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PREVALENCE OF TYPHOID FEVER IN THE UNITED STATES

Preliminary reports from the health officers of 36 States for 50 weeks of 1927 show that the incidence of typhoid fever during 1927 was less than it was during the preceding two years. For 50 weeks in 1925 these States reported 30,700 cases of typhoid fever; in 1926, 25,600 cases; and in 1927 only 22,400 cases. The aggregate population of the 36 States is about 88,000,000.

The following table gives a comparison of the reports of cases of typhoid fever from these States for the 16 weeks from August 28 to December 17, 1927, with the reports for the corresponding period of the years 1925 and 1926.

Four weeks ended—	1927	Corresponding weeks	
		1926	1925
Sept. 24, 1927.....	3,533	4,577	4,456
Oct. 22, 1927.....	2,680	4,045	3,805
Nov. 19, 1927.....	1,916	2,607	2,703
Dec. 17, 1927.....	1,218	1,479	1,928
Total.....	9,347	12,708	12,892

The typhoid fever case and death rates for 1925 were higher than the rates for the years from 1922 to 1924, inclusive, although the 1925 rates were lower than any ever recorded before 1920.

The typhoid fever death rate in the registration area of the United States dropped from 35.9 per 100,000 population in 1900 to 6.5 in 1926.

MORTALITY AMONG NEGROES IN THE UNITED STATES

At the request of Negro sanitarians for facts concerning mortality among American Negroes, Public Health Bulletin No. 174 has been prepared in the Office of Statistical Investigations with the idea of summarizing the data published annually by the Bureau of the

Census in order to make it available for persons working in the field of public health among Negroes. The bulletin is intended as a handbook and not as a study of any particular phase of Negro mortality.

Comparisons are made between colored and white mortality among populations of the same limited area, i. e., the Southern States of the death registration area, those States being selected as including the bulk of the Negro population and representing the Negro race in what might be considered its more nearly normal environment. For some purposes data for more Northern States have been presented.

Following is a brief outline of the data presented in the bulletin:

(1) The distribution and increase of the Negro population in the United States.

(2) Birth rate by States (1920) based on the female population 15-44 years of age.

(3) Mortality from all causes, specific for color, age, urban and rural areas of separate States, 1920.

(4) Mortality from important causes by color and at different ages, including such causes as pulmonary tuberculosis, pneumonia, organic heart, acute nephritis and Bright's disease, cancer, diphtheria, whooping cough, measles, and scarlet fever. These rates are based on the records for the Southern States of the death registration area and are for the year 1920.

(5) The trend of mortality from all causes for three southern cities, Baltimore, Charleston, and New Orleans, from approximately 1870 to 1923. The trend of important causes or groups of causes such as pulmonary tuberculosis, acute pulmonic diseases, cardio-renal diseases, cancer, diphtheria, whooping cough, scarlet fever, and measles is presented for the white and colored populations of New Orleans, from 1884 to 1924.

(6) Infant mortality by color and by separate cause for the birth-registration area of 1920.

Attention has been called to those diseases, such as tuberculosis and malaria, which are relatively more of a menace to the Negro race than to the white at the present time, and which offer a wide field to those in public-health work who are interested in furthering a knowledge of preventive measures against these diseases in the Negro race.

[Public Health Bulletin No. 174, containing this information regarding Negro mortality, may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents per copy.]

SCARLET FEVER: ITS PREVENTION AND CONTROL

A revision of Supplement No. 21 to the Public Health Reports, issued November 27, 1914. The original article was prepared by Surg. J. W. SCHERESCHEWSKY. Revised, December, 1927, by Surg. R. E. DYER, *United States Public Health Service*.

Scarlet fever is regarded, by the informed, as one of the dreaded diseases of childhood, not only because an attack may be so malignant as to cause death in a short time, but also because of the many and grave complications with which it may be attended, and because the hope of recovery, even in cases apparently mild at the outset, has proved too often illusory.

This pamphlet is addressed to the general public, whose intelligent cooperation is necessary in all preventive measures against diseases, in the hope that it will aid, in some small degree, in spreading that knowledge of communicable diseases which should be in the possession of every citizen to enable him to do his share in their prevention.

Occurrence of scarlet fever.—Scarlet fever is more especially a disease of temperate climes, practically always being present in the large cities. In the United States it affects particularly the Northern States, being more prevalent there than in the South.

Scarlet fever and season.—Scarlet fever prevails during the colder months of the year. With the opening of the schools, the autumn months are always signalized by the marked increase in the number of cases of scarlet fever reported to health officers, each month showing a progressive increase until a maximum is reached in December and January. Only a small decline in the number of reported cases is shown in the spring months, but in July and August there is a great falling off, the number of cases reported being very much less than in the winter months.

Age and scarlet fever.—While scarlet fever may attack persons of any age, not even the very old being exempt, it is primarily a disease of infancy and childhood. The susceptibility to the disease becomes rapidly less with increasing years. From the figures for 1924, published by the Bureau of the Census, 44 per cent of the total deaths from scarlet fever in the registration area of the United States took place in children less than 5 years old, 70 per cent in children less than 10, 79 per cent in children less than 15, and 89 per cent in persons less than 25 years of age.

On the other hand, very young infants do not seem very susceptible to contracting scarlet fever. The disease is seldom seen in infants less than 7 months old. The disease, however, is very fatal to infants if they are attacked. The greatest susceptibility to scarlet fever falls between the second and the ninth year, over 66 per cent of the deaths from scarlet fever taking place in this age period.

The fatality of scarlet fever.—The virulence of scarlet fever is variable. In epidemics the percentage of those stricken by the disease who die varies from 1 to 15.

Age is an important factor, the rule being that the younger the patient the more fatal the disease.

The cause of scarlet fever.—For many years it has been known that certain germs called hemolytic streptococci are commonly present in the throats of acute cases of scarlet fever. Evidence was gradually accumulated through the painstaking researches of scientists throughout the world to show that these hemolytic streptococci might have a direct relationship to scarlet fever, culminating finally in the work of Drs. George F. and Gladys H. Dick, of Chicago. These two scientists succeeded in producing clinical scarlet fever in volunteers by using cultures of hemolytic streptococci which had been isolated from cases of the disease. As a result of this work, scarlet fever is now generally regarded as being caused by a hemolytic streptococcus. These germs are found in the throats of cases of scarlet fever and from them are transferred to the throats or nasal passages of other persons, where they multiply. These germs attack the mucous membranes lining the upper air passages, the earliest noticeable result being a reddening and soreness of the throat. As these organisms grow they produce a toxin (poison) which is absorbed by the body and causes the fever, rash, and toxæmia or symptoms of poisoning.

The symptoms of scarlet fever.—Some description of the symptoms of scarlet fever is desirable so that all may be on their guard against the disease. Its principal symptoms consist of sore throat, fever, rapid pulse, the breaking out of a bright-red rash (from which it takes its name) over the body and extremities, and usually swelling and tenderness of the glands of the neck. These symptoms are followed by a stage known as the period of desquamation, or peeling, during which the outer layers of the skin are shed in scales, flakes, or patches.

We can distinguish three well-marked stages in the course of an attack of scarlet fever:

1. The period of invasion.
2. The period of eruption.
3. The period of desquamation.

Period of invasion.—The disease strikes suddenly. A child, hitherto apparently in the best health, is seized with sore throat and fever, very often with vomiting, and, in infants, convulsions. The fever mounts rapidly, the skin feels unusually hot and dry to the touch, the tongue is furred, the throat parched, the face flushed and somewhat bloated. Cough and running of the nose are unusual. This stage usually lasts 24 to 36 hours.

Stage of eruption.—The rash usually appears on the second day, but may be deferred for 48 hours. On the other hand, it may begin to come out a few hours after the first symptoms. It appears first on the neck and chest as a breaking out of fine, scattered, bright points implanted on a scarlet flush. It spreads rapidly, so that by the evening of the second day the entire body may be covered. The eruption at its height has a vivid scarlet hue and is more marked on the inner surfaces of the arms and legs and where joints make folds of the skin, as in the groins and at the elbows.

In some cases the rash is patchy instead of uniform, with islands of normal skin. At other times tiny elevated patches appear, as in measles, but this is not so common as in measles.

In malignant attacks bleeding may take place in the skin, causing large purplish patches.

After persisting at its height for two or three days, the rash gradually fades, the fading being accompanied by a progressive fall of the fever.

Period of desquamation or peeling.—With the fading of the eruption and the fall of the fever the skin looks stained and feels rough. Gradually its outer layers begin to be thrown off, the process usually beginning about the neck and chest. The amount of peeling usually bears some relation to the previous intensity of the rash. When this has been vivid and its duration prolonged, large flakes and patches come away. Rarely the nails and hair are shed. On the other hand, with mild eruptions the peeling may be much less marked, consisting of branlike particles only. The entire process lasts 10 to 20 days.

Throat symptoms.—Inflammation of the throat is a prominent symptom in scarlet fever. This is present in various grades and may vary from redness of the hard palate and inner surface of the cheeks, with some swelling and more vivid redness of the soft palate and tonsils, to the condition known as “diphtheroid,” with much increased swelling and inflammation of the tonsils and neighboring parts, with extensive formation of a membrane over the tonsils and soft palate.

In these severe cases extensive membrane formation in the throat may lead to death of the underlying tissues, so that large sloughs form. The swelling of the glands and soft parts of the neck may be so extensive that breathing is interfered with and death ensues from suffocation, or deep abscesses form, endangering life and markedly prolonging convalescence.

The tongue in scarlet fever.—The tongue in scarlet fever has a characteristic appearance. At the outset of the disease it is coated with white, the edges being red. The little papillæ or prominences with which the tongue is studded emerge through the white coating and can be seen as little red points dotting the white surface.

Somewhat later in the disease the white coating disappears, leaving the tongue rough and red, often glazed. The papillæ remain considerably swollen, and this, together with the beefy appearance of the tongue, constitutes a condition characteristic of scarlet fever, which the writers describe as the "raspberry tongue."

Types of scarlet fever.—Scarlet fever shows marked variations in its severity. There are mild or abortive cases in which the rash is scarcely visible, or in which the sore throat and the "raspberry tongue" may be the only signs of the disease. In certain epidemics, particularly in schools, this type of the disease may constitute over a third of the cases.

On the other hand, the symptoms may be so severe that the patient, overwhelmed by the poison of the disease, may die within 24 to 36 hours, with high fever, great restlessness, delirium, and convulsions.

In other cases the throat symptoms are prominent and may be of the utmost severity. Rapid and thick membrane formation takes place which may extend into the interior of the nose, and into the ears through the Eustachian canals (openings of the ear into the throat). Death may ensue from suffocation, due to the swelling of the soft parts, or gangrene may set in, causing a fatal issue. Convalescence may be much delayed by persistent enlargement of the neck glands and the formation of deep abscesses in the neck, or by purulent discharges from the nose.

The complications of scarlet fever.—Scarlet fever is distinguished by the variety and severity of its complications, which may develop in cases apparently mild at the outset. The most common of these are inflammation of the kidneys (nephritis), ear complications (middle-ear disease), inflammation of the lining membrane of the heart (endocarditis), inflammation of lymph glands (adenitis), and joint affections. Of these, nephritis and ear complications are by far the most common.

Inflammation of the kidneys (nephritis).—Inflammation of the kidneys may develop, usually in the second or third week of the disease, even in the mildest cases. The symptoms vary greatly in severity from instances in which the condition is shown only by the presence of albumen in the urine, pallor, and slight swelling of the eyelids and feet, to those of greater severity with scanty urine loaded with albumen and general swelling of the body, or to the severe and rapidly fatal cases with scanty, bloody urine or urine completely suppressed, with vomiting, convulsions, and loss of consciousness.

There is evidence to the effect that an attack of scarlatinal nephritis, even if apparently recovered from, may predispose the individual later in life to develop chronic kidney disease.

Ear complications.—These are very common. They are caused by an extension of the throat inflammation to the interior of the ears through the canals by which they open into the throat. The inflammation may extend to the bony cells of the temporal bone behind the ear, causing mastoid disease; the hearing may be destroyed, or the inflammation may extend to the brain, causing dangerous brain complications. The ear complications of scarlet fever are a common cause of deafness.

Infectiousness of scarlet fever.—It is indeed fortunate that scarlet fever does not show the very ready communicability of measles or whooping cough. Rather intimate contact with the sick seems to be required to transmit the disease. Observations have been made which allow us to estimate roughly the frequency with which persons, after exposure, contract the disease. These show that about 30 per cent of children sicken with scarlet fever after exposure, while in the case of measles about 99 per cent of those unprotected by a previous attack will take the disease under like conditions.

Period of incubation of scarlet fever.—While the average period of incubation of scarlet fever (i. e., the period between exposure and the appearance of symptoms) has been stated to be from 2 to 4 days, probably with a maximum of 7, a few examples of what seem to be longer periods are recorded.

Portal of entry of the scarlet-fever germ.—All the evidence tends to show that the mouth is the usual gateway through which the germ of scarlet fever enters the body.

How scarlet fever is "caught."—Each new case of scarlet fever is derived from some previous case of the disease. The scarlet fever germ is present in the discharges from the mouth, nose, and throat of the sick. When there is a discharge from the ears, as a result of ear complications, this discharge also may be infectious. This is true of other pus discharges, as from abscesses. The urine, too, in cases of scarlatinal nephritis, and matter vomited at the onset or during the course of the disease, may contain the infecting agent of scarlet fever.

The disease is transmitted from those sick with scarlet fever to the well who come in contact with them because these discharges get on the hands or mucous membranes of such persons. The infection is caused by direct contact, as by kissing, or by being sprayed with the infected nose and throat discharges, in the act of coughing, sneezing, or talking (droplet infection), or indirectly through various objects, such as drinking cups, candy, apples, pencils, pocket-handkerchiefs, towels, and the like which have been placed in the mouth or infected with the discharges of those sick with scarlet fever.

It has often been pointed out that the chief factor in the spread of such diseases as scarlet fever and diphtheria is the freedom with

which the fluids of the mouth are exchanged among human beings, especially among children. But little observation is needed to convince us of the frequency, during the day, with which the hands are carried to the mouth and then handle objects in common use. This tendency is, of course, greatest among children.

Duration of the communicability of scarlet fever.—Scarlet fever can be transmitted from the time of onset until the infectious agent is no longer present in the mucous membranes of the nose and throat nor in unnatural discharges, as from a running ear which has appeared as a complication in an attack of the disease.

On account of the difficulty of definitely identifying the germ of scarlet fever it has thus far not proved feasible to determine the duration of communicability of scarlet fever by throat culture, as is done in the case of diphtheria. In the majority of instances it is probable that uncomplicated cases of scarlet fever are no longer infectious in the fourth week of the attack.

Scarlet fever "carriers."—The spread of a number of communicable diseases is assisted by the agency of "carriers," i. e., apparently well persons who harbor in their bodies and spread the germs of a particular disease. The agency of "carriers" is important in disseminating such diseases as diphtheria, typhoid fever, cerebrospinal meningitis, cholera, and scarlet fever.

These carriers consist of the "missed cases," viz, those persons who have suffered from scarlatinal sore throat alone, without a recognized eruption; who have not been sick enough to go to bed or, possibly, even complain of their symptoms, and the convalescent "carrier," the child, who after an attack is allowed to mingle with his playmates too soon, or who continues to harbor the contagion in his nose and throat for a long time after apparent recovery. Such persons undoubtedly play an important part in spreading scarlet fever.

Milk-borne scarlet fever.—There are numerous records of outbreaks of scarlet fever in which the infection was conveyed by milk. These outbreaks were usually of an explosive character, an unusual proportion of adults were attacked, and the disease was often severe.

In every instance the source of the infection was shown to be due to the presence of persons suffering from scarlet fever, either on the dairy farm or among the persons engaged in handling the milk.

Immunity to subsequent attacks of scarlet fever.—The protection against future attacks conferred by a single attack of scarlet fever usually seems strong and lasting, although second and even third attacks of the disease have been observed. Relapses also are occasionally noted, i. e., a child, apparently well upon the road to recovery, sickens anew and goes through a second siege of the disease with all its attendant symptoms, including peeling.

Complication with other infectious diseases.—It must not be supposed that, because a person is suffering from scarlet fever he is thereby protected from having other communicable diseases at the same time. Scarlet fever has frequently been observed to be complicated with measles or diphtheria.

Prevention of scarlet fever.—It is plain, from what has been said, that scarlet fever is no disease to be lightly held. To infants and young children it is a very fatal affection. Yet, in spite of its communicability, it is by no means a disease which "every child is bound to have sooner or later." The folly of the complacent attitude which permits the exposure of children to the diseases of childhood "so that they may have them over and done with" can not be too strongly condemned. If we succeed in protecting our children from scarlet fever during childhood, the chances that they will suffer from the disease later will be very greatly reduced. By so doing we will have protected them from what constitutes a very real menace to their lives, or to their subsequent physical efficiency.

Within recent years the Doctors Dick of Chicago have developed a test to determine susceptibility to scarlet fever. This test is called the Dick test and is similar to the Schick test for determining susceptibility to diphtheria. It consists in injecting a minute amount of the scarlet fever streptococcus toxin or poison into the skin (usually of the forearm). If the child is susceptible, a red area about the size of a dime, or larger, will appear at the site of injection in about 24 hours.

The scarlet fever streptococcus toxin is made by growing the hemolytic streptococci of scarlet fever in broth for a few days. The germs are then carefully filtered out, while the toxin, being soluble, remains in the broth.

In addition to using this toxin to test susceptibility to scarlet fever, larger amounts of the same toxin may be given to susceptible individuals to render them insusceptible. When this ability to resist the toxin is developed by injecting the toxin, it appears within a few weeks. At present five doses are given to susceptible persons, at weekly intervals.

This method of immunization is especially useful in institutions, and in the protection of nurses who are about to undertake duty in the care of cases of scarlet fever.

Diagnosis of scarlet fever.—While the responsibility for the diagnosis of scarlet fever must rest upon the attending physician, the citizen can be of material assistance in limiting the spread of scarlet fever by being constantly alive to the possibility of outbreaks of the disease in his family. If a child be suddenly taken with vomiting, and fever, or with dryness, tickling, or soreness of the throat, if soreness of the throat alone be complained of, or if any rash be dis-

covered on the body in absence of other symptoms, no time should be lost in isolating the child and calling in a physician in order to ascertain the nature of the disorder as promptly as possible. It is the mingling of children sickening with a communicable disease with other children before its nature has been determined which helps to spread such diseases.

A great deal could be accomplished in the way of controlling the communicable diseases of childhood if it were the invariable rule in every household to isolate all children from other children as soon as they become ill until the nature of the sickness has been made out, especially when such illness is accompanied by sore throat, running nose, or huskiness of the voice.

The care of scarlet fever in the home.—The important principle to remember, in the care of scarlet fever, is that a child sick with scarlet fever who is carefully isolated does not transmit the disease.

The sick room.—The first rule, therefore, in the care of scarlet fever is to place the patient at once in a separate room. This room, if possible, should be on the story of the house the least in use, its adaptability for sick-room purposes being considered. The furniture left should be reduced to strict necessity and be of a kind readily cleansed.

There should be no such fancied attempts at purifying the air as by hanging up sheets wet with disinfectants. Such measures are not only useless but tend to give a false sense of security.

Separate linen, bedclothes, etc.—The patient should be provided with separate bedclothing, nightgowns, towels, eating utensils, and drinking vessels for his exclusive use. These should be kept rigidly separate from those used by the rest of the family. After use they are to be soaked for an hour or two in one of the disinfectant solutions given below, or better, boiled in soapsuds.

Attendant for the patient.—The patient should be provided with an attendant who remains with him and holds no communication with the other members of the family. This attendant should be the only person coming in contact with the patient apart from the attending physician.

Use of disinfectants.—The best method of disinfecting articles used by patients is by boiling. Discharges from nose and throat of patients may be received into pieces of cotton gauze or old, clean squares of linen, which should be burned immediately after use. In case it is found impracticable to practise the above procedure, a tub of good disinfectant solution should be provided for soaking articles used by the patient. The following are proper disinfectant solutions:

1. Two per cent solution of phenol (carbolic acid.)
2. Two per cent solution of liquor cresolis compositus, U. S. P. (compound solution of cresol).

A 2 per cent solution is made by adding 3 ounces (6 tablespoonfuls) of disinfectant to 1 gallon of water. Surfaces soiled with discharges from scarlet-fever patients should at once be flooded with the disinfecting solution. Partially eaten food should also be disposed of by burning. Dishes used by the patient should be boiled before being removed from the sick room.

Care of the patient during peeling.—During desquamation the process is facilitated by rubbing the body with some bland unguent like olive oil or cocoa butter.

Care of the attendant's hands.—It is important to remember that the hands become readily infected when caring for scarlet fever patients. Unnecessary handling of the patient, therefore, should be avoided. Whenever contact is necessary the hands should be cleansed in hot soapsuds.

Other precautions for the attendant.—A loose gown or wrapper and a head covering should be provided for the protection of the attendant's hair and clothing. These coverings should always be regarded as infected, and not sent out of the room until they have been boiled or soaked in disinfectant for an hour. The attendant should wear dresses of material not injured by disinfecting, as these should also be disinfected. Gowns and head coverings should also be provided for the attending physician. These are kept outside the room.

Ventilating and cleansing the room.—There is little tendency to "catch cold" in scarlet fever. The bedclothes should be light and the room aired thoroughly several times a day and well ventilated at all times. No sweeping should be done, but the floor and furniture wiped with cloths dampened in disinfectant solution instead. After use the cloths should be soaked in disinfectant solution.

Subsequent cleansing and disinfection of the sick room.—The cleansing and disinfection of the sick room after recovery from scarlet fever will, in cities, be governed by the regulations of the local health office; but cleansing and airing of the sick room should always be done. When the householder must follow his own initiative in the matter, his reliance should be placed upon thorough cleansing of the room with soap and water, and upon the action of fresh air and sunlight. Gaseous disinfection is not only probably useless but creates a false sense of security.

Treatment of children who have been exposed to infection.—When a case of scarlet fever occurs in a family, the other children have probably been exposed to infection. As has been previously stated, there is a good chance, though exposed, of their escaping the disease especially if isolation of the sick has been prompt and thorough. It is therefore advisable to send such children away at once to friends or relatives not having small children of their own. While there they

should be carefully observed for symptoms of commencing scarlet fever until the incubation period has passed. If they are school children, they should be kept away from school during this time. The adult members of the family, however, who are not sick, may come and go, provided the house is so arranged that they do not come in contact with the patient. They should wash the hands and face carefully before leaving the house.

As the protection following the immunizing injections of scarlet fever streptococcus toxin develops rapidly, many contacts may be protected in this manner. Before beginning the immunization of exposed persons they should be given the Dick test to determine susceptibility. At the time the test is performed, throat and nose cultures should also be made to determine the presence or absence of hemolytic streptococci. If by the test the child is shown to be susceptible and shows no signs of oncoming scarlet fever, such as slight elevation of temperature or sore throat, the first immunizing dose may be given at once. An exposed child who, in addition to having a positive Dick test also harbors the germs in the nose and throat, should be examined carefully each day for signs of developing the disease, and no further injections of toxin given as long as such symptoms persist.

Exposed children who are positive to the Dick test and who show symptoms of oncoming scarlet fever may be given an early therapeutic dose of scarlet fever streptococcus antitoxin.

Reporting the case.—An important step in the control of any communicable disease lies in the knowledge of its prevalence by the sanitary authorities. It is a public duty to report cases of scarlet fever.

It is likewise the householder's duty to observe scrupulously all regulations made by local health authorities in regard to the quarantine of scarlet fever cases.

Other precautions to be observed.—As scarlet fever is capable of transmission through milk, it is important that a vessel be placed outside the house, as on the porch, into which the milkman may empty the milk. This will prevent the bottles from becoming infected in the house. Milk bottles once admitted to the house should not be returned to the milkman before they are thoroughly disinfected by complete immersion in water, actually boiling. In no case should any member of the family coming in contact with the sick handle the bottles.

When a household in which there is a case of scarlet fever is engaged in any occupation having to do with the handling or distribution of food, such as the grocery business, dairying, the making of ice cream, and the like, such business should be discontinued as long as the case of scarlet fever remains on the premises, or until the patient has been

removed to a contagious-disease hospital, and other members of the family observed for a sufficient length of time to assume their escape from the infection.

The public control of scarlet fever.—It is evident from the foregoing that the proper care of scarlet fever in the home is no easy problem even in the most intelligent and well-to-do families. Thorough isolation of the sick in the tenement districts of cities is well nigh impossible.

Under such conditions the control of the spread of scarlet fever must be in the hands of the local sanitary authorities. The most important equipments to this end are: First, adequate contagious-disease hospitals to which those suffering from scarlet fever may be removed, when it is clear, from an inspection of the premises, that cases of scarlet fever can not remain at home without danger of spreading the disease; second, an efficient corps of inspectors and nurses for the visiting and sanitary control of the cases of scarlet fever reported; and, third, an adequate system for the medical supervision of school children, so that cases of scarlet fever shall be early detected and the proper precautions taken before the infection has had a chance to spread among the pupils. Teachers also can aid greatly in the control of scarlet fever by being familiar with the symptoms attending its onset, encouraging their pupils to let them know whenever they feel sick, removing at once from the classroom any child having sore throat or seized with sudden vomiting, and reporting their action at once to the proper authorities. The school nurse and the school physician are indispensable agents in limiting the spread of scarlet fever in the schools.

School authorities will materially contribute their share by abolishing in schools the common drinking cup, the common towel, the common lead pencil, which, though slowly vanishing, are still too frequently encountered in our schools.

Immunization of susceptible persons by use of injections of toxin may be used especially where the chances of exposure are apt to be great. The immunizing toxin has been used too short a time to warrant a statement as to the permanence of the immunity so produced.

In case of death from scarlet fever, public funerals should not be allowed, because when many persons gather in and about a house in which disease has occurred there is great danger that some one may catch it. The danger is not from the dead body, if properly prepared, but from members of the afflicted household, some of whom may be carrying the germs in the throat and nose, and may even be on the verge of coming down with the disease.

General precautions against scarlet fever.—The body presents a natural resistance to contracting communicable diseases. We do not

catch these diseases unless either the dose of the infecting germ has been sufficient or the natural resistance of the body is deficient.

Attention has already been called to the mouth, nose, and throat as gateways of infection in scarlet fever. Certain diseased conditions of these regions of the body, such as defective teeth, diseased tonsils, and adenoids, probably make them more vulnerable as gateways of infection. Care should be taken, therefore, early to correct such faulty mouth, nose, and throat conditions in children, for by so doing, not only do we strengthen a weak part of the body defenses, but we effect thereby a notable improvement in the general health besides removing conditions known to exert an unfortunate influence upon the subsequent physical or even the mental development.

While it is realized that it is instinctive for the child habitually to carry all objects to the mouth, it is well worth while, on the part of parents and guardians, to teach children, as early as possible, that the only substances which naturally belong in the mouth are food and drink. The danger of such practices as putting lead pencils, coins, and similar objects in the mouth, the use of the common towel and drinking cup, taking bites of the same apple or stick of candy, the failure to turn the head away when coughing or sneezing, and, in a word, all acts which lead to an exchange of the mouth fluids between human beings should be regarded as one of the earliest and most practical essentials of the education of children.

CURRENT WORLD PREVALENCE OF DISEASE

REVIEW OF THE MONTHLY EPIDEMIOLOGICAL REPORT OF THE HEALTH SECTION
OF THE LEAGUE OF NATION'S SECRETARIAT, NOVEMBER 15, 1927¹

Plague.—There were few plague cases in the Mediterranean area in September and October. In Egypt no cases were reported from September 4 to October 14. In Greece 6 cases were reported in September and 3 in October, all at Plomarion on the island of Mytilene. In Tunis no plague case had been notified in the 10 weeks ended October 23. In Algeria there was 1 case at Oran and 1 at Philippeville in September and 2 cases at Algiers between October 11 and 15.

At Las Palmas, in the Canary Islands, 4 plague cases were reported on October 10.

Plague incidence in Senegal in September (708 cases) was higher than in any month of the preceding two years. The epidemic seemed to have abated in October. In Nigeria, on the other hand, only 8 cases were reported in August, as compared with 187 cases in the corresponding month of the preceding year. The Report states:

No plague case has been reported in Angola since March and none in the Union of South Africa since the first week of August. Reunion has been free from plague

¹ From the Office of Statistical Investigations.

since January. Plague has again spread in Madagascar since the beginning of August; 170 cases were reported in September, which is about the same as during the corresponding month of 1926. The season of low plague incidence has come in Kenya and Uganda; the number of cases reported is about the same as last year.

In northern India, during the 13 weeks ended September 24, only 119 cases of plague were reported in the area reaching from Assam in the east to the Northwest Frontier Province in the west. In 1926, 424 cases were reported in this area during the corresponding weeks, and in 1925, 1,298 cases. The incidence in Bombay Presidency, in Madras Presidency, in Mysore, in Hyderabad, and in the central Provinces was somewhat lower than in 1926, but the disease was fairly prevalent; 1,220 cases were reported in all of India in the two weeks ended September 24, nearly all of which were in the aforementioned Provinces.

Information was received from the North Manchuria Plague Prevention Service and from the government of the Kwantung Territory concerning a plague outbreak in September near Payintala (also called Tungliao) in the eastern part of Inner Mongolia. The Report gives the following details:

Payintala is a town of about 20,000 inhabitants and the terminus of a branch railway which joins the South Manchuria Railway system at Chien-Chia-Tun, from which there is a railway to Szepingkai on the Mukden-Harbin line. It is believed that lamas coming from the interior of Mongolia at the end of August brought the infection to the villages situated about 17 miles north of Payintala. Several inhabitants in three small villages in this area were infected and died. Two families lost 14 and 13 members, respectively. Altogether there were 50 or 60 deaths. The symptoms were those of pneumonic and bubonic plague, but cultures were not obtained. The last case occurred on October 3, according to information from Harbin dated October 24. Chinese and Japanese plague prevention services are on the spot and all precautions have been taken on the railway lines.

Cholera.—Cholera was unusually prevalent in Asiatic ports during the past summer and autumn. Twenty-six of the ports reporting to the Singapore bureau were infected at one time or another from July 31 to October 29; and the cases reported numbered 1,657. Many more cases than in the preceding year occurred in ports from Madras westward, but there was less cholera in Bangkok and several other ports in eastern Asia. The situation had improved in October, especially in the ports west of Calcutta. During the four weeks ended November 5, cholera cases were reported, mostly sporadically, in 10 ports—Basrah, Tuticorn, Madras, Calcutta, Rangoon, Singapore, Bangkok, Canton, Amoy, and Shanghai. In the first week of October, an outbreak of cholera was reported at Lingah, a Persian port on the Strait of Ormuz.

In October the cholera epidemic in Iraq was under control in the centers first affected. Abadan and Mohammerah have been free

from cholera since the beginning of September and Basrah had only 3 cases in October. The infection spread, however, farther west and north along the Euphrates.

The incidence of cholera in India, which had remained at a high level ever since the end of March, began to decrease after the middle of September. The deaths in the various provinces are shown by fortnightly periods in Table 1.

TABLE 1.—Deaths from cholera in the Provinces of India, by fortnightly periods, from June 5 to September 24, 1927

Province	June 5 to June 18	June 19 to July 2	July 3 to July 16	July 17 to July 30	July 31 to Aug. 13	Aug. 14 to Aug. 27	Aug. 28 to Sept. 10	Sept. 11 to Sept. 24
Punjab and Delhi.....	463	934	1,312	966	275	351	290	158
Punjab States.....	71	215	269	205	13	37	9	129
United Provinces.....	3,430	2,036	1,250	1,126	903	617	248	213
Central India Agency.....	85	128	420	381	276	411	518	*62
Bihar and Orissa.....	4,373	3,994	2,716	2,877	2,254	2,176	1,343	851
Bengal.....	507	501	444	650	679	672	530	*344
Assam.....	275	202	110	89	178	295	292	311
Central Provinces.....	1,196	977	728	696	818	1,986	2,596	1,723
Madras Presidency.....	1,196	1,405	2,455	2,352	1,975	1,538	985	596
Hyderabad.....	56	111	322	653	1,067	1,312	1,777	1,095
Bombay Presidency.....	1,269	1,234	1,584	1,814	2,291	2,014	1,206	506
States in Bombay Presidency.....	85	227	192	246	170	36	24	9
Burma.....	142	78	73	141	162	118	63	66
Other Indian States.....	3	177	94	17	18	27	4	6
Total.....	13,151	12,219	11,969	12,233	11,109	11,590	9,885	6,069

* One week only.

A small outbreak of cholera in the Federated Malay States began in June and had terminated early in September; 108 cases and 73 deaths were reported.

Cholera was less prevalent in China during the past summer and autumn than a year ago. The Report states:

In the course of August and September outbreaks occurred at Swatow, Macao, Canton, Hong Kong, Amoy, and Shanghai; but the number of cases was much smaller than in 1926. The infection spread as far north as Tien-Tsin, Chingwang-Tao, Newchwang, and Dairen, but there were only a few cases in each locality.

There has been no cholera this year in Chosen.

Yellow fever.—The Report says:

Twenty cases of yellow fever were reported in September among the European population of Senegal, of which 17 were at Dakar and Goree and 2 at Thies. In October, cases continued to occur at Dakar and Thies and appeared also in various inland localities, especially on the railway line from Dakar through Thies to St. Louis. Twenty cases were reported during the first 18 days of October, of which 5 were at Dakar, 9 at Thies, and 1 at Rufisque, the remainder in small inland villages or smaller towns. Between October 19 and November 2 inclusive, 20 cases were reported, of which 8 were at Dakar and 2 at Thies, the remainder being scattered in six villages. Twelve of these cases were among Europeans, 6 among Syrians and 2 among half-breeds. Preventive measures and search for suspected cases are being actively pursued.

Six cases were reported in September in the Gold Coast Colony, mostly in the Volta River district. According to information up to the end of October, the last case occurred at Accra on September 23 and at Cape Coast on August 10. Two yellow fever cases were reported in Nigeria in September.

Smallpox.—The incidence of smallpox in England and Wales showed a seasonal increase in October, but was not higher than at the corresponding date of 1926.

Smallpox continued very prevalent in Algeria, especially in the Department of Oran. It is less prevalent than in previous years in Tunis and in Egypt.

Smallpox has been more prevalent in 1927 in Nigeria than for several years. According to the report, "3,567 cases and 814 deaths, which mostly occurred in the northern Province, were reported during the first nine months of the current year. The case mortality rate was 22.8 per cent; last year it was 20.6 per cent among hospitalized cases. The number of cases increased from 91 in August to 237 in September."

In India, the smallpox incidence has returned to a more normal level, after severe outbreaks in the first half of the year in Bengal, Bihar and Orissa. In the four weeks ended September 24, 4,440 cases were reported, as compared with 6,738 during the corresponding period of 1926.

The incidence of "alastrim" has declined in Jamaica, "202 cases having been reported during the first nine months of the current year as compared with 961 cases during the corresponding period last year. The number of cases has usually been between 1,000 and 2,000 in previous years."

Enteric fever.—"Enteric fever is less prevalent in Germany, the Netherlands, and Sweden than in any previous year," states the Report. "In other European countries, there was no marked improvement in comparison with last year; in some countries the incidence was considerably higher than usual. More cases than last year were, for instance, reported in all the countries southeast of a line drawn from Poland to Italy. In Italy, there were 6,268 cases during the four weeks ended September 4, as compared with 4,415 during the corresponding period of the preceding year. In Greece, 2,012 cases were reported during the first nine months of the year, as against 523 cases during the corresponding period of 1926. The incidence was higher than usual in Egypt."

Dysentery.—In Germany the incidence of dysentery was lower in recent months than in previous years; only half as many cases were reported in October as during the corresponding month of 1926. On the other hand, there were more cases than last year in Poland, where 1,102 cases were reported during the four weeks ended October

15, as compared with 719 cases during the corresponding period of the preceding year. There was a marked increase over last year also in Rumania. The fluctuations in dysentery from year to year in these countries seem to correspond with those for enteric fever, but the former are greater than those of enteric fever, according to the Report.

Acute poliomyelitis.—There was a general decline in the incidence of poliomyelitis in October. Among countries for which reliable statistics are available, the incidence was markedly higher than in the preceding year only in the United States, Germany, Austria, and Sweden.

The outbreaks in Germany reached their maximum during the last week of September, when 240 cases were reported. The area principally affected comprises the districts of Leipsig and Merseburg, in which the epidemic was particularly severe, Dresden, Chemnitz, Magdeburg, Potsdam, Arnsberg, Cassel, and Thuringia.

The incidence of poliomyelitis in 1927 and in previous years in various European countries is shown in Table 2.

TABLE 2.—*Poliomyelitis cases reported in various European countries during the first nine or ten months of the years 1923–1927*

Country	Jan. 1 to—	1923	1924	1925	1926	1927
England and Wales.....	Nov. 5	521	744	361	994	788
Sweden.....	Oct. 31	215	555	438	286	293
Finland.....	Oct. 15	36	30	23	11	45
Denmark.....	Sept. 30	42	91	86	41	21
Germany.....	Oct. 22	.....	393	312	1,329	2,068
The Netherlands.....	Nov. 5	.....	34	31	44	26
Switzerland.....	do	193	93	81	82	91
Austria.....	Oct. 15	.....	.....	8	23	115
France.....	Sept. 30	132	168	153	148	113
Italy.....	Sept. 4	.....	.....	441	217	164

Diphtheria.—In recent months, according to the Report, there has been an increase in diphtheria over the 1926 incidence in nearly all European countries, although the 1926 incidence was higher than that for preceding years in most countries. Comparison of recent statistics for 1927 with corresponding figures for 1926 is given in Table 3.

TABLE 3.—*Comparison of diphtheria prevalence, 1926 and 1927*

Country	Period	Number of cases	
		1926	1927
England and Wales.....	Oct. 9–Nov. 5.....	4,562	5,608
Sweden.....	October.....	349	471
Germany.....	Sept. 25–Oct. 22.....	2,331	2,760
Poland.....	do.....	708	957
Czechoslovakia.....	Sept. 16–Oct. 15.....	492	774
Italy.....	Aug. 8–Sept. 4.....	736	937

Similarly in the United States, where the incidence of diphtheria had decreased steadily since 1921, the October incidence exceeded that for October, 1926.

Scarlet fever.—Most European countries showed a lower incidence for scarlet fever in September and October than at the corresponding season of 1926. In Sweden, Poland, and the Baltic Republics the decrease was very marked. There was an increase, on the other hand, in England and Wales, Germany, Austria, Czechoslovakia, the Kingdom of the Serbs, Croats and Slovenes, and Bulgaria.

The mortality from scarlet fever in 1926 in the principal towns of Europe indicates that the disease causes a much heavier mortality in Russia and Poland than in central, northern, and western Europe.

DEATH RATES IN A GROUP OF INSURED PERSONS

Rates for Principal Causes of Death for September and October, 1927

The accompanying tables are taken from the Statistical Bulletin for October and November, respectively, published by the Metropolitan Life Insurance Co., and present the mortality experience of the industrial department of the company for September and October, 1927, as compared with the preceding months and with the corresponding months of 1926. The rates are based on a strength of approximately 18,000,000 insured persons in the United States and Canada.

SEPTEMBER, 1927

The death rate for September was 8.0 per 1,000, as compared with 8.1 for August and with 8.3 for September a year ago. The rate this year is the lowest recorded for the month of September since 1923, when it was 7.9 per 1,000. The rate also shows a slight improvement over that for the preceding month.

The typhoid fever death rate, for the first time since the beginning of the Montreal outbreak last spring, recorded a lower figure than for the corresponding month last year; and for the first month in 1927 the diphtheria death rate was not higher than for the corresponding month a year ago.

Favorable conditions for September were also shown for tuberculosis and diarrheal complaints.

Death rates (annual basis) for principal causes per 100,000 lives exposed, September, 1927, as compared with August, 1927, and with September, 1926

Cause of death	Rate per 100,000 lives exposed ¹			
	September, 1927	August, 1927	September, 1926	Year 1926
Total, all causes.....	801.4	806.8	826.5	945.6
Typhoid fever.....	5.2	5.6	8.5	4.2
Measles.....	.5	1.7	1.9	10.2
Scarlet fever.....	1.6	1.8	1.1	3.4
Whooping cough.....	6.4	7.0	9.1	9.6
Diphtheria.....	6.6	7.5	6.6	9.7
Influenza.....	5.2	4.5	4.7	31.1
Tuberculosis (all forms).....	80.7	90.6	90.9	99.0
Tuberculosis of respiratory system.....	70.3	79.3	80.2	86.7
Cancer.....	72.7	74.3	73.9	73.7
Diabetes mellitus.....	14.3	15.4	15.3	16.7
Cerebral hemorrhage.....	49.9	44.6	46.8	55.6
Organic diseases of heart.....	114.8	114.6	106.7	134.3
Pneumonia (all forms).....	37.3	38.2	36.8	98.2
Other respiratory diseases.....	12.8	11.2	9.1	13.0
Diarrhea and enteritis.....	47.0	35.9	64.5	29.8
Bright's disease (chronic nephritis).....	62.8	61.0	61.3	73.5
Puerperal state.....	12.5	14.6	11.7	15.3
Suicides.....	8.0	8.7	9.1	7.7
Homicides.....	5.3	6.9	6.6	7.0
Other external causes (excluding suicides and homicides).....	68.2	73.1	69.6	62.3
Traumatism by automobiles.....	22.2	19.7	20.9	16.8
All other causes.....	189.7	189.6	192.0	191.0

¹ All figures include infants insured under 1 year of age.

OCTOBER, 1927

The death rate for this group of persons for October, 7.7 per 1,000, was not only the lowest rate reported for any month during the current year, but the lowest recorded for this month in the records of the company.

The typhoid fever death rate continued to decline and was 3.7 per 100,000 as compared with 5.2 for September and with 6.3 for October a year ago.

The diphtheria situation also showed improvement over last year, the death rate for October being 9.6 as compared with 10.6 in 1926. The other three principal diseases of childhood registered lower mortality than in October last year.

The tuberculosis death rate shows a decline from the rate for 1926; in fact, with a single exception, every month of 1927 has shown improvement over 1926 in tuberculosis mortality, and a new low figure for this disease seems assured for 1927.

Influenza, pneumonia, diarrheal complaints, and Bright's disease are other important causes of death to show lower rates in October than were recorded a year ago, while the number of deaths from cancer, diabetes, cerebral hemorrhage, and heart disease increased—slightly in each instance.

Death rates (annual basis) for principal causes per 100,000 lives exposed, October, 1927, as compared with September, 1927, and with October, 1926

Cause of death	Rate per 100,000 lives exposed ¹			
	October, 1927	September, 1927	October, 1926	Year 1926
Total, all causes.....	769.7	801.4	797.7	945.6
Typhoid fever.....	3.7	5.2	6.3	4.2
Measles.....	.4	.5	1.3	10.2
Scarlet fever.....	1.5	1.6	2.1	3.4
Whooping cough.....	4.1	6.4	6.1	9.6
Diphtheria.....	9.6	6.6	10.6	9.7
Influenza.....	6.5	5.2	7.0	31.1
Tuberculosis (all forms).....	74.7	80.7	79.3	99.0
Tuberculosis of respiratory system.....	66.5	70.3	69.9	86.7
Cancer.....	71.6	72.7	70.7	73.7
Diabetes mellitus.....	15.0	14.3	14.1	16.7
Cerebral hemorrhage.....	49.0	49.9	47.1	55.6
Organic diseases of heart.....	112.0	114.8	108.3	134.3
Pneumonia (all forms).....	46.3	37.3	49.4	98.2
Other respiratory diseases.....	12.6	12.8	11.2	13.0
Diarrhea and enteritis.....	36.6	47.0	50.0	29.8
Bright's disease (chronic nephritis).....	60.5	62.8	63.0	73.5
Puerperal state.....	12.6	12.5	12.0	15.3
Suicides.....	7.4	8.0	8.0	7.7
Homicides.....	6.8	5.3	6.4	7.0
Other external causes (excluding suicides and homicides).....	62.4	68.2	58.9	62.3
Traumatism by automobiles.....	20.3	22.2	19.8	16.8
All other causes.....	176.4	189.7	185.8	191.0

¹ All figures include infants insured under 1 year of age.

PUBLIC HEALTH ENGINEERING ABSTRACTS

Feeding Garbage to Hogs. F. G. Ashbrook and A. Wilson, U. S. Dept. of Agriculture Farmers' Bulletin No. 1133. 24 pages. (Abstract by Arthur P. Miller.)

This bulletin is prepared from the viewpoint of hog feeding and not of garbage disposal.

Some observations made are of interest, however. (1) Waste food products of more than 8,000,000 people are fed to hogs and fully 40,000,000 pounds of pork are thus produced and sold annually; (2) a ton of municipal garbage may be expected to produce 40 pounds of live weight of hog; (3) garbage used must be reasonably fresh and free from injurious foreign articles; (4) it is better for the city to handle garbage collection and then dispose of garbage to the hog feeder. Long-time contracts with the feeder tend to produce best results.

Street Cleaning and Refuse Disposal in Columbus, Ohio. H. L. Killiam. *Public Works*, vol. 58, No. 9, September, 1927, pp. 330-331. (Abstract by E. L. Filby.)

Statistical data as to costs of operation and methods of arriving thereat are given. Flushing thrice weekly gave as good results as daily hand patrol and at reduced cost.

Refuse collection includes garbage and dead animals. Garbage amounted to 20.68 pounds per capita per year. Cost was 10 per cent greater than in 1925. Manure is sold by car and wagon loads.

Garbage disposal by digestion with grease and tankage recovery. From 30,614 tons of garbage, 729 tons of grease, 2,383 tons of tankage, and 8 hides were recovered. Sales averaged \$3.596 per ton of green garbage, and operation maintenance charges were \$3.155, or gross operating profit \$0.441 per ton.

Garbage Collection at Victoria, B. C. F. M. Preston. *Canadian Engineer*, vol. 53, No. 3, July 19, 1927, pp. 141-142. (Abstract by R. E. Thompson.)

All waste material is trucked to a central wharf, where it is dumped into scows and finally disposed of at sea. No charge is made for collection from residences, but all types of business establishments are charged 15 cents per can collected. A standard size can is insisted upon and anything but garden refuse may be placed in it. These cans, having a capacity of $3\frac{1}{2}$ cubic feet, are made at the city's shops and are rented out for the lifetime of the can at \$4.20 each. When a can has reached the end of its useful life a printed notice of the fact that it must be renewed is left at the particular house, and when next collection becomes due the old can is removed. During the year 1926 the amount of refuse collected from residential districts was 21,701 cubic yards, and from commercial districts 3,280 cubic yards. The total sum expended during the year was \$29,000, of which \$5,507 was expended on the contract for towing to sea and dumping.

Paranasal Sinus Infection and Swimming. Frederick E. Hasty. *Journal American Medical Association*, vol. 89, No. 7, August 13, 1927, pp. 507-509. (Abstract by C. H. Kibbey.)

The types of bacteria found in diseases of the paranasal sinuses, middle ear, and upper respiratory tract have received little consideration. These infections have become so frequent that almost every family has suffered as a result of swimming. The author has made a number of interesting tests in the hope of determining some of the important factors entering into the problem.

Attention is called to the fact that most bacteriological examinations of water are made from the standpoint of gastro-enteric infections, and while this is sufficient for drinking water, where water for swimming is being considered the type of bacteria present may be even more important than is the relative number of bacteria it contains.

It is not considered possible completely to sterilize swimming pools. Filtration and the ultra-violet ray are comparatively satisfactory, but chlorine, in one form or another, has proved one of the most satisfactory chemicals. The water used in the author's studies was taken from pools where one of the above methods was employed and he is unable to determine any difference in the results of either method.

The water in a pool during the time of swimming represents the combined washings of the nasal and oral mucous membranes of every swimmer. This fact the author demonstrated in a novel and interesting manner which is conclusive, establishing the fact that water gets well into the nasal chambers of the majority of swimmers, carrying with it contamination from the pool and adding to the pool any organisms washed from the swimmer's nose.

A number of observations were made regarding the effect of water on the mucous membrane adjacent to the ostia of the anterior group of paranasal sinuses, and logical deductions are made regarding the introduction of harmful organisms, together with the possible creation of a favorable environment for their reproduction.

A number of experiments were made with laboratory animals in an effort to produce paranasal sinus infections. A serious obstacle to the use of pigs for this purpose was encountered in the marked dissimilar anatomic structure of these animals as compared to man. An effort was made to overcome structural differences, however, by fixing the animals in such a position that water, once introduced into the antrums, did not readily drain out.

It is of interest that two of the pigs which died, one on the fourth and one on the fifth day, showed *Bacillus coli* and streptococci present in the heart blood on post mortem examination. The control pig continued to thrive.

The author's clinical observations are as follows: (1) The sinus infections resulting from swimming are often severe; (2) children are especially liable to infections; (3) persons who have previously suffered from paranasal infections

or nasal obstructions are liable to acute attacks following swimming; (4) the high percentage of infections is due to virulent organisms reaching vulnerable parts of the nose, etc.

Attention is called to the fact that man is not an aquatic animal and has a lack of adaptability to aquatic life.

Presedimentation of Turbid Water Supplies. A. W. Bull and G. M. Darby. (Trans. Am. Inst. Chem. Eng. 18,365-78 (1927).) From *Chemical Abstracts*, vol. 21, No. 21, Part I, November 10, 1927, p. 3694. (Abstract by Foster D. Snell.)

"Presettling reduced the suspended solids by 85-95 per cent. A three-hour presedimentation reduced the coagulants required to approximately half the amounts for direct treatment. Presedimentation reduces the accumulation of solids in the coagulation basin, reduces the cost of cleaning, and saves the cost of chemical treatment of the water discharged with the sludge from presettling. When water is to be softened there is also a saving in lime. The Dorr clarifier reduces the sludge volume approximately 30 per cent below that obtained by direct sedimentation. Results at seven points on the Mississippi, Missouri, and Arkansas Rivers were about the same. Clarifier and laboratory results at Jefferson City were closely parallel."

San Fernando Chlorination Plant, Los Angeles. Carl Wilson. *Western Construction News*, vol. 2, No. 19, October 10, 1927, pp. 73-75. (Abstract by E. A. Reinke.)

The Los Angeles water department has recently completed an automatic chlorination plant treating a maximum flow of 175,000,000 gallons daily. Wallace and Tiernan vacuum automatic machines, using Pitot tubes instead of Venturi tubes, are employed. Six machines, each of 150-pound daily capacity, are used, four feeding a 72-inch and two feeding a 54-inch trunk. Three electrically-driven Quimby screw pumps are used to supply water to injectors, any one of which will handle normal operation. The pumps come into service automatically as the pressure drops below 125 pounds, and in the event of power interruption an automatically starting Novo 4-cylinder, 25-horsepower gasoline engine operates a Worthington triplex pump of sufficient capacity to supply injector water. Chlorine is purchased in 1-ton drums, handled by overhead cranes, and weighed on 5-ton platform scales which are sensitive to one-half pound. The cost of Mission type, tile-roofed building was \$7,500, and of the equipment, \$22,000. Thirty samples, representing each subdivision of the Los Angeles water supply, are collected daily, including Sundays and holidays. All samples from San Fernando after chlorination show absence of *B. coli* in 50 cubic centimeters.

How to Increase Ground Water Supplies. W. G. Kirchoffer. *Water Works Engineering*, vol. 80, No. 15, July 20, 1927, pp. 1075-1076. (Abstract by M. F. Trice.)

The subject is divided into eight different divisions, in each one of which the method of forming the well and the ground conditions determining its classification are discussed briefly. The flow of water may be increased by a variety of methods, depending on the type of well. Some of the practices mentioned are reaming out with or without recasing; shooting with explosive, increasing the depth; back blowing with air; brushing out; cleaning screens; increasing cavity in loose sand; sinking new cylinder; sinking porous concrete wall. Subsurface dams across valleys are mentioned. Procedure a town should follow in securing new supply is briefly discussed and the increased cost of having inexperienced men do the prospecting is pointed out.

A Study of the Sanitary Significance of Air in Relation to Ice Cream. F. W. Fabian. (Michigan Sta. Tech. Bul. 83 (1927), pp. 30). From Experiment

Station Record, U. S. Dept. of Agriculture, vol. 57, No. 7, November, 1927, pp. 668-69.

"The work reported is divided into two parts:

"I. A study of the bacteria in the air of an ice cream plant, pp. 3-19. Tests were made during each month of the year to determine the number of bacteria in the air in the room where the ice cream was mixed, Pasteurized, homogenized, cooled, and frozen. The fewest bacteria were found during January and the most in April. Weather was the most important factor in determining the number of bacteria present. Other factors were doors and windows, floor, and machinery. Samples indicated that there were more bacteria in the air near the outside walls than near the inside walls, and in the same manner more near the inside walls than in the center of the room.

"The author concludes that bacterial contamination from the air was insignificant. The majority of the bacteria found were peptonizers and alkali-producing the inert bacteria. A few weak acid-forming bacteria were found, but practically no strong acid-forming. Fewer molds than bacteria were present.

"II. A study of the amount of air taken into a freezer during the freezing of ice cream mix, pp. 20-29. In this work the freezer was made air-tight and an apparatus devised whereby the air entering the chamber could be measured. It was found that the amount of air that normally enters a freezer during operation is very small. It was found possible to make ice cream of normal overrun when all openings were made air-tight, and in a few cases where a partial vacuum was established in the freezer a normal overrun was obtained by lengthening the time of whipping somewhat. The author recommends that all openings of the freezer be kept closed during the freezing process, for sanitary reasons."

When is a Milk Bottle Clean? Milton E. Parker. *The Nation's Health*, vol. 9, No. 10, October, 1927, pp. 31-33 and 66. (Abstract by J. H. O'Neill.)

A clean bottle must not only be practically free from bacterial contamination, and especially from harmful types, but should also be equally as free from any physical contamination. Investigations have established a count of 100 bacteria per quart bottle as a reasonable bacterial standard for testing efficiency of milk-bottle sterilization. Units to measure physical cleanliness are not available. Perhaps the best method available at the present time is to wet the surface with distilled water and watch for a break in the film. Freedom from oily or dirty films upon the application of distilled water serves as a reasonable standard of physical cleanliness.

Investigations have shown that colloidal alkalies contribute a combined detergency and antiseptis under practical working conditions superior to that afforded by the usual cleaning methods. The germicidal action of most detergents is due mainly to their degree of hydroxyl iron concentration.

The Disposal of the Sewage of the Sanitary District of Chicago. Division of State Water Survey, Urbana, Ill., Bulletin No. 23, February, 1927. 195 pages. (Abstract by I. W. Mendelsohn.)

This report treats fully of the disposal of the sewage of the Sanitary District of Chicago. There are many tables, charts, and maps which contain data combed from the whole field of sewage disposal. The subject is considered in the following sections: Present disposal of sewage and deficiencies, population and growth, amount and quality of sewage, standard of maximum pollution, required degree of purification with various dilutions, protection of the water supply, savings affected by metering, volume of sewage, future intercepting sewer construction, methods of sewage disposal and practicable efficiencies, sewage disposal costs in other cities, and required works for various diversion flows.

Conclusions: The summarized conclusions include the following: (1) The diversion of the Chicago sewage from Lake Michigan, resulting from the drainage canal

and other causes, has effected a remarkable improvement in the death rate from water-borne diseases. (2) The present discharge of the sewers within the sanitary district is about 800,000,000 gallons per day. This sewage carries an organic load per capita greater than that of any other large city for which accurate figures have been available. (3) In the consideration of sewage-treatment works that will be required under various drafts of dilution water from Lake Michigan, it has been necessary to fix a standard of maximum pollution for the Chicago Drainage Canal in order that reasonable sanitary conditions may be maintained in the Des Plaines and Illinois Rivers. The following is suggested as a reasonable standard: The liquid discharged by the drainage canal, as evidenced by the average of representative samples taken for any 30 consecutive days shall—(a) be practically free from settleable solids deposited in two hours; (b) contain dissolved oxygen equal to or exceeding the biochemical oxygen demand of said liquid for five days when incubated at 20° C., (c) contain not less than three parts per million of dissolved oxygen. (4) Even under the heavy diversions from Lake Michigan in recent years and the generally favorable typhoid death rate, the quality of the water supply for Chicago has been far from satisfactory. Chicago can secure pure clean water at all times by the filtration of its present supply. Filtration is considered as a prerequisite to the adequate disposal of sewage. (5) At the present time 90 per cent of all water services in Chicago are served through so-called "flat rates." Universal metering of the water services is urgent. Metering alone will (a) double the average pressure within the city; (b) furnish *all* adequate water service where but 25 per cent now enjoy it; (c) enable the present water works with but minor extensions to serve the city for the next generation; and (d) through the immense savings effected in deferred construction costs enable the city to install filtration works.

If universal metering of the Chicago water works is accomplished within the next 10 years, savings of from \$200,000,000 to \$225,000,000 will be effected prior to 1945. This amount is so great that, in addition to financing the installation of meters and filtration works for the entire city, it would cover the cost of constructing the entire intercepting sewer and sewage disposal works required in the Chicago Sanitary District up to 1945 and leave a large surplus in addition. (6) The installation of meters on all services will cause the sewage flow of 1945 under complete metering to be less than at the present time. (7) The sanitary district has adopted tunnels for its intercepting sewers. It is believed that a 35-year period (i. e., to 1960) is that for which the design of interceptors should be economically and practically made for sewers constructed in tunnel, capable of duplication in the future without excessive costs. (8) Construction and operating costs of sewage pumping stations and treatment works in the Sanitary District of Chicago in comparison with similar costs in other cities are from two to eight times as great.

Studies on Film Accumulation in the Sprinkling Filter Bed. W. Rudolfs and D. Peterson. Report of the Sewage Substation of the New Jersey Agricultural Experiment Station for year ending June 30, 1926, pp. 498-505. (Abstract by W. M. Olson.)

To learn more about the physical nature of the film upon the stones and the cause of its accumulation and sloughing, this study was made. Conclusions are from weekly determinations of moisture, solid matter, and organic and ash contents of solids. Film one week old was compared with film accumulating from one sloughing period to the next, and with film in the process of sloughing. Data are presented in a table and in four diagrams which would be benefited by more explanation.

Samples of film were scraped from tiles arranged in a cabinet set in the filter bed. Wet film was deposited at an average rate of 3.5 grams per week per tile.

(Tiles 6 by 3 by $\frac{3}{8}$ inches—Third Annual Report of the Sewage Substation for the year ending June 30, 1924, p. 50.) The wet weekly film deposit contained 4 per cent solids, of which 18 per cent was ash. A 16 weeks' accumulation of wet film weighed from 15 to 50 grams per tile. The rate of film deposit was not uniform throughout the bed. Opercularia was the dominant protozoan in the film. Nitrification is best shortly after sloughing and decreases with increase in thickness of film. Studies will be made concerning artificial control of film thickness.

Film is built up by organisms utilizing colloidal carbon compounds in the applied liquid, by carbonates and sulphates absorbed from solution, by ash deposited in oxidation, and by excreta of large organisms.

The seasonal slough may be due to the weight of old film, the seasonal succession of fungi and the favorable habitat for large metazoan animals in the old film.

"The design of a filter bed should depend on the amounts of solids to be handled." At Plainfield, with 75 p. p. m. suspended solids, the beds must be at least 6 feet deep.

The Treatment of Beet Flume and Washer Waters. Paul Hirshfelder. *Centr. Zuckerind.* 35, 273-4 (1927). From *Chemical Abstracts*, vol. 21, No. 22, Part I, November 20, 1927, p. 3997. (Abstract by W. L. Badger.)

"Such waters may be treated by (A) simple settling basins. The first cost is small, but the cost of sludge disposal is heavy, and trouble is experienced because of putrefaction in the sludge. (B) The waste water may be pumped into fields, which are used for cultivation after a layer of sludge has built up. This involves heavy charges for land, and the results are not satisfactory, because of the settling of sand in the nearer areas. (C) Small settling basins with continuous sludge removal may be used, and the heavy sludge formed pumped to waste land. This is often satisfactory, especially where the sludge need not be pumped far. (D) Where sludge must be transported over 2 kilometers, a settling basin with a slow-moving rake should be used to produce a sludge of not over 10-15 per cent solids. This may be pumped without undue expense and without danger of sand settling out."

South Australian Waterworks and Sewerage Systems. Herbert E. Bellamy. *Journal Royal Sanitary Institute*, vol. 57, No. 9, March, 1927, pp. 583-587. (Abstract by A. H. Fletcher.)

The author describes the waterworks for the city of Adelaide, the capital of South Australia, which consists of four reservoirs of a combined capacity of 7,748 million gallons. The rainfall on 305 square miles of catchment area is utilized and supplies a population of 230,000. The Metropolitan District covers an area of 175 square miles. The length of mains is 1,108 $\frac{1}{2}$ miles.

Country water districts have been formed. The principal country districts are the Beetaloo, Barossa, Warren, Bundaleer, and Tod River, in which 82 towns, as well as country lands, are supplied. There are 2,740 $\frac{1}{2}$ miles of cast-iron mains supplying these districts.

In the year 1878 an act of Parliament was passed making provision for the necessary expenditure to construct a complete sewerage system for Adelaide. This was the first city in Australia for which a complete sewerage system combined with a sewage farm for the disposal of the sewage was adopted. It is now proposed to abandon the farm and to construct treatment works of the activated sludge system.

Relation of Regional Plan Work to Public Health Engineering. Howard E. Long. *American Journal of Public Health*, vol. 17, No. 10, October, 1927, pp. 1014-1017. (Abstract by H. N. Old.)

Attention is directed in this article to the cooperation which should exist between sanitary engineers and those engaged in regional planning, the goal of

both groups being that of providing adequate and unadulterated air, light, food and water with proper disposal and elimination of waste products on a community basis with due consideration of the economics of the problem.

The regional planner is concerned more particularly in planning and developing adequate present and future means of accomplishing facility of supply, as well as purity of supply, while the public-health engineer is responsible for the operation and maintenance of the facilities afforded.

While it is stated that some interests of the public-health worker are beyond the scope of the planner, the "health engineer and the planning engineer meet on common ground and should cooperate to the fullest possible extent in subjects wherein community of interest and regional attention to futures are indicated. For example, in the field of sewage disposal, food and water supply, air and light, housing and zoning, recreation, hospital and convalescent facilities, and education, the work of the planner augments that of the sanitarian, and vice versa."

Under the subtitles sewerage, water supply, food supply, hazards to health, modern era one of tremendous nervous strain, recreation and quiet, schools, and burial places, the author elaborates somewhat on specific conditions upon which these two groups of public-service engineers should more or less dovetail their efforts.

Particular stress is placed by the author upon the advantages of central heating systems in communities where this plan is feasible, a project which has received too little attention up to this time on the part of sanitarians and regional planners.

PREVALENCE OF DISEASE

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

UNITED STATES

CURRENT WEEKLY STATE REPORTS

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

Reports for Weeks Ended January 8, 1927, and January 7, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 8, 1927, and January 7, 1928

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928
New England States:								
Maine.....	3	6	24		202	36	0	0
New Hampshire.....								
Vermont.....	2	2			90	1	0	0
Massachusetts.....	131	105	15	20	176	1,082	2	3
Rhode Island.....		19				8		0
Connecticut.....	34	44	12	7	26	71	1	0
Middle Atlantic States:								
New York.....	328	355	162	133	1,105	882	7	5
New Jersey.....	151	149	23	11	27	141	2	1
Pennsylvania.....	231	272			795	683	1	6
East North Central States:								
Ohio.....		141		21		166		4
Indiana.....	92	56	79	49	186	43	0	0
Illinois.....	179	190	47	34	1,444	38	4	12
Michigan.....	112	61		4	109	265	0	2
Wisconsin.....	42	42	38	68	818	45	3	2
West North Central States:								
Minnesota.....	55	25			147	8	1	3
Iowa ²	54	14			228	4	1	1
Missouri.....	58	42	51	4	247	43	1	0
North Dakota.....	7				151		0	
South Dakota.....	9		2	7	102	39	0	0
Nebraska.....	6	9	1		74	22	0	2
Kansas.....	21	13	12	2	165	15	3	1
South Atlantic States:								
Delaware.....	1	3			1	20	0	0
Maryland ²	65	33	61	36	34	175	1	0
District of Columbia.....	20		2		2		0	
Virginia.....								
West Virginia.....	27	12	44	34	86	57	0	0
North Carolina.....	64	49			161	1,475	0	0
South Carolina.....	34	45	779	1,314	83	731	0	0
Georgia.....	31	11	101	173	54	34	0	0
Florida.....	42	15	1	4	15	3	2	0

¹ New York City only.

² Week ended Friday.

³ Exclusive of Kansas City.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 8, 1927, and January 7, 1928—Continued

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928
East South Central States:								
Kentucky.....		12		19		79		0
Tennessee.....	25	21	57	119	98	578	0	1
Alabama.....	52	43	74	183	34	97	1	2
Mississippi.....	37	25					1	
West South Central States:								
Arkansas.....	7	11	100	111	1	76	0	1
Louisiana.....	27	41	27	62		39	1	2
Oklahoma ¹	34	39	265	135	23	114	0	1
Texas.....	52	112	42	142	11	67	0	0
Mountain States:								
Montana.....	7	1	1		60	1	1	3
Idaho.....	2				61		0	1
Wyoming.....	0		9		79	2	1	10
Colorado.....	12	28	1	1	44	85	0	4
New Mexico.....	4	2			15	62	0	0
Arizona.....	4	16			10	8	0	2
Utah ¹	3	3		5	688	2	0	1
Pacific States:								
Washington.....	29	18			392	230	7	2
Oregon.....	30	11	30	22	44	46	1	1
California.....	178	125	37	33	1, 115	74	5	5

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928
New England States:								
Maine.....	1	0	34	21	0	0	0	3
New Hampshire.....								
Vermont.....	0	0	16	2	0	0	0	0
Massachusetts.....	2	6	515	294	0	0	12	8
Rhode Island.....	0	0		42		0		0
Connecticut.....	0	0	93	78	0	26	3	1
Middle Atlantic States:								
New York.....	6	9	625	583	7	4	46	23
New Jersey.....	1	3	285	162	0	3	6	6
Pennsylvania.....	0	0	566	445	0	1	34	24
East North Central States:								
Ohio.....		1		397		19		25
Indiana.....	1	1	255	127	180	133	4	9
Illinois.....	1	2	384	293	43	30	21	4
Michigan.....	0	2	332	162	41	17	7	3
Wisconsin.....	0	1	182	172	13	27	7	6
West North Central States:								
Minnesota.....	0	0	256	153	4	2	6	5
Iowa ²	0	2	59	55	5	58	0	6
Missouri.....	0	1	101	68	4	38	7	35
North Dakota.....	0		88		10		1	
South Dakota.....	1	0	18	32	6	6	8	0
Nebraska.....	1	1	51	63	46	12	4	1
Kansas.....	0	0	201	135	29	73	6	1
South Atlantic States:								
Delaware.....	0	0	39	1	0	0	0	1
Maryland ¹	0	1	52	49	0	0	4	5
District of Columbia.....	0		28		0		0	
Virginia.....								
West Virginia.....	0	1	38	46	2	11	6	6
North Carolina.....	0	0	78	36	77	63	8	3
South Carolina.....	2	1	11	19	9	19	18	0
Georgia.....	0	1	31	12	61	0	4	5
Florida.....	0	0	19	9	37	1	4	10

¹ Week ended Friday.² Exclusive of Kansas City.³ Exclusive of Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended January 8, 1927, and January 7, 1928—Continued

Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928	Week ended Jan. 8, 1927	Week ended Jan. 7, 1928
East South Central States:								
Kentucky.....		0		78		16		14
Tennessee.....	0	1	71	17	6	5	26	5
Alabama.....	0	0	20	10	27	1	8	5
Mississippi.....	0	0	21	23	9	1	10	4
West South Central States:								
Arkansas.....	0	0	13	5	6	7	7	2
Louisiana.....	0	0	14	13	7	10	15	7
Oklahoma ¹	0	0	36	45	10	108	9	23
Texas.....	0	3	50	119	9	29	9	6
Mountain States:								
Montana.....	0	1	138	27	5	36		1
Idaho.....	0	0	35	4	3	4	1	3
Wyoming.....	0	0	36	28	0	5	1	1
Colorado.....	0	4	47	106	3	31	3	5
New Mexico.....	1	0	23	22	1	1	2	3
Arizona.....	0	0	9	8	0	0	0	3
Utah ²	0	0	13	10	4	19	0	1
Nevada.....								
Pacific States:								
Washington.....	1	4	172	55	81	31	8	2
Oregon.....	0	6	54	13	34	32	3	3
California.....	2	9	220	159	20	18	24	6

¹ Week ended Friday.

⁴ Exclusive of Tulsa.

Reports for Week Ended December 31, 1927

DIPHTHERIA		SCARLET FEVER	
	Cases		Cases
District of Columbia.....	13	District of Columbia.....	33
North Carolina.....	66	North Carolina.....	64
North Dakota.....	1	North Dakota.....	20
INFLUENZA		SMALLPOX	
District of Columbia.....	4	North Carolina.....	57
		North Dakota.....	1
MEASLES		TYPHOID FEVER	
District of Columbia.....	4	North Carolina.....	1
North Carolina.....	1,617		
MENINGOCOCCUS MENINGITIS			
North Carolina.....	1		
North Dakota.....	1		

Reports for Week Ended December 24, 1927

DIPHTHERIA		POLIOMYELITIS	
	Cases		Cases
North Carolina.....	64	North Carolina.....	1
North Dakota.....	6	North Dakota.....	1
MEASLES		SCARLET FEVER	
North Carolina.....	1,151	North Carolina.....	43
North Dakota.....	5	North Dakota.....	53
MENINGOCOCCUS MENINGITIS		SMALLPOX	
North Carolina.....	1	North Carolina.....	65

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	Men- gococ- cus menin- gitis	Diph- theria	Influa- enza	Ma- laria	Mea- sles	Pella- gra	Polio- mye- litis	Scarlet fever	Small- pox	Ty- phoid feve.
<i>October, 1927</i>										
Delaware.....	0	3			33		0	9	0	8
Indiana.....	0	226	35		51		69	396	20	103
<i>November, 1927</i>										
Arkansas.....	1	171	313	731	89	185	11	88	11	82
Delaware.....	0	12	4	1	42		2	15	0	4
District of Columbia.....	0	92	5		4		0	109	2	9
Florida.....	5	161	24	30	6	2	5	47	8	17
Montana.....	4	11	10		2		6	100	109	4
Rhode Island.....	1	123	31		9		12	122	1	5
Virginia.....	5	564	1,753	67	654	24	13	401	24	94

<i>October, 1927</i>		Mumps:	
Chicken pox:	Cases	Arkansas.....	Cases
Delaware.....	3	Delaware.....	22
Indiana.....	102	Florida.....	35
Mumps:		Montana.....	23
Delaware.....	11	Rhode Island.....	1
Indiana.....	3	Ophthalmia neonatorum:	
Whooping cough:		Arkansas.....	5
Delaware.....	6	Rhode Island.....	5
Indiana.....	64	Paratyphoid fever:	
Chicken pox:		Florida.....	1
<i>November, 1927</i>		Septic sore throat:	
Arkansas.....	136	Montana.....	1
Delaware.....	8	Rhode Island.....	1
District of Columbia.....	63	Tetanus:	
Florida.....	14	Florida.....	10
Montana.....	167	Rhode Island.....	2
Rhode Island.....	31	Trachoma:	
Virginia.....	632	Arkansas.....	32
Dysentery:		Typhus fever:	
Florida.....	1	Florida.....	1
Virginia.....	68	Whooping cough:	
German measles:		Arkansas.....	62
Montana.....	2	Delaware.....	11
Rhode Island.....	1	District of Columbia.....	20
Hookworm disease:		Florida.....	5
Florida.....	162	Montana.....	28
Virginia.....	10	Rhode Island.....	12
Lethargic encephalitis:		Virginia.....	369
District of Columbia.....	1		
Florida.....	1		
Montana.....	1		

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 98 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 30,390,000. The estimated population of the 92 cities reporting deaths is more than 29,720,000. The estimated expect-

ancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended December 24, 1927, and December 25, 1926

	1927	1926	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
41 States.....	2,017	1,574	-----
98 cities.....	1,190	940	1,183
Measles:			
40 States.....	2,906	4,014	-----
98 cities.....	1,693	1,209	-----
Poliomyelitis:			
41 States.....	82	12	-----
Scarlet fever:			
41 States.....	2,987	3,168	-----
98 cities.....	1,099	1,457	1,166
Smallpox:			
41 States.....	526	573	-----
98 cities.....	92	93	66
Typhoid fever:			
41 States.....	260	286	-----
98 cities.....	61	60	43
<i>Deaths reported</i>			
Influenza and pneumonia:			
92 cities.....	865	850	-----
Smallpox:			
92 cities.....	0	0	-----

City reports for week ended December 24, 1927

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

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

Division, State, and city	Population, July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland.....	75,333	5	2	1	0	0	1	0	3
New Hampshire:									
Concord.....	22,546	0	0	0	0	0	0	0	2
Nashua.....	29,723	0	0	0	0	0	0	0	0
Vermont:									
Barre.....	10,008	3	0	0	0	0	0	0	0
Burlington.....	24,089	1	0	0	0	0	0	0	0
Massachusetts:									
Boston.....	779,620	66	59	21	3	1	197	2	27
Fall River.....	128,993	1	5	5	1	0	1	0	1
Springfield.....	142,065	2	4	12	0	0	0	8	1
Worcester.....	190,757	9	5	6	0	0	1	22	1

City reports for week ended December 24, 1927—Continued

Division, State, and city	Population, July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND—CON.									
Rhode Island:									
Pawtucket.....	69,760	2	2	2	0	0	0	0	0
Providence.....	267,918	0	10	23	0	0	8	6	3
Connecticut:									
Bridgeport.....	(¹)	1	9	2	3	1	1	0	5
Hartford.....	160,197	7	8	9	0	0	0	1	5
New Haven.....	178,927	4	4	2	1	0	22	10	4
MIDDLE ATLANTIC									
New York:									
Buffalo.....	538,016	40	24	28	-----	0	135	28	17
New York.....	5,873,356	109	198	279	21	13	56	0	146
Rochester.....	316,786	5	11	13	-----	0	4	5	8
Syracuse.....	182,003	23	7	1	-----	0	28	4	4
New Jersey:									
Camden.....	128,642	3	5	9	0	0	0	1	4
Newark.....	452,513	24	16	26	5	0	38	20	9
Trenton.....	132,020	0	6	2	0	1	6	2	5
Pennsylvania:									
Philadelphia.....	1,979,364	91	83	41	-----	5	18	58	45
Pittsburgh.....	631,563	32	24	69	-----	4	223	38	17
Reading.....	112,707	24	5	4	-----	0	0	0	2
EAST NORTH CENTRAL									
Ohio:									
Cincinnati.....	409,333	13	16	9	0	6	50	0	12
Cleveland.....	936,485	56	44	87	1	2	15	105	13
Columbus.....	279,836	6	7	9	1	1	1	4	5
Toledo.....	287,380	67	15	11	1	1	31	9	9
Indiana:									
Fort Wayne.....	97,846	0	5	6	0	0	1	0	1
Indianapolis.....	358,819	11	13	6	0	2	1	19	8
South Bend.....	80,091	3	1	0	0	0	0	0	1
Terre Haute.....	71,071	0	2	0	0	0	0	0	2
Illinois:									
Chicago.....	2,995,239	77	114	135	2	3	12	25	64
Springfield.....	63,923	11	2	0	1	1	0	0	0
Michigan:									
Detroit.....	1,245,824	72	76	39	1	2	133	28	22
Flint.....	130,316	7	11	5	0	0	1	19	7
Grand Rapids.....	153,698	6	5	0	1	1	19	5	5
Wisconsin:									
Kenosha.....	50,891	22	1	2	0	0	0	7	0
Milwaukee.....	509,192	76	26	18	2	2	2	12	14
Racine.....	67,707	2	3	2	0	0	0	0	2
Superior.....	39,671	11	1	0	0	0	0	0	2
WEST NORTH CENTRAL									
Minnesota:									
Duluth.....	110,502	4	2	0	0	0	0	0	1
Minneapolis.....	425,435	64	22	10	0	0	1	5	12
St. Paul.....	246,001	7	18	1	0	3	0	20	12
Iowa:									
Davenport.....	52,469	0	1	0	0	-----	1	0	-----
Des Moines.....	141,441	0	5	1	0	-----	0	0	2
Sioux City.....	76,411	5	3	0	0	-----	2	2	-----
Waterloo.....	36,771	6	0	0	0	-----	0	0	-----
Missouri:									
Kansas City.....	367,481	70	12	5	0	2	0	79	7
St. Joseph.....	78,342	5	3	0	0	0	2	0	4
St. Louis.....	821,543	28	51	35	0	0	14	10	-----
North Dakota:									
Fargo.....	26,403	19	1	0	0	0	0	0	1
Grand Forks.....	14,811	14	1	0	0	-----	1	0	-----
South Dakota:									
Aberdeen.....	15,036	5	0	0	0	-----	0	0	-----
Sioux Falls.....	30,127	0	0	0	0	-----	0	0	-----
Nebraska:									
Lincoln.....	60,941	25	1	1	0	0	1	11	0
Omaha.....	211,768	10	5	5	0	0	0	0	5
Kansas:									
Topeka.....	55,411	11	2	6	1	0	0	0	2
Wichita.....	88,367	9	6	0	0	0	0	0	3

¹ No estimate made.

City reports for week ended December 24, 1927—Continued

Division, State, and city	Population, July 1, 1925, estimated	Chick-en pox, cases re-ported	Diphtheria		Influenza		Meas-les, cases re-ported	Mumps, cases re-ported	Pneu-monia, deaths re-ported
			Cases, esti-mated expec-tancy	Cases re-ported	Cases re-ported	Deaths re-ported			
SOUTH ATLANTIC									
Delaware:									
Wilmington	122,049	0	2	2	0	0	0	3	0
Maryland:									
Baltimore	796,296	78	36	19	7	2	84	2	38
Cumberland	33,741	0	2	0	0	0	0	0	2
Frederick	12,085	0	0	1	0	0	0	0	0
District of Columbia:									
Washington	497,906	24	20	12	1	1	2	0	15
Virginia:									
Lynchburg	30,395	4	2	6	0	0	1	0	0
Norfolk	(¹)	9	3	3	0	0	0	0	6
Richmond	186,403	5	9	10	0	0	16	0	8
Roanoke	58,208	10	3	0	0	1	1	4	0
West Virginia:									
Charleston	49,019	1	2	1	0	2	0	0	2
Wheeling	56,208	12	2	0	0	0	0	0	1
North Carolina:									
Raleigh	30,371	9	1	1	0	0	1	0	1
Wilmington	37,061	5	0	5	0	0	174	0	2
Winston-Salem	69,031	3	2	3	0	0	9	5	3
South Carolina:									
Charleston	73,125	0	2	3	9	1	1	0	3
Columbia	41,225	18	1	3	0	0	67	23	3
Greenville	27,811	0	1	0	0	0	57	2	1
Georgia:									
Atlanta	(¹)	7	5	1	38	4	0	3	13
Brunswick	16,909	0	0	0	0	0	0	1	1
Savannah	93,134	1	2	4	8	0	27	0	4
Florida:									
St. Petersburg	26,847	0	0	0	0	0	0	0	1
Tampa	94,743	2	1	2	0	0	0	0	1
EAST SOUTH CENTRAL									
Kentucky:									
Covington	58,209	0	2	0	0	0	0	0	1
Lexington	46,895	2	0	0	0	0	2	0	1
Louisville	305,935	9	9	0	0	0	0	0	0
Tennessee:									
Memphis	174,533	5	6	14	0	1	123	21	6
Nashville	136,220	5	3	1	0	2	2	5	14
Alabama:									
Birmingham	205,670	9	5	5	16	4	15	3	9
Mobile	65,955	0	1	3	3	1	0	0	3
Montgomery	46,481	0	1	1	1	0	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	31,643	0	2	3	0	0	0	0	0
Little Rock	74,216	0	1	2	1	2	2	0	2
Louisiana:									
New Orleans	414,493	1	11	15	16	11	0	0	18
Shreveport	57,857	3	2	2	0	1	10	0	2
Oklahoma:									
Oklahoma City	(¹)	6	2	4	7	0	0	1	7
Texas:									
Dallas	194,450	12	13	27	1	2	0	0	4
Galveston	48,375	0	1	2	0	0	0	0	2
Houston	164,954	6	5	27	0	0	1	2	8
San Antonio	198,069	2	3	4	0	1	7	1	18
MOUNTAIN									
Montana:									
Billings	17,971	0	0	0	0	0	0	0	0
Great Falls	29,883	0	1	1	0	0	0	0	1
Helena	12,087	1	0	0	0	0	0	0	1
Missoula	12,668	0	1	0	0	0	0	0	0
Idaho:									
Boise	23,042	0	0	0	0	0	0	2	0

¹ No estimate made.

City reports for week ended December 24, 1927—Continued

Division, State, and city	Population, July 1, 1925, estimated	Chicken pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
MOUNTAIN—continued									
Colorado:									
Denver.....	280,911	38	12	6	-----	3	1	17	17
Pueblo.....	43,787	22	3	0	0	0	0	0	2
New Mexico:									
Albuquerque.....	21,000	2	0	0	0	0	12	0	1
Utah:									
Salt Lake City.....	130,948	18	3	6	0	0	1	0	6
Nevada:									
Reno.....	12,665	0	0	0	0	0	0	0	0
PACIFIC									
Washington:									
Seattle.....	(1)	15	7	0	0	-----	81	7	-----
Spokane.....	106,897	9	4	2	0	-----	1	0	-----
Tacoma.....	104,455	2	3	1	0	0	4	2	6
Oregon:									
Portland.....	282,383	34	11	8	0	1	2	2	3
California:									
Los Angeles.....	(1)	26	42	39	7	4	3	13	31
Sacramento.....	72,260	4	2	0	0	0	2	1	2
San Francisco.....	557,530	38	19	18	5	3	7	23	9

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	1	0	0	0	0	0	1	0	0	23
New Hampshire:											
Concord.....	0	0	0	0	0	0	0	0	0	0	12
Nashua.....	0	0	0	0	0	0	0	0	0	0	4
Vermont:											
Barre.....	1	0	0	0	0	0	0	0	0	0	1
Burlington.....	1	0	0	0	0	0	0	0	0	1	4
Massachusetts:											
Boston.....	54	59	0	0	0	9	1	1	0	46	203
Fall River.....	3	6	0	0	0	4	0	1	0	1	19
Springfield.....	7	7	0	0	0	0	0	0	0	12	33
Worcester.....	12	4	0	0	0	3	0	0	0	1	50
Rhode Island:											
Pawtucket.....	1	1	0	0	0	2	0	0	0	0	26
Providence.....	7	31	0	0	0	3	0	1	0	1	74
Connecticut:											
Bridgeport.....	9	2	0	0	0	4	0	0	0	2	38
Hartford.....	8	7	0	0	0	2	0	0	0	10	49
New Haven.....	9	3	0	0	0	1	0	0	0	33	43
MIDDLE ATLANTIC											
New York:											
Buffalo.....	24	44	0	0	0	6	1	0	0	15	134
New York.....	187	167	0	0	0	79	12	9	1	159	1,341
Rochester.....	13	8	0	0	0	2	0	0	0	12	94
Syracuse.....	12	14	0	0	0	2	0	7	0	23	62
New Jersey:											
Camden.....	5	2	0	0	0	1	0	0	0	0	32
Newark.....	19	17	0	0	0	6	1	1	0	37	94
Trenton.....	3	2	0	0	0	4	0	0	0	0	42
Pennsylvania:											
Philadelphia.....	75	67	0	0	0	25	4	2	0	34	491
Pittsburgh.....	35	17	0	0	0	9	1	1	0	21	179
Reading.....	1	13	0	0	0	2	0	0	0	1	22

1 No estimate made.

City reports for week ended December 24, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
EAST NORTH CENTRAL											
Ohio:											
Cincinnati.....	15	9	1	1	0	7	0	1	0	0	151
Cleveland.....	35	17	1	0	0	13	2	2	0	30	198
Columbus.....	14	11	1	0	0	2	0	0	0	0	84
Toledo.....	13	10	1	0	0	10	0	1	0	2	81
Indiana:											
Fort Wayne.....	3	2	0	0	0	0	0	0	0	0	16
Indianapolis.....	10	8	6	3	0	2	0	1	0	0	109
South Bend.....	4	0	1	0	0	0	0	0	0	0	16
Terre Haute.....	3	0	0	4	0	5	0	0	0	1	16
Illinois:											
Chicago.....	115	106	1	4	0	56	5	2	0	77	735
Springfield.....	2	8	0	0	0	0	0	0	0	1	18
Michigan:											
Detroit.....	90	82	2	2	0	17	2	2	0	50	26
Flint.....	8	20	1	0	0	2	0	1	0	12	29
Grand Rapids.....	11	5	1	0	0	0	0	3	0	1	25
Wisconsin:											
Kenosha.....	2	3	0	4	0	0	0	0	0	1	6
Milwaukee.....	23	36	2	0	0	8	0	0	0	11	116
Racine.....	6	6	1	0	0	0	0	0	0	3	9
Superior.....	2	5	1	0	0	0	0	0	0	0	6
WEST NORTH CENTRAL											
Minnesota:											
Duluth.....	9	1	1	0	0	0	1	0	0	1	22
Minneapolis.....	51	33	7	1	0	0	0	1	0	1	73
St. Paul.....	27	6	5	0	0	3	0	0	0	0	59
Iowa:											
Davenport.....	1	4	1	0	0	0	1	0	0	0	0
Des Moines.....	6	11	1	13	0	2	0	0	0	0	33
Sioux City.....	2	1	0	0	0	0	0	0	0	4	0
Waterloo.....	2	1	0	0	0	0	0	0	0	0	0
Missouri:											
Kansas City.....	12	16	1	0	0	9	0	0	0	5	101
St. Joseph.....	2	6	0	23	0	1	0	0	0	0	31
St. Louis.....	38	24	1	0	0	8	2	3	0	12	209
North Dakota:											
Fargo.....	2	0	0	0	0	1	0	0	0	2	12
Grand Forks.....	0	0	0	0	0	0	0	0	0	0	0
South Dakota:											
Aberdeen.....	1	0	0	0	0	0	0	0	0	0	0
Sioux Falls.....	2	3	0	0	0	0	0	0	0	0	4
Nebraska:											
Lincoln.....	2	1	0	0	0	0	0	0	0	3	16
Omaha.....	6	6	4	0	0	1	0	0	0	0	45
Kansas:											
Topeka.....	2	3	0	0	0	0	0	0	0	9	13
Wichita.....	4	5	0	15	0	2	0	0	0	1	38
SOUTH ATLANTIC											
Delaware:											
Wilmington.....	4	2	0	0	0	1	0	0	0	0	31
Maryland:											
Baltimore.....	27	11	0	0	0	10	3	2	1	23	227
Cumberland.....	1	1	0	0	0	0	0	1	0	0	6
Frederick.....	0	0	0	0	0	0	0	0	0	0	4
Dist. of Columbia:											
Washington.....	22	27	0	0	0	8	2	0	0	7	129
Virginia:											
Lynchburg.....	0	3	0	0	0	2	0	0	0	0	9
Norfolk.....	2	1	0	0	0	5	0	1	0	0	0
Richmond.....	6	8	0	0	0	2	1	1	0	0	68
Roanoke.....	1	4	0	0	0	0	0	0	0	0	18
West Virginia:											
Charleston.....	1	4	0	0	0	1	0	1	1	0	34
Wheeling.....	2	6	0	0	0	3	0	0	0	0	18
North Carolina:											
Raleigh.....	0	0	0	0	0	1	0	0	0	0	8
Wilmington.....	0	2	0	1	0	0	0	0	0	0	17
Winston-Salem.....	2	1	0	0	0	2	0	0	0	1	0

City reports for week ended December 24, 1927—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuberculosis, deaths reported	Typhoid fever			Whooping cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
SOUTH ATLANTIC—continued											
South Carolina:											
Charleston.....	0	0	0	0	0	3	0	1	0	0	32
Columbia.....	0	0	1	0	0	1	0	0	0	0	11
Greenville.....	0	0	0	1	0	0	0	0	0	0	7
Georgia:											
Atlanta.....	4	6	1	0	0	6	0	0	1	0	92
Brunswick.....	0	0	0	0	0	0	0	0	0	0	7
Savannah.....	1	1	1	9	0	3	0	2	0	0	32
Florida:											
St. Petersburg.....	0	0	0	0	0	0	0	0	0	0	17
Tampa.....	1	3	0	0	0	2	0	0	0	0	25
EAST SOUTH CENTRAL											
Kentucky:											
Covington.....	2	0	0	0	0	2	0	0	0	0	20
Lexington.....		0		0	0	1		0	0	0	17
Louisville.....	6		0				1				
Tennessee:											
Memphis.....	5	5	0	1	0	2	0	1	0	0	80
Nashville.....	3	0	0	0	0	0	0	0	0	0	48
Alabama:											
Birmingham.....	4	5	1	3	0	5	0	3	0	3	66
Mobile.....	1	3	0	0	0	2	0	0	0	0	20
Montgomery.....	0	1	1	0	0	0	0	0	0	5	
WEST SOUTH CENTRAL											
Arkansas:											
Fort Smith.....	1	0	0	0	0	0	2	0	0	0	
Little Rock.....	2	1	0	0	0	1	0	0	0	0	
Louisiana:											
New Orleans.....	6	1	0	0	0	13	2	1	0	3	168
Shreveport.....	1	4	0	0	0	2	0	0	0	1	31
Oklahoma:											
Oklahoma City.....	3	2	0	9	0	0	0	0	0	0	23
Texas:											
Dallas.....	3	4	1	3	0	2	0	1	0	1	55
Galveston.....	0	4	0	0	0	1	0	0	0	0	16
Houston.....	3	4	1	0	0	8	0	0	2	0	87
San Antonio.....	1	4	0	0	0	9	0	0	0	0	58
MOUNTAIN											
Montana:											
Billings.....	2	0	1	1	0	0	0	0	0	1	3
Great Falls.....	1	1	0	0	0	0	0	0	0	3	10
Helena.....	1	1	0	0	0	0	0	0	0	0	6
Missoula.....	0	1	0	0	0	0	0	0	0	0	11
Idaho:											
Boise.....	0	1	1	0	0	0	0	0	0	0	3
Colorado:											
Denver.....	12	11	1	0	0	14	0	1	0	1	97
Pueblo.....	2	3	0	8	0	2	0	0	0	0	10
New Mexico:											
Albuquerque.....	0	0	0	0	0	1	0	0	0	0	11
Utah:											
Salt Lake City.....	2	1	1	1	0	4	0	0	0	1	34
Nevada:											
Reno.....	1	0	0	1	0	0	0	0	0	0	0
PACIFIC											
Washington:											
Seattle.....	8	6	2	0	0	0	0	0	0	5	
Spokane.....	6	6	4	6	0	0	0	0	0	0	
Tacoma.....	3	2	5	0	0	2	0	0	0	0	27
Oregon:											
Portland.....	8	8	5	8	0	3	0	1	0	1	59
California:											
Los Angeles.....	24	32	4	0	0	22	2	2	0	12	
Sacramento.....	2	8	1	1	0	1	0	2	1	0	18
San Francisco.....	12	19	1	3	0	12	1	0	0	4	178

City reports for week ended December 24, 1927—Continued

Division, State, and city	Meningo-coccus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	0	0	1	0	0	0	0	4	0
Fall River.....	0	0	0	0	0	0	0	1	0
MIDDLE ATLANTIC									
New York:									
New York.....	3	4	3	2	0	0	1	3	0
Syracuse.....	1	0	0	0	0	0	0	0	0
New Jersey:									
Newark.....	3	0	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	1	1	0	0	0	0	0	0	0
Pittsburgh.....	1	1	0	0	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	1	0	0	0	0	0	0	0	0
Columbus.....	0	0	1	1	0	0	0	0	0
Indiana:									
Indianapolis.....	0	2	0	0	0	0	0	0	0
Terre Haute.....	0	0	0	0	0	0	0	1	0
Illinois:									
Chicago.....	6	1	1	0	1	1	0	1	1
Michigan:									
Detroit.....	1	0	1	0	0	0	0	1	0
Wisconsin:									
Milwaukee.....	1	1	1	1	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	0	0	1	0	0	0	0	1	0
Iowa:									
Des Moines.....	0	0	0	0	0	0	0	1	0
Missouri:									
St. Louis.....	2	0	0	0	0	0	0	0	0
North Dakota:									
Fargo.....	1	0	0	0	0	0	0	0	0
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	0	0	1	0	0	0	0	0	0
Virginia:									
Norfolk.....	0	0	0	0	0	0	0	1	0
South Carolina:									
Columbia.....	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta.....	1	0	0	0	0	0	0	0	0
Savannah.....	0	0	0	0	0	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	0	0	0	0	0	1	0	0	0
Alabama:									
Birmingham.....	0	0	0	0	1	0	0	0	0
Mobile.....	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Louisiana:									
New Orleans.....	0	0	1	0	0	0	0	0	0
Texas:									
Dallas.....	0	0	0	0	1	0	0	1	0
Galveston.....	1	1	0	0	0	0	0	0	0
Houston.....	0	0	0	0	0	2	0	2	0

¹ Typhus fever: 3 cases at Savannah, Ga.

City reports for week ended December 24, 1927—Continued

Division, State, and city	Meningo- coccus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infan- tile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, esti- mated expect- ancy	Cases	Deaths
MOUNTAIN									
Montana: Great Falls.....	1	0	0	0	0	0	0	0	0
PACIFIC									
Washington: Tacoma.....	0	0	0	0	0	0	0	4	2
Oregon: Portland.....	1	0	0	0	0	0	0	3	0
California: Los Angeles.....	0	0	0	0	0	0	0	1	0
San Francisco.....	0	0	0	2	0	0	0	1	0

The following table gives the rates per 100,000 population for 101 cities for the five-week period ended December 24, 1927, compared with those for a like period ended December 25, 1926. The population figures used in computing the rates are approximate estimates as of July 1, 1926 and 1927, respectively, authoritative figures for many of the cities not being available. The 101 cities reporting cases had estimated aggregate populations of approximately 30,445,000 in 1926 and 30,966,000 in 1927. The 95 cities reporting deaths had nearly 29,785,000 estimated population in 1926 and nearly 30,296,000 in 1927. The number of cities included in each group and the estimated aggregate populations are shown in a separate table below.

Summary of weekly reports from cities, November 20 to December 24, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926¹

DIPHTHERIA CASE RATES

	Week ended—									
	Nov. 27, 1926	Nov. 26, 1927	Dec. 4, 1926	Dec. 3, 1927	Dec. 11, 1926	Dec. 10, 1927	Dec. 18, 1926	Dec. 17, 1927	Dec. 25, 1926	Dec. 24, 1927
101 cities.....	212	204	224	233	201	204	188	² 206	³ 163	⁴ 203
New England.....	132	169	172	267	163	216	160	200	160	193
Middle Atlantic.....	155	213	177	252	161	228	167	226	140	233
East North Central.....	268	220	266	220	223	228	213	248	⁴ 182	212
West North Central.....	192	179	210	179	194	129	129	129	113	123
South Atlantic.....	281	196	240	225	237	190	216	140	⁵ 214	143
East South Central.....	217	122	300	168	284	71	145	² 162	150	⁴ 177
West South Central.....	301	306	318	273	266	218	258	218	168	344
Mountain.....	201	171	228	144	246	144	164	162	137	117
Pacific.....	303	162	268	259	238	168	282	168	225	157

¹ The figures given in this table are rates per 100,000 population annual basis and not the number of cases reported. Populations used are estimated as of July 1, 1926 and 1927, respectively.

² Louisville, Ky., not included.

³ Terre Haute, Ind., and Norfolk, Va., not included.

⁴ Terre Haute, Ind., not included.

⁵ Norfolk, Va., not included.

Summary of weekly reports from cities, November 20 to December 24, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

MEASLES CASE RATES

	Week ended—									
	Nov. 27, 1926	Nov. 26, 1927	Dec. 4, 1926	Dec. 3, 1927	Dec. 11, 1926	Dec. 10, 1927	Dec. 18, 1926	Dec. 17, 1927	Dec. 25, 1926	Dec. 24, 1927
101 cities.....	134	137	177	189	197	225	193	249	209	288
New England.....	57	499	101	539	165	539	229	604	167	536
Middle Atlantic.....	30	129	37	180	23	199	24	206	23	251
East North Central.....	135	60	151	122	212	140	256	117	249	157
West North Central.....	109	24	113	24	129	50	109	46	77	38
South Atlantic.....	22	201	48	308	54	527	89	607	403	797
East South Central.....	16	163	26	224	78	367	21	737	31	1,032
West South Central.....	103	88	142	122	146	134	82	252	108	84
Mountain.....	2,543	27	2,944	27	3,217	36	2,351	27	2,789	18
Pacific.....	338	175	699	228	613	178	603	238	878	357

SCARLET FEVER CASE RATES

101 cities.....	213	159	262	184	238	184	279	212	253	187
New England.....	265	181	325	276	340	320	367	325	268	261
Middle Atlantic.....	138	122	157	155	178	156	214	199	212	173
East North Central.....	196	196	237	192	265	216	241	243	255	212
West North Central.....	411	204	436	250	432	206	413	204	371	208
South Atlantic.....	156	172	181	174	173	134	199	163	171	145
East South Central.....	238	87	243	143	150	82	248	147	243	103
West South Central.....	198	168	210	143	142	117	336	172	135	82
Mountain.....	784	180	930	360	802	306	1,112	243	975	171
Pacific.....	249	131	265	129	230	153	383	154	363	191

SMALLPOX CASE RATES

101 cities.....	5	22	14	17	11	13	16	19	14	16
New England.....	0	0	0	0	0	0	0	0	0	0
Middle Atlantic.....	0	0	0	0	1	0	1	0	0	0
East North Central.....	7	1	21	10	7	4	11	17	16	12
West North Central.....	30	202	48	115	38	75	46	115	28	77
South Atlantic.....	4	2	19	5	19	7	26	5	30	20
East South Central.....	5	0	0	10	21	5	78	7	36	29
West South Central.....	4	4	9	8	9	8	43	0	26	13
Mountain.....	0	54	18	45	18	99	0	117	18	99
Pacific.....	5	45	35	39	43	39	40	31	43	26

TYPHOID FEVER CASE RATES

101 cities.....	12	10	10	9	13	11	12	8	10	11
New England.....	7	14	7	7	2	12	31	0	40	9
Middle Atlantic.....	13	10	9	10	13	8	8	8	5	10
East North Central.....	3	6	6	5	3	9	5	3	4	8
West North Central.....	8	14	10	12	4	14	10	6	10	8
South Atlantic.....	19	9	17	16	24	9	19	9	16	16
East South Central.....	31	15	41	15	41	31	21	20	16	29
West South Central.....	17	12	9	21	13	21	21	17	17	17
Mountain.....	18	27	9	9	9	9	9	18	10	9
Pacific.....	21	5	16	5	15	13	24	16	21	29

† Louisville, Ky., not included.
 ‡ Terre Haute, Ind., and Norfolk, Va., not included.
 § Terre Haute, Ind., not included.
 ¶ Norfolk, Va., not included.

Summary of weekly reports from cities, November 20 to December 24, 1927—Annual rates per 100,000 population, compared with rates for the corresponding period of 1926—Continued

INFLUENZA DEATH RATES

	Week ended—									
	Nov. 27, 1926	Nov. 26, 1927	Dec. 4, 1926	Dec. 3, 1927	Dec. 11, 1926	Dec. 10, 1927	Dec. 18, 1926	Dec. 17, 1927	Dec. 25, 1926	Dec. 24, 1927
95 cities.....	10	11	14	12	17	12	14	14	15	17
New England.....	9	2	7	5	9	9	7	12	7	5
Middle Atlantic.....	7	10	13	11	12	7	13	9	14	11
East North Central.....	9	3	9	9	14	9	12	11	10	13
West North Central.....	2	6	4	4	15	6	15	6	11	10
South Atlantic.....	15	12	21	13	34	17	26	15	24	20
East South Central.....	41	46	41	46	41	56	5	88	36	59
West South Central.....	31	34	40	43	40	47	40	56	18	73
Mountain.....	36	18	46	27	36	9	9	9	27	27
Pacific.....	0	14	11	14	11	3	7	17	4	24

PNEUMONIA DEATH RATES

95 cities.....	126	97	123	114	129	110	137	118	137	135
New England.....	132	60	118	100	134	51	149	102	151	121
Middle Atlantic.....	138	98	151	123	140	119	147	117	166	127
East North Central.....	98	89	89	103	103	97	117	97	109	105
West North Central.....	74	87	74	71	118	109	130	91	91	98
South Atlantic.....	106	147	106	149	155	136	127	164	153	186
East South Central.....	203	127	134	199	171	148	129	162	109	243
West South Central.....	207	112	163	108	150	109	172	194	94	233
Mountain.....	146	99	210	54	109	216	273	135	164	243
Pacific.....	124	76	133	208	113	110	124	131	148	165

* Louisville, Ky., not included.

† Terre Haute, Ind., and Norfolk, Va., not included.

‡ Terre Haute, Ind., not included.

§ Norfolk, Va., not included.

¶ Los Angeles, Calif., not included.

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

Group of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1926	1927	1926	1927
Total.....	101	95	30,443,800	30,946,700	29,783,700	30,295,000
New England.....	12	12	2,211,000	2,245,000	2,211,000	2,245,000
Middle Atlantic.....	10	10	10,457,000	10,567,000	10,457,000	10,567,000
East North Central.....	16	16	7,650,200	7,810,600	7,650,200	7,810,600
West North Central.....	12	10	2,585,500	2,626,600	2,470,600	2,510,000
South Atlantic.....	21	20	2,799,500	2,878,100	2,757,700	2,835,700
East South Central.....	7	7	1,008,300	1,024,500	1,008,300	1,023,500
West South Central.....	8	7	1,212,800	1,243,200	1,181,500	1,210,400
Mountain.....	9	9	572,400	580,000	572,400	580,000
Pacific.....	6	4	1,946,400	1,991,700	1,475,300	1,512,800

FOREIGN AND INSULAR

THE FAR EAST

Report for the week ended December 17, 1927.—The following report for the week ended December 17, 1927, was transmitted by the eastern bureau of the health section of the secretariat of the League of Nations, located at Singapore, to the headquarters at Geneva:

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

PLAGUE	SMALLPOX
<p><i>Egypt.</i>—Alexandria. <i>India.</i>—Bassein, Rangoon.</p> <p style="text-align: center;">CHOLERA</p> <p><i>India.</i>—Tuticorin, Calcutta, Rangoon. <i>French India.</i>—Pondicherry. <i>Straits Settlements.</i>—Singapore. <i>Siam.</i>—Bangkok.</p>	<p><i>Aden Protectorate.</i>—Aden. <i>India.</i>—Bombay, Calcutta, Madras, Rangoon. <i>Dutch East Indies.</i>—Belawan-Deli. <i>Sarawak.</i>—Kuching. <i>French Indo-China.</i>—Saigon. <i>Manchuria.</i>—Mukden.</p>

Returns for the week ended December 17 were not received from Basra, Iraq; Bandjermasin, Dutch East Indies; Canton, China; or Vladivostok, Union of Socialist Soviet Republics.

ANGOLA

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

Disease	Coast districts	Interior	Land frontier	Total
Ancylostomiasis.....	4	3		7
Beriberi.....	1			1
Bilharzia.....	2	3		5
Cerebrospinal meningitis.....	2			2
Chicken pox.....	12	1		13
Dysentery.....	27	28	5	60
Hemoglobin fever.....	7	3	1	11
Influenza.....	52	70	74	196
Leprosy.....	1			1
Lethargic encephalitis.....	1			1
Malaria.....	245	74	117	436
Measles.....	3			3
Mumps.....	2		6	8
Pneumonia.....	17	29	11	57
Puerperal fever.....	1			2
Relapsing fever.....	1	1		2
Scabies.....	5		1	6
Smallpox ¹	4			5
Tetanus.....	1	1	1	3
Trypanosomiasis ²	94	25	23	142
Tuberculosis.....	19	5	2	26
Typhoid fever.....	4			5
Venereal diseases.....	106	38	42	186
Whooping cough.....	5			5
Yaws.....	70	88	21	179

¹ 2,708 vaccinations performed.

² Of unknown nature; 6,260 atoxylizations made.

Yellow fever—Kongo River ports—January 3, 1928.—Information dated January 3, 1928, shows seven cases of yellow fever reported at the ports of Boma and Matadi, Kongo River.

CANADA

Communicable diseases—Week ended December 17, 1927.—The Canadian Ministry of Health reports cases of certain communicable diseases from six Provinces of Canada for the week ended December 17, 1927, as follows:

Disease	Nova Scotia	New Brunswick	Quebec	Manitoba	Saskatchewan	Alberta	Total
Cerebrospinal fever.....	1				1		2
Influenza.....	3			1			4
Smallpox.....				2	15	6	23
Typhoid fever.....		4	18		1	2	25

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

Estimated population.....	2,604,000	Deaths from—Continued.	
Births.....	6,061	Diphtheria.....	44
Birth rate per 1,000 population.....	27.99	Heart disease.....	276
Deaths.....	2,709	Influenza.....	30
Death rate per 1,000 population.....	12.48	Measles.....	11
Deaths under 1 year.....	862	Pneumonia.....	148
Infant mortality rate.....	142.22	Poliomyelitis.....	2
Deaths from—		Scarlet fever.....	14
Accidents (all).....	85	Syphilis.....	2
Cancer.....	155	Tuberculosis (pulmonary).....	144
Cerebrospinal meningitis.....	7	Tuberculosis (other forms).....	39
Diabetes.....	21	Typhoid fever.....	21
Diarrhea.....	234	Whooping cough.....	30

CANARY ISLANDS

Plague—Las Palmas—November 23, 1927.—Under date of November 23, 1927, the occurrence of a new case of plague was reported at Las Palmas, Canary Islands.

DAHOMEY

Yellow fever—Grand Popo—November 21, 1927.—One fatal case of yellow fever (European) was reported as having occurred on November 21, 1927, at Grand Popo, Dahomey.

IRAQ

Cholera—November 6–19, 1927—Summary to November 19, 1927.—During the two weeks ended November 19, 1927, cholera was reported in Iraq as follows:

Place	Week ended—				Summary to Nov. 19, 1927	
	Nov. 12, 1927		Nov. 19, 1927		Cases	Deaths
	Cases	Deaths	Cases	Deaths		
Amarah.....	3	3	2	2	183	145
Baghdad.....	13	2	8	2	32	10
Basra.....	1	1	2	1	417	337
Diwaniyah.....	1	1	2	1	91	50
Hillah.....	5	1	53	29	87	50
Kerbala.....	2	2	2	2	43	31
Kut.....	5	3	3	3	34	22
Muntafiq.....	4	2	14	10	207	131
Ramadi.....	27	14	21	16	85	63
Total.....	60	27	102	62	1,179	839

SALVADOR

Mortality, general—Mortality from communicable diseases—July–September, 1927.—During the three months ended September 30, 1927, 7,604 deaths from all causes were reported in the Republic of Salvador. Population as of June 30, 1927, 1,600,000. Deaths from certain communicable diseases were reported as follows: Diphtheria, 4; gastroenteritis, 210; measles, 54; tuberculosis, 174; typhoid fever, 11. The general mortality for the three months separately, was, July, 2,737 deaths; August, 2,533; September, 2,334.

SENEGAL

Plague—Two weeks ended December 11, 1927.—A few isolated cases of plague were reported for the week ended December 11, 1927, in the Baol region.

Yellow fever.—There were 5 fatal cases of yellow fever reported at Dakar, Senegal, during the two weeks ended December 11, 1927.

VIRGIN ISLANDS

Communicable diseases—November, 1927.—During the month of November, 1927, communicable diseases were reported in the Virgin Islands of the United States as follows:

Island and disease	Cases	Remarks
St. Thomas and St. John:		
Dengue.....	7	
Gonorrhoea.....	4	
Pellagra.....	2	
St. Croix:		
Gonorrhoea.....	1	
Syphilis.....	14	Secondary.
Uncinariasis.....	5	Necator americanus.

YUGOSLAVIA

Communicable diseases—November, 1927.—During the month of November, 1927, communicable diseases were reported in Yugoslavia as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Anthrax.....	51	7	Measles.....	2,728	18
Cerebrospinal meningitis.....	3	1	Poliomyelitis.....	2	
Diphtheria.....	331	60	Scarlet fever.....	1,834	238
Dysentery.....	104	7	Tetanus.....	20	1
Leprosy.....	1		Typhoid fever.....	647	79
Lethargic encephalitis.....	3		Typhus fever.....	1	

Iraq: Place	September, 1927			October, 1927			November, 1927				
	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-30		
Amarah.....	0	0	0	4	5	21	4	8	3	2	1
Baghdad.....	0	0	0	23	6	0	6	8	3	2	1
Basra.....	0	0	0	1	3	11	10	10	13	2	0
Diwanlyah.....	0	0	0	1	1	1	1	6	2	2	0
Hillah.....	0	0	0	21	21	1	4	3	1	2	0
Karbala.....	0	0	0	17	7	3	2	3	5	13	0
Kut.....	0	0	0	12	6	4	2	2	2	29	0
Muntafaqe.....	0	0	0	3	1	2	1	2	2	2	0
Ramadi.....	0	0	0	3	1	5	1	5	2	2	0
Java: Batavia.....	0	0	0	11	9	1	4	1	3	14	0
Siam.....	0	0	0	4	4	1	19	18	27	10	0
Bangkok.....	0	0	0	1	1	1	10	23	14	16	0
Straits Settlements: Singapore.....	0	0	0	0	0	0	1	1	1	2	0
On vessel S. S. Tabaristan; at Basra.....	0	0	0	0	0	0	1	1	1	2	0

Place	September, 1927			October, 1927			November, 1927		
	1-10	11-20	21-30	1-10	11-20	21-31	1-10	11-20	21-30
Indo-China (French).....	0	0	0	0	0	0	0	0	0
Annam.....	452	200	241	345	140	27	17	35	62
Cambodia.....	388	146	106	97	56	5	16	29	6
Cochin-China.....	0	0	0	0	0	0	0	0	0
Laos.....	0	0	0	0	0	0	0	0	0
Tonkin.....	0	0	0	0	0	0	0	0	0

1 From July 24 to Oct. 8, 1927, 831 cases and 617 deaths from cholera were reported in Iraq, of these 131 cases and 103 deaths occurred in Amarah; 416 cases and 337 deaths in Basra; 43 cases and 30 deaths in Diwanlyah; 7 cases and 5 deaths in Hillah; 31 cases and 18 deaths in Kerbala; 8 cases and 6 deaths in Kut; and 185 cases and 118 deaths in Muntafaqe.

Rangoon.....	C	2	4	3	4	1	8	5	2	4			
Indo-China:	D	2	4	3	4	1	3	5	2	4			
Saigon.....	C		1										
Java:													
Batavia.....	C	18	17	24	33	42	31	41	29	31			
East Java and Madura.....	D	18	14	24	33	41	31	41	29	31			
Senegal.....	D	5	4	3	3	7	4	3	4				
Baol.....	D	32	27	39	56	75	56						
Cayor.....	D	11	15	26	14	17	14						
Dakar.....	D	81	103	175	104	101	10	32	8	8			
Louga.....	D	27	58	90	58	16	10	5	20	4			
Rufisque.....	D	4	4	3	1	1	5	20	4				
Thies.....	D	4	9	4	8	3							
Slam.....	D	2	2	1	1	4							
Bangkok.....	D	1	1	1	1	1	1	1	1				
Turkey:	D												
Constantinople.....	C			1									
Cape Province—	D												
Richmond District.....	C						2	2					

Place	July	August	Septem-ber	October	Novem-ber	Place	July	August	Septem-ber	October	Novem-ber
Ecuador:						Madagascar—Continued.					
Guayaquil.....	C	5	7	3	4	Moramanga.....	5	4	3		
Amboitra.....	D					Tananarive.....	6	4	4	3	
Antsirabe.....	C	6	1			Peru.....	21	48	142		
Itasy.....	D	34	5			Callao.....	19	43	127		
	D	34	4				8	11	6		
	D	14	11				7				
	D	14	7				3				

Algiers, Algeria, 2 cases, Oct. 11-20. Indo-China (French), 8 cases, Sept. 1-10; 5 cases, Sept. 11-20. Beirut, Syria, 1 case, Sept. 1-10; 1 case, Oct. 21-31.

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

SMALLPOX

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

Place	Week ended—																
	September, 1927				October, 1927				November, 1927				December, 1927				
	8	10	17	24	1	8	15	22	29	5	12	19	26	3	10	17	24
Algeria.....																	
Oran.....																	
Arabia.....										10	4	6	9				
Aden.....											1			1			
Brazil.....			3														
Rio de Janeiro.....			6					1									
British East Africa:																	
Tanganyika.....			8			7											
British South Africa:										10	22	3					
Northern Rhodesia.....	18					44				22	1						
Southern Rhodesia.....						1				22	3						
Canada:																	
Alberta.....	3	1	5	8	5	4	5	9	6	2	1	1	7	3	3	6	
Edmonton.....									1				6	1	1		
British Columbia—																	
Vancouver.....	2																
Manitoba.....	2		7			2		5	3	14			2	1	3	1	2
Winnipeg.....			4			1		1					2	1	1	1	1
New Brunswick.....			2														
Nova Scotia.....			1														
Halifax.....							1										
Ontario.....			12	10	6	26	26	38	64	38	77	85	71	90	82		
Hamilton.....																	
Kingston.....																	
Ottawa.....																	
Toronto.....	9	13	12	6	3	16	23	26	47	17	51	19	10	19	34	18	
Windsor.....		1		1		3	6	2	16	3	13	25	14				
Quebec.....							9	8	7	3	12	3	8	5	3		
Montreal.....																	
Quebec.....																	
Reville du Loup.....												3				2	

	13	33	22	12	8	11	5	12	2	14	9	19	15	15
Saskatchewan.....	C	9	7			3			1					1
Mecca Jaw.....	C			5										1
Regina.....	C													1
Saskatoon.....	C												2	
China:														
Canton.....			1											
Chefoo.....	D		1											
Fochow.....	D		1		P		P				P			
Hong Kong.....	D		1		P									
Manchuria—	D		1											
Changonun.....								2			1			
Dairen.....	C				1									
Fushun.....	D		1						1					
Mukden.....	D			1										
Fenshu.....	C			1										
Tientsin.....	C			12			8							
Egypt.....	C	3												
.....	D	1		1										
Great Britain:														
England and Wales.....	C	111	125	122	149	124	199	219	268	226	283	366		2
Bradford.....	C						1	6	3	2	8	6		
Bristol.....	C						6	1	3	3	2	4		
Cardiff.....	C						6	1						
Leeds.....	C			3	1	2	6	1	1	2	3	3		
Manchester.....	C			1		3	2	6	1	4	2	5		8
Newcastle-upon-Tyne.....	C						4	4	4	1	28	18		4
Sheffield.....	C						3	5	4	2	1	8		
India.....	C	1,456	1,111	923	593	777	860	779	805					
Bombay.....	D	1,266	722	170	159	171	190	200	200					
Calcutta.....	D	3	1	4	2		2	2	2					
Madras.....	D	7	3	2					1					
Rangoon.....	D	4	6	10	4	1	1			5				
.....	D	2	5	3	1	2	3		2	2				
.....	D	2	3	3	1	2	1		2	2				
.....	D	2	1	4	2		2		1					
.....	D	1	6	2	8		4		1	1				
.....	D	1	1	1	1		1							
Indo-China:	C													
Saigon.....	C	1												
Iraq:														
Baghdad.....	C	1		5			2		6					
Basra.....	D	1		3			1		4					
.....	D		4			2								
.....	D		4			2								
Italy:														
Rome and vicinity.....	C	1												
Jamaica (outside Kingston).....	C	2		1	4	4					1			
Kingston (alastrium).....	C	2	1	2			7							

Place	September, 1927			October, 1927			September, 1927			October, 1927		
	1-10	11-20	21-30	1-10	11-20	11-20	1-10	11-20	21-30	1-10	11-20	11-30
Syria: Aleppo.....		C		2								
Tunisia.....		C		1								
Union of South Africa: Cape Province.....		C	P									
Natal.....		C										
Orange Free State.....		C										
Transvaal—Johannesburg.....		O										
Place	1-10	11-20	21-30	1-10	11-20	11-20	1-10	11-20	21-30	1-10	11-20	11-30
Algeria.....	6	3	2	7	4							
Algiers.....	1	5		1	1					5	1	1
											3	2
												4
Place	July	August	September	October	November	July	August	September	October	November		
Chosen.....	73	17										
Chemulpo.....	8											
Gensan.....	1	2										
Seoul.....	2	3		2								
Czechoslovakia.....	6	1		1								
Japan.....	1											
Place	July	August	September	October	November	Place	July	August	September	October	November	
Latvia.....						Latvia.....						
Mexico.....						Mexico.....	6					
Peru: Arequipa.....						Peru: Arequipa.....						
Lima.....						Lima.....						
Yugoslavia.....						Yugoslavia.....	11	9		1		
							4	1				

Syria:

Aleppo.....

Tunisia.....

Union of South Africa:

Cape Province.....

Natal.....

Orange Free State.....

Transvaal—

Johannesburg.....

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

YELLOW FEVER

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

Place	Week ended—										Place	Week ended—																																											
	September, 1927					October, 1927						November, 1927					September, 1927					October, 1927					November, 1927																												
	3	10	17	24	1	15	22	29	5	12		19	3	10	17	24	1	15	22	29	5	12	19	3	10	17	24	1	15	22	29	5	12	19	3	10	17	24	1	15	22	29	5	12	19										
Liberia: Monrovia.....	C										C											C																																	
Nigeria.....	D										D												D																																
Senegal.....	D										D												D																																
Dakar.....	D										D												D																																
Geoul.....	D										D												D																																
Goree, Island of.....	D										D												D																																
Kebemer.....	D										D												D																																
Kelle.....	D										D												D																																
Keur Samba Kane.....	D										D												D																																
Keur Madiop.....	D										D												D																																
Khombole.....	D										D												D																																
Louga.....	D										D												D																																
Senegal—Continued																																																							
Mekhe.....																																																							
M'Dande.....																																																							
Pout.....																																																							
Rufisque.....																																																							
St. Louis.....																																																							
Sebikotane.....																																																							
Thies.....																																																							
Tiaroye.....																																																							
Tivaouane.....																																																							
On vessel, S. S. Desl- rado, at Leloes, Por- tugal.....																																																							

Place	July	August	September	October
Gold Coast.....	C D	15 4	2 2	6 4