4	2	9											
Sudan (French)	C	17		43		96							4		P
	D	2		16		4									
Syria: Beirut	C							1							

TYPHUS FEVER

Place		Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Feb. 8–Mar. 7, 1931	Week ended— March, 1931			April, 1931				May, 1931					June, 1931	
						14	21	28	4	11	18	25	2	9	16	23	30	6	13
Algeria:																			
Algiers	C	2			2			3				2	1	3		1	3	4	
Constantine Department	C	2	6	31	4		1		2	2		6	1	8	3	5	6	6	
Oran	C	5		3	1							1					2	2	
Australia, Western	C		3						1					1					
Bulgaria	C	11	1	13	5				9		26	4			5	8	3		
	D								2		3				1				
Chile: Valparaiso	D						1												
China:																			
Canton	C			2		1													
Manchuria—Harbin	C	1		8	5			3				8							
Shanghai	C			2															
Tientsin	C	1								1	1								
Chosen (see table below).																			
Czechoslovakia (see table below).																			
Egypt:																			
Alexandria	C	2									1								1
	D											1							
Beheira Province	C		1							3	1								
	D		1							2									
Cairo	C	1	1	1															
Port Said	C			1															
Eritrea: Asmara	C					1													
Great Britain: Scotland	C			1															
Fife County	C																1		
Glasgow	C			2															
	D			1															
Greece (see table below).																			
Guatemala.[1]																			
Iraq: Baghdad	C				5	1		1						2					
	D				1									2					
Irish Free State:																			
Cork County—Skibbereen	C																		1
Kerry County—Dingle	C																		
Mayo County—Belmullet	C										1			1					

[1] On Feb. 27, 1931, the Director General of Public Health of Guatemala reports an unusual outbreak of typhus fever in a small village in Guatemala.

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

TYPHUS FEVER—Continued

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

Place		Nov. 16–Dec. 13, 1930	Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Feb. 8–Mar. 7, 1931	Week ended— March, 1931 14	21	28	April, 1931 4	11	18	25	May, 1931 2	9	16	23	30	June, 1931 6	13
Latvia (see table below).																			
Lithuania (see table below).																			
Mexico (see also table below):																			
Durango	D			1															
Mexico City, including municipalities in Federal District	C	14	12	39	35	46	66	73	31	67	34	38	31	16	27	17	15		
	D	7	10	34	16	20	13	31	20	18	7	17	14	9	7	7	10		
San Luis Potosi	C	2			5	1	1	2	1	1	2					1	1		
Morocco	C	1	8	8	28	2	2	3			1		12		13	29			
	D			2	1								1		2	2			
Palestine	C	7	4	2	3	2	1	1	1	1	2		2	2	1	1			2
Panama Canal Zone—Balboa	C														1				
Paraguay: Asuncion	D			4	1	1													
Poland	C	42	63	106	189	62	58	85	82	93	176	140	129	92	81	58	67		
	D	7	3	8	19	4		7	4	8	7	6	7	6	4	5	3		
Portugal: Oporto	C	6		1															
Rumania	C	34	113	193	152	55	53	52	54	70				63					
	D	3	5	16	24	4	5	3	4	8				10					
Spain	C	1																	
	D	1																	
Syria	C														1	3			
Tunisia:																			
Sbeitla, vicinity of	C								20	2			10						
	D								7										
Sfax	C							2											
Tunis	C	28		16	18	5	2	7		2		1	10	12	9	8			64
	D													1	2				
Turkey (see table below).																			
Union of South Africa:																			
Cape Province	C	P	P	P	P	1		P	P	P	P	P		P	P				
Municipality of East London	C	1	3	3				P	P										
Natal	C		P	P	P		1	P	P	P	P	P	P	P					
Orange Free State	C		P	P	P	P				P	P	P							
Transvaal	C	P	P	P	P	P		P	P	P	P	P		P	P				
Yugoslavia (see table below).																			

Place		Nov., 1930	Dec., 1930	Jan., 1931	Feb., 1931	Mar., 1931	Apr., 1931
Chosen: Seoul	C	1	1	1	-------	3	4
Czechoslovakia	C	16	24	60	26	-------	5
Greece	C	4	10	10	17	8	22
	D	-------	-------	2	2	1	3
Latvia	C	-------	-------	-------	12	-------	-------
Lithuania	C	5	6	26	3	22	32
	D	1	3	3	1	2	3
Mexico (see also table above)	D	47	47	-------	-------	-------	-------
Turkey	C	3	2	-------	18	-------	-------
Yugoslavia	C	2	1	20	12	10	43
	D	-------	1	2	-------	1	5

YELLOW FEVER

Place		Dec. 14, 1930–Jan. 10, 1931	Jan. 11–Feb. 7, 1931	Feb. 8–Mar. 7, 1931	Week ended— March, 1931			April, 1931				May, 1931					June 6, 1931
					14	21	28	4	11	18	25	2	9	16	23	30	
Brazil:																	
Bahia State	C	-------	-------	-------	1	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Ceara State	C	-------	1	-------	2	-------	-------	-------	-------	-------	-------	2	-------	1	-------	-------	1
	D	-------	1	-------	-------	-------	-------	-------	-------	-------	-------	2	-------	1	-------	-------	-------
Minas Geraes State	C	-------	-------	-------	-------	2	-------	-------	1	-------	2	2	1	-------	1	-------	-------
	D	-------	-------	-------	-------	1	-------	-------	-------	-------	1	1	1	-------	-------	-------	-------
Rio de Janeiro State	C	-------	-------	-------	-------	1	-------	-------	-------	-------	-------	-------	-------	1	1	-------	-------
	D	-------	-------	1	1	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Cambucy	C	-------	3	2	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	-------	3	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Friburgo (imported)	C	-------	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
Padua	C	-------	2	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
	D	-------	2	1	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------
British Cameroon: Mamfe	C	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	3	-------	1	-------
	D	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	-------	1	-------	-------	-------

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